

Michael O'Connor

Embodied Lines

Creating withness through perceived, bodily, and imagined lines



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Embodied Lines

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de Vrije Universiteit Amsterdam,
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door

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geboren te Toledo, Ohio, Verenigde Staten

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To those who momentarily crossed my path, those with diverging trajectories that led elsewhere,
and those yet to intertwine their journeys with mine.

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Preface

For years I noticed lines appearing in a variety of fields. You might even say almost every field. Lines are evident in visual art or drawing, architecture sketches, cartography, or mathematics. It is typical to see music or video software displaying sound or time as a line. With a curiosity towards lines, I started to notice lines appearing in the background of other fields where lines were present but not the main topic of investigation.

At the 2015 International Convention of Psychological Sciences that I attended, George Lakoff finished his keynote speech about his decades of cognitive linguistic research by citing a study on sound-symbolic words, whose meaning relates to the shape, movement, and felt sense of our mouths when producing them. Simultaneously I was doing practice-based research that translated the human voice into movements of the body. Lakoff offered a theoretical approach linking sound and meaning, and I was establishing a relationship between sound and full-body movements that were using the same mouth logic to make the translation possible. As a dancer, I could recognize a shape in the singer's voice either by simulating it in my own mouth or translating it to a mental image and then back into my body. This showed me the capabilities of practice-based inquiry to propose questions and find answers through movement in a more responsive manner that was more immediate than purely reflective. Lakoff and I came to the same knowledge by means of different approaches. In this practice, lines as drawings and traces appeared as ways to make evident this new method while also appearing as a topic of investigation.

My observations of lines grew. Some fields utilized them more than others, but their presence was almost everywhere. As lines are ubiquitous, I assumed there must be some 'line theory' but did not know if it would belong to mathematics or come from visual arts. Eventually, I came across anthropologist Tim Ingold and his two books on lines; *Lines: A Brief History* (2007) and *The Life of Lines* (2015). Ingold immediately explains that lines are everywhere, but specific research into them had not been done before (2007, 1). He states in his first book that he does not know what to call those that research lines but invites scholars to join him. In his second book, he defines the field as Linealogy. As a linealogist now myself, it is clear that what can be defined as a line is greater than what one makes with a pencil while drawing.

Having created dance practices in my previous research from 2013–2015, where I translated sound into bodily actions or into line drawings, I felt it was my obligation to listen to Ingold's call and contribute to Linealogy as a dancer, using the body as the site of the contribution and foundation for the research question. Through my work, I started to see other ways to categorize lines. Ingold gives credit to the body, but I felt there was still more to explore when using movement as a starting point. I eventually came across an essay from dancer and phenomenologist Maxine Sheets-Johnstone that outlines the body as a line maker (2016b), offering a point of departure for dance and line research.

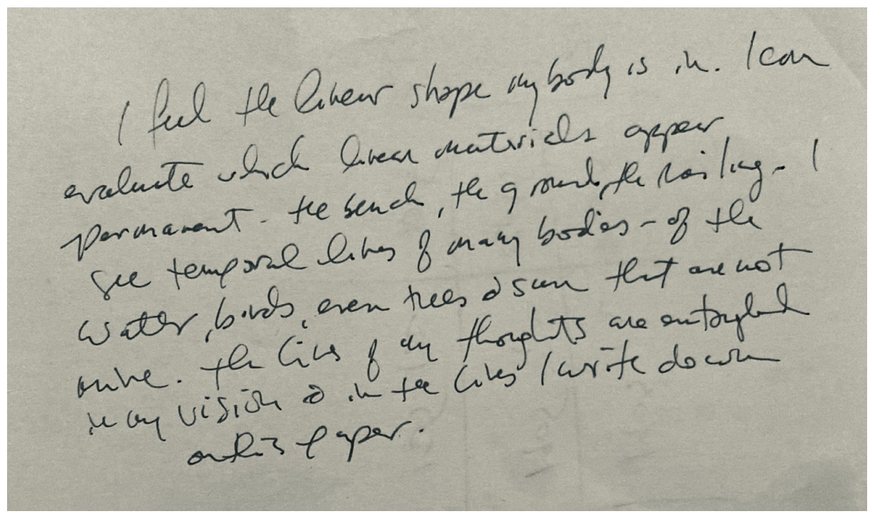
As an anthropologist and cellist (among other things), Ingold is not a dancer nor a choreographer, nor does he use the body in the technical way I know how to through dance improvisation. Likewise, Sheets-Johnstone comes from a dance background, but besides one important essay, she does not appear to focus on specializing in Linealogy. It was clear that this project could use these scholars' arguments as a platform to begin my research, and that there was a vast amount of space in front of me to open up. I saw potential to add to my artistic practice and to what my practice could do for other fields where lines appeared. Would lines (in a non-rectilinear way) be the connecting topic between fields, or would it be dance or movement, or would it be that lines, movement, and the body become entangled and inseparable? Lastly, the writing of psychologist John Shotter and his term 'withness', (inspired from Wittgenstein and Bakhtin's writings on situated and dialogical meaning), and his ideas of 'shared phenomenon' and 'un-nameable shared experiences' resonated with me as something that my line research and practices could produce.

During this research, there has not been one time when my answer to someone's question as to what I was researching was understood: lines. The simple word confuses everyone. Ingold notes the same experience. People think they misheard and after saying it three times, the blank look on their face creates an awkward situation. Had I answered that my research was about 'sustainability,' 'French prepositions', or 'theoretical physics', I imagine the conversation would not have come to a halt. I found that answering 'lines, dance, and withness' gave people more clarity, but then the conversation moved to define what *withness* meant. In the end, there is no short way to explain the entanglement of this work. This is research on dance and movement. It is also research on cognition and extended mind theories. It is research on the practice of withness. Ultimately, it *is* research on the topic of—lines.

BY THE CANAL (2018)

I sit on the park bench facing the canal. The sun arcs to my right but is covered by clouds. I estimate its location. Trees and bushes grow vertically in front of me blocking the view of the water. Between branches I see the light reflect off the surface, enough to know the direction the water is moving—it flows from my right to my left. A pedestrian path is between me on the bench and the canal. An iron rail runs between the trees and the path. People go by on bikes in four seconds passing me to the right, a few seconds longer passing to the left because of a slight incline. Walkers in both directions pass me in twenty seconds. Feet and wheels leave lines in the grey dirt. The wooden bench below me is typical; long slats with gaps between. I pause, noticing, my eyes scan for something new. Nine to eleven sparrows fly by from one periphery to another, on the y axis height where peoples' heads would have been. The linear dynamics that their flight paths make as a group are different than the pulsing of the water, the bouncing of the people, the gliding of the bikes, the secure immobility of the iron rail. The sparrows are three-dimensional compared to the flatness of the grey path and are perpendicular to the branches of the trees. An arm's length away, on the ground to my left is a cement curb. It is angled obtusely, narrowing as it extends to the space behind me, to the back of the bench; a blind spot. This angle implies a space that is surprise-less. The angle suggests space is in front and nothing is behind me. In this cradled cement inlet for the bench, I feel held and calm. The indiscreet angle of this curb causes the impression of safety I feel.

I feel the linear shape my body is in. I can evaluate which linear materials appear permanent: the bench, the ground, the railing. I see temporal lines of many bodies—of the water, birds, even trees and sun—that are not mine. The lines of my thoughts are entangled in my vision and in the lines I write down on this paper.



Instructions: On the following page, draw, trace with your finger, or imagine the path a falling leaf makes.

fig. 00. Imagined, traced, or drawn line from reader's understanding of a falling leaf's path.

Acknowledgements

I owe a debt of gratitude to all the individuals and organizations who have provided me with the support and resources throughout this journey. Your encouragement and generosity have been invaluable.

First and foremost, I would like to extend my deepest appreciation to my supervisors Prof. Alan Cienki and Dr. Ilse van Rijn. I thankfully have no understanding of what it might mean to have inattentive mentors as I cannot think of two better supervisors. I am extremely grateful for Dr. Cienki's metaphorical door always being open. His ability to see potential in my work fueled and constantly rekindled my curiosity. His trust and confidence in me laid a foundation I will continue to walk on. I cannot begin to express my thanks for Dr. van Rijn's complementary and nurturing approach that not only guided but pushed the work in new directions. I do not know where I would be without her willingness to commit to this project without hesitation.

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I would like to extend my sincere thanks to the Faculty of Humanities at the Vrije Universiteit in Amsterdam, specifically Dr. Liesbeth Geudeke, Dr. Nelleke Moser and Rita van der Schriek-Hermans for their trust and curiosity in a practice-based Ph.D, and to Prof. Diederik Oostdijk for his initial role as co-supervisor.

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I am immensely thankful for the assistance of Jubal Battisti and his team for filming the very open-ended invitation I gave. His understanding of the work and professionalism created a unique perspective, allowing the work to reach further in the form of film. I would also like to greatly thank line enthusiast Niels Weijer and his photography skills that captured other aspects of my work. I hope our journey with lines continues to create different entangled working relationships.

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Completing the dissertation requires more than academic support. I would also like to thank Erwin, Andreas, Serge, Alaa, Samuele and Rodrigo who opened both their home and heart to me when in Amsterdam—a safe space to stay and sleep made my time in Amsterdam easy and enjoyable. I would also like to thank my sister, Laura, for the simple encouragement that doing a Ph.D. was not such a crazy idea. And many thanks to Stefan Grampelhuber for his understanding and emotional support, which enabled me to pursue new opportunities.

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And of course, I am deeply appreciative of Andrés Agudelo Ganem for his instrumental role in designing and organizing the hybrid thesis; his meticulous attention to detail has been indispensable.

Lastly, I would like to express my utmost appreciation to my defense committee members for equally investing their time and genuine interest in this research: Prof. Katja Kwastek, Dr. Charles Forceville, Prof. Alice Twemlow, Dr. Ludgar van Dijk, and Prof. Friederike Lampert.

In closing, I realized it is actually not uncommon for major events to happen during a Ph.D. project. From a pandemic, to the loss of a home, a broken heart, and parents' passing, I am thankful for my research as it has been a throughline providing me something familiar to hang on to—an actual *life line* of sorts. I have learned more than just academic knowledge along this journey and again, want to thank Prof. Alan Cienki and Dr. Ilse van Rijn for the additional support and examplifying what it means to supervise a whole person.

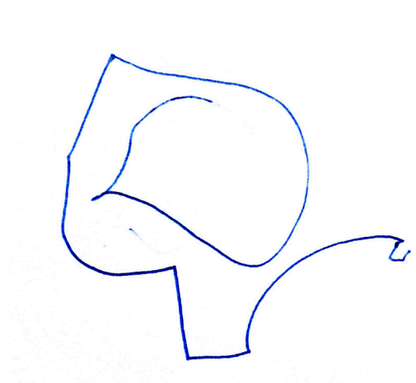




Fig. 01. Watcher (L) Dancer (R) drawings.

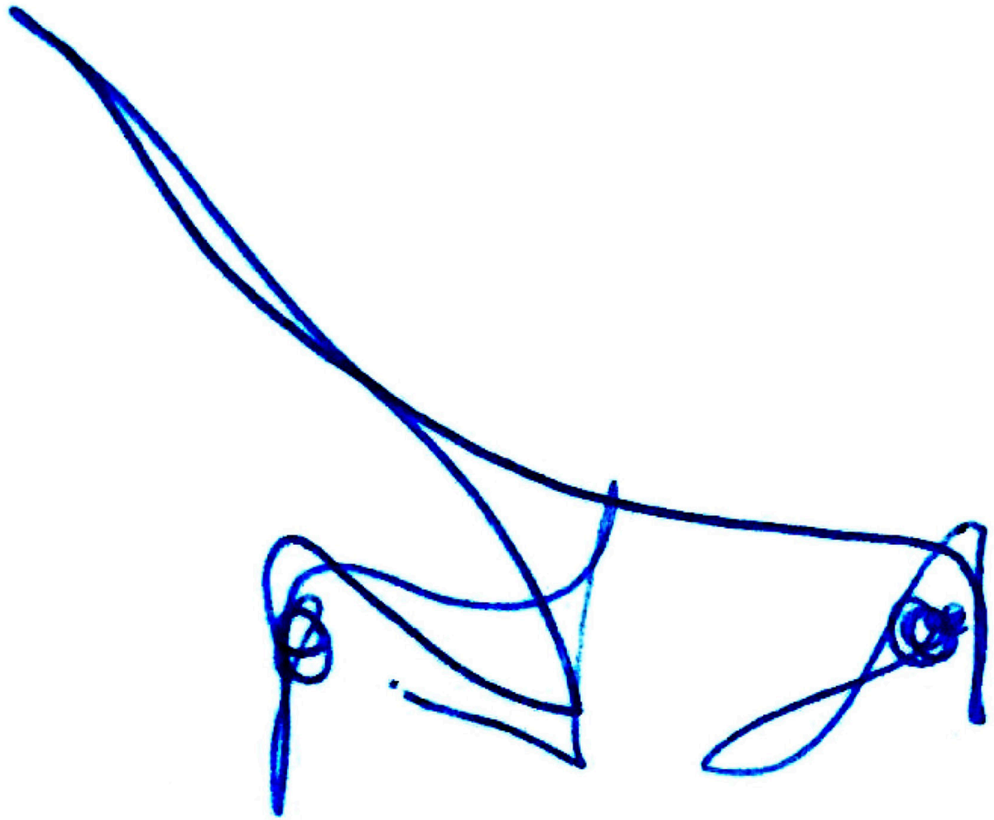




Fig. 02. Watcher (L) Dancer (R) drawings.

Introduction

Three major components of our experience are our mind, our body, and our environment. This research investigates a new way of looking at these three categories in order to find a common language between them. The study of lines offers that link. Our body creates lines. It creates lines when moving by leaving temporary traces, as when we dance or swing our limbs. Our mind creates lines when we imagine events along a timeline or when delineating conceptual borders, like between nature and nurture. Our body also visually and sensually perceives lines in our environment, organizing the world around us in straight and non-straight lines. Through our body, lines become a fundamental part of our experience.

Sheets-Johnstone's (2016b) insightful claim that the spatio-temporal-energetic quality of lines produced by the body is fundamental to our experience gives this research a starting point for connecting the body to the animate nature of perceived and imagined lines. Movement is central to how we engage in the world. Once we accept this, movement becomes an obvious choice as a different means of investigating human experience. That is a specific proposal, and at the same time, it is expansive in its application, because lines are basically everywhere. Ingold (2007) proposes categories of lines (e.g., threads, traces, ghost lines) by looking at how lines are made. I do not distinguish differences between types of lines. Instead, this research explores *where* they are made, as a re-categorization through the body. Specifically, imagined lines can conjure thought and concepts; lines created by a body leave traces or shapes; and lines in our environment can be perceived by different senses. In these three categories that are not independent of each other (Gibbs 2005, 40), lines are understood through the body. By titling this research Embodied Lines, it brings these different areas and the different types of lines from those three categories into proximity and makes the body the site of research. The environment holds the domain of perceived lines, the body is where we find the domain of bodily or traced lines, and the mind is where we find the domain of imagined lines.

Lines appear as important concepts in cognitive linguistics, developmental psychology, and philosophy of mind. As a professional dancer and choreographer, I realized early on that lines were dynamic data themselves, defining how we experience the world around us. Ingold (2015) gives the study of lines a title, with the deliberately chosen spelling "Linealogy", and the work of Sheets-Johnstone (2016b) connects the study of lines to the body with her claim that the quality that lines possess is grounded in kinaesthesia: the perception of the body in motion. These propositions will be looked at in greater detail in the following chapters.

In this research, lines are the topic, the research method, and the data. This in itself is a complex and hypnotizing landscape to ponder. The research oscillates between how lines are furthering my artistic practice and how the research is furthering the study of lines. This, from the inside, feels like a marriage of arts research and humanities research. As the common component of the research I had found on lines had been the body, the term Embodied Lines was chosen. Besides contributing to Linealogy, this research inquiry is carving its own scholarship territory by defining the term Embodied Lines as a specific way to approach the topic of lines.

It would perhaps be easier to focus on boundaries, insides versus outsides, or meaning, affect, gestures, and metaphor. These concepts and fields of study elicit deep, complex questions and answers of their own. Specific experiments can be done on them, or poetic philosophies can be inspired by them. Topics like these provide a focus for much research, whereas the topic of lines is so much broader. Lines are also so abstract that they get reduced, disregarded, and their importance is overlooked by many scholars in favor of more complex, socially relevant terms or ideas.

For this very reason, it interests me to stay with lines for their breadth, simplicity, and abundance. It is essential to step into a place where—not only as artistic research does, in not knowing an outcome—the nature of lines also offers an absence of intuitive endings. The intent to stay focused on the study of lines ironically widened the research scope instead of traditionally narrowing it. To quote Wittgenstein, "what we want to understand is already in plain view" (1953, no. 89). With this in mind, I cannot help but feel that this project aims to figure out more explicitly how to use what we already know implicitly. This research intends to bring awareness to the fact that we know lines because we move, because lines can be metaphoric, and because we have a body capable of making sense of lines.

Artistic mode

The philosopher Mark Johnson states, "The obvious fact that we usually cannot put into words what we have experienced in our encounter with an artwork does not make the embodied, perceptual meaning any less a type of meaning" (2007, 234). Statements like Johnson's make sense for artists and art lovers but are still not matriculated into general thought. A significant hurdle for dance research projects in a Ph.D. track lies in this very statement, where the meaning and knowledge production cannot be easily expressed by words. It can be argued that this inability to express something in words is what is being written about, and then gesture towards what is being done through a performance or practice as a case in point. However, this runs a danger of not only relying on words to still do the heavy lifting of epistemological transference but also resists finding bodily ways by means of other senses to access art as knowledge. It seems there is an unspoken fear by those only familiar with the scientific method that if an assessor or academic colleague were to experience a dissertation only employing performance and immediately 'get it', it would not be a deep understanding, or worse, what would be the relevance of the written thesis for artistic research if it could be expressed through visuals and movements?

On the one hand, this makes a case for why arts should be respected as forms of knowledge and as means of dissemination of it if such immediate understanding is possible. On the other hand, this could be what some want to resist strongly, so that their dependency on words is not threatened. One must understand that the two sides are not competing against each other and are only different forms of knowledge.

Practice-based research and Ph.D.s in artistic research have different approaches than traditional academic research does but can actually be understood as being the same because they both seek new knowledge. Artistic research is an exploration, a process of discovery, a form of knowledge creation that does not require an answer or a solution. It is a form of creative inquiry that can have multiple outcomes and results. Artistic research is an important form of knowledge production that is not only about the materiality of art, but also about the intellectual and creative processes behind the works. Rather than simply collecting and analyzing data, artistic practice-based research is often focused on exploring new ways of looking at the world. As such, they are just as important—and in many cases, even more so—as traditional science Ph.D.s. Henk Borgdorff, a theorist on artistic research, points out, "Artistic practices do not stand on their own; they are always situated and embedded" (2007, 10).

Borgdorff defines the difference between art practice in general and when art is research. Defining the former, he states: "Art practice – both the art object and the creative process – embodies situated, tacit knowledge that can be revealed and articulated by means of experimentation and interpretation" (2007, 14). He then gives a definition for the later that warrants consideration:

> Art practice qualifies as research if its purpose is to expand our knowledge and understanding by conducting an original investigation in and through art objects and creative processes. Art research begins by addressing questions that are pertinent in the research context and in the art world. Researchers employ experimental and hermeneutic methods that reveal and articulate the tacit knowledge that is situated and embodied in specific artworks and artistic processes. Research processes and outcomes are documented and disseminated in an appropriate manner to the research community and the wider public. (ibid.)

To follow Julian Klein's (2018, 85) distinction between different types of research modes (transparent, aesthetic, artistic, and semiotic), I will use the body in motion within the artistic mode to frame different realities before they become stable in the semiotic mode (i.e., as fixed signs). This proposal looks to go beyond the verbal and find multimodal ways in which communication can use movement and imagery as data for verifiable comparison. The research uses an artistic mode of research to reveal unseen links between significant fields by examining how lines materialize in them—recategorizing such lines through the body in the process. Barbara Bolt states that artistic inquiry is a "double articulation between theory and practice, whereby theory emerges from a reflexive practice at the same time as practice is informed by theory" (2007, 29). The artistic mode evolves through iterative cycles of theory, experimenting, creating, applying, and responding. Within this mode, specific practices seek to articulate the experience and meaning generated with the phenomena. As the outcome is not predictable from the onset, selections are made during the process of how to go further and deeper. Bolt describes that artistic researchers can "demonstrate a very specific sort of knowing, a knowing that arises through handling materials in practice" (ibid.).

Dance as a temporal form allows physical movement, perception, translation, gestures of flesh, sound, conscious and unconscious thoughts, meaning, and connection to all exist at the same time. These components do not exist all at the same time in writing. To convey all this in writing requires sentences, pages, and chapters, and the linear structure of the text moves through time at a pace dependent on the reader. Writing and reading are different than dancing or visual art. I approach dance as a form that does not complement the writing; rather, the writing must complement the dance and the meaning that comes from the visual artifacts. This thesis approaches this problem by asking the reader to rely equally on the visuals, films, audio, and drawings as much as the words surrounding them as *articulating and evidencing the research inquiry*.[1]

1 This italicized term is from Robin Nelson's Practice as Research model (2013, 58), which seeks to make the tacit more explicit when evaluating the multi-modal rigor of artistic practice in a Ph.D. submission.

Main research question

This research investigates the ways in which movement can connect and develop relationships between fields, such that their line dynamics can function within a common framework. This will entail establishing what practices are possible using the body to translate lines from one domain to another. To get to this point, this research aims to answer the following: how can we use movement to further the field of Linealogy with a framework of Embodied Lines? Additional specific sub questions feed the research:

- How does an artistic approach to the study of lines further the field of Linealogy?
- How can lines from one domain (danced, imagined, felt) be expressed in a different domain (auditory, material, drawn) using the body as a translator?
- What types of artworks are produced through the body-as-translator practice?
- How do lines contribute to and produce relational, situated and withness knowledge?
- In what ways do lines found within the fields of perceptual psychology and theories of cognition contribute to Linealogy?
- How does the study of lines produce new ways for dance improvisation?
- What new practices produce lines as data?
- How can we provide evidence for the spatio-temporal-energetic nature of lines that are visual or felt, inside or outside, and those that are kinetic, mental, temporal or self-based?

Experiencing the format

The standard Table of Contents format puts concepts inside concepts, and sections inside sections, that resemble a logic less like that of lines and more like that of containers. Though it could be argued that the typical listed points are like a dotted line, the numbering organizes the mind to think this paragraph is inside this section, inside this chapter, inside this part of the thesis. Additionally, if it were to be looked at as a dotted line, the regular

numbering controls the quality and straightness of that line: 1.3, comes after 1.2, comes after 1.1. Straight lines and containers are the opposite direction from the one that this thesis wants to go in, in order to showcase an animate and extended understanding of the phenomena of lines.

Therefore, the chapters are simply titled and not numbered, and the artistic outputs are inserted between chapters as a woven portfolio. Listing only the titles keeps the mind open and allows more so for the imagined lines to stay equally dynamic. Imagined lines, like lines made with the body, go off in all different directions. This does not imply there is no order, but I believe it can help keep the nature of the text as a line of thought more open and compete with the straight typed format of written words and organization.

The art practices and documentation that are included between the chapters can be looked at through the different theories that are presented. Instead of locking them into one chapter, or repeatedly discussing them in each chapter, the reader is invited to apply different perspectives from the writing to the portfolio documentation. Captions and descriptions will sometimes guide and frame these works without going into much discussion, and sometimes the artwork will refrain from textual explanation with the intention that the lines are experiential in nature and therefore are meaningful on their own. Additional descriptive writing also accompanies the portfolio. The organization of this thesis is intended to be experienced like a museum where a person may read text on the wall, make their own decisions on which artworks to look at, and sometimes sit down to read the provided literature. Some responsibility is given to the reader to make connections between the different multimodal ways lines are presented and the different ways meaning can be gleaned.

The order of the chapters can be understood by a few groupings. In lieu of a traditional literature review, the contextualization of previous research on lines can be found in the chapters 'Making Sense of Lines', 'Not These Lines', and within the second part of 'Origami Thinking'. The chapter 'Embodied Lines' defines the terms that this research uses as well as introduces the umbrella term as a concept. This chapter also delves into Sheets-Johnstone's theory on lines, one of the main theories used for the practices. As the mode of research is artistic, a specific methods section is replaced by describing how this research project was approached through artistic renderings in part one of 'Origami Thinking' and in the 'Body as Translator' chapters. This first section lays the groundwork that then proposes 'The Metaphoricity of Lines' as a theoretical topic that came from the integration of practice, theory, and method.

The subsequent chapters focus on the main theories that I want to bring into dialogue with each other and for use in artistic production. 'Wagner and Asymmetry', 'I want you to dance this way', 'The Affordance Chapter: Flat, Rigid, Living, Adapting', and 'The Materiality of Lines' weave the theories with the different artifacts that were produced. The final chapters explore topics that expand on the theories and introduce practices that further the discussion of Embodied Lines. Additionally, the Appendix takes the form of an online repository with an accessible link in the Appendix section.

Lastly, the 'Withness' chapters are entwined and can perhaps be seen as one chapter interwoven. These chapters intend to revisit how the research and practice on Embodied Lines can create an understanding of withness in different ways. This research aims to align itself with the growing idea that there is information to be gained by accepting we are relational, we develop meaning in a context, and our bodies and minds are influenced by those around us. The motivating goal for this project is to show how the focus on lines can be used to understand and create a practiced withness. Through my work, I explore how lines can be used as a tool for expressing and embracing fluidity, multiplicity, and complexity.

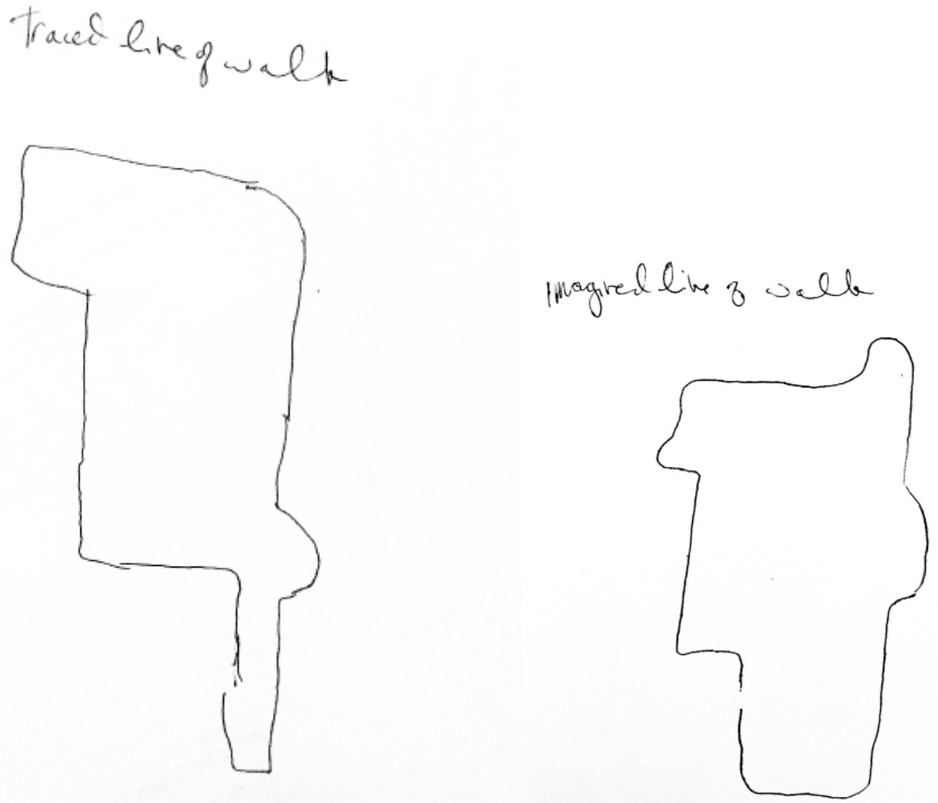
Embodied Lines captures the idea that our bodies and the lines we perceive and create are deeply intertwined, and intimately connected to our movements in the world. Not only am I uniquely approaching the study of lines as a dancer, but I am also adding to the field of Linealogy, and other fields that use lines, and therefore

expanding the definitions, categories, and ways lines could be considered. Thus, foregoing a point to depart from, this is the starting trace.



Fig. 03. Dancing the affordance dance practice.

Fig. 04. Drawings from Walking as Making a Line practice.



Making Sense of Lines

Linealogy

Lines could be considered a ubiquitous phenomenon, and yet in the introduction to his first book on lines, *Lines, A Brief History,* (2007) Tim Ingold presents lines as a new field of inquiry. Lines are omnipresent, but they remain evasive as they slip between a variety of diverse fields like math, art, or phenomenology. With Ingold's call to name the study of lines as its own distinct field, Linealogy (2015), the nomadic nature of the line had found a home, more or less. The uncertainty rests in lines' nature to refrain from being contained.

Ingold, as a social anthropologist, looks at the line through mankind in many evolutionary forms in society. It is clear his perspective is grounded in the expansive production of how lines have guided our development and culture. What I offer here are additional ways to categorize the line: as imagined, perceived, and traced by the body. This does not contradict any of Ingold's claims. I see his position as an anthropologist who broadly looks at how lines are manifested in areas like writing, weaving, singing, walking—all forms of movement. It is through movement that I initially approach the study of lines, and then draw on different theories of mind, body, and perception to fuel the research. Using dance, then, as an artistic mode of research, I bring my mental, physical, and environmental perception into play in order to investigate how movement that creates lines can bring together additional theories and fields of study under a framework of lines, which expands the discourse within Linealogy and expands how this research can be utilized in dance practices.

With naming the study of lines as Linealogy, Ingold views the investigation of lines as a single area of inquiry (2007, 1), though his inspection spans many fields and forms. Lines provide an opportunity for fields to merge, if not overtly demanding it. Therefore, my research on Embodied Lines is put in an interesting position: on the one hand, as a new field of inquiry, there is a limited amount of sources to review, and on the other hand, as lines themselves are a phenomenon found in a large array of fields, the sources to potentially review are incredibly abundant. Ingold's terms and insights are a place to start, which I then weave immediately into my own and others' contributions to lines.

Ingold introduces two major types of lines; threads and traces. A thread is defined as "a filament of some kind, which may be entangled with other threads or suspended between points in three-dimensional space" (2007, 41). He notes that though a thread has a surface, a trace by definition "is any enduring mark left in or on a solid surface by continuous movement" (ibid., 43). He also mentions other differences between the two: a thread can be stretched and vibrate, while a trace cannot, and a thread must already exist in order for it to be wound, though a trace can be created as it is wound—but it is not possible to unwind a trace (2021, 181). A scent is also seen as a type of thread for Ingold (2015, 65).

He immediately also describes that threads and traces often transform into each other (people following a thread-scent can leave a trace behind them) and thus these titles as categories leave "loose ends" (2007, 2). My own research and attempt to categorize lines by their location has met similar problems. The phrase 'loose ends' is not a play on words, but I would concur it is the actual felt sense one gets when trying to pin down the delicate parts of this field. Lines cannot easily be fixed, and thus, a way to express their slippery nature is to acknowledge the fact that as soon as you try to box them in, part of them will stick out. The use of metaphoric language here is not intended to be decorative, but instead is important in describing the very nature of lines. The painter Wassily Kandinsky answers the question "where does a line become a plane?" with the question "where does the river become the sea?" (1979, ch. Line, sec. Line and Plane)[1]. As a fellow researcher on lines, Kandinsky's comment resonates with the unconfinable nature Ingold notes about lines. Lines are so tightly interwoven into our senses, the way we aim to make them distinguishable also creates contexts that make them difficult to categorize.

In addition to traces and threads, Ingold discusses other forms of lines like cuts, cracks, and creases. Cuts are often on purpose and have sharp angles (2007, 45). He points out that cracks are accidental and describes that cracks usually intersect traces in nature (ibid.). Turning to look at lines in one's palm, he labels them not as cracks but as

2 For ebooks and kindles with no page numbers, the chapter, section, paragraph or location will be noted as ch., sec., par., and loc.

creases (2007, 47) and notes that a palm reader reads the lives of the person through these creases and how they will maneuver, or make traces, in the world. Rather than being purely objective, Ingold here pairs lines on one's skin to the lines of life projected of one's future. Compared to the systematic way of labeling types of lines as he does in the beginning of his discussion, this example references the diverse ways lines cross over in our history and fall into the realm of what it means to be human. Ingold's mentioning that through the profession of a palm reader, lines as creases in one's hand lead to timelines of one's life, shows his invitation to view bodily lines in the same realm as imagined lines—concrete forms visible now and metaphoric lines that play out through time. Ingold makes the comparison that one's mind and life are not closed-in entities but are more like the strands of a rope that are "always weaving, always in process and like social life itself never finished" (2015, 11). Lines become the point where metaphor and circumstance merge.

Linearization of Writing

Another question Ingold asks—one which I recognize from my experiences during my research—is: "Why does the very mention of the word 'line' or 'linearity', for many contemporary thinkers, conjure up an image of the alleged narrow-mindedness and sterility, as well as the single-track logic, of modern analytic thought?" (2007, 2). Here is where Ingold uses the term 'linearization' in reference to the event in modernity where we organize our argument systematically and use an easy-to-read typed line structure to disseminate it (ibid., 151). This is often a complex point of discussion, due to the many ways lines are meant or understood literally and metaphorically in language. Related to this former question is Ingold's observation that a properly *linear* line is assumed to be straight (ibid., 4). I may say *lines of thought* and do not actually mean thinking as something straight, but that is what someone imagines I mean due to their assumption that linear thinking is considered straight. As a line researcher, I have found the opposite, namely that I experience lines as almost anything except a straight thing that connects A to B. Often when speaking to others I forget others might associate lines with straightness and miscommunicate about the understanding of a line. Inversely, when I do want to describe writing on a modern keyboard as the *linearity of writing* due to the fact the text is formatted to go across the screen evenly, straight and stuck in horizontal rows, linearity then gets confused with a concept or judgment about writing, rather than it being about the format. Understood differently, writers may protest that there is nothing linear about writing. Artist Lucy Cotter starts her essay on artistic research with the sentence, "By ordering words into a straight line, writing tends to push thought along in one direction, holding thinking back from branching out in multiple paths. I find that some thoughts prefer to move backwards and circle around themselves, allowing for a slow reconfiguration of meaning" (2019, 9).

Lines and linearization should thus not be confused. In modern times in industrialized cultures, most of our writing happens on electronic devices, or due to cultural norms in academic contexts, ultimately needs to be typed. Ingold points out that in typing, the link between the manual gesture and trace is broken (2007, 3). Typing about the multifaceted nature of lines is, therefore, unfortunate, due to this built-in constraint of typing. He also notes that true descriptive ethnographic endeavors would prioritize the pen and pencil over the keyboard (2010, 311). I view that the manual gesture of line making, as opposed to the typewritten creation of lines of text, more closely parallels the linear dynamics of thinking with its overlapping curves, changes of directions, and kinetic mistakes.

Ingold claims there is no difference between signed words in sign languages and words written by hand, as they both leave traces—one just has a pen and leaves marks on the paper (2007, 28). The point I understand Ingold is making is not that signed languages leave imagined traces as mental impressions that can be compared to the traces left by pen, but that handwritten words are also created by the same traces of gesture. Their material trace is more prominent and can minimize the fact that the hand must also gesture to create them. This of course is different with printed words as there is no trace left from the actions of the hand (ibid.). I press a computer key and it produces a letter, not a trace of the short stroke I made. \\\\\\\ are the closest signs that could document the actual trace made when pressing a key, but as each sign is pre-made, there is no variability. Ingold also notes

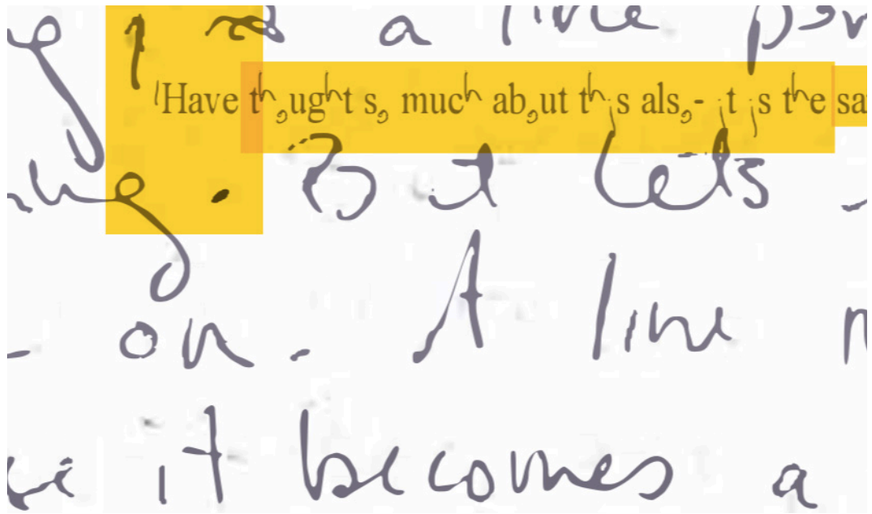


Fig. 05. Mix of handwriting and Adobe malfunction.

the frustration of typing on a keyboard as there is no movement or feeling captured from the act (2021, 205). Nicolette Gray, British scholar of art and calligraphy, proposes the expression 'writing as line drawing' (1971, 16). When writing, I can feel the rhythm, the delicacy of the trace, how it then informs my next curve or embellishment. Ingold adds that, "the drawn line can unfold in a way that responds to its immediate spatial and temporal milieu, having regard for its own continuation rather than for the totality of the composition" (Ingold 2010, 301). In other words, the same qualities that I relate to as a dancer—creating lines with my body, dynamics, expressions of space—I can do with the pen on the paper. It is sometimes said that dancing is like writing, in that one is expressing oneself as if one writes with their body. Writing is also like dancing in the way that they are both line-making practices with the body. The minute temporal-energetic-spatial changes the hand makes while holding a tool feel like dancing. My handwriting sometimes gets to the point of almost being unintelligible because I am moved by the dynamics and not the aim of creating recognizable symbols. "A letter is a sign: to be recognizable is of its essence, and it cannot be recognized unless it has some minimum connection with its previous known examples" (Gray 1971, 115). For that reason, as Gray noted, the writing as line drawing of my current handwriting faces a problem as it becomes unrecognizable even to me. The point though, as I mentioned from Ingold, is by viewing writing as line drawing or dancing that feels like a continuation instead of a composition, handwritten words become more than symbols, but can be viewed for their linear dynamics.

Asemic writing is a term from Australian artist Tim Gaze used to define text that has no semantic content and is viewed more as visual poetry (Gaze 2000). Law Alsobrook, professor of graphic design, states "asemic writing atomizes the written word, suspending the audience between looking and reading" and describes that the experience is similar when seeing a written foreign language for the first time (2017, 7). Alsobrook explains how the newly defined style of writing can be found in superhero or alien fiction, but what I perceive to be the major point of this art form is not that it mimics a fake language, but that the act of creating it relies on the feeling and other forms of meaning making that are different than those created by letters or words. Likewise, when perceiving asemic writing, a viewer should overcome the urge to think 'I do not understand because it is

unknown' but notice instead the type of feeling and understanding that is present due to the lines and references that are still embodied in the strokes. "Asemic writing asserts that the emotional and aesthetic content are enough" (Alsobrook 2017, 12). "These writings are not completely 'meaningless' or 'illegible,' but challenge our common notions of reading, writing, and meaningfulness of language" (Gaze & Jacobson 2013, 5).

Concerning the technique of automatic writing, one can surely think of American artist Cy Twombly and his non-figurative scribbles. In Twombly's "graphic touch there is a psychic freedom and an emotive-expressive quality linking him to Surrealism and Abstract Expressionism" (Sheffield 1979). A famous response Twombly gave to an art critic, who called his art childish, was: "My line is childlike but not childish. It is very difficult to fake... to get that quality you need to project yourself into the child's line. It has to be felt." (Artdex, n.d.). In line with fellow surrealist Belgian poet Henri Michaux, who is mentioned below, these types of lines can be seen as visual poetry. Lines allow for a slipperiness between modes, meanings, and functions.

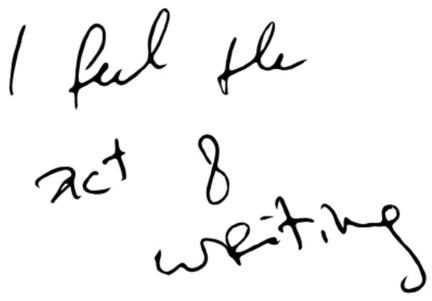


Fig. 06.

Lines made by dancing, handwriting, or by drawing the movement of rain focus on their embodied and undetermined nature. The types of lines I am interested in are ones that are not seen as a means to an end. On the contrary, I could say I am interested in approaches that appear to consider lines as something *more*. Arguably, there are countless thoughts on lines, stemming from art, math, architecture, philosophy, music, linguistics that due to the scope of my research, cannot be expanded upon here. With this in mind, I will now introduce a number of theories and perspectives that support an embodied and unrestricted understanding of lines. Additionally, some other artists working with lines are presented to give contemporary examples of how others are working with the embodiment of lines. The selection below, among others, is motivated by the line's ability to be a sensory experience where the body is a responsive part of its formation. These types of lines make sense to me because they allow the line to be corporeally open and ambiguous.



Fig. 07. Drawing from watching movement of dancers improvising, Paris 2019.

Opening the Line: The Work of Kandinsky

In his book, *Point, Line and Plane* (1979), visual artist Wassily Kandinsky categorizes and reveals his understanding of lines and the relationships between points, lines, and planes. Ironically, his use of dance is introduced in the section on POINT. Kandinsky describes ballet as making points along the floor, leaving behind traces, and he describes that the dancer jumps to points in space. It is surprising to see him describe dance in this way. I would argue that by doing this, the continuity of the movement to arrive to the points is lacking. When Kandinsky makes a reference to rhythm, as points or beats, as they evolve through time, we can then feel a linearity or progressive movement. In the section LINE, Kandinsky immediately brings attention to the fact that the line equates movement. "The geometric line is an invisible thing. It is the track made by the moving point; that is, its product. It is created by movement—specifically through the destruction of the intense self-contained repose of the point. Here, the leap out of the static into the dynamic occurs" (1979, sec. Line). For Kandinsky, the moving point conjures a line.[2]

Kandinsky offers three types of lines. He groups lines into different categories and each of those categories has three components. For example, the straight line is horizontal, vertical or diagonal. Kandinsky then goes into details of how lines can have different temperatures, angles, colors, and sounds (1979, sec. Line) creating subcategories of three divisions. In his descriptions, he pairs up the three components of each subcategory to create more complex definitions and descriptions. He combines categories to create analysis, for example on a curved blue line or a diagonal green line with a red temperature.

In regard to music, Kandinsky brings our attention to music's linear quality in a variety of ways. Firstly, he explains different instruments present different thickness of lines; deeper instruments have wider lines and instruments like the flute or violin produce a timbre that represents a fine line. Secondly, the volume of the instrument played equates to increasing sharpness of a line, similar to pressing into the instrument or even a pencil with more pressure to create a greater intensity. Lastly, he also mentions that the pitch is portrayed as vertical lines on the musical staff, (ibid., sec. Music)—a verticality of line those who read music are already familiar with. He does not say that music is also linear in its development of ebbs and flows of the changing melody through time, but with his observation that lines are movement through time, we can deduce that the played musical notes, like points, in the end materialize as a line.

Kandinsky moves on to poetry, explaining that the rhythm of the spoken word and its pitch produce a line (ibid., sec. Poetry). He explains spoken poetry, like music, creates curved or straight lines by the shape of the sound or stress it creates. As Kandinsky reviews lines in nature, architecture, painting, and dance among other fields, he does not propose lines in terms of linearization, as in the man-made production of easy-to-use structures and human advancement as Ingold noted. When Kandinsky speaks of lines in architecture or geometry, he does not necessarily equate them to straightness, but he keeps those lines included in the discussion on loose structures of lines, like those found in art and found in nature, like in lightning. It is Kandinsky's clear approach to synesthetically view the line that reinforces the notion that a line has qualities beyond those typically associated with it.

Lines of Consciousness: Betts' Insights

As there is little research actually on the topic of lines precisely, lines appear in many works as images and depictions for other topics. For example, Benjamin Betts' drawings were assembled by Louisa S. Cook in the book *Geometrical psychology, or, The science of representation*. Betts, born in 1832, was trained in decorative and architectural arts before moving into philosophy to look for an internal truth (Cook 1887, 5). His attempt to look at human consciousness led to sketches looking like a mixture between math equations and floral designs. As an interdisciplinarian, Betts' work was one of the first examples I came across where someone was using lines to unite fields of inquiry. In the frame of geometrical psychology[3] it is noted here that a "dotted line of activity ascending from the central point, the personal ego, may be regarded as the line of faith and aspiration, the impulse of the higher life which yields itself up to be determined by that law which it feels to be divine" (Cook 1887, 64). Can the

3 This is also relatively the same definition of a line in geometry. "A line is the path of one point moving. A line has length but no width". Wikipedia, s.v. "line (geometry)," accessed May 8, 2023, https://simple.wikipedia.org/wiki/Line_(geometry).

4 Peter Gärdenfors' research in his books *The Geometry of Meaning* (2014) and *Conceptual Spaces: The Geometry of Thought* (2000) could be considered more contemporary developments of this term.

dynamics of thought and consciousness be formulated as lines and if so, why do Bett's drawings resemble known aesthetic forms? "The fact that he has accidentally portrayed plant-forms when he was studying human evolution is an assurance to Mr. Betts of the fitness of the symbols he has developed, as it affords presumptive evidence that the laws he is studying intuitively admit of universal application" (Cook 1887, 11). Though I am not using a mathematical notion of a line to link to questions of consciousness, I empathize with Betts' curiosity about its universality; however. I see the ubiquitous aspect of the line as being due to its spatio-temporal-energetic nature. Betts' attempt to represent consciousness by lines that are part floral and part geometric can perhaps be seen to disclose his belief that love was the substance of all things (Cook 1887, 92). Betts' interdisciplinary interest and approach allows for the lines that resulted from his research to have multiple interpretations and, thereby, for us to use the line as a conveyer of something human and gesture toward something more.

Walking the Line: The Work of Klee

From visual artist Paul Klee's *Pedagogical Sketchbook* (1953), his most noteworthy contribution to the study of lines, is in fact, already the most known—Klee's first sentence takes a line for a walk (16). By simply stating a line goes for a walk, we unite a line with not only motion, but human motion specifically. This expression from Klee also unites our thinking of the pen point on paper with our feet on the ground, highlighting a metaphorical transfer between perceived lines and traced lines of the body.

Near the beginning of his book, Klee draws two lines entangled with each other and claims an imaginary line is the center (ibid., 17). From the start, Klee acknowledges that imagined lines are present. As Klee outlines two perceived lines, he gives an example when imagined lines appear—noting the need for this type of location category. In his section on material structures in nature, Klee also brings our attention to the lines in our own body, labeling bones, tendons and muscles for their tubular and ligamentous aspects (ibid., 26). While the majority of his thoughts, even if brief in this sketchbook, circulate around lines in different conceptual and practical ways, the mentioned aspects of movement and linear structures in our own body remind us that lines are what we do and what we are.

What also stands out in the line sketches of both Kandinsky and Klee is the immediate use of a curving and dynamic line as the focus of discussion. Though both do draw straight and angled lines and give credit to what those mean as well, the curvilinear line is prominent—resisting the notion of the most common assumption, discussed by Ingold, that we mean straight and segmented when we think of a line. Though we tend to think we walk efficiently from point A to B, our path of walking is rarely straight. The walked line is also not segmented by starting at point A and finishing at point B—the walked line eventually continues. Our movement in space makes one perpetual line.

Writing the Line: Gray's Perspective

In Nicolete Gray's research on writing, the importance of line formation on the page is emphasized. Gray observes the connection between lettering and graphic arts, remarking that writing can be painting—a visual poem (1971, 79). To call a written word a visual poem helps to bind the idea that the line of text, though having symbols and involving semiotic relations, is also a visual line in the same way that I argue that a traced line of dance is. A letter historically was seen by many "as a drawn form; not a pictorial representation", giving it more flexibility rather than being a determined form, according to Gray (ibid., 130).

Besides the drawing or movement aspect of a written word, Gray's language around lines also incorporates cross-over descriptions to music. Here, Gray describes American artist Ben Shahn's drawn letters: "From the formal point of view most important is the 'jazz rhythm, broken and staccato' made by sudden irregular variation in thick and thin, and squaring of curves and counters; he can do this also by varying the strength and quality of his ink stroke" (1971, 56). Here she uses sound to describe the line—even a musical one. To say there is a connection

between writing and sound, or letters and music, may at first seem curious. However, when organized around the topic of a line made by the body, it becomes clearer. We make linear traces when we dance, or gesture, and with our linear limbs. Music is pulled from instruments along lines. Rhythm is a beat marking what could be seen as a dotted line. Writing becomes a similar skill in using your body and a tool to draw lines with spacing, qualities, and meaning. Writing can be included in the world of dance and sound when the line is used as a connecting point. In a *New York Times* article (Konnikova, 2014), neuroscientist Stanislas Dehaene is quoted as claiming, "When we write, a unique neural circuit is automatically activated," continuing, "There is a core recognition of the gesture in the written word, a sort of recognition by mental simulation in your brain." When we see writing, we do not only see the meaning of the word, but we register the movement of the graphic element. Therefore, we could say that we understand the movement of the graphic line in ways we understand imagined dynamics of music, or the traces left by dancers—through their spatio-temporal-energetic nature.

Emotionality of Lines: Lundholm's Findings

In a 1921 paper, the "Affective Tone of Lines," psychologist Helge Lundholm investigated the ability to make meaning and read emotions in lines. The topic arose from the descriptions of artistic masterpieces that often gave lines an emotional quality. In an experiment that took place from 1919 to 1920 at the Psychological Laboratory of Harvard University, subjects were told to look at lines with curves, angles, and a mixture of the two. The point of the study was to systematically equate certain affects, emotions, or adjectives to different shapes of lines: their curviness, angularity, and the size of the waves and the direction of the arches in them (Lundholm 1921, 45). The question considered in this research was where the meaning of the line came from. "Out of these facts there arises a problem. Is the affective character of the line a quality which is bound to the line itself, or is it suggested by the literal subject of the masterpiece?" (ibid., 43). By attributing the line to movement, like Klee and Kandinsky did, much of its meaning is hypothesized as being due to its correspondence to its process of creation. "It has long been known that pure lines in themselves are able to suggest movements or motor states. Consequently, the question arises whether there is a law for these phenomena; that is, whether certain lines suggest movement in a higher degree than others" (ibid., 50). Further, these motions that create the line also are attributed to different emotional states familiar to those movement's dynamics. "This justifies us in supposing the affective character of lines has its origin in the suggestion of movement of the line that it depends upon the idea that this movement in some way imitates the motor expression of an emotion. This supposition becomes greatly strengthened by the fact that the subjects themselves have mentioned the movement as being of importance for the emotional expression of the lines" (ibid., 51). Conducting a similar experiment, psychologists Poffenberger and Barrows, in a 1924 essay titled "The Feeling Value of Lines", note "it must be remembered that even if the motor factor is the important factor in the feeling tone of lines, eye movements and implicit movements of other mechanisms may be good substitutes for the actual line drawing movements or may even be more important than these" (198). They also infer: "It may be that the reactions to the lines are due to the simple associations or that associations themselves are due originally to the immediate responses to the lines" (Poffenberger & Barrows 1924, 203). The impression of form cannot be separated from the motor system of the whole body (ibid., 187).

Though the field of Linealogy is new, the question about how to read emotion and meaning in a line due to the way it was constructed has been asked for over one hundred years. Mark Johnson, in reviewing cognitive views of metaphors, also reviews this research from Lundholm. This is important to point out because Johnson claims that thinking in metaphor is a basic mode for understanding. In questioning if there is anything more fundamental than metaphor that grounds the architecture of our thoughts, namely what lines could be, Johnson's observation of this study has already acknowledged these suppositions.

Dancing the Line: Inspiration from Michaux

In relation to dance, many examples could be noted but one has remained present in my thoughts: the Canadian dance company Compagne Marie Chouinard's piece titled *Henri Michaux: Mouvements* (2011). This work, based

off of the book *Mouvements* (1951) by Henri Michaux (1899-1984), uses the 64 pages of ink drawings from Michaux as a choreographic score. Dancers dressed in all black use the lines of the drawings and describe them with their bodies. By showing the drawings behind the soloist, the dancers dressed in black against a white floor allow "spectators to do a simultaneous personal reading of the Michaux score. Echoing the visual presentation of a white page with black drawings…" (Chouinard 2011). When I saw this work live, what I found interesting was that the main soloist's, Carol Prieur's, ability to capture the essence of the movement in the static ink drawing was far greater than that of the company dancers who joined in the piece later. The company appeared to copy the images, making the connection between the drawing and the body very obvious and defined. What I appreciated from Prieur was that it appeared she had taken time to sensuously familiarize herself with the line, understanding its movement and qualities, and in doing so, acknowledged the line was greater or beyond the black ink on the page, but was movement that started before and continued after. The soloist brought the line of ink to life, using her whole body to show us the dynamics involved in the gesture that perhaps made the line. The "dancing-drawing body" is introduced as a specific metaphor by dance researcher Laura Karreman (2017, 185). Karreman outlines that the target domains of dancing and the dancing body are sourced from the act of drawing or a drawing instrument (ibid., 187). Returning to the form of asemic writing, it could be described that the soloist is able to connect more so to the asemic qualities of the ink drawings and embody a greater meaning than simply copying the form. The soloist demonstrates the similarities involved between dancing and drawing—gravity and traces made through movement—that Karreman notes (ibid.) as the embodied activity supporting the metaphorical understanding. This work from Chouinard highlights how the body can be paired with a static line and implies connections can be made through movement that audiences are able to understand metaphorically—*this line drawing is this dance motion.*

Drawing the Line: The Works of Orrico and Bumstead

Drawing can be seen as a somatic extension of the drawer. In particular, two contemporary artists working with lines bring to light the embodied aspects of drawn lines. During my research, I had the opportunity to exchange practices and dialogue with two artists, American Tony Orrico and British Kimbal Bumstead. Orrico himself does durational performances lasting anywhere from minutes to seven hours where the body and the drawn line entangle as materials. In his performances, Orrico makes repetitive actions with pencil or charcoal on walls or floors, leaving traces of movement that create a spectacle of humbling virtuosity leaving behind an artifact that uses the line to capture time and experience. From his website, Orrico states: "I commit my attention, rationally, to the sensitivity of my body at the receptive level—ready points and lines in space. I attain a sense of embodiment that is geometric and mechanical. With no dominating sense of axis or directional force and find the ability to motor from invented traction. The course is non-objective; it is a continuation of pathway and response to stimuli" (2022). In Bumstead's work, touch is often combined with line drawing to leave a residue of human interaction. Next to that, Bumstead works with practices where sound from environments is translated to line drawings, revealing the drawer's subjectivity. These projects, respectfully titled *Sensory Drawing* and *Sonic Landscapes* aim to transform sensation into drawing often through participatory and group collaborations (Bumstead 2022). Ingold speaks of drawing in opposition to painting, in that drawing has a different relationship to a blank surface—it does not strive for composition. "Drawing, by contrast, is not compelled to observe this law. Instead, although the blank surface of the paper is perceptually present, it does not have to be conceived *as* a surface, as an area that needs to be filled. It becomes rather a 'reserve,' a kind of insurance against finality and closure" (Ingold 2010, 301). What attracts me to the work of contemporary artists Orrico and Bumstead is their incorporation of the body with the line's construction and with the apparent purpose to leave traces of situated moments of encounter. The lines that are created are specific to that moment and interaction only. In both their works, the body, the line, movement, perception, and materials become enmeshed.

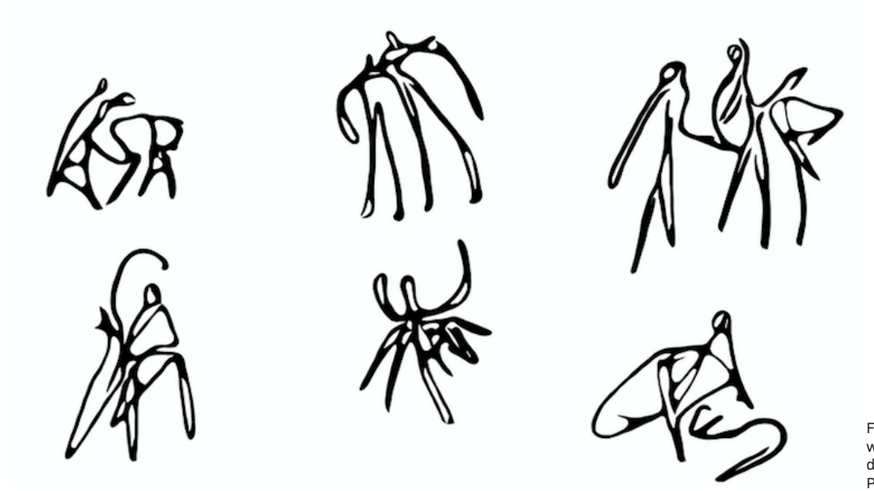


Fig. 08. Drawing from watching movement of dancers improvising, Paris 2019.

Six Theories on Lines: Lines for Practice

Lines are understood through our senses. They emerge in a variety of ways as continuations of connections. Whereas Ingold turns to notation systems of music and the evolution of writing to start his investigation into lines, I start from modern cognitive science and perceptual psychology theories. In the following areas of study, lines emerge as forms attributed to the mind, to the body, or found in the environment, but slide between the categories of traced, imagined, and perceived. We could think of experience as a layering of lines of different modalities; lines that we imagine, lines that we make with our body, and lines that we perceive sensually. The nature of a line has a unique ability to manifest and move between mental, physical, and perceptual domains. The six theories presented below are used to generate the dance and artistic practices pertaining to this research. The theories also provide ways in which we can then look at the artifacts produced. Additionally, one theory can be used to generate a practice and a different theory can be used to then re-examine a practice from a different perspective.

The six major fields of study I will introduce utilize lines in what I would describe as the background. The topic of these fields is not focused on lines. Consequently, my interest in bringing them into the discussion on lines intends to overtly draw attention to the way lines exist in these fields, underpinning the theories. In so doing, I propose they make important contributions to the field of Linealogy. These fields are:

- Image schemas in Conceptual Metaphor Theory (Lakoff 1987- cognitive semantics) proposes repeated actions of movement lead to conceptual understandings in verbal and non-verbal communication.
- The Linear quality of the body (Sheets-Johnstone 2016b- phenomenology/anthropology).
- Vitality Affects (Stern 1985- developmental psychology) where facial expressions and dynamics create lines that carry meaning.
- Affordance Theory (Gibson 1979- ecological psychology), which suggests lines around objects stimulate action.
- Material Engagement Theory (Malafouris/Renfrew 2010- philosophy of mind/cognitive science), which explains how lines made with materials make thought patterns evident.
- Asymmetry Principle/Shape as memory (Leyton 1992) explores how lines work as memory storage of past events.

One: Conceptual Metaphor Theory

Broadly, Conceptual Metaphor Theory (CMT) (Lakoff & Johnson 1980, 1999) utilizes aspects of lines across different terms and subfields within this larger branch of cognitive linguistics. Points relating to CMT that are mainly looked at in this research are primary metaphors (metaphors with a source domain involving some aspect of physical perception or sensation) (Grady 1997, 26) and image schemas. The metaphorical aspects of sound symbolism are also looked at in a later chapter.

In cognitive semantics, image schema theory proposed by American linguist George Lakoff (1987) and philosopher Mark Johnson (1987) roots abstract concepts like Life or Love to a PATH image schema in the metaphors LOVE/LIFE IS A JOURNEY. Image schemas are cited as a basic building block for the creation of one's thought and along with conceptual metaphors are conventionally written in small caps. The PATH image schema transfers qualities from a source domain, in this case the physical experience of creating a pathway when one moves from point A to point B, and places those qualities onto the target domain concept of Life or Love. The imagined line embedded in the PATH or SOURCE-PATH-GOAL image schemas, which helps us understand a concept like the LIFE IS A JOURNEY metaphor, comes from the repeated physical experience of creating traced lines with our bodies as we move about in our environment (Johnson 2017, 22). Simply, the PATH image schema lays the foundation for a complex metaphor like LIFE IS A JOURNEY insomuch as a life feels like it progresses along a path.

When speaking with people while doing my research, it became clear that each person's mental picture of that journey is different. Some may envision a highway, while others when asked would describe a winding road through the mountains or forest. In addition to the general image of a journey, more differences can be homed in on, like: what specifically are the qualities of the pathway itself? If it is a highway, how wide is it? If it is a curvy road, how tight are the curves and how many are there? These qualities often appear unnoticed or in the background in everyday speaking when using these metaphorical expressions. In CMT, the logic of the journey is often emphasized in order to identify metaphors in language that stem from that ontological metaphor. A journey has travelers, destinations, a vehicle, impediments (Lakoff & Johnson 1999, 64). However, I believe it should be noted that the very basic line that is imagined itself has meaning due to its qualitative properties. If asked to draw or dance this journey, presumably those lines would become apparent before the color or temperature of the road would be.

Two: Linear qualities of the body

Anthropologist and phenomenologist Maxine Sheets-Johnstone proposes linearity as one of four qualities of movement alongside the tensional, areal, and projectional[4] (2016b, 115; 1999a). Sheets-Johnstone suggests that by nature, lines have a three-fold spatio-temporal energetic qualitative character (2016b, 117). Furthermore, she highlights how a moving body creates two types of linear movement; *linear patterns* via the traces of our limbs or with our whole body through space, and also *linear designs* from the sculptural placement of the body (ibid., 115). Sheets-Johnstone defines linear design as the linear contours of the body, either in rest or in movement and linear pattern as the trajectories made by the moving body (ibid.). Her acknowledgement of imagined lines will be discussed in the chapter 'Embodied Lines'.

5 From Sheets-Johnstone (2012): Tensional quality captures the felt dynamics and intensity of movement. Areal design may be constricted or expansive and areal pattern is either intensive or extensive through space (45). Projectional quality is the manner by which movement unfolds: abrupt, sustained, ballistic, or collapsing (46).

Three: Material Engagement Theory

Material Engagement Theory (MET), proposed by Colin Renfrew (2004) and Lambros Malafouris (2004, 2013), from the fields of philosophy of mind and cognitive archaeology, looks at markings in cave drawings or lines doodled with pen and paper, not as representational forms or external records of mental states, but as lines that substantiate the processing of cognitive development, stating that "cognition and action arise together" (Malafouris 2013, 74). When discussing MET, extended mind theorists use cave paintings and drawings to highlight the roots of human cognition. The topics of these theorists are materials, mind, and cognitive archaeology, a field that inquires about the evolution of the ancient mind by examining material remains. The evidencing of those fields and theories is depicted by lines. So called proto-humans drew on cave walls, pictures, and number markings. The lines themselves appear not to have been the main topic but they appeared highly important. As part of his extended mind theory, Malfouris' proposal claims lines are intentions in action, created through a mind, body, and material engagement. "They are not so much the trace (and thus the end mark) of a human gesture as they are an actual part and thus a continuation of such a gesture in time and space" (ibid., 191). In this way a connection can be seen between a perceived permanent line (left as a mark on paper) and a temporal trace made by a body.

Four: Affordance Theory

Lines are of course also perceived in the environment. In the field of visual perception, American psychologist James Gibson describes Affordance Theory as characterizing certain behaviors that the environment affords to a perceiver. Simply, Gibson defines affordances as what the environment can offer to the animal (1979, 128). The perimeter of a handheld object like a ball or vase relays information to the viewer, eliciting grasping actions, or an elongated object like a rope can afford other specific actions like knotting (ibid., 133). Here, a line as a boundary of an object and a linear object itself invites or affords certain behaviors on the part of the perceiver. This also extends into moving objects, as a person walking affords joining their walk, but a plane flying over ahead does not allow for the possibility to join. Using Sheets-Johnstone's term, Gibson is proposing in perceptual psychology that the linear design of an object incites certain action behaviors in a viewer. A line in the environment that is horizontal or flat would provide the affordance of stability and support for the viewer, while a vertical line would provide an obstacle and a slanted line would provide either a surface to walk on, or to slide off of (ibid, 132). In these examples, lines are a visual result informed by how our eye sees three-dimensional forms. When we view moving objects, it is the linear patterns or traces that would allow different interactions; a ball heading your direction affords to be caught but a gnat buzzing around your face with twists and turns does not afford the same ease in catching due to the speed and shape of its linear trace.

Five: Vitality Affects

Daniel Stern, working in developmental psychology, proposes Dynamic Forms of Vitality, more simply referred to as *vitality affects*, as the qualitative 'how' that emerges from fundamental felt experience of humans in motion (2010, 8). He states, "The concept of dynamic vitality forms brings together four converging lines of thought, namely intersubjectivity, cross- and meta-modality, the dynamic features of experience, and a phenomenological focus on subjectivity" (ibid., 44). Stern proposes that how something is done, the qualitative nature of it, is a basic building block of human perception that organizes our experiences. Having named this observation in different ways throughout his essays, vitality affects is one of the most common and recent terms settled on. He describes "Vitality as a mental creation, as a product of the mind's integration of many internal, external events, as a subjective experience, and as a phenomenal reality" (ibid., 4). Vitality affects are in everything and yet are not of anything. Stern explains, "These elusive qualities are better captured by dynamic, kinetic terms, such as 'surging,' 'fading away,' 'fleeting,' 'explosive,' 'crescendo,' 'decrescendo,' 'bursting,' 'drawn out,' and so on" (1985, 54). In his writing he illustrates these as lines in graphs in which intensity is marked over time. A line going up and down quickly denotes pulsing and a line dropping from high to low represents fading. Though he is speaking of affects, lines are the tools used to depict such felt qualities. Similar to sound symbolic forms (Köhler 1947), here forms of vitality are felt through the body and understood by simple dynamic line drawings. Vitality affects are not only linear when drawn, but also during the traces made through movement when we as humans enact these qualities.

Six: Asymmetry Principle/ Memory Storage

Michael Leyton, a professor in psychology as well as a visual artist, proposes that "shape is the means by which past actions are stored" (2006a, 13). Broadly, he explains that lines on a face, in the path of a tree growing, or in a scratch on furniture are memory storage because information can be extracted about actions in the past (ibid., 15). More specifically though, Leyton's main premise, that he introduced in books dedicated to the mind, visual art, and architecture (1992, 2006a, 2006b), is that asymmetry is the key feature in revealing information of the past. In what he calls the Asymmetry Principle, he proposes that "an asymmetry in the present is understood as having originated from a past symmetry" (2006a, 17). In short, for there to be memory storage, this theory stands on the ground that the mind runs time backwards from objects (ibid., 19). When looking at the asymmetry of lines, our mind runs time backwards and thus acknowledges that the lines hold in themselves meaning and storage of past events.

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These six theories are able to work with each other, not only as a practice, but in theoretical layering as well. For example, someone is gliding past me, and I draw their trace on paper. Their linear pattern holds a vitality I can translate into a drawn line. The drawn line can be looked at as holding memory of that vitality, of the person gliding, as well as the movement of the drawer. We can approach the line through CMT: if the glide is going up, or if the runner is moving forward, we can access the meaning of future or the image schema of horizontality, which also layers with the affordances of the ground. Affordances also appear in the behavior of that person gliding. Extending Gibson's ecological theory of perception, we could say that a gliding action affords me to interact with it in a different way than an exploding action. By accessing the linear design, pattern, and vitality, the affordances change. The lines of these actions, when put onto paper, constitute a form of material engagement intertwining with my perception.

With the acknowledgement of these six fields, a question I have is what happens when lines no longer remain in the background? When we shift lines from background data to foregrounded observation, the body's function as a translator, translating lines from one domain to another, becomes more apparent. Put differently, lines are inherently imbued with movement, and when viewed this way, their spatio-temporal-energetic qualitative character can be utilized as a tool for translating modes of experience. As dancers are skilled in movement of many sorts, moving their body alone or with others, transforming space or outwardly expressing inner thoughts, using dance and creative practices to research lines is a unique and logical starting point. Therefore, this project investigates how artistic research can use movement to make connections between modes of experience.

Describing what one sees or thinks by means of movement and drawing allows aspects of meaning to become present that would normally go unseen in verbal language. In this case, lines serve as a form of multimodal communication in a new (inverse) sense, in that they can translate inner thoughts, logics, qualities, visual perceptions, and felt sensations into a permanent perceivable trace of a pen. To understand this type of abstraction, Arnheim states, it "requires a mind that, in perceiving a thing, is not limited to the view it receives at a given moment but is able to see the momentary as an integral part of a larger whole, which unfolds in a sequence" (1969, 50). By looking at lines that jump between modes, where through the body, different ways of thinking materialize due to the output of lines as movement, drawings, shapes, or thoughts, a person is able to keep themselves agile in mind and body and to be ready to adapt to alternative logic systems, be it creative or in interaction with another (or both). Using these theoretical fields to tease out the density of a simple line, in turn, allows lines to highlight sense making, transient, noticing practices.[5]

6 The previous two paragraphs are from O'Connor, M. 2023. Lines of experience: Towards a research method, 366 and 371.

Loose Ends

To make sense of lines is to not view them as fixed, but as processes—open and dynamic. Through looking at some historical and contemporary approaches to lines, I reviewed how lines have been identified and used in ways that present the lines as open, transient, and embodied. In so doing, certain questions are *drawn*. Additionally, I looked briefly at the six theories that are used in this research where lines have been innovatively pulled as material. The element of lines embedded in those theories becomes material to contribute to the field of Linealogy, as well as for improvised dance and artistic practices. This is where the line becomes a tool to organize experience and simultaneously create experience. The line that I can make sense with is the line that is open-ended in its form of production. For Ingold, the line is not a metaphor for life, but is the very thing we use to produce meaning and ourselves: "What we are, or what we can be, does not come ready-made in any kind of program, genetic or cultural. We have, perpetually and never-endingly, to be making ourselves. That is what life is, what history is, and what it means to produce" (Ingold 2010, 300). In this way, I could consider lines not to be only the focus of this thesis, because it would make sense for them to be the focus of countless research questions as they are the very means by which each individual can produce, unfold, and connect with their inner, outer, communal, and situated world around them. "The aim is to place weight not on a passive thinking body, but on knowledge embedded in movement, on the spatio-temporal-energetic nature of lines that we imagine, make, or perceive with our body" (O'Connor 2023, 371).

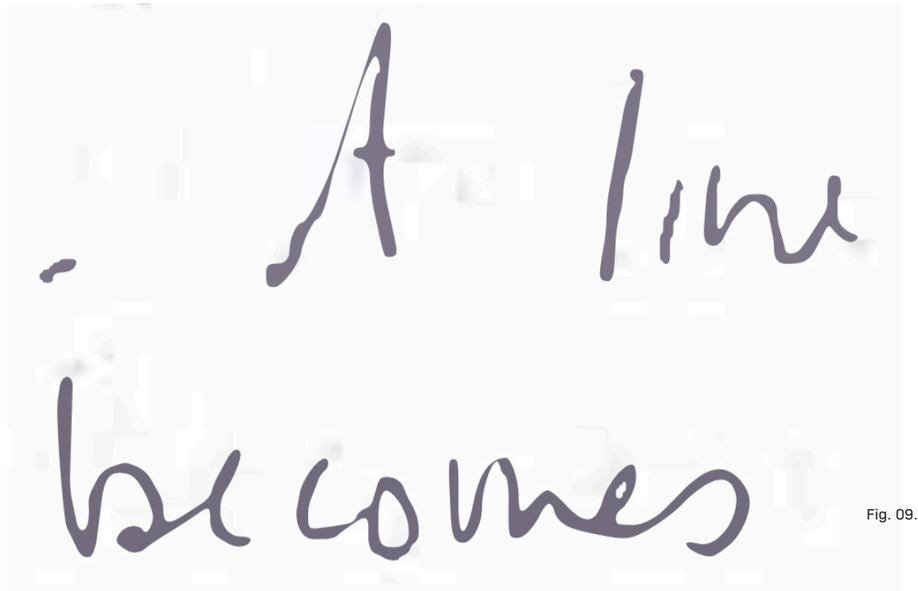


Fig. 09.

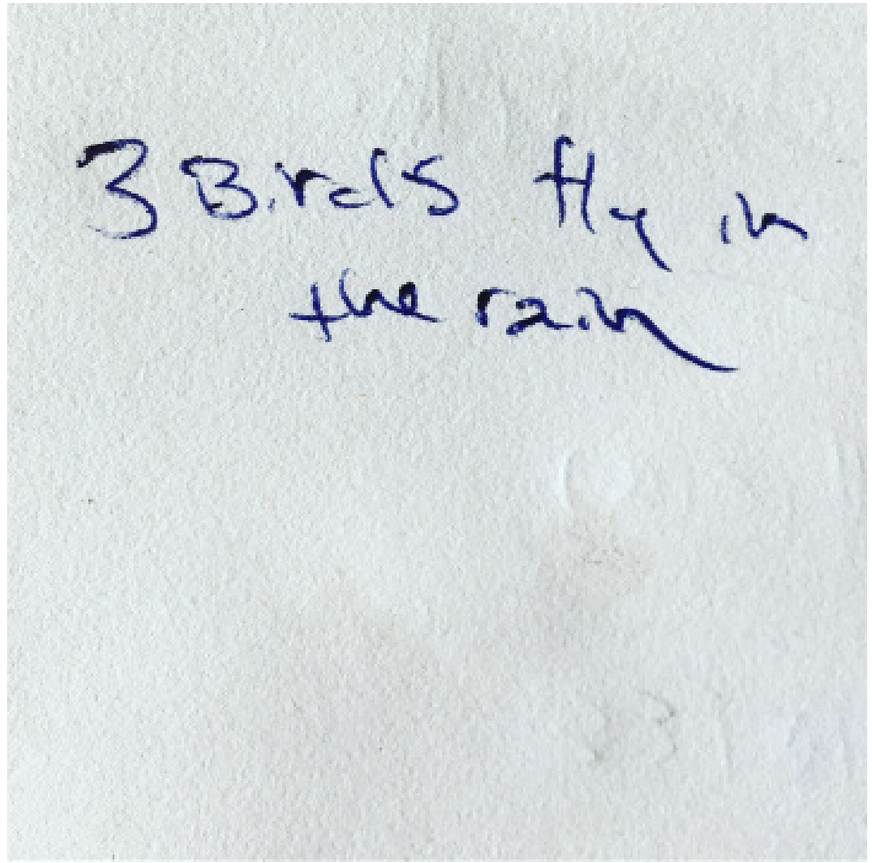


Fig. 10.

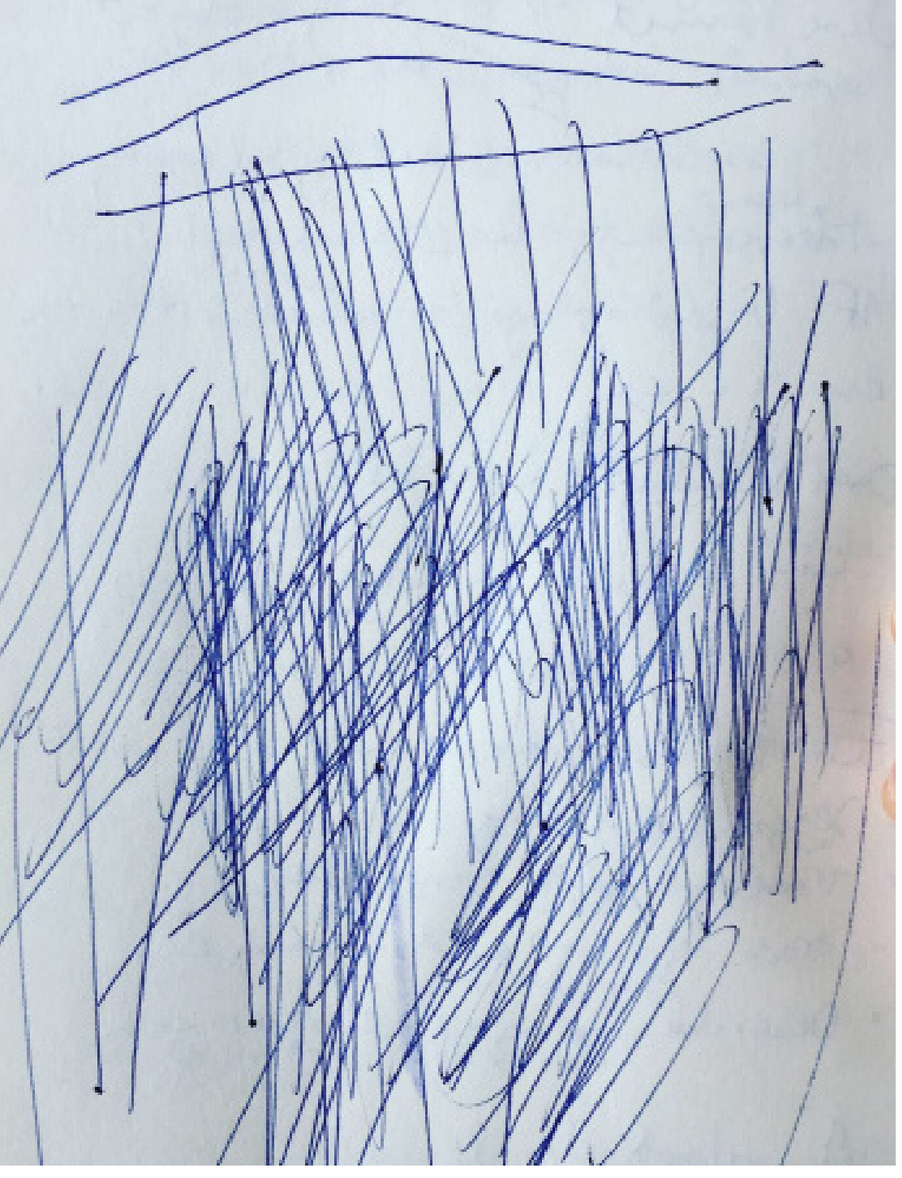


Fig. 11. 3 Birds fly in the rain. Drawing from tracing falling rain, 2020.

Rain (2020)

I trace the rain. Rain makes traces. Light reflects off the drops as I see impressions of falling streaks. Besides the knowledge that rain goes from up to down, my senses confirm the rain is falling. I bring my pen to the paper, as I do when I make traces of other moving things, like dogs running or bikers. There is something different in this trace, though. Perhaps the speed. It is gone at the exact moment I notice it. The ability to trace it as it unfolds is not actually possible—and it does not unfold; it simply drops. I let the pen hit the paper and pull down, leaving a trace of one raindrop. It feels pointless. I do not know how many raindrops appear before my eyes, but in the time it takes to mark one, the feeling is that I have missed so many. But I am trying to trace only the ones I see, which depends on the light. I sense, mainly through sound, the speed and intensity of the rain and, therefore, how dense the rain is and how many drops there might be. My eyes move quickly, darting around, looking for actual traces. Compared to a biker that goes at a speed where I have to imagine the trace—imagine a tail behind—the rain shows me the trace. It goes so fast that I see the light being pulled down. As I create more and more traces, I realize what I am drawing looks nothing like the rain. It is lines on paper. I realize in this moment that to draw or paint rain is to capture the essence. I imagine what expressionist or impressionist painters must have done to portray rain. I stay committed to my practice as the point of this is not to signify or represent the rain. It does not have to be readable by another. The point of this practice starts again from the position of making traces and bringing the visual trace of something in the environment, a perceived line, into a temporal trace by my hand, leaving another trace on the paper. My body moves the rain to the paper. Each drop I see, followed by a pull from my hand, is repositioned onto the page. A storage of memory. I am sitting with the rain. This is indeed a withness practice. My body is translating, taking the rain from outside to inside.

Lines of rain become lines on the paper by going through the lines my hand makes. The shift from aboutness to withness is felt. I am not speculating what is rain, thinking of ways to draw it, positioning myself outside of the rain, and using analytical responses to make decisions. Instead, I am relying on responsiveness and on noticing. I notice and respond. And I use lines as a tool to stay with the practice. To not make it any more than it is. There is an understanding that the trace, the qualities that will be held, entangled in the line that is materialized, will hold what it needs to hold. Here, we find that my body is the translator and the conduit. The straight, steep, sharpness of a raindrop, those effects, as I perceive them through vision, are immediately transferred to my gesture. My hand pulls the pen straight, sharply down. It is over in less than a second.

The angle of the rain tilted from the wind is also slightly captured. Imagined horizontal air currents of the wind appear coincidently in the acute tilt of the lines I'm making. Then suddenly, three birds fly through the rain. Black smears going horizontal. In the same practice of noticing and responding, the birds get pulled into the practice and appear with the rain. No technical difference between the rain and the birds. But the difference in their meaning; their affects, their vitality, their togetherness is different than the rain's togetherness. I bring them through my body and onto the page. In this moment, the practice seems finished. The image resonates when labeled 'three birds fly in the rain'. To think of Wittgenstein's 'What we want to understand is already in plain view', allows me to see what abundance of information is there. The rain that reaches the light, its straightness, its density, its angle; the wind unseen, the number of birds, how they move, their spacing. Also, I might even suggest that it could be understood that I sit on the 4th floor, looking out a window almost above all the trees where the birds were almost at eye level. Their pathway was practically horizontal to my vision rather than arching above me. This is all conveyed by lines.

Through the practice, the act of doing it, I also notice that, after each drop is captured, my arm returns quickly, waiting for the next drop to come, which does so immediately. The down-stroke is on the paper, and the up-stroke is off the paper. In this way, I am doubling the traces. I am making a down-and-up stroke for each trace of rain I see. My body has to create two lines, two gestures to capture one trace of rain. Like a violinist, the pull-down creates a sound/mark, and the rebound is a reflex, almost a continuation of the first stroke but navigated off the page and back to the starting position. I have similarities to a violinist. I could use the same practice to pull a sound on the violin strings for each drop I see. I could also give my rain drawing to a violinist as a score. They could use their body to translate the drawn lines into sound lines. Moreover, it could also suggest a technique. Pull one line down, rebound, and start again. What was learned from drawing is moved to a musical technique. I could have also pulled up with the drawing to get more lines with less effort, but in the practice of tracing, the rain only falls down, so it would be inauthentic to trace a line up. With this logic, therefore, the violinist should not stroke the bow in on itself, but only out, down to the floor (if the rain drawing were to inform the violinist how to play). In contrast, the violinist, has notes to choose from, whereas the pen does not. The pen could choose colors. And additionally, how would the birds be translated?

Not these lines

Historically, the relationship between lines and dance can be seen in many examples. The simple coupling of lines with dance is not new. Four prominent examples where lines and dance are notably linked are presented in this section to distinguish their use as something different than the main research presented here. There is by no means anything problematic with the historical works I will review below, but it warrants mentioning explicitly that there is a reason why the following examples have not been used in the current research. Acknowledging them overtly intends to make clear how the research in this project differs from them.

The four prominent uses of lines in relation to dance that I suggest examining are ballet, Forsythe improvisation technologies, dance notation, and motion capture. From historical ballet to documentation, and into the realm of technology, these areas each utilize lines differently. However, in these fields—and this is the point in acknowledging an opposition—lines similarly are used in a fixed way. The first impression of these areas show that lines are often either used as static data, as a means of revealing quantitative insights, or to foster exact meaning. The exactitude of lines used in these ways allows little room for situated or ambiguous meaning.

By no means do the brief introductions to dance and lines in the areas below give any exhaustive account of the fields or their total relationship to lines. In fact, the four fields listed below have synergies with each other. William Forsythe himself is a ballet dancer who deconstructed Labanotation (explained below) and used motion capture technologies to create new documenting methods. Though they have very different histories and uses, these connections hold a similar feel in how the line is utilized in a more finished way. The fixedness of these lines seems to be a result of the lines feeling pre-made.

Ballet

The relationship between ballet and lines is apparent in ballet's history, in its practice, and is observable to spectators. I also write from my own relationship to ballet and my training in it through high school and university. The ballet dancer's body is a detailed executioner of lines, shaping and forming the body. Though a ballet dancer additionally performs with emotion and expression, ballet's technique relies on its form. The virtuosic aspects that dancers strive for and spectators relish in watching depend on extreme line making from flexible limbs, strength in extensions, and the imagined lines that come from short traces of the feet or multiple turns executed quickly. Lines extend from the longest finger through the body to the end of the pointed toe. Detailed nuance is found in the épaulement, where the body tilts and twists, as chin, shoulder, and neck create subtle differences within the body's delicate lines as seen in the images in the book *Ballet from the First Plié to Mastery: An Eight-Year Course* (Paskevska 2002, 15–22).

Ballet's feet positions and types of arabesques showcase the varied differences in how the body's lines orient toward themselves and toward the audience. Compared to modern or contemporary dance, where the moving body is often released, following gravity, aiming for flow over form, ballet is constructed through positions and bodily forms where toes need to be pointed, legs extended, and arms carried. Modern dance techniques like those of choreographers Merce Cunningham, Martha Graham, or José Limon also maintain similar form characteristics to ballet even though those techniques originally aimed to oppose ballet by being performed barefoot, using the floor and breaking the line of the body. Specific techniques, by definition, propose lines that are fixed, coming from pre-made positions.

Positions drawn in ballet books depict how the body should look. Here, we find a seed of the body's linear fixedness, as we do with codified systems. The ballet technique, either from drawings in books or as led by the ballet teacher, aims to teach dancers a specific way of holding their body that is desired. In drawings from 1800s or in

more recent training books (Grant 1967, 122), coordinate lines are drawn under the dancer, requiring specific angles and directions in which one must position their body. As we see with the corps de ballet (the ensemble rather than the soloists), all the dancers need to have the same lines for aesthetic purposes, where achieving uniformity among different people creates moving designs, and for purposes of repeatability, so the show can be performed again in the same way.

In ballet training, one is very aware of the lines they make and how the lines through space extend and are ultimately graceful, clear, and defined. When standing at the barre to warm up, everyone must move in unison with the music to not be in each other's way. The barre itself is a long wooden pole that the dancer stands next to perpendicularly: a vertical line adjacent to a horizontal line. A plié is a bend of one's straight legs followed by an extension. A tendu reaches the foot out in a straight line along the floor. Ballet is a list of positions, each with a specific name, referencing a specific step or position that are often found in ballet dictionaries (Grant 1967, 1). The dancer thinks of their spine as the top of a line that their breath can support. They use their eyes to spot while turning to keep the vertical line of gravity dropping down exactly over their center of weight. While dancing across the room, movements typically create one or a few straight lines. Seen as something to master, books are written to help guide children through a course of eight years to achieve such skills (Paskevska 2002). In basic principles of ballet, stretching back to 1725, "The head must be upright" so the posture can reflect nobility (Hammond 2007, 70). The use of principles and imperatives in the training leaves a wake of fixedness in ballet's history.

When watching a pas de deux, typically the male partner stands behind the female not to block any of the lines and extensions she makes with her body. Additionally, when not supporting her through holds or balances, the male dancer will add additional lines in the negative space (the space between their partner's arm and body, or arm and head) to frame and add contrast to the image the audience sees from their fixed frontal position. Though dancers are of course three-dimensional beings, the ballet forms are often designed relying more on two-dimensional aesthetic consideration from one frontal side.

Ballet and its relationship to lines is geometric, anatomical, patterned, and named. It could be said that the appeal of ballet is its hybrid form between aesthetic and athletic. The technique functions as a form to prevent mistakes or injuries. Jumps and turns could not be executed, and particular desired aesthetics would not be reached, without the fixed restraints. In its elegance, it transports the body into something other than the body. It is for a few well-trained dancers. Without even looking at race, age, or class, the athleticism used alone predetermines who can bring these types of lines into relation with their body. This element of exclusion is also felt as something confined and limited when lines cannot be achieved in the way they are expected to be. For these reasons, ballet promotes a type of line that does not correspond to the aspects of lines that I find thought-provoking. As someone interested in the dynamic and fluid nature of lines that emerge through situated, embodied practice, I find that ballet's emphasis on fixed and predetermined lines does not align with my own artistic and philosophical inquiries.

In general, the lines of ballet are elegant, long, and graceful. This desire for aesthetics limits other possibilities, where different movements could create warped, jagged, or non-extended lines. In the form, there are limits to what is acceptable, even if convention is always being tested as the art form evolves. For instance, over a century ago ballet dancer Rudolf Nijinsky's own choreography of *L'Après-midi d'un faune* (1912) and *Le Sacre du printemps* (1913) pushed the definition of what ballet could be by playing with broken lines and more theatrical expressions. Performed to Stravinsky's avant-garde musical score, the performance of music and dance together caused the infamous Paris audience response of a riot. Audience members present were documented as saying the music was "ugly" and Nijinsky's choreography was "not dancing" as it did not match the expected aesthetics audiences came to see (Järvinen 2013, 71). Though ballet can be open for different uses of the body's lines, doing so creates tension due to the form and technique's codified system which allows us to label it as ballet.

The classical form assigns names to positions, which often require uniformity and demand an aesthetic and athletic achievement to qualify them as 'right' or 'wrong.' This fixed relationship to lines is created as a result. In other words, the imagined line, demarking what ballet is and what it is not, is why ballet and its lines fall outside the scope of my research.

Forsythe

A more contemporary and different use of lines and the dancing body comes from choreographer and dancer William Forsythe. Though he is trained in ballet himself and choreographs ballets, his relevance to the dance world stems from multiple contributions. Forsythe himself has questioned the demarcation of ballet from classical forms and has brought new aesthetics to the field. His use of ballet, motion capture, and linear tools for improvising is why he is one of the first names thought of when mentioning lines and dance.

His *Improvisation Technologies*, released in 1999, is a CD-ROM that introduces ways of improvising to dancers. Compared to set and formalized ballet, Forsythe invites dancers to be precise with their bodies while deciding which movements to create. In this approach, the dancer imagines lines in front of them and then uses their body to trace these invisible structures.

Forsythe explains: "Since I work primarily with ballet dancers, I analyze what they know about space and their bodies from their intensive ballet training. I've realized that in essence ballet dancers are taught to match lines and forms in space" (1999). Though there is the immediate recognition that the dancers simply match the forms of linearity, he does allow for this practice to create bent and distorted shapes.

In his practice, Forsythe draws an imaginary shape in the air, place holds that area in his imagination, and then explores movement around it. This could be labeled a type of imagined line. He conveys this idea through the CD-ROM, where drawn lines overlay the video. Using technology to reveal what is felt or imagined, though definitely interesting, removes the human from the equation as it lets a specific pre-made line replace what would be imagined. The viewer of the video clip sees how the line is supposed to look as it is drawn in post-production. Additionally, in this way, all lines are the same width and style. Even as they stay geometric and even, lines overlayed from a fast arm thrown or lines traced from a cube slowly in the end, all show the same uniform lines. This creates a feeling that all movements associated with those lines are also similar.

The CD-ROM does not give space for anything other than the system. It is a tool for demonstrating one of Forsythe's approaches. It helps a dancer understand precisely where their body should be in order to execute a line. The tool helps people learn to draw a straight line and be articulate. Forsythe's rules produce complex motions. Emotion and response are not part of the practice, however. Psychological and qualitative differences are not the focus. Instead, mathematical precision and unambiguous details are key components in the use of his imagined lines. Forsythe gives names to movements and codifies improvisation tools. In this context, I perceive the body being used as a tool, whose purpose is to execute a fixed outcome. Thinking of the body only as a tool can detach it from one's sentient, emotional, and mental sensations.

In general, the precise approach implies that there is a right or wrong way to execute the task. Precision is in the form. In this way, the imagined lines the dancer places in their visual field are fixed and require a precise, exact relationship to be maintained to them. Similar to the situation with ballet, the body relies on the form.

Forsythe evolves his practices into other outputs—for example, "movement alphabets" where 135 fixed actions are known by the dancers, and he conceptualizes this approach to that of computer processes. We see Forsythe interested in architecture, robots, algorithms, and alphabets. Similar to notation systems, there is something static, fixed, or exact that arises from these collaborations with the body. His piece *Black Flags* (2014, 2017) consists of two robots in a museum waving flags from a "digital algorithm that controls the robots into a series of gestural movements in space that appear controlled, unpredictable, weightless, and measured at one and the same time"

(Forsythe 2014). From fixed movement alphabets to dancing robots, Forsythe relies on stable perimeters to show the beauty of movement, often in unique ways.

Forsythe's work is constantly changing forms, and as a creator, he is open and often ahead of his time. He uses improvisation to create a new form and then asks for repetition from his dancers. Dancer Tamas Moricz noted Forsythe seldom showed something twice the same way and allows dancers to do their version of a movement and explains, "What became fixed came from this curiosity and a generous allowance for fragility, trials, and failures" (T. Moricz, personal communication June 24, 2021). As a long-time dancer with Forsythe, Moricz reminds me that often actual experiences in creative processes are different than the steadfast outcomes.

I do not, however, find all interactions between the body and the line to be fixed in Forsythe's propositions. For example, another project he made involved taking an image of people and making line vectors that arch away from body parts. These images were considered choreography, and the dancers had to figure out their own transitions from those perceived lines as invitations into traces their body could make. In this example, he fully outsources the interpretation to the dancer in the moment, giving over decision making and allowing for personal style.

One of Forsythe's beliefs is to move extremely fast in order to take movement to its limits (Massumi & Manning 2014, 40). His contribution to the form of dance as a movement researcher is greatly significant and captivating. In the end, what is fixed is that Forsythe is the choreographer of his work, and in this process, there is one person that determines what is put on stage. The tools, CD-ROMs, and alphabets are ways to achieve one person's desired aesthetic, where his decisions and choices prevail. This is what makes Forsythe's work unmistakable. This also limits the amount of agency and voice a dancer has working with their body. In this traditional choreographer-dancer relationship, the dancer is aiming to achieve the goals of someone else—to repeat an outside author's creation.

If Forsythe is interested in the architecture of movement, in comparison I am interested in the felt sense of movement. He moves the body as a line, and I say the body is a line maker. In my work with scores, the dancers have agency, and there is no one choreographer's outside voice determining what is correct. What is important for me is that dancers engaged with their own translation process of creating lines allow an unknown, flexible situation to unfold.

Notation

Dance notation is a third example where lines, in this case drawn on paper, have another relationship to the body and movement. Compared to using lines in regard to techniques for the dancer, notation has a different purpose. Notation in dance is for recording and reconstructing movement exactly as it was used before. The aim is that by looking at the marks made on paper that represent specific movement, someone else would be able to take exact meaning from these marks and recreate them without ever having seen the original dance. These notation systems were of course created before the invention of video or computer recording. "When dance notation emerged in the Renaissance, it was common to use letters and other visual symbols denoting the spatial pattern of the dance" (Karreman 2017, 61). Two famous notation systems are from Rudolf Laban and R. and J. Benesh. The Benesh system, called 'choreology' or Benesh Movement Notation (BMN) uses horizontal staves similar to musical staves where abstract stick figures represent bodily positions augmented by symbols that indicate the direction, time, or quality. With Labanotation, similarly, symbols and lines mean placement, intensity, body part, and location in space. Where BMN writes like a musical score extending horizontally, Labanotation writes its marks more vertically, (Watts 2015, 285). The effort factors involved in documenting movement through Labanotation (Laban & Lawrence 1947) are weight (light/strong), flow (free/bound), time (sustained/sudden) and space (indirect/direct). Notating dance in this system is a three-step process of abstraction, from the space that is lived, to the geometric cube space that the symbols exist within, to finally the stave notation system (Salazar Sutil 2015, 135).

Where Labanotation sought generalized usage, Benesh kept a tight control on who could use it in order to keep it uniform and to protect intellectual copyrights (Watts 2015, 298). Both Labanotation and BMN were seen as potential "universal" systems for movement notation (ibid., 293). Considering Benesh created a movement alphabet (ibid., 291) and Laban published his first book titled *Schrifttanz* (1928) (*written dance*), the equating of movement to terms within language was present in both forms of notation. However, lines do not solely appear in relation to language, but also through spatial orientations and cardinal systems. Laban puts an imaginary tetrahedron, octahedron, dodecahedron, and an icosahedron around the dancer, geometrically determining points in space that can be referenced through coordinates (McCaw 2011, 11).

Notation systems are rule based and have already defined symbols and meanings that are fixed. Nicolás Salazar Sutil explains in his book *Motion and Representation: The Language of Human Movement* that dance notation systems are "not necessarily intended to incite new movement, but to reconstruct, to reiterate, to repeat an author's movement" (2015, 130). Salazar Sutil explains that even when the notator happens also to be the dancer, the process of notating the movement does not come from the felt experience of the movement, but from a set of symbols and meanings, that move from first person to third person, and in this record of becoming disembodied, the notation takes a closer relationship to written language than to movement (ibid., 127).

Laban's intention was to create a movement notation system, and not a system for static positions; rather, he understood that the best way to write progressions in space was to notate positions passed through (Watts 2015, 278). Watts explains that "notation effectively 'freezes' the moving body and documents how it looks at that moment—a description of destination rather than action" (ibid.). Drawings from Laban of dancers show the dynamic movement and full breadth of time space and effort, showcasing his visual art skills (McCaw 2011, XX). The lines in his drawings, made by his own gestures of movement, are very different from the graphic geometric marks of lines, squares, and triangles within his notation system.

Salazar Sutil clarifies "We no longer have access to the movement, but only to the reading and writing of movement" (2015, 135). Within the frame of my research, notation is disturbing as it entails the need to hold something that is unholdable. To notate or archive places attention on what was. Salazar Sutil writes, "stave notation slows down the transference from physical to mental, creating a disjointed and cut-off connection in which intellection becomes divided and excluded, often provoking a Cartesian split between two differentiated agents; the one who moves and the one who writes" (ibid.). It is clear in notation that lines are an after-the-fact product. They are symbols that are designed to have universal meaning for those that know the meaning. As the point of notation is for everyone to interpret it in the same way, this creates a fixed approach, whereas the lines in my research intend to convey temporary and situated meaning that may be different each time as they pass through the dancer.

A Mention of Improvised Glyphs

Another type of notation to briefly mention is that of the glyphs used in contact improvisor[1] Nancy Stark Smith's Underscore practice, also known as Global Underscore in the annual event dedicated to it. Describing the practice, from Stark Smith's website: "There are 20+ phases of the score—each with a name and a graphic symbol—which create a general map for the dancers. Within that frame, dancers are free to create their own movements, dynamics, and relationships—with themselves, each other, the group, the music, and the environment" (Stark Smith, n.d.). In Underscore, the graphic symbols or glyphs represent a type of improvisation style that the dancers already have knowledge of from a 60–90-minute lecture that introduces them to the structure and meaning.

The glyphs are not prescriptive in that they do not dictate a limited way to behave. They are ideas, suggestions, themes, and kinds of relationships (repulsion, attraction, influence to name a few). They are a lexicon of meaning. For example, the simple X is used in a unique way in Stark Smith's glyphs. In other contexts outside of Underscore, an X could stand for a specific spot, point or location or might be a symbol for 'no' or to negate something. In Underscore, the X means connection. In this manner, the letter X depicts human movement as two paths, and

7 Contact Improvisation is a dance practice invented by American Steve Paxton, among others, that focuses on physical touch and movement between dance partners on a spectrum from highly physical and dynamic to moments of stillness, where weight sharing, balance, falling, and gravity are explored.

the pathways intersect creating connection. In a conversation with dancer and Global Underscore leader Brandin Steffensen, he notes that sometimes new glyphs are invented during the reflection phase that happens afterwards:

> So, what happens is people do Underscore and they have their reflection and harvest for 10–15 minutes. In that time, they write about their experience, or draw, write poems or doodle. It is not uncommon for someone to come upon a unique symbol that means something to them about their experience that "looks like" an underscore glyph. When they present it during the sharing and people see it, there is often a lot of enthusiasm about the symbol because it creates a kind of resonance for others. These "new" glyphs are never added to the formal lexicon, but they are remembered by those who find meaning in them. (B. Steffensen April 15, 2021 personal communication)

What we can find of interest here is that through the formal glyphs and their meaning, and then the lived experience of the dancers embodying the relationships and ideologies of the glyphs, the marks and doodles they make in their reflection stage have meaning for others who share the same experience. I understand that the set symbols from the score set up everyone with a working language, but it is the traces and lines they make themselves while dancing, which then get extended as mental states into the doodles afterwards, that allow for their doodles to resonate with other participants through a shared sense-making. The doodles as quick lines from invented glyphs are extensions of mind-body-environment interactions. Steffensen mentioned that dancers in other cities who later participate in the Underscore practice, and who were not present when the new informal glyphs were drawn, are also able to understand the meaning due to their own experience of the moving body.

The formal glyphs from Underscore, though open, have a semiotic meaning that requires a pre-understanding, so the system functions in a certain, fixed way. The doodles, however, that are informally drawn afterwards are immediate responses to the dance and stand in exact parallel to my research where temporary, situated meaning is made through the bodies' traces, and is translated into another mode. The immediacy and responsive nature of these doodles shift our interpretation of them from a fixed, after-the-fact symbol, toward an in-process marking of dynamic meaning between mind, environment and (an other) body.

Motion capture

In the field of motion capture, it is common to find computer renderings of digitally created dancers, often composed of dots connected by lines. Virtually rendered images may be of stick figures or skeletal structures showing the human form (see fig. 12) or the connected points placed on the dancer where data was collected. Alternatively, images may be of visualized traces that the dancer makes, showing the tracks left behind the movement (see fig. 13). The term motion capture can encompass a variety of forms, as a blurred photograph or video could also be considered capturing motion. For instance, in film and photography, Eadweard Muybridge is notably known for his capture of horses running and men wrestling and jumping (Muybridge 1955, vii).

There are of course many other forms of motion capture. Though portable equipment that attaches to the body has already been invented as technology progresses, infrared systems are often used in sports science and the systems are fixed in a laboratory and cannot be moved (Hofmann et al. 2006, 45). Infrared light is not normally visible to the human eye and the fixed set up also constrains how the motion is captured. By itself, motion capture of dancers brings forth the idea of lines as it is capturing movement and the shapes of the body. Computer-generated figures of dancer that are turned into abstracted lines, or traces they make as visualizations are the type of lines and dance one might initially conjure within the field of motion capture.

"Motion capture is, by definition, grounded on the capture of bodily movement; it is not a separation of corporeal movement from the corporeal body, for no corporeal movement can ever be issued without a corporeal body" (Salazar Sutil 2015, 198). Salazar Sutil explains that the point of motion capture is to record motion that is always physical and in real-time but then use the data to animate a nonhuman or virtual body (ibid., 198). This



Fig. 12. Images of movement represented by traces from motion capture, visualization & data analysis for gesture studies.
Photo: Dominique Boutet, Jean-François Jégo, Vincent Meyrueis.

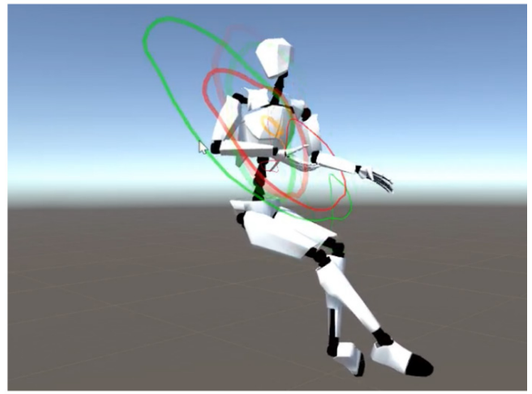
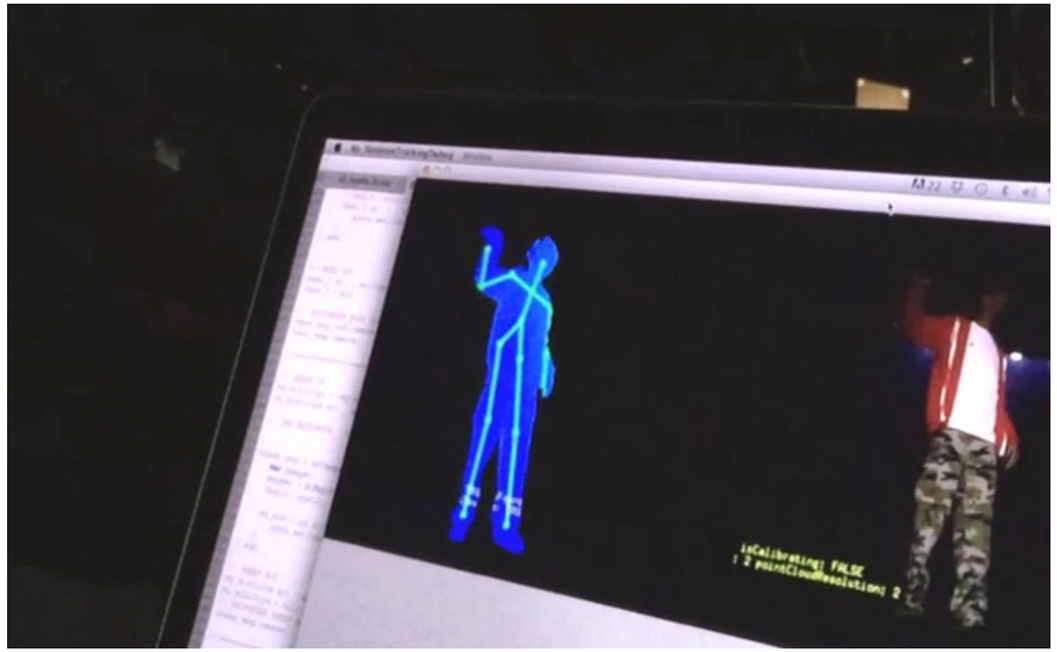


Fig.13. Image of a person represented by lines of linear design in the motion capture program.
Photo: Jean-François Jégo.



use of motion capture is the most prominent as it was developed within the film industry, but other uses involve research on human movement, like gesture and sign language studies (see Johnson-Glenberg & Megowan-Romanowicz 2017; Lu & Huenderfauth 2010).

Visualization outputs of the body from the software that reads or generates movement can be strikingly beautiful in and of themselves. Lines appear as movement and definitely convey movement. However, one must remember that the camera, computer hardware, and software that create animated movement and visualizations can only do so based on previous formulas that have been programmed into them. So not only does the computer, as a piece of technology "make" decisions, but so do the people who taught the technology how to operate. Similar to Forsythe's Improvisation Technologies, desired outcomes or guidelines have already been imparted.

Salazar Sutil claims that in these examples, the choreographic language is "neither a choreographer nor a visual artistic but rather a composite or hybrid agent, a cybernetic agency shared by human and machine intelligences" (2015, 142). I am not interested in artificial intelligence, but in exposing the perceptual intelligence of the dancer working in analogue forms. Once we have a computer trace lines behind a moving body, we remove the imagined line from the perceiver and outsource it to someone else or something else.

Motion capture has a relationship to notation in that it offers a more conclusive and quicker way of recording. Technological lines have replaced semiotically drawn symbols of notation. We see here that when the fixed nature of notation is replaced by technology it allows for more expressions of movement as documentation, but these expressions are created by technology. Karreman makes a connection to motion capture and its preference over older notation systems:

> Dance's typical resistance to being pinned down in writing seems partly responsible for its warm embrace of dance notation in digital text. Emerging digital renderings of dance knowledge are shaped by programming and computer plotting: a type of writing characterized by movement rather than fixedness. These renderings are becoming important agents in the dance process. They introduce metaphorical expressions of dance that would not necessarily have emerged from the process in the studio alone. (2017, 67)

I agree with Karreman that this is an interesting collaboration and when one is interested in technology and dance, this advancement in merging the two fields offers more openings than static notation systems. However, there is still something sentient that is lost when this type of collaboration or documentation is outsourced to a computer. Of course, we can debate what we define as technology: using an audio recording device to play with the lines of speech, or a pen and paper to simply draw what we see, could also be technology. Is a stylus and a tablet more similar to using a computer or to drawing with a pencil in a notebook? In refraining from opening this box of defining the borders of technology, I orientate my practice around where I have manual control and interpretation. Whether I cut the speech in a software program, press the pencil into the paper, capture the photograph by aiming the lens, and choose the timing—this allows me to present what I am experiencing through my body and senses. In comparison to a collaboration with technology that does the interpreting itself, through videorecording the dancer, using lights that send information unseen to the naked eye to the computer that then displays it in visual ways passively, or controlled by pre-set figures made by someone else, the chain of events gets out of my immediate control. While this is fascinating, it is a different research project, one against which I want to distinguish my own.

To reiterate, I am not interested in motion capture technology for my work because I do not want to find details that have escaped human perception. I want to reveal layers or areas that can come forth or enable what does come forth to, and in, human sensorimotor experience while in certain conditions. The exposing of lines that come from situated and sense-making experiences resist lines as fixed entities.

For example, Forsythe and multimedia artist Paul Kaiser have collaborated in creating technology for the moving body. Bringing technology into a triangulation like this brings things that a dancer would not perceive into the equation. As I want to tease out all that is perceptible by human sensing, using computer technology to make choices and influence systems does not match my desired outcome. These software programs help write and generate movement. Even with the nuance of shifting outputs toward individual aesthetics of the choreographers that use them, it is important in my work that agency and creative authorship stay sourced in the dancer's perception.

With the aim of highlighting temporary, situated knowing that exists between couplings of dancers or with the environment, that is too fragile to be reproduced—yet is clear and distinct in the moment it was created—the process of having interpretations by digital programs takes away the agency from the doer and therefore takes away these temporary moments of situated understanding.

In the direction of:

By implementing different uses and theories of lines from specific researchers in perceptual psychology and embodied cognition, lines, movement, and the body blur distinctions. Lines are a way of *thinking with*, or rather *moving with*. Lines do not represent movement. Instead, lines elicit movement, are a response to movement or can be considered movement themselves. Forsythe similarly asks the question: "What else, besides the body, could physical thinking look like?' (Forsythe n.d.). Though the fixedness of Forsythe's use of lines inside improvisation do not capture the open-endedness and ambiguity that I want to highlight within the phenomenon of lines, I agree that lines capture a type of physical thinking in that they are movement. They are either made by movement or they incite movement through visual tracing during perception or conceptual tracing during mental scanning.

Lines on paper, drawings, handwritten notes, or responsive audio messages during an embodied exercise also work as a physical thinking. Post-modern choreographer Simone Forti's *Handbook in Motion* (1974) illustrates how line making merges the thinking, moving, and drawing processes of dance. We can view this through the proposition that these traces and doodles in Forti's book do not represent thinking, but through material engagement they substantiate and are extended acts of mental states. To answer Forsythe through Malafouris' propositions, they are physical traces of cognitive enactments (2013, 190).

While in Forsythe's practice, a dancer might align their arm to match the form of a tree in their visual perception, this situation could be looked at differently in my practice. If I am looking at Material Engagement Theory, the tracing of objects substantiates them. I am not interested in geometrically copying the form, but rather allowing the embodiment of my extended mind, and the metaphorical mapping that that line is now in my body, to bring me with my environment. In another possibility, using Affordance Theory, I would not trace the object, but tune in to what that curved line of the tree incites in my body which results not in a matching form, but in an entirely different movement output. I could match the form, but the intention would be tactile, imagining my body actually touching it. This practice shifts the intention from form-matching to visual tactile influences.

In one video clip from *Improvisational Technologies*, a Forsythe dancer imagines a form and plays in the line's negative space. The imagined lines that Forsythe asks his dancers to create in space do not come from a trace or are not mentally constructed through image schemas of language, or kinesthetic understandings like Sheets-Johnstone proposes. The dancer has to visually imagine something arbitrary in front of them. In my affordance practice ('The Affordance Chapter'), I do not imagine the objects, as I interact with real materials in my environment, but like Forsythe's practice, I play with the negative space of the object because I am engaging with an object's perimeter and outline. I use the shapes of objects and movements of people to elicit a reaction from a distance. The negative space is not imagined. In this case, a dancer does not imagine the line but imagines a closer proximity and then performs the action interacting with the person or environment.

For Forsythe, "What it boils down to in performance is the dancer illustrating the presence of these imagined

relationships by moving" (1999). This sentence is complex. On the one hand it could acknowledge a difference between our practices or showcase similarities. In Forsythe's practice, he is illustrating imagined relationships. A dancer has to imagine the lines and then work with them. Forsythe then calls them imagined relationships in the geometrical game the dancer plays. For me, the relationships are not imagined. I am approaching the relationship to my surroundings as real. The imagined lines I engage with are traces from moving objects, lines embedded in language, sound, or the kinesthetic lines we imagine along our nervous system through proprioception. Though the outputs and terms may be similar (dance, imagined lines, moving relationships), the uses are different.

Against these lines

By no means does this section depict fully the history or nuance of lines in the areas mentioned or the development of each of those fields. These four areas are what I think most likely come to mind when one thinks of lines and dance. And as argued, they have a type of fixity in their usage that is not conducive for how I consider lines in my research. This fixity is also about being precise. I do look at lines as something precise, but within the experience of being qualitatively distinct in your response and perception of your surroundings. I acknowledge the body as a line maker, as in walking, dancing, or in drawing. With drawing, charting temporary improvised moments of traces allows the drawer to be precise as they trace their own perception. This is not the same as notation. In my practice, the lines made from pen and paper do not notate dance or choreography and do not foster repeatability. The tracking traces and the documenting lines serve a different type of knowledge available, one that does not point to reproduction, but rather to the cognitive mind-body-environment pairing between intention and a discovering from a doing. The lines are engagement that are themselves ways of sensing in the act of doing.

To say I am *against*[2] these other forms of lines is fitting, as against has a double meaning: not in relation to, and: in contact with. I am against the types of lines described here for their fixed nature. I am also in contact with them as my work revolves around lines and the moving body. The unique grouping of, and the ubiquitous relationship between body, movement, and lines, require us to discern the differences in practice and approach. Historical and contemporary study of movement brings lines and the body into proximity in a variety of ways. Due to understandable similarities, these other practices are entangled and in contiguity with how I am proposing to look at lines. As I acknowledge at first sight the likeness between the fields reviewed, I believe explicitly defining how I am against these other uses of lines allows us to discover a whole other world of lines, movement, and the body, which allows the study of lines to overlap with the fields of perceptual psychology and embodied cognition.

8 Cambridge Dictionary. n.d. Against. In Cambridge Dictionary. Retrieved May 14, 2022, from https://dictionary.cambridge.org/dictionary/english/against

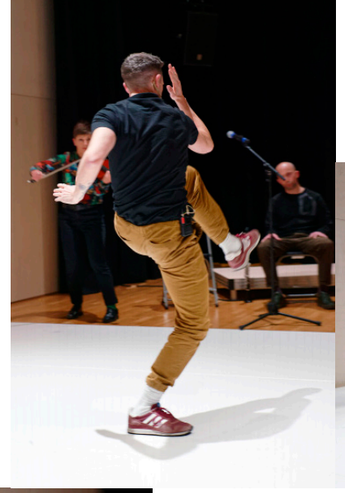




Fig. 14–16. The Body to Sound practice. Musicians reading the lines of a dancing body and translating them to lines of sound from their instrument.









Fig. 17–19. Origami to Dance practice. Descriptions of lines seen in origami were spoken and used as instructions for a drawer and dancer to follow.







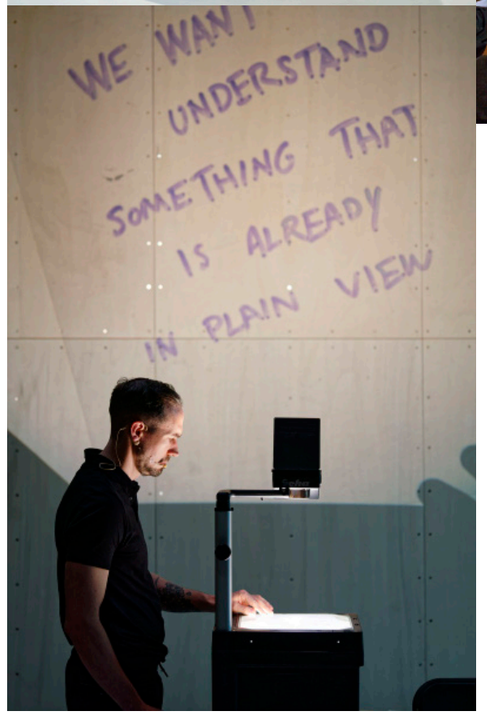




Fig. 20–24. Watcher/Dancer experiment. After a short movement is executed, the dancer and the watchers both draw the line of movement they either felt or saw and then compare.

Fig. 14–24. Part of the Forum: And then the air holds them between us. Amsterdam, December 2019. Photos: Thomas Lenden.

relationally responsive activity

Communication scholar and psychologist John Shotter encourages us to notice the unfolding world around us. He stresses that our bodily activity provides information and connects in a spontaneously responsive manner to people and things. He states these actions need to be acknowledged when we want to consider what the words we speak mean. Speaking from a psychologically informed philosophy, Shotter's ongoing intent in much of his writing is to point towards a concept of ***withness***. The term itself functions well for what it intends to conjure, but it is Shotter's enduring attempts at describing withness where a more profound sense of what he wants us to take notice of is created. Shotter uses hyphenated words, phrases, punctuation, and italics to guide the reader to a type of understanding. Due to this way of writing and the very concept he so successfully describes, I, as a dancer, can sense the moments he wants to highlight that so often appear during dance improvisation and other artistic creations involving movement.

Shotter has previously used the terms ***relationally responsive activity*** (2000) or ***joint action*** (1980). However, pulling from Wittgenstein and Bakhtin, the terms he used consistently in his later writings are ***dialogical*** and ***withness***. Dialogical processes are withness processes. He describes withness-thinking as the activity of entering into dynamic or dialogical relations with living forms (2006, 586). He defines withness-thinking as our ability to "think along with subsidiary awareness of certain felt experiences as they occur to us from within our engaged involvement in a particular unfolding process and that these inner feelings play a crucial role in guiding our actions" (ibid.). He points out that we need to pay attention to the context we are within, whom we are with when speaking, and what our bodies are doing—instead of only depending on facts, and ideas of objectivity or subjectivity that happen afterward, as if we can pin down certain knowings. In withness-thinking "one functions as a participant within the very phenomena one is inquiring into" (Shotter 2012a, 8). Concisely, Shotter proposes a responsive way to think and to be engaged.

Responsivity brings to mind two other concepts that I believe relate in some ways to Shotter's proposal of withness which will also be occasionally referred to in this research. First is the notion of ***participatory sense-making*** (Cuffari et al., 2015; De Jaegher & Di Paolo, 2007), which is described as a type of sense-making that considers the social and interactive elements that influence an agent's experience. The balance between autonomy and relational dynamics is described by the example of how a "couple dancing involves moving each other, making each other move, and being moved by each other. This goes for both leader and follower" (De Jaegher & Di Paolo 2007, 494). Rooted in an enactive approach, discussed further in the chapter 'Architecture, Landscape and Foam', embodied and social cognition scholars Hannah De Jaegher and Ezequiel Di Paolo define participatory sense-making as: "the coordination of intentional activity in interaction, whereby individual sense-making processes are affected and new domains of social sense-making can be generated that were not available to each individual on her own" (ibid., 497). In general, responding to and being with another person or, I believe, even other things, is a type of participation that allows one's sense-making to be influenced.

The second notion regarding responsivity that concerns agency between people and the world they are engaged with comes from quantum physicist and queer feminist Karen Barad. In an interview with Adam Kleinman, Barad discusses her concept of ***intra-action***: "The usual notion of interaction assumes that there are individual independently existing entities or agents that preexist their acting upon one another. By contrast, the notion of 'intra-action' queers the familiar sense of causality (where one or more causal agents precede and produce an effect), and more generally unsettles the metaphysics of individualism (the belief that there are individually constituted agents or entities, as well as times and places)" (Kleinman 2012, 77). Fit into her larger proposal of agential realism, Barad's concept of intra-action proposes, as she stated, a contrast to interaction, where separate entities precede their contact or relation, and instead suggests that distinct agencies only emerge through entanglements, something which "***constitutes a radical reworking of the traditional notion of causality***" (2007, 33). Intra-action assumes that our presence affects the boundaries we have formed.

Though participatory sense-making and intra-action stem from different fields of study and are different concepts, they both insist on a relational and responsive form of meaning making and understanding. In all three concepts, individualism is removed for acknowledging ***what is there*** by means of multiplicities. Shotter describes: "there is a whole unnoticed world 'out there' which is a precursor to the projects and to the consciousnesses of individuals existing prior to any thoughts, perceptions, actions, evaluations, or words of our own" (2007, 2). Where Shotter speaks about the use of spoken words and the bodily actions attached to them, I apply his concept to one's movement, movement in the form of line making, and how it reveals situated temporary and intra-related knowledge. The exclamations, affects, and intents that are married to words are the same qualities we have embedded with our movements and are readable by those we are dancing with.

Juxtaposing the concepts of participatory sense-making and intra-action, the concept of withness resonated with me due to the placement Shotter tries to establish. Where participatory sense-making wants to define what is happening from an embodied cognitive standpoint, and where intra-action wants to propose we actually lack defined borders between things, which then demands we rethink our ethical responsibility to all that we are entangled with, the idea of withness incorporates those attributes to some degree but additionally draws our attention to the temporary moments that often get ignored. The term, created out of a preposition and a suffix, stresses a movement in time— a 'how'. The temporal, fleeting aspect makes withness interesting and applicable to dance and the creative research explored here through lines, as the noticings, unfoldings, and reorientations are types of movements that will be argued come from the concept of Embodied Lines. Ingold states that "parts are not components; they are movements" and "Each line answers or co-responds to every other" (2015, 7).

The question, 'what does withness have to do with lines?' can be rephrased as 'in what way do I see a benefit in adding lines to Shotter's proposal of withness?' In the exact responsive nature that Shotter wants us to get acquainted from within, lines serve as an organizing principle to consider responding, thus providing a way to operate from within. I can draw what I see and can dance what I feel. I can read the environment employing lines surrounding me and let that affect my words and choices. Shotter also uses the term withness-seeing (2005, 19) in some cases. If we start to understand the nature of lines in our thoughts, it affects how we notice the traces of our body and the lines in our environment. When we notice the lines in our environment, it can be a type of withness-seeing when we let our thoughts develop along those same lines. Lines appear mentally imagined, sensually perceived, and temporally traced with our bodies, such that to notice the translation of lines between these modes could be argued to be a type of withness.

Embodied Lines

The Embodied Problem

In Western thought, the body and mind have been infamously separated since Descartes in *Discourse on Method* (1637) argued that we exist explicitly as thinking beings. Philosopher Mark Johnson explains that Descartes concluded "what we know most intimately is *not our bodies,* but the structure of our minds," and thus, a gap has been created ontologically between mind and body and another gap epistemologically between ideas and the external world (1987, xxvi-xxvii). It has been an ongoing effort in recent decades to bridge these gaps and reunite the body and mind. Johnson reminds us that the term "body-mind" first came from John Dewey, and that "the terms *body* and *mind* are thus merely convenient abstractions from our primary experience" (2017, 40). From this proposition by Dewey in 1925, the embodied mind, or embodied thought, has been utilized to bring the body back into awareness and acknowledge its relationship to the mind. On the one hand, we can say we empirically feel the difference between a body and mind in our daily activities. On the other hand, we can hardly perceive one without the other, so as Dewey and Johnson, among others, point out, the separation is actually abstract on a conceptual level and inaccurate on a scientific level.

Embodiment as a term itself is also found more abundantly in recent times. A simple definition for embodiment of "being in your body" finds crossover complications with terms like "mindfulness" which in practice intends to guide one's thoughts toward perceiving your body and what you are feeling while noticing your thoughts. These two terms themselves continue to draw separations. Maxine Sheets-Johnstone is critical of the terms embodied and embodiment and finds it redundant to classify certain things as embodied, like embodied movement or embodied experience (1999a, 275). She believes instead that animation, as in movement, is a primary foundation for experience. She states, "When we strip the lexical band-aid '*embodiment'* off the more than 350-year-old wound inflicted by the Cartesian split of mind and body, we find *animation*, the foundational dimension of the living" (2009a, 375).

When the term *embodied* is used, in the case of embodied cognition or embodied action, enactivists Varela, Thompson, and Rosch highlight two defining points: that "cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context" (Varela et al. 1991, 172–173). What they are stressing is that to use the term embodied, the sensorimotor capacities of the body must be in play and within a situated context. The body experiencing, perceiving, and moving are entangled. Sheets-Johnstone prefers to use the term sensory-kinetic bodies, rather than sensorimotor, as seen above, because she proclaims the senses connect to animation and not a motor skill (2009a, 396). To make her point about the importance of animation and phenomenology, she does cite recent neuroscience to claim how the "cerebral cortex is not up there alone with respect to cognitive functions but is part of a sizeable and integral neurological system that is 'embedded' *in toto* in living organisms—*animate* organisms" (Sheets-Johnstone 2009a, 388). She aligns with Daniel Stern's approach that argues that core consciousness is created through affective tactile-kinesthetic bodily relations (ibid.). Her viewpoint on animation and movement over embodiment creates specific interests within this research.

Three essays from Sheets-Johnstone will be considered in particular: "Sensory-kinetic understandings of language" (1999b), "The Imaginative Consciousness of Movement" (2016), and "Animation: the fundamental, essential, and properly descriptive concept" (2009a). In these writings, she lays out a case for how meaning comes from the body and how movement at large is a missing component in most cognitive research. Further, in her 2016 essay, the concept of *imagined lines* is introduced and is explained as part of our kinesthetic and human expe-

rience. The introduction of imagined lines as a term is a key component in this research, which I have adopted and elaborated on.

Lastly, with respect to her assessment toward the word *embodied*, the question of what can be embodied, what is already embodied, and therefore, when the term is needed, is naturally considered. As I agree with Sheets-Johnstone's critique of the over-use of the term *embodied*, I ensure this is the correct term I want to use for the concept of Embodied Lines. Feelings cannot happen without a body, nor can experience, so we do not need to say *embodied experience* or *embodied feelings*, as these terms are redundant. However, as the concepts of lines could be considered first a phenomenon, bringing awareness to their embodied applications seems relevant in order to emphasize them as a way to view basic components of human experience.

In the rest of this chapter, lines will be described as they appear in perceived forms, bodily forms, and imagined forms. What is of interest in this categorization is their location. By categorizing lines into the domains of perceived lines, bodily lines and imagined lines, I explore the idea that *all three domains are brought into being through the body*. The term embodied not only imparts the idea that lines can be embodied but, in fact, intends to show that any form of a line is essentially already embodied. This is partly, but not totally, because lines are looked at here as motion in and of itself. If lines are seen as motion, bringing them into relation with the body seems a natural proposition. Linear movement can be fictive motion in our thoughts, when our eyes scan static lines in nature, or the traces we make through our actions (discussed further below). "A line seen, however, is apprehended through movement, that is, by moving eyes. Lines are thus essentially kinetic in character and as such are enfolded in the total qualitative kinetic character of movement itself. Whether perceived or imagined, they emanate in and through movement" (Sheets-Johnstone 2016b, 123). When we approach lines as a fundamental experience of embodiment due to their coupling to movement, we can see immediate connections between our mind, body, and what we relate to in our environment. In the words of Christopher Tilley, "the immediacy of our embodied experiences of the world has a profound effect on the way in which we relate to both things and persons" (2004, 221). Lines allow for immediacy of experience due to their prolific nature and encompassing phenomenon. The animate body has intimate correlations to the concept of Embodied Lines due to the fact lines are invested with movement.

Ultimately, the analysis below will reveal that lines help us connect to different realms of experience. By understanding the importance of lines as something we embody, we can see how they function as a type of knowledge that appears as an *understanding-with*. Lines are an organizing approach that helps us understand different forms of experience and through different sensory modalities. I now describe the three domains of Embodied Lines and how they are being considered in this research. The purpose of differentiating lines within these domains in this research is to ultimately move them across domains in order to create artistic outputs.

PERCEIVED LINES

Lines we perceive through our senses, visually or tactically, are lines in the environment. Lines we perceive contain knowledge because we connect with them. "Vision developed for biological aids for survival. This means that perception is purposive and selective" (Arnheim 1969, 19). They are not just out there alone in the world, but when we perceive them, they become embodied. They are edges of objects or linear materials like fences or rope. They are man-made or organic tree branches. Perceived lines are cracks in sidewalks or paths made in the grass that has been walked over. We can perceive other people's bodies in their linear forms. A raised arm makes someone's limb appear as a linear form, as well as when their arms are folded in front of them, creating a knot. Perceptual psychologist and art theorist Rudolf Arnheim, in his book *Visual Thinking* (1969), states, "In vision and hearing, shapes, colors, movements, sounds, are susceptible to definite and highly complex organization in space and time. These two senses are therefore the media *par excellence* for the exercise of intelligence" (18). Perceiving is thus an intelligent act. Arnheim also explains how touch is an important sense with vision. Considering the category of perceived lines, though most are perceived visually, we can also feel the edge of a table or thread as a line in our hands. The distinction of lines in this categorical domain is that they are *material and out in the environment*. A line of exhaust from an airplane would be considered a perceived line due to its placement in the sky in relation to our visual perception of it from the ground, and the fact the exhaust is some sort of substance.

We would find Ingold's *thread* category in the perceived category, which is defined as some kind of material connecting two points in a three-dimensional space (2007, 41). Ingold also defines a set of lines made through surface ruptures, where cuts, cracks, and creases are formed (2007, 44)—these are also perceived. The other major category of lines in Ingold's taxonomy is the trace, whose creation he attributes to movement, which is made either as an additive or reductive layering of materials (ibid., 43). Within my systematics of organization, the trace is usually placed in the bodily category as the term is most often used when made through the body in motion. In that context, a trace is a bodily line that can become a perceived line. In dealing with certain anomalies in his own taxonomy of lines, Ingold asks himself, "Where would we place the vapour trail left by a flying aircraft […] Or forked lightning?" (2007, 50). I do not disagree with Ingold's categorization of them as a traces *and* threads. As explained above, this is not a difficult line for my system—they are simply perceived lines due to their location. Ingold also admits, and I agree, that all appearances of lines do not easily fit into neat categories, and within his taxonomy, traces can even turn into threads (ibid., 52). Ingold's and my taxonomy do not compete with each other, but offer different perspectives and names to a phenomenon that is hard to order. Yet, whereas Ingold describes types of lines, the difference in categorizing my lines into locations of mentally imagined, bodily traced, and environmentally percevied is that it allows for moving or translating them to new locations. When it comes to their direct creation through the body in motion, bodily lines are still hard to contain in one category.

BODILY LINES

Lines made by the body are created through movement, gesture, and dancing. The act of walking can also be viewed in terms of a line as it is a linear behavior. Our body is not only making lines when dancing but in other skills as well where movement is involved, like drawing. Drawn lines are not reflective artifacts that were made without a body, but they are made through movement and gestures. It is a gesture of the body made while holding a tool. "Simple line drawings can give visible shape to patterns of forces or other structural qualities" (Arnheim 1969, 135). Lines are also seen in the sculptural positions we stand in and the shapes the outline of our body makes. Sheets-Johnstone's essay "The Imaginative Consciousness of Movement," (2016b) in an edition edited by Tim Ingold, introduces these by the terms *linear design* and *linear pattern*, giving names to these two types of linear movement. *Linear patterns* are the trajectories made by the whole moving body and the traces of our limbs, and *linear designs* are the sculptural placement of the body either in rest or in movement (ibid., 115). Linear is one of four qualitative aspects of movement that Sheets-Johnstone notes constitute movement's dynamic nature—the others being areal, projectional, and tensional (2012, 44).

Sheets-Johnstone lays out a detailed, yet easy-to-understand, case connecting the body in motion to lines. In doing so, she also, as said previously, introduces the term *imagined lines*. She points out the imaginative aspects of viewing trajectories as imagined lines (2016b, 117). Likewise, our sense of linear design, the shapes or positions we make, is also imaginatively constructed when aspects of our body are not in our visual field but connected into an imagined body schema through kinaesthesia (the cognizance of joint movement). I can see my linear design with my arm when it is within my vision, but when my arm is behind my head and out of sight, I have to imagine its design through proprioception.

Bodily lines, therefore, can be seen as the shapes our own body makes and the traces made through moving our body. But, as Sheets-Johnstone points out, there is also an imaginative element that can be noted as well within the bodily form. In the sense that the concept of imagined lines and the sources supporting the evidence of them are less known, more space is given in the following section to articulate this kind of line.

IMAGINED LINES

To familiarize us with her position on imagined lines, Sheets-Johnstone points out a critical feature of our perceptual system, which is that "the angle of any joint may be perceived kinesthetically, but the distance between joints cannot; it can only be imagined, and imagined kinetically in the form of a drawn line" (2016b, 116). She calls this drawn line that is mentally scanned an imagined line. She continues: "There is, in other words, no continuous set of receptors to follow the skeletal outline of the body, either at rest or as it moves. The outline may be followed only by an imaginative representation in the form of a line or constellation of lines" (ibid.). Her statement means that we do not have a nervous system equipped, for example, to know the space between one's wrist and elbow. Instead, we can feel our wrist in space, as it rests on the keyboard and where our elbow is in space, while it touches one's knee, or through the tactility of air or movement when one's whole body shifts its position. Through these circumstances, a person can estimate that the line between the wrist and elbow is 22 centimeters, but the nervous system cannot feed us that information directly. With these felt points, we imagine the space between these bodily points as an imagined line. The construction of imagined lines gives us access to information.

Sheets-Johnstone proposes that our imaginative consciousness of our moving body is grounded not just in kinaesthesia but also in tactility due to moments when we bend our arms and feel the surface of our skin touch itself (ibid.). The tactility created by touching ourselves allows us to imagine the linear designs we make with our bodies as we move in space. For example, imagine you place your hand with two fingers and a thumb like a tripod against your head while thinking. The feeling of the three digits on your forehead allows you to imagine the three-dimensional shape of your entire hand. The movement of one finger helps you to understand how wide the distance is between the fingers and how big your own head is. The pressure of the remaining two fingers that are folded into your palm allows you to imagine the outlined border or linear design of your fist, which creates a particular shape from your perspective if you were to look sideways into your palm, as well as the shape seen by someone sitting across from you. The surfaces touching themselves, stationary or during movement, heat, pressure, and other senses that the skin carries, allow you to get a three-dimensional impression of the linear design of your body through imagining.

The creation of imagined lines is not only in relation to our physical body in motion, but can be recognized in relation to the movement of imagined situations and experiences. Imagined lines can also be found in linguistic theories, but these lines have been given other names. In his 2021 essay "Fictive motion: some models in cognitive linguistics", linguistic researcher Bien Duong surveys how different theorists have contributed to the concept of *fictive motion,* a term from Talmy (1996). Talmy's contributions will be elaborated on below, but one example of fictive motion is when motion is evoked with sentences like *The mountains run alongside the sea*. With this example, two types of fictive motion can be seen. One can be when *A mountain range runs along a sea*, meaning the object simulates motion, or the second in the sentence *The road runs along the sea for half an hour*, which implies an observer's motion due to the time information that adds context (Duong 2021, 5). The proposal is that fictive motion creates a line in the same way that a real or factive motion creates a line, as seen in the bodily or perceived situations. Fictive motion is amply found in our language, defined and described by different theorists, but is a concept probably not considered by most.

Different linguistic and cognitive processes propose how lines appear mentally. The different examples of fictive motion support the presence of the larger term imagined lines that I am defining. Therefore, understanding the details of how fictive motion appears and its relation to lines helps substantiate and develop the concept of imagined lines from something vague to more concrete. A few of the most relevant theories for this research will now be introduced.

Exploring Fictive Motion

Conceptual Metaphor Theory

Cognitive linguist George Lakoff and philosopher Mark Johnson have proposed the theory of conceptual metaphor, which draws on prelinguistic, basic human experiences called image schemas. As stated previously, in the creation of metaphors, qualities from a usually physical source domain are mapped onto the conceptual target domain.

Lakoff and Johnson offer a way to look at fictive motion through their theory of conceptual metaphor and image schemas. First, Lakoff explains, "When we perceive a continuously moving object, we can mentally trace the path it is following" (1987, 442). As noted by Duong, fictive motion could be seen through Conceptual Metaphor Theory (CMT) in statements like *The path runs along the side of the lake*, or *The stock market dropped*. The *running* or *dropping* are fictive lines of motion that we imagine in these statements. Within this theory, fictive motion can be found in the metaphoric mapping of FORM IS MOTION (Lakoff & Turner 1989, 142–143), with the example *The roof slopes down*, which interprets shape or form by means of movement (Duong 2021, 16). Conceptual Metaphor Theory, through the use of image schemas and primary metaphors, helps us notice how imagined linear forms appear in the architecture of our thoughts due to metaphorical thinking.

Sheets-Johnstone recognizes that Lakoff and Johnson allude to the fact that actual trajectories of motion are imaginative when looking at the image schema of SOURCE-PATH-GOAL but would prefer that they explicitly say this. She explains: "so long as movement and kinesthesia are taken for granted, the imaginative consciousness of movement goes unrecognized" (2016, 122). She claims Lakoff and Johnson fail to include actual bodily experience from real-life movement, opting instead for third-person observations rather than the first-person moving bodies that we are (ibid.).

Other ways imagined lines appear in CMT

Using conceptual metaphor, here is one example of how imagined lines could also appear in a simple sentence. When someone says *The difference between nature and nurture*, I propose an imagined line is created as a border between those two concepts. Here are some possibilities for how the imagined line is created using conceptual metaphor to do so. The imagined line might be attached to the word *difference*, meaning upon hearing that phrase, a person's mental architecture uses the word *difference* as the defining element to distinguish the two concepts. Difference signifies some separation, and a person might explain that that word is what signals a type of imagined line. Alternatively, I would suggest that the imagined line is placed between the concepts of Nature and Nurture. If we take the ACTION-LOCATION metaphor (a combination of two primary metaphors: CAUSES ARE FORCES, PURPOSES ARE DESTINATIONS) (Lakoff & Johnson 1999, 205), the locations of Nature or Nurture as types of actions in personal development would propose that these two locations are near each other as they are experiences near a person. If the purpose is to develop as a human, the destination is achieved upon that development. Nature or Nurture are seen as forces that cause an effect on that outcome. Nature and Nurture are near each other in this context because the question regarding Nature or Nurture relates to the experience of a person's development that takes place in their environment and individual life. These causes are often not binary and are often understood as a combination. A sub-mapping logic in this metaphor is listed: PREVENTING AN ACTION IS STOPPING THE TRAVELER FROM REACHING A LOCATION. With this metaphor logic, we could see two instances where a line as a border is part of the mental image. One is a traveler in a location with a bounded perimeter simply distinguishing that as a location; therefore, a line is enacted when a location is fixed, or two, as specific actions creating a border that would prevent their entry into the Location (as a Purpose-Destination.) Using CMT, we can see an imagined line as a location perimeter or a border preventing action. Therefore, when we conceptually understand Nature and Nurture as metaphoric forces and/or destinations, we trigger the physical logic associated with locations and interruptions—that being borders and blockage. The borders and blockage are the forms the imagined lines would take in the mental image.

We could also look at this sentence through the metaphor A CATEGORY IS A CONTAINER (Lakoff & Johnson 1999, 341). In the so-called classical theory of categorization, Lakoff describes that categories have well-defined boundaries (1987, 161). If the Nature and Nurture argumentation are containers, containers typically have edges, distinguishing a physical edge between the two different containers. There is also the EXPERIENCES ARE OBJECTS (Kövecses 1995, 317) or CATEGORIES ARE BOUNDED SPATIAL REGIONS (Grady 1997, 283) metaphors that would use the same logic—an object has a physical border or edge. I would propose that it is due to the physical experiences of the source domain (the conceptual domain where metaphorical expressions draw information from, like: containers, objects) that create an imagined line between Nature and Nurture when spoken. We envision these two concepts as physical containers (Lakoff 1993, 212) or objects next to each other and understand there is a distinct line where the two containers are separated, like boxes next to each other having their own edges that make imagined lines

The preposition *between* and the coordinating conjunction 'and' might also trigger that mental mapping within visual thinking due to the logic that we place choices usually next to each other. In American Sign Language, the sign for *and* consists of a hand moving from the left side of the chest to the right side of the chest, spatially connecting two points through a trace. The hand starts open with the palm facing oneself and ends with five fingers together, as if having pulled an imaginary line to your right side. In this language made of movement, 'and' is seen as a trace between two locations. The mental images people create when speaking might resemble the actions and logic of signed language, or could be unique to them, or some would say they do not see a line at all if perhaps they are not very visual thinkers.

CMT offers primary metaphors and image schemas that produce connections between the creation of physical lines and imagined lines. When I use the example, *The difference between nature or nurture*, and state that this can create an imagined line, I find people understand what I mean. I would argue that the proposed primary metaphors listed above and the other stated possibilities theorize why they are then able to create and understand the concept of an imagined line in that sentence. The following three theorists add to my discussion on imagined lines with supporting evidence on ways fictive motion are present in our thinking and imagining, which is important for enlarging the types of imagined lines we can utilize in the artistic practices.

Paths

In the realm of fictive motion, cognitive linguist Leonard Talmy has introduced the terms "apparent motion" or "induced motion" and explains that the perception of motion can be understood in the latter term when for example, a curved line is seen as a straight line "that has undergone a process like indentation" (2000, 99). What I had considered as imagined lines, Talmy considers as similarities between the cognitive system of language and the cognitive system of visual perception (2000, 100).

In Talmy's essay "Figure and Ground in Complex Sentences" (1975), he states semantic motion is considered with the presence of two components: "one physical object moving or located with respect to another" (419). He calls these two parts figure and ground. It is the figure that can also perform conceptual movement, as in the case of fictive motion (Talmy 1996). Talmy provides six elements (figure, ground, motion itself, path, manner, and cause) to create different combinations of fictive motion categories, mainly types of imagined paths: Emanation paths, Pattern paths, Frame-relative motion, Advent paths, Access paths, Coextension paths (2000, 103). The first category, Emanation paths, has subcategories. The first type of Emanation path listed is an Orientation path. Orientation paths produce fictive motion when an entity "may be perceived as a moving intangible line, or shaft" or an "intangible abstraction moving along a stationary line or shaft" (ibid., 105). Two other types of orientation paths include prospect and demonstrative paths. Prospect paths are when a cliff acts as having a front of face-type and motion emerges from this direction creating a path relative to a valley.

Emanation paths:
- **Orientation path**: *She crossed in front of me* (ibid., 106)
  - **Prospective path**: *The cliff wall faces away from the valley* (ibid., 108).
  - **Demonstrative path**: *I pointed him toward the lobby* (ibid., 109).

The last subcategories of Emanation paths:
Radiation paths: *The sun is shining into the cave* (ibid., 112).
Shadow paths: *The tree threw its shadow across the valley* (ibid., 114).
Sensory paths: *The enemy can see us from where they're positioned* (ibid., 115).

Pattern paths: *As I painted the ceiling (a line of) paint spots slowly progressed across the floor* (ibid., 129). In this example, there is actual motion happening with the drips going vertically down, but the fictive motion is the movement of the drops horizontally across the floor.

Frame-relative motion: *I sat in the car and watched the scenery rush past me* (ibid., 132).
Advent paths: *The beam tilts away from the wall* (ibid., 135).
Access paths: *The bakery is across the street from the bank* (ibid., 137).
Coextension paths: *The soil reddens toward the east* (ibid., 138).

Talmy describes the last coextension path as "the lateral motion of a line (a north-south line advancing eastward, which is further correlated with a second fictive change (increasing redness)" (ibid., 138).

In his "Figure and Ground" essay, Talmy also notes temporal reference markers like *before* and *after* in comparison to *whole time*, *during*, and *while* (1975, 425). In this essay, he also draws diagrams of lines showing the concept of *during* with different endings depending on the event that took place *during*,—the example being someone's illness or someone's death (ibid., 426). Here we see his use of a drawn line to resemble fictive motion of time (a mental image), conveyed from semantic words.

The type of motion gleaned in these linguistic situations is not always objective: "Thus for the same instance of constructional fictive motion, some speakers will report a strong semantic evocation of motion, while other speakers will report that there is none at all" (Talmy 2000, 104). "Where an experience of motion does occur, there appears an additional range of differences as to what is conceptualized as moving. This conceptualization can vary across individuals and types of fictive motion" (ibid.). He continues, "Even the same individual may deal with the same example of fictive motion differently on different occasions" (ibid., 105). Fictive motion may appear by the object that is named, an unnamed object in relation, in the mental imagery of the speaker or hearer, by their focus or attention about the said object, or by an abstract concept of motion or abstraction suggestion of motion (ibid.). We could say it is not just the subjectivity of motion that is variable, but the shapes, and spatio-temporal-energetic aspects of the associated imagined lines are also flexible and irregular.

Another term Talmy introduces that is relevant for evidencing imagined lines is that of ***The sensing of path structure***. The sensing of path structure, Talmy explains, is not when an object moves because it is not fictive motion, as the actual object is moving and the path itself is factive, but "the path [is] sensed as instantiating a particular idealized path schema, and it is this schema that is fictive" (2000, 149). Talmy also speaks of ***The sensing of projected paths*** happening when "a thrown ball sailing in a curve through the air" allows a viewer to sense where the ball's trajectory will end up (2000, 149). Here rather than an imagined line tailing behind the moving object, we can also sense an imagined line in front of the object. It appears that during the action motion of real objects, Talmy considers the path factive, whereas I would consider the trace to be imagined unless one can see it like the plane exhaust example. What Talmy proposes is that we are sensing the imagined path the object is aiming toward, or sensing the ideal structure it intends to make. When we sense the line, it is then imagined.

In sum, what we can take from Talmy's work in this area is that semantic motion can be understood as fictive motion. Motion may not be always overtly recognized, but Talmy's path forms help distinguish in what cases imagined lines are created. Additionally, when real objects are moving, Talmy has acknowledged that we sense the imagined lines as paths either trailing behind or as trajectories in front of the objects.

Scanning

Ronald Langacker introduces linguistic fictivity and mental scanning as ways to describe fictive motion. For linguistic fictivity, Langacker describes the different subtle types of motion, for example, the verb 'rise' can take on in a sentence, regarding a balloon in the air, the price of coffee, or a trail ascending (Langacker 2006, 25 cited in Duong 2021, 10).

Different types of, what Langacker calls, mental scanning are other ways fictive motion can appear mentally. ***Summary scanning*** is defined as: when "we scan through a complex scene, successively attending to various facets of it, the elements apprehended at each stage are summed, or superimposed. In this way a detailed conception is progressively built up, becoming active and available as a simultaneously accessible whole for a certain span of processing time" (2008, 83). Langacker (2008, 111) explains ***sequential scanning*** as happening when we view a ball rolling down a hill, though we only see it ever at one moment in time, we track it in a way to scan its motion as a temporal manifestation. Sequential scanning happens regardless of if the object is actually observed, remembered, or imagined because it is tracked through time (Duong 2021, 14).

Langacker explains that mental scanning is also present in nonspatial contexts, like the sentence: *Is she still asleep?* He notes that the word *still* signals for mental scanning due to its reference to time (2008, 82). In this instance, an imagined line is conjured when we scan time along the duration someone is sleeping. He also says a type of scanning happens during a reference point relationship. He says, "We often direct attention to a perceptually salient entity as a point of reference to help find some other entity, which would otherwise be hard to locate (2008, 83). He gives the example: *Do you see the boat out there on the lake? There's a duck swimming right next to it.* "A reference point relationship is often conflated with specific conceptual content, such as spatial proximity," Langacker points out and continues, "Still, its essential semantic import resides in the very act of mental scanning: evoking first the reference point and then a target it renders accessible" (ibid., 84). I understand Langacker's points here to support my description of imagined lines in the metaphor section discussing Nature and Nurture. As hypothesized, the words *difference, between,* and *and* would create a spatial logic for what we can now name mental scanning. We maybe also understand Nature and Nurture to reach their destination through an action pathway. Thus, a scanning through time, as seen by Langacker and Talmy, also creates a pathway. As Langacker states, these processes are dynamic in how they unfold through time, mental scanning is required, and so this can also be an example of an imagined line. Overall, Langacker's proposal of scanning that is done by our own desire to reference and follow conceptual or actual objects demonstrates another way we can consider imagined lines to appear. The lines we make through mental scanning give us access to specific knowledge in that context.

Temporal Simulation

Lastly, in her investigation of fictive motion, cognitive linguist Teenie Matlock describes that people imagine actions of leaves falling, waves crashing, and even things we have never actually seen in person (Matlock 2004, 1389). Matlock sets out to ask the question, then, of whether fictive motion involves mental simulation, and concludes that it does (2004, 1395). Matlock points out that "research on mental simulation suggests that people (1) construct models that resemble physical space, (2) simulate objects and movement in these spatial models, and (3) simulate in a way that is to some extent analogous to perceiving physical movement" (2004, 1391).

In Matlock's 2006 experiments, line drawings were used to show participants' understanding of how far or short different fictive motion trajectories were in specific sentences. Here we see scientific studies showing how imagined

lines of motion can be brought into traced lines of the hand and left as perceived lines. We could assume the mental space provides spatio-temporal-energetic information that can be translated into a drawn line with those qualities. Duong reports that Matlock's results "demonstrated that language and thinking about motion do not split, and that understanding verbs of motion involves perceived bodily movement" (2021, 27). Matlock reports that the results of the drawing experiments suggest "that visual perception and somatosensory perception are tightly coupled" (2006, 77). Matlock's studies provide evidence showing construal of fictive motion takes place with motion verbs and time is an important element in initiating a type of scanning (2006, 77). The longer the road runs along the coast, the more likely we are to construct imagined lines in our mental simulation of that scenario.

Matlock asks: what does it mean to simulate motion while processing a sentence with fictive motion? Matlock proposes possible answers are that people "(1) first reactivate a static linear or path-like model on the basis of what they have just read and (2) later simulate movement along that path. A second possibility is that fictive motion involves gradually constructing a path or linear representations" (2004, 1396). A third option that is also suggested "is that it is not motion or scanning that is simulated per se but, rather, a state change. That is, in constructing *The road runs along the coast*, the person momentarily images one point along the road and then, milliseconds late, imagines another point along the road" (ibid.). Matlock concludes that these options are not mutually exclusive from each other. What is gleaned from this research and the possible ways a person simulations motion is that imagined lines are being constructed in the process; even in the third example, by creating points and moving them along, a dotted line would be formed.

Returning to our example of Nature and Nurture, whether you think of these concepts as objects or processes would determine how the lines might be imagined. As seen in Matlock's studies, we can note that the point that longer spatial situations instigate longer temporal scanning. Therefore, if you view Nature and Nurture as a process, instead of scanning the edges between the concepts, you may view them as paths of motion running parallel or entangled. Matlock's work on fictive motion highlights that time is a significant component for the creation of imagined lines. Noting the different conceptual ways fictive motion can elicit imagined lines shows the many types of imagined lines and is thus important for being able to recognize them when needing to translate them to a different domain in the creative practices of this research.

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Imagined Lines of Sound

Building on the notion of imagined lines and their connection to temporal scanning, we can apply this concept to the realm of sound and explore how music can elicit such lines. The previous theories from linguistics can be used to explore how music can conjure an imagined line. This in depth look into the understanding and meaning in the imagined lines of sound explains how we are able to draw the sound of a podcast (see fig. 44) or find similarities between music and the body. As explained, Lakoff and Johnson, Talmy, Langacker, and Matlock provide evidence through linguistic forms as well as terms for how and when imagined lines can appear in our minds. Johnson also describes how we hear music and melody as imagined lines that move through time (2007, 236). In his description of music's metaphors, he titles a section 'Music as the Embodied Flow of Life', and in this title we can already see the relation to lines. One might question the degree to which music is linear in nature. However, when we are, as Johnsons states, recognizing the powerful effect music has as presenting human experience through sound, we are able to project the pathway of our life onto the 'pathway' of the song. Additionally, simply by playing musical notes through time, as if the notes on the paper were a connect-the-dots game, or when one looks at a software program that visualizes music, it is natural to connect one note to the next. Furthermore, when the notes get higher in pitch, in western culture we speak of this in terms of a tone rising, or when the notes are played more frequently, we experience the movement of the line going faster. Johnson analyzes in great detail a few of the musical forms in the song "Over the Rainbow". He explains how oscillating

between two notes in 'someday I'll wish upon a star and wake up where the clouds are far–' creates a sense of anxiety and anticipation (2007, 41). I would also add that the jagged lines he describes, by its back-and-forth pitch binary, also creates a sense of walking. Music is usually perceived like movement as we listen to it through time and experience the future coming into our present and becoming our past, but in this example, the sense of binary or back-and-forth does something more than just create the feeling of going forward or going forward with anxiety as Johnson suggests. As we are bipedal beings, the idea of alternating between two points that bring us forward can very easily connect us to our experience of the translational movement of walking or running. Translational or translatory motion[1], is when motion of a moving body moves forward in the same direction, which has a different feeling than rotational motion. As the act of walking can be an experience of making a line, the walking feeling of a song (compared to a continuous sound of a siren that might be associated with rotational movement) allows us to connect our own experience of walking to the meaning derived from the linear characteristic that comes from translational movement.

9 Merriam-Webster.com Dictionary, s.v. "translatory motion," accessed May 10, 2023, https://www.merriam-webster.com/dictionary/translatory%20motion.

In this example, as the song finishes with ascending notes in the same time signature, the feeling does not end with the walking rhythm that moves forward, but of transcending to the wish, the dream that the song conveys. The musical choices of notes can not only relay an emotion, but also a linear trajectory associated to different parts of the body. Of course, this is hinted at and supported by the textual aspects of the lyrics, but this observation does not mean the unconscious aspects are any less important, but instead it shows how song construction can seamlessly blend different meaning making structures together to create multi-modal intentionality. In fact, during Johnson's description, as is common in musical language, he says the notes 'step' either in 'stepping up the tension' or the next notes goes a step higher (2007, 242). If we consider our bodily traces as lines, then steps made in music are one of the many ways to see music as line making and in turn translate those lines to other domains. Line making is seen here in the form of 1) dynamic flow, 2) change of pitch, 3) musical oscillation as a connection to bipedal stepping, and 4) temporal progression through time.

We can also approach music using Langacker's terms. When we hear a music melody, this would be an aural sequential scanning that we could imagine as a visible line. Sequential scanning can also happen when we imagine a perception of other sensory input as linear, like when drawing in air when we take a deep breath, the felt feeling of air in our mouth as our lungs expand can make a sequential linear impression in our mind's eye. Ingold points out, though, that a line of breath drawn in also exhales into an instrument or over a singer's vocal cords, thus creating a melodic line from the breath (2015, 19). The felt sequential scanning of air can become the aural sequential scanning of sound through a simple inhale and exhale.

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As explained, imagined lines can cover several phenomena. You can simulate the perception of them during mental scanning or through fictive motion. They can appear when you reflect on your imagination of producing them. You construct them as Sheets-Johnstone says, through your imagined consciousness of kinetic movement and positions. They are constructed from actual movement that insight imagined traces behind or imagined future trajectories guiding in front as a sensing of a path. They can be visualized through sound as the dynamics of a melody or volume.

Sheets-Johnstone's explanation of how the body sensed in different ways constitute imagined lines is important for how I want to categorize lines in this research because it expands how imagined lines could be defined and what would constitute such a concept. She not only brings imagined lines to the surface of inspection but also solidifies how the body in motion brings forth this understanding of imagined lines. Distinguishing the body in motion as a generator of meaning supports why dance is an appropriate field to investigate the nature of lines even imagined in psychological or linguistic theories because *movement is the basis for their formation*. In describing perceived, bodily, and imagined lines, we saw some overlap between domains and have already understood how we get into categorial problems. In the next section we investigate this ambiguity.

Lineal Slippage

Lines cannot be contained in simple categories. Besides the fact that I move lines between domains in my practice, their initial categorization and additional subdomain groupings or modes can also sometimes blur. Lines appear as bodily traces and as outlines. As argued above, they structure our thoughts, vision, and hearing. They appear as temporary or more permanent, and these characteristics also change over time. A temporal trace of the body seems distinct from a more permanent edge of a building, but eventually, that building's edge will also disappear.

Can we say one is temporary and another permanent? A line of melody could be considered temporary when heard live, but if the music is written down (presumably even in multiple locations, as may be the case with classical music), the line of melody is indefinitely available—as long as someone is around to play it and someone to listen to it. Therefore, the ephemeral feeling of a line of sound could be considered more permanently accessible than the lines of material objects. One may be inclined to equate permanence to perceived lines and temporality to traced lines (as perceived lines are usually made of a material and trace lines like those from the body are often ephemeral), but it is deceptive to do so. "It is equally misleading to call concrete that which is physical and abstract that which is mental" (Arnheim 1969, 155). A quality that seems more present for imagined lines may at first be *subjectively* imagined, or *unseen* imagined lines. However, perceived lines through tactility would also be unseen, so unseen cannot only reside with imagined lines. Lines and their qualifiers slip between pure compliance toward their domains and it is this nature that is actually quite interesting more than it is frustrating. Nonetheless, the line needs to be felt or *made sense with* in one domain by the translator in order to move it somewhere else.

At first, it is possible to see the differences in lines in the domains proposed. Some lines are directly related to my body, some lines appear as part of the environment and are perceivable, and some lines are clearly mental processes and are imagined or conceptual. When we see a car drive by, it is an actual material object, but is the line the car's motion would make imagined or perceived? I do not imagine the car, but I imagine the trace it would make, as we see in the linguistic sequential scanning and *sensing of a path* theories. For example, simply drawing a line illustrates the complexity of the problem. Is a drawn line a trace of a bodily movement or a perceived line left in the environment? With the airplane exhaust example, the actual trace is made visible, so one does not have to imagine the motion of the plane creating a line because the plane created a line behind it, making visible its path of motion. Hence, we cannot say all objects in motion create imagined lines because sometimes objects in motion leave visible traces that do not need to be imagined. That is, Talmy's *sensing of a path structure* need not only be based on imaging a path, but could even be sensed if we have footprints left in the sand, because we could imagine or sense the walker's trajectory going forward just through the footprints. Likewise, if we were a different animal with different capabilities, for instance, that saw infrared light, certain lines that humans would need to imagine would be visible due to a change in heat. If we were an animal that used echolocation, perceived lines of objects would simultaneously be imagined lines in the animal's mind as form created from echo. How lines materialize is in part due to our own bodily apparatus and how biology functions. Arnheim states, "perceiving and thinking are indivisibly intertwined" (1969, v). As Sheets-Johnstone has pointed out, the ways we imagine kinetic movement as lines is a attributed to multiple reasons: 1) the fact we do not have a nervous system to do it for us, 2) how our eyes see, and 3) our skin and how it feels things. These factors together form the very way we perceive and have access to lines.

Under Ingold's terms, a person's nervous system or veins would be threads. In my system, however, they would have to be imagined lines, as I cannot see inside myself. Nevertheless, certain exceptions can immediately be thought of. The veins I can see on the surface of my skin, or the nervous system exposed in a cadaver, turn those imagined lines into perceived lines in those scenarios. We could even go further, and when one does perceive blood rushing through their body, or a pinched cervical nerve creating a slicing feeling along the back of one's arm, we feel these lines in our body, and in those cases even hidden nerves and veins could find a way to sneak into the bodily line category.

Lineal slippage between categories is different than deliberately moving lines between domains. The slippage here has to do with context and at first determining which domain a line belongs to in order to move it to a different domain for mode of expression. The domains ground my artistic practice and allow withness to arise due to the movement between domains.

Due to lines' bond to motion, and their ability to appear in the mind-body-environment trilogy, slippage and categorial unclarity is part of their behavior. Motion is present in all three categories. Due to the distinct felt differences between something I imagine, something I can make with my body, and something out in the world, it is natural to categorize them this way. Due to the fact some of the forms of lines take on two categories, like when a felt line of my body is also imagined when it is out of my eyesight, the phenomenon of lines creates elusive circumstances. This allows for a type of purposeful ambiguity for the practice. For this reason, the three location categories proposed here are ultimately understood as Embodied Lines because the forms all arise through the body. The term Embodied Lines is used to highlight the reality that our body is the key tool used in manifesting lines in all three domains.

Lines as Knowledge

Johnson points out that we place importance on words being the sole mode of transferring meaning and reminds us that much of meaning-making happens below conscious awareness (2007, 207). "Our world and our self are conjointly bound together in an inseparable way via embodied feeling" (Johnson 2017, 65). As feelings are already embodied, I try to find a more appropriate use of the term 'embodied'. As we embody our perceptions, the sounds, the affordances of the environment, and the fictive motion we create when we hear abstract sentences like *The falling stock market*, lines take this background placement, uniting the mind with the body and space it occupies. We see the lines that we make. The imagined lines we visualize come from corporeal traces understood through experience. Felt lines are felt as in touch, or simulation, or are a feeling, as an affect like a metaphorical bursting heart.

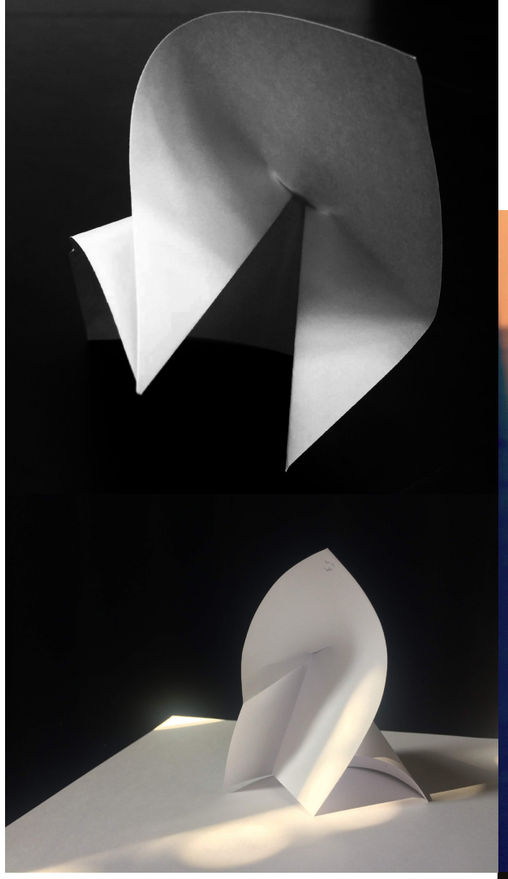
Johnson explains how traditional philosophers regard feelings and emotions as only subjective states that are noncognitive and would not constitute real knowledge (2007, 210). If we think with Sheets-Johnstone that emotions are a way to be moved, in general, then movement has an affective quality that cannot be ignored. The spatio-temporal-energetic qualities inside movement have emotional tones and meaning. If lines are movement and vice versa, the study of lines brings the body and feeling-based knowledge together. As one cannot detach themselves from their body and movement, nor linear attributes from any other daily situation, we can see the application of the study of lines to be relevant for many other fields of study. Lines are a tool and material to bring common phenomena together across these cognitive and perceptual fields used in this research, including in the linear qualities of sound, drawing, material manipulation, and dance.

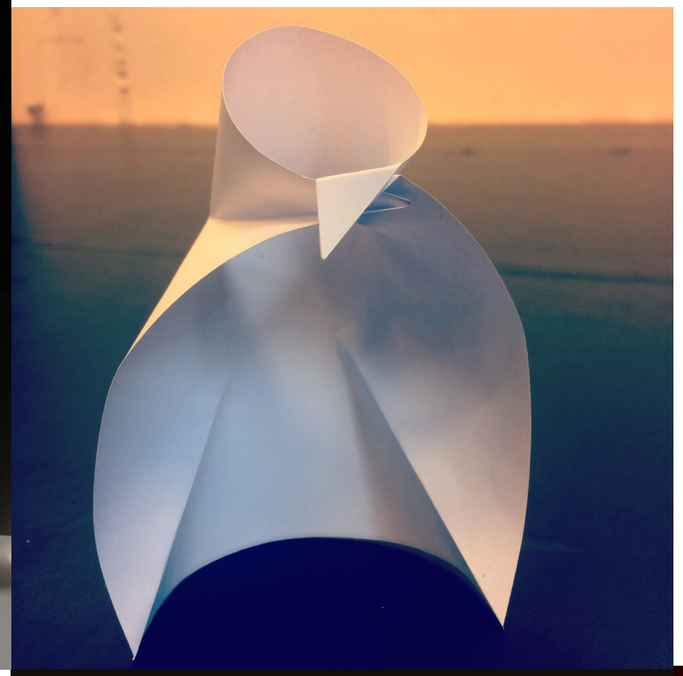
As Ingold emphasizes, through writing, basket making, and wayfaring, lines, from an anthropological point of view, are an essential creation for humans. To go further, lines as imagined, bodily traced, or perceived should not be looked at as linear objects that are made, but as co-constitutive parts of our being human. Ingold recognizes this in his description of meshwork— imagined lines are ways we interact with people. Ingold describes the social world as a tangle of threads or life paths "within which the task for any being is to improvise a way through, and to keep on going. Lives are bound up in the tangle, but are not bound by it, since there is no enframing, no external boundary" (2010, 302). Through cognitive science, we can unfold that these are not only philosophical proposals but are the framework for how we think and employ the ways we attribute meaning. For this we are constantly embodying lines—with every gesture, within our thoughts, and as we visually or tactically engage in our environment. Ingold sees "the environment as a zone in which these lines become comprehensively entangled with one another" (Ingold 2010, 300). When we realize these lines are perceived and brought into our body, entanglement happens within us as we embody lines. Arnheim explains we must look at what the word 'perception' means, and suggests that even when we close our eyes and imagine something, we are using our ability to gain information about a subject (1969, 16). "There is no basic difference in this respect between what happens when a person looks at the world directly and when he sits with his eyes closed and 'thinks'. By 'cognitive' I mean all mental operations involved in the receiving, storing, and processing of information: sensory perception, memory, thinking, learning" (1969, 13). Arnheim's insight supports the notion that imagined lines' relation to bodily lines and perceived lines should be taken seriously since information of imagined lines can be seen as perceptual intelligence. The three realms of experience are in a dialogic relationship, exemplified by lines and can be brought together through the organized practices of embodying lines.

When using movement as a method to respond to those around me, or create drawn renderings, then there exists intelligence in the responsiveness of the act of making a line. "Sensory responsiveness as such can be said, therefore, to be intelligent" (Arnheim 1969, 17). Arnheim adds that, "Intelligent behavior in a particular sensory area depends on how articulate are the data in that medium. It is necessary but not sufficient that the data offer a rich variety of qualities. All the senses can be said to do that, but if these qualities cannot be organized into definite systems of shape they give scant leverage to intelligence" (1969, 17). Lines themselves are structures where data is ascertained from their spatio-temporal-energetic qualities. The categories proposed here help us see how the different qualities of lines in different domains are formed.

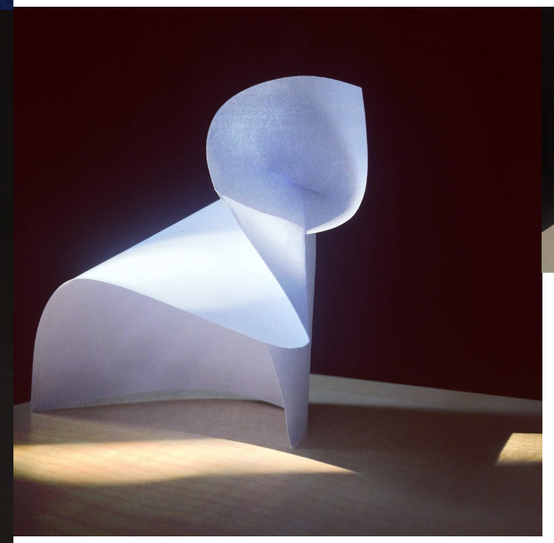
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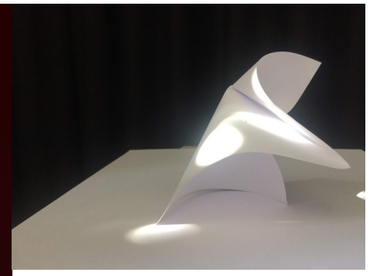
In conclusion, lines are embodied during situated moments. When we bring our attention to the phenomenological presence of Embodied Lines, we experience how they slip between location of thought, through text, through our senses and imagined in our movements and seen in the flowing life dynamically moving around us. By naming this way of observing an engagement of Embodied Lines, we bring the body to the centered focal point where *lines serve as an organizing principle uniting the movement of words with the imagined kinetics of static materials and the animate feeling of one's own body*. Lines activate the sensorimotor/sensory-kinetic capabilities of ourselves and connect our actions to a similar language of our thoughts and the dynamics of the world we engage with. The concept of Embodied Lines helps us make connections between the physical lines we see and make and the role of human understanding and communication.











The wind blows my towel and the square marking my space in the park is now altered. I feel I have less space and need to fix it.

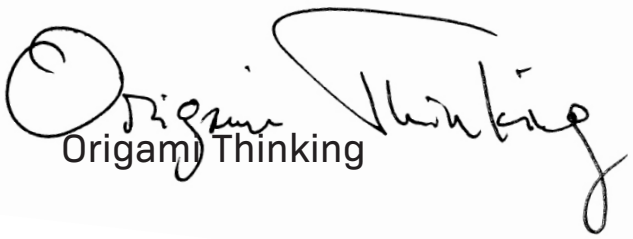
I view this as a moment when I am with the wind, the towel, my emotions, the situation. I am aware of the boundary the towel makes and the changing of the border, a changing in the shape of the line makes me feel I have less space, when in fact no space around me has actually changed.

A fold—has changed my perception.





Fig. 25–32. Images of origami created from Paul Jackson's (2011) one-fold origami method. Photos: Michael O'Connor.



PART 1

A Paradigm for Artistic Research

Artistic research projects like this one need to articulate ways for organizing information and making meaning from it. On an ontological level, this could be called philosophy, but within practice-based research, this individual approach to foster knowledge within the framework of the question is considered a methodology. In some ways, for artistic research, philosophy and methodology have something in common. In ways that philosophers depict situations and describe beliefs to make sense of their world, the artist as researcher also describes processes and responds with their body, phenomenologically making sense of their inner and outer world. In dance and performing arts, the phenomenological method is often a philosophy cited to support artistic processes. However, the notion that a body can experience phenomena generally could be said for all body-based research. Likewise, the hermeneutic method could arguably be utilized in most artistic research where interpretation is a key component.

Even within phenomenology, there is debate on what the obligation of the researcher is. Richard H. Hycner, referencing Amedeo Giorgi (1971), summarizes the point that "any research method must arise out of trying to be responsive to the phenomenon. No method can be arbitrarily imposed on a phenomenon since that would do a great injustice to the integrity of that phenomenon" (1985, 280). Dutch psychiatrist Jan Hendrik Van den Berg, translated by Van Manen (1997, 41) explains: "[Phenomena] have something to say to us—this is common knowledge among poets and painters. Therefore, poets and painters are born phenomenologists. Or rather, we are all born phenomenologists; the poets and painters among us, however, understand very well their task of sharing, by means of word and image, their insights with others—an artfulness that is also laboriously practiced by the professional phenomenologist." In this case, even citing phenomenology as a method requires the artist to elaborate how they are using their senses and interactions with phenomena. Ernest Keen, an American phenomenological psychologist, explains, "...unlike other methodologies, phenomenology cannot be reproduced to a 'cookbook' set of instructions. It is more an approach, an attitude, an investigative posture with a certain set of goals" (1975, 41). Heading down this path also requires one to determine which phenomenological method of many would be used. For example, two main ones are descriptive or interpretive. Therefore, after looking through many approaches, I have decided on forming my own instead of adopting a pre-made methodology.

My experience with lines as a phenomenon has brought to my attention the image of origami. The complicated, structural, and interrelated nature of lines led to the metaphoric image of origami as a way to think with the behavior and complexities of lines. In attempting to categorize what my method, methodology, and artistic practice is, origami has maintained a position in my thinking as an answer—as a paradigm.

Proposed by Thomas Groenewald, an academic researcher in experiential learning, a paradigm comes before a chosen methodology, in that by acknowledging the researcher's way of viewing, they can correctly decide which methodological approach to take (2004, 44–45). He states; "A paradigm is the patterning of the thinking of a person; it is a principal example among examples, an exemplar or model to follow according to which design actions are taken" (Groenewald 2004, 44).

In outlining the way this study approached lines, different terms are used to navigate the practice-as-research nature of this investigation. Like lines, these terms will not easily or nicely fit into frames. What I intend to do in this section is to highlight that a paradigm approach is more important for this work than explicitly utilizing phenomenology or other pre-made qualitative research methods.

Origami as a Paradigm: A Composite of Renderings

Leading scholars in artistic research, Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind, state arts-based research should not use existing qualitative criteria but go "toward an understandig of interdisciplinarity not as a patchwork of different disciplines and methodologies but as a loss, a shift, or a rupture where in absence, new courses of action unfold" (2005, 898). They frame their approach as "the means through which one inquires into an educational phenomena through artistic and aesthetic means" (ibid.). Instead of a method, they offer six renderings[1] which are not isolated, but work together and open up additional renderings that exist at their intersections. "Renderings offer possibilities of engagement" (ibid., 899), they state, and note that renderings are not methods but methodological concepts. The six renderings they propose for artistic research are *contiguity, opening, metaphor, excess, reverberations*, and *living inquiry.* They state that renderings do not need to be separated and "this separation is not a distinctive delineation but rather, renderings themselves are living, continuous, metaphoric/metonymic, openings, reverberations, and full of excess. Each rendering moves alongside and between the others" (ibid., 908).

10 Springgay et al. note that they use the term rendering in order not to offer a criterion-based model: "To render, to give, to present, to perform, to become—offers for action, the opportunity for living inquiry" (2005, 899)

A/r/tography is the term Springgay et al. call the collection of these renderings for the purpose of artistic research. In specifying a particular approach around the image of origami, I have found that the renderings of opening, contiguity, and metaphor fit best. Excess, reverberations, and living inquiry have not been focused on for a few reasons. Firstly, I find they do not correspond with the logic of origami. For example, while the rendering of excess might seem potentially helpful for the creative process by acknowledging abundance and over-saturation, there is in fact no excess in origami—origami is traditionally made with one piece of paper. All of the connections and structures are made by not adding nor subtracting the material. Therefore, excess does not match the paradigm of origami thinking, and in relation to my line research, I find it important to acknowledge everything informs everything else. Additionally, excess and reverberations could be understood as a result, rather than as something to do. I see opening as an action, and contiguity and metaphor as an act of doing—seeing something next to something or in terms of something else. Living inquiry is clearly an action, bringing to this rendering the act of experience and embodiment. As I see my artistic research localized in the body, this rendering did not need to be added to create the origami logic, as it is embedded in what I do with the origami paradigm. Springgay et al. (2005) note that their renderings all work together and are difficult to separate, as there are instances below where we could see the renderings that I do not use appear. This is however, why I chose to simplify the renderings and add a new one of my own, in order to create a cohesive, and memorable group of four that are activities I can do, or see myself as having done, that work with the image of origami.

In addition to the three renderings, I have included *folding* as a new rendering. A piece of origami is made by its folds, and it is the act of folding that brings new dimensions and possibilities to the material. A fold also creates a division between two areas that were once together. It is the logic of folding that primarily inspired the image of origami as an artistic approach. To sum up, the six renderings proposed by Springgay et al. create their approach called A/r/tography of which I have selected three elements and included a new folding rendering to create the paradigm of Origami as a way to think through artistic research/practices. Before introducing in more detail the rendering of folding, let me elaborate on the first three.

Contiguity[2]

1. the state of bordering or being in contact with something.
2. the sequential occurrence or proximity of stimulus and response, causing their association in the mind.

11 Lexico Dictionary, s.v. "Contiguity," accessed August 20, 2022, https://www.lexico.com/definition/contiguity

I understand Springgay et al.'s use of 'contiguity' in artistic research to mean putting items together, like the visual and the textual, the teacher and the performer, and the researcher and the maker. This does not make new categorizations, as they warn, but looks at the movement that happens between these modes of understanding. To enact this rendering then, can be to literally place text next to image in the studio. It also happens organically when I read while I am dancing in the studio, or when I draw while I am thinking. The oscillation between practicing while I am at the same time teaching the practice is a way to think of contiguity as well. Contiguity fits within the idea of origami, because edges and surfaces are bordering and in contact with each other. The structures that form from putting two or more things near each other can create associations and new understandings.

The act of looking at lines is a contiguous practice as lines already bring together adjacent fields and modes of representation. Contiguity is also the movement between what is stimulating and how I am responding—the embodied moments where *how do I respond with this* is brought forth.

Openings

In my research, openings or openness relates to responsiveness. Springgay et al. state that "openings are not passive holes through which one passes easily or that allow one to see through with distinct clarity" (2005, 905). They see openings to be like cuts, cracks, or tears, and in this way, *what moves through* does so in a way that is fragmented, partial, dripping, or destroyed along the way. "Openings that are torn, shredded, and ripped in acts of violence and disruption remind us that living inquiry is difficult, that it is filled with dis/comfort and loss, ruptures of ecstasy and pleasure that trouble and pull at the holes of existence" (ibid., 906). Openings are also encounters, invitations, shared participations (ibid.) so that one does not have to sit down and do an opening, but the act of collaborating, asking fellow dancers questions, going on tangents to research something else, are intuitively ways that the creative process utilizes openings as a part of a methodological strategy. In the logic of origami, a figure can be opened up in order to look inside to see past folds.

Shotter also declares that we can be struck by something, not in the sense of seeing patterns, but by noticing "the momentary, spontaneous occurrence of unique *openings* to a next step forward into the future, an event that arouses a *feeling* or a *sensing* within us of a still-not-fully differentiated, particular 'something' (2016b, 151). Taking the often abstract 'opening' concept that artists look for as one of their guiding principles, we can use Shotter's words here to home in on more clarity of what an opening actually entails. There is a feeling that is sensed—something is there to work with, and to move forward in that direction. Sensing an opening is to understand something is not fully differentiated, it is not fully known or distinct, but it takes us forward, rather than back. Here is where we could see reverberations or excess as being embedded and present, without needing to overtly move us forward.

Metaphor/Metonymy

Instead of a dictionary definition, I summarize Springgay et al.'s use of metaphor/metonymy, which they state allows for ambiguities in meaning, rather than singularities (2005, 904). Part and whole are ways of looking at something. Metaphor doubles and substitutes. With metaphor and metonymy there is "both a loss of meaning and simultaneously a realization of it, invoking the presence of what it is not, and also what it might become" (ibid., 905). They go further to say that "literal language could be argued to exist within systems of containment and classification, whereas metaphor and metonymy permeate boundaries, disturbing system and order" (ibid.). I understand metaphor to also give access. Metaphor helps to get straight to the point of something, to frame its quality without containing it fully due to its otherness or non-literalness.

For Shotter, when sensing the unique time-contours of experiences, he states, "we can only begin to say what such experiences are *like*" (2016b, 152). Here Shotter draws our attention to metaphor. Similarly, Sheets-Johnstone says, "Language is not experience; it is the means by which we describe experience — or try to describe experience, for 'the gap between the experiential and the linguistic is not easily bridged'" (2009, 168). As she states herself, language is not experience, so inherently there will always be this gap when trying to use words or analysis to document the *how* of experience. This attempt to describe what experiences are like is for Shotter a metaphoric tendency. Within my practice, I use my body to describe or understand how one line is like an-

other line. Metaphor is the act of saying this action is like this action as a way to open or bring experiences into proximity and relation. Lines allow me to see how something is like something else, so metaphor is a basis for researching these phenomena.

Folding

Folding poses a simple schematic in one's imagination. Folding either offers up the notion of one thing being bent or divided at a certain point, or the image of two things coming together. As Springgay et al. had said about their renderings, the categories do not stay exclusive, and folding also overlaps with some of the other renderings. Opening is a major aspect of folding. Thinking along the lines of origami, to open is to go over a border again, or to make a crease in another way; to take apart, to see inside, to inverse. Contiguity relates to folding. Folding places two things next to each other, which is the definition of contiguity. In folding, two different things are brought into contact with each other, bordering one another.

Folding does not only happen in one action, but there may be multiple folds, as well as unfolds that re-open previously made folds. "Folding holds out the potential to diversify endlessly without falling into the logic of binary oppositions. This sense of the fold thinks matter as doubling back upon itself to make endless new points of connection between diverse elements" (Meskimmon 2003, 167 cited in Springgay et al. 2005, 901).

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Folding Investigation

In general, these terms can often stay as abstract propositions even though they push the artistic process forward, as artists understand what it might mean to open something by an act of doing, or to place two things near each other for observation. To understand more the depth and complexities of what a fold actually does, in order to use its conceptual offerings to its full extent, the physical act of paper folding was used as an experimental practice to offer insights about the nature of folding.

The starting questions were 'what is a fold?' and 'what is an unfold?' In contemporary discourse, actually one hears the term unfolding more often[3], as in unfolding something in order to see it better, or to get a more in-depth analysis of something, or to allow something to reveal itself over time—often used metaphorically, like *The crisis is unfolding*. Besides just the act of folding, this practice also sought to glean information about surfaces, materials, actions, gestures and relationships that were part of the folding process.

12 Since 1980s, the words *unfolding* and *unfolds* have more than doubled in usage in print books: https://books.google.com/ngrams/graph?content=unfolding&year_start=1800&year_end=2019&corpus=26&smoothing=0

During the practice of folding paper and learning some origami forms from a book *Folding Techniques For Designers: From Sheet To Form* (2011) by Paul Jackson (see figs. 25–32), observations from participants were documented in July of 2019. A list of spoken insights from a group of 9 artistic practitioners from Brazil, USA, Germany, The Netherlands, and New Zealand were gathered about folding:

The periphery affects the center.
The preparation is for the final product.

Unfolding is not undoing.
Delicate gestures are needed.
Nothing is added or subtracted with folding.
A one-fold can keep everything still visible.

Simple folds are more complex because they are less geometrical, they allow more differences and more outcomes. (One-fold allows more outcomes than a specific detailed geometric way of folding).
Folding leaves marks in the material, making it more difficult for further possibilities of different folds to take place without the entire material becoming affected.

Less folds allow for more view points of observation.
More folds start to require more force but also a specific delicacy as well.
Unfolding allows you to look at the folds you have been making.

New features can come from folding: for example, the ability to twist or roll.
Folding allows for one to break or stretch structures.
Folding changes the surface area because a shrinking happens, but more volume is gained in the process. (Going from 2D to 3D).
Folding can produce something that is complicated and rigid, as well as simple and flexible.

A one-fold offers more visibility.
Folding creates a line you can follow.
Folding makes it hard to track what gets lost.

Folding can be forgiving for inaccuracy.
If you don't get it the first time, you can fucking forget about it.
If your creases aren't crisp, some structure/possibilities are forfeited.
Overworked folds don't help.

The language of concrete things gets used in abstract things.

Once you get it to bend it becomes satisfying.
More folds, require more force, (but the desire for delicacy as well).
Same folds can produce different results depending on how tight the fold is.

The substance (in this case paper) has a capacity that is brought forward. The paper affords the type of creases one makes.
Structures that have been folded geometrically can be refolded in more asymmetrical ways.
Folding allows proprioceptive/kinesthetic sense of limb placement.
Folding changes depending on the material.

The declared statements made during the act of origami reveal aspects of origami logic. Some aspects are even contradictory with others. The list above can be looked at when needing to remember what aspects of origami thinking as a paradigm can support artistic research. As we will see below in the conclusion of Part 2, these points are returned to when bringing the body in relation to origami.

Origami Thinking

Historically, over time, we see the human body develop speech and writing and drawing and dancing, singing, and speaking, and those are passed down and have found a place to live inside me as an artist. Personally, as well, my body is the place where I weave together listening, speaking, drawing, dancing, and other forms of line making. I categorize these in two ways: *origami as an artistic paradigm* and *human body as origami* whereby the body becomes the responsive medium circling back to the point that the artist *doing* reveals new knowledge. The artistic practice involves working with full senses and an embodied felt sense, which serves as a barometer or measuring stick for data sampling of intersubjective moments. This allows us to notice what is being created and how to *move forward* in *ways that makes sense.*

Springgay et al. reference Mieke Bal (2002) and state that "concepts need to be evaluated by their ability to

provide access to phenomena not otherwise attainable; the new organizations need to be compelling and yield new and relevant information" (2005, 909). For me, to think of origami as a paradigm, the concept then makes the relationship between the phenomena and the researcher clearer. As I am bringing work together (contiguity), finding ways to compare and articulate (metaphor), bring theories into a new practice (folding), acknowledging that when doing so I reveal new aspects (openings), I can hold and structure my artistic research by entering the practice through a paradigm of Origami Thinking. I propose Origami Thinking is a paradigmatic approach for artistic research and the specific image and logic that makes sense for this research project on lines.

In the next section, origami and its logic are brought into relation with Deleuze and Guattari's use of the line and rhizome and Ingold's meshwork. All three of these images use lines as their foundation. Discussing similarities and differences in these paradigms not only provides specificity for this research, but reveals, at large, lines as a phenomenon and their ability to afford thinking with other topics.

Folding topics to generate writing

I bring beach waves to architecture. This action brings metaphor closer to the edge.
I bring *tracing the edge of perception* to *lines of Wagner's thoughts*.
This makes a fold between gesture and face touching.
Then I bring walking to face touching.
Visual thinking is brought near *lines of the heart* but with a fold and two layers.
Symbolism is now 90 degrees from sound and a sharp corner separates them.
Cities now sit folded in the center, now on top of *tracing the edge of perception*.
Wagner's thoughts lay behind on the opposite side. Mark making and the Stairs have incidentally been brought on top of each other, in contiguity.

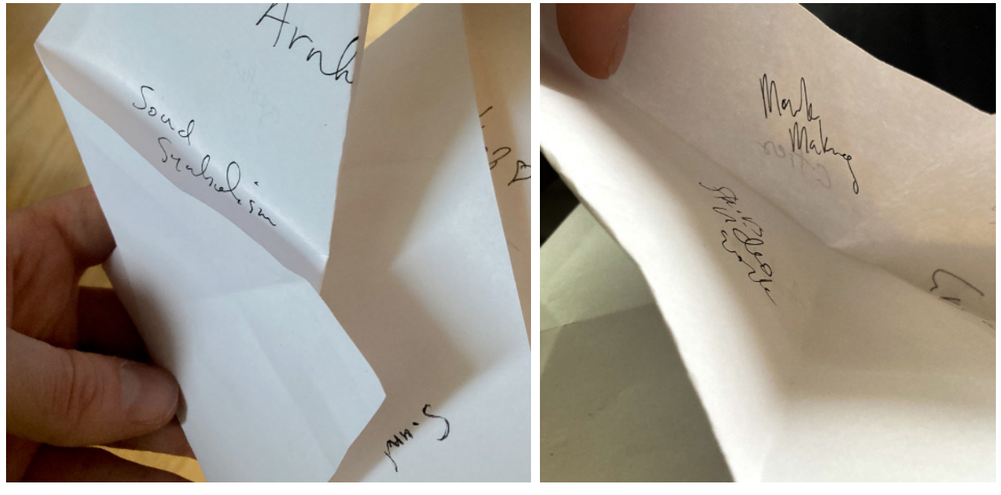


Fig. 33, 34. Folding used as a method to bring different concepts together for idea generation.

PART 2

Origami Logic: Thinking through Rhizomes, Meshworks, and Origami

To research lines, one must look at Gilles Deleuze[4] and Felix Guattari. Their book *On the Line* (1983) offers paradigmatic ways of thinking by introducing the rhizome. Likewise, Ingold, who defined the field of Linealogy, speaks of lines further by giving us his own paradigm image of a meshwork. Through my own research of lines, origami became my paradigm for being connected to that which you research methodologically and ontologically. The following looks to introduce, compare, and contrast how lines are used to carry the approach of the rhizomes, the meshwork, and origami.

13 Deleuze, additionally, even has a book titled *The Fold, Leibniz and the Baroque* (1993). Though the titles of these books use terms from my research, the work does not inspire it or overlap with it.

When I am pulling language from other disciplines and fields, the line becomes a centering point to unite different languages. Lines provide cohesion but also afford me the opportunity to change definition and meaning between fields. Whereas Ingold's description of lines is a starting point for this research, Deleuze and Guattari's is not. However, in this section, some time will be spent looking at their uses and beliefs and responding to their proposals as they are prominent writers on lines. Giving some space to look at their use of lines is done so to avoid confusion with the use of similar terms in their well-known works. In the end, the logic of origami is proposed as an additional paradigm to think with that offers resemblances and differences.

Deleuze and Guattari's use of lines is propositioned philosophically, as creating a way to think. Lines do not sit in their writing as actual phenomena as they do in my research. In this regard, what they offer does not coincide with my approach simply because both concern the topic of lines. Deleuze and Guattari first put lines into three categories; the nomad, the migrant, and the sedentary (1983, 93). I am categorizing lines into three categories as well; imagined, traced, perceived. This, however, is basically the extent of any similarities. They speak of lines around a proposition of a *body without organs* (1980). In my thinking of Embodied Lines, there is immediate opposition. Lines are embodied and my body has organs. Their writing does not elicit a corporeal response in me and definitions require more mental work than a physical understanding. When they offer me to listen from a body with no organs, I have to admit, I then, in turn, cannot hear. Their writing on lines and folds does not feel like it comes from the same phenomenological starting point as that of Merleau-Ponty or Sartre, which I encounter through the writing of Sheets-Johnstone.

When I listen to Deleuze and Guattari speak of lines, I interpret what they say as starting from a different point than my perceptual approach where I feel and see lines. I am working from a pragmatic starting point. My impression is that Deleuze and Guattari play with mental words and I seek for physical clarity. Though we both speak of ambiguity, I interpret their use of ambiguity as being intended to confuse. I want to be clear in how I speak of the unclarity and openness in ambiguity. Ambiguity is certain and is not intended to confuse.

One sentence that stands out from Deleuze and Guattari is, "As individuals and groups we are made of lines" (1983, 69). They offer again three types; (1) rigid segments, (2) flows, lines-becoming, and (3) some unknown lines that carry us away (ibid., 69–71). They state that these categories are entangled in each other and are what they could call rhizomatics or cartography, among other terms (ibid., 71–72).

Rhizome

When Deleuze and Guattari speak of rhizomes, they are in fact speaking of lines. They state there are no points in a rhizome, only lines (1983, 15). "A rhizome doesn't begin and doesn't end, but is always in the middle, between things, interbeing, *intermezzo*" (ibid., 57). In my way of thinking, a line also does not end but is something in the middle. A hand drawing a singular line on paper was first started by a traced line lifting the pen in the air—the

only difference is that the traced gesture with the pen left a mark on the paper for us to perceive later. Deleuze and Guattari relate to this type of connectivity, writing: "Principles of connection and heterogeneity: any point on a rhizome can be connected with any other, and must be. This is very different from a tree or root, which fixes a point and thus an order" (ibid., 11). The wasp, the orchid, and viruses force us to form rhizomes with other creatures (ibid., 21). In their words I hear a mixing of imagined lines and physical traces. I hear border-making practices and intra-actions. In declaring we are connected, different, multiple and that we deal with ruptures, they ask us to think beyond straight linear logics. A rhizomatic understanding allows for these rearrangements, networks, and re-namings by implanting the moving lines of crab grass, ant tunnels, and paths of rain. They state the rhizome is not answerable to any structure or model (ibid., 24). Though certain statements stand out that I agree with, I struggle to connect to the image of the rhizome and their line of thought as the images they use are changing, and the metaphoric use wains between politics and religion, broader fields my work does not relate to.

Interestingly, Deleuze and Guattari oppose the trace (ibid., 25). It appears they are looking at a trace as something isolated and fixed, more so like an outline or a segment connecting things and they instead want to keep things open. To distinguish, I am using the term trace as a movement, where the tracer and that which is traced contaminate each other. For example, when I trace with my hand the outline of a building, or I use a pen to trace an imagined linear pattern of a dancer I am watching (see fig. 46), the building and the dancer influence my movement. I use the trace to capture the line, but the line also captures me.

In addition to the distinction between a line and a trace, they also compare tracing versus maps: "Contrary to a tracing, which always returns to the 'same,' a map has multiple entrances. A map is a matter of performance, whereas the tracing always refers to an alleged 'competence'" (ibid., 26). They do not explain why a tracing returns to the same and what the same means. How does a map perform and why does a trace not? They state a trace is complete (ibid., 27) and argue that with cartography a map is open. These terms can mean different things to different people. I see a map as something with labels and it fixes things with symbols. For me a trace is a line of movement indicating subjectivity and open for interpretation. We use these terms differently. As their terms appear more as word games, they become unrelated to my research and make it difficult to incorporate.

Deleuze and Guattari state that a map can be reworked and redrawn. Similarly, this is why I like the image of an origami so that it can be reshaped, and nothing is lost, it is just reworked. In the image of the origami, the lines are the markers of that reworking, and we make traces when we reshape. Our actions as traces leave material lines left in the paper. Following the lines or traces takes us directly into the forms. We cannot really distinguish between the two. In this same way, a trace or a line in a folded origami structure gives shape and form to the figure.

They briefly propose their own counter argument, and then continue to state: "The tracing has already translated the map into an image; it has already transformed the rhizome into roots and radicels. (ibid., 28) […] Already the tracing only reproduces itself when it is reproducing something new" (ibid., 29). They explain the tracings reproduce only the impasses and blockages (ibid.). To continue in their metaphor and line of thinking, does not further my practice. Judgements and evaluations are exclaimed before definitions. They think of tracings as linear like roots, headed in one direction. They view lines as something else. I think what they like to call lines, they do so for the fact they can get entangled later. They call it a line, because it is a line of thinking of which any topic they see can be thrown into that branch. I am not sure they are really talking about lines.

In my viewpoint, a line can be straight or curved; it can be a segment or infinite. When it is perceived, it is out there in the world. When it is of the body, it is traced. A line and a trace can be used interchangeably when related to the body. A sketch on a paper with a pencil is a trace of gesture leaving a trace of the pencil. I can also imagine traces behind moving objects as imagined lines. Imagined lines are also movements and dynamics in our thoughts when we think of abstract concepts like journeys or pedigree lineages. Roots are no less of a line than a rhizome; they just function differently.

Deleuze and Guattari want us to see a rhizome as 'and….and….and' (ibid., 57). Though they use the word 'woven' in their description, this does not appear to me like Ingold's woven meshwork. They speak of micro cracks and micro breaks that are personal and collective (ibid., 74). As Ingold calls cracks a type of line, the cracks and breaks would be folds in my origami metaphor. In some aspects they take the line literally, and others metaphorically. When it is not there, it perhaps is in the imagined way that I mean it, but they do not speak about it as if it is imagined. They state, "In some ways, these lines, the movements of flight, are what appear first in a society. Far from being a flight outside the social, or from being utopian or even ideological, these lines actually constitute the social field, tracing its shapes and its borders, its entire state of becoming" (ibid., 91). Their language and concepts are not easy to understand, as they do not answer, for example, *how* these lines appear first.

Perhaps, the type of lines Deleuze and Guattari speak of are found in the moments when we are aware of lines multi-modality. The imagined thought line that stems from perceiving a trace in the environment, that in turn causes our body lines to shift, which twist the original thought line. My interest however is not to give definitions and ways to read Deleuze and Guattari with my own research. My intent is to understand their image of rhizome as a movement of lines and how things affect each other. Their description, however, was not appealing nor did it move my work forward.

Meshwork

Tim Ingold, instead of a network, draws our attention to the idea of a meshwork (2007), a term borrowed from Henri Lefebvre. Ingold states, "The lines of a network, in its contemporary sense, join the dots. […] The lines of the meshwork are the trails *along* which life is lived (2007, 80–81). In his paper "Rethinking the Animate, Re-Animating Thought", Ingold describes an organism as a line and thus as movement without boundaries within its environment:

> In this depiction there is no inside or outside, and no boundary separating the two domains. Rather there is a trail of movement or growth. Every such trail traces a relation. But the relation is not *between* one thing and another — between the organism 'here' and the environment 'there'. It is rather a trail *along* which life is lived: one strand in a tissue of trails that together make up the texture of the lifeworld. That texture is what I mean when I speak of organisms being constituted within a relational field. It is a field not of inter-connected points but of interwoven lines, not a network but a *meshwork*. (Ingold 2006, 13)

In this writing, Ingold acknowledges the similarity of his images to the rhizome as both metaphoric images. Ingold metaphorically speaks of ants and their colonies as entities that do not have agency, as agency is distributed throughout the network (2008, 210). In Ingold's description, anything can belong to the network. "Every colony is a hive of activity. And if we follow the lines of activity, we find that they are traced back neither to a single, collective super-organism nor to a plurality of individual organisms. Rather, to trace the lines of activity is to describe a vast network, in which any individual appears as but a particular node" (Ingold 2008, 210). This indeed sounds similar to the rhizome, though sometimes Deleuze and Guattari's definition sounds more like Ingold's meshwork. However, Marlon Miguel, a Doctor of Philosophy and Fine Arts, also notes that network and rhizome are the same notion (2015, 190).

Ingold also uses the term traces and mapping like Deleuze and Guattari do, but Ingold's description of mapping and traces is different. Ingold remarks that lines made in such mapping, as used in storytelling or pathfinding, are mainly ephemeral, and those that are scratched into something are only useful in that one specific context (2007, 84). "The map does not tell you where things are, allowing you to navigate from any spatial location you choose to any other. Rather, the lines on the sketch map are formed through the gestural re-enactment of journeys *actually made*, to and from places that are already known for their histories of previous comings and goings" (Ingold 2007, 84). In comparison to Forsythe's imaginary lines that are illusionary, a distinction made here by Ingold, and important in my work, is that imagined lines are known. They are imagined when listening to a melody, or when remembering

a path previously taken. In Conceptual Metaphor Theory, the way we think of abstract concepts comes from previously experienced physical actions; in this case paths and traces then become linear concepts in spoken words.

Similarly in origami, the line as a fold is not only drawing a connection between two parts, but could not be without the context around it, and other layers, whether supporting or complimentary. I see a rhizome to be about the possibilities of what can connect, but within the space of a meshwork or origami logic, it brings your attention to the reality that things *do connect* and to the relations at play—in other words, how they connect. Ingold uses the web metaphor to propose that SPIDER, as an acronym, stands for 'skilled practice involves developmentally embodied responsiveness' (2008, 214). Below he has the SPIDER describe:

> The lines of my web are not at all like those of your network. In your world there are just entities – bits and pieces of diverse kinds that are brought together or assembled so as to make things happen. Every 'relation' in the network, then, is a connection between one entity and another. As such, the relation has no material presence. For the materiality of the world, in your view, is fully comprehended in the entities connected. The lines of my web, to the contrary, are themselves spun from materials exuded from my own body and are laid down as I move about. You could even say that they are an extension of my very being as it trails into the environment – they comprise, if you will, my "wideware". They are the lines along which I live and conduct my perception and action in the world. (Ingold 2008, 210–211)

In the passage above, I understand Ingold's point to be that network-thinking uses lines to connect things, whether animate or inanimate, and the relationship is found between the points. The distinction he makes with the meshwork quality of the web analogy is that some agents sense and have perceptions and the lines along which they relate are *responsive.* In this way of thinking, there is less focus on positions and more on the dynamics of the movement caused by the relationships. Thinking again back to a rhizome, the image that Deleuze and Guattari outline appears much like this network. The image the rhizome stresses is that it does not put down roots linearly but reaches out in all directions, connecting a multiplicity of parts. There are no positions, but always open ends. They state that rhizomes connect things and are always in the middle. Compared to Ingold's distinction between meshwork and network, rhizomes are parallel in this case more to a network, as it does not take into consideration the entire dynamics of the meshwork that gets affected when relations are instigated. Meshwork, intra-action, and origami head in the direction of boundary-less entanglement that I find needed when researching lines.

Ingold proposes that a web is not an entity, as it "is not a closed-in, self-contained object that is set over against other objects with which it may then be juxtaposed or conjoined" (2008, 211–212). He describes a type of meshwork with open ends and a tightly drawn living tissue of lines. He claims, "action is not so much the result of an agency that is distributed around the network but emerges from the interplay of forces that are conducted along the lines of the meshwork" (ibid., 212). His stressing that action arises from the entanglement of interaction along the lines of the meshwork is important in relation to my research for two reasons. One, it literally describes how lines enact movement through and engagement between actor and their environment. And two, this picture he creates from the spider's web describes easily how we can understand Barad's notion of intra-action—in that our agency and responses are informed by other actions. Therefore, in his description, it is possible to see the relation between intra-action and lines. Lines can be the very material that entangles us and gives us, in Barad's words, a "response-ability—the ability to respond" (Kleinman 2012, 81) to our surroundings.

This image of the web is helpful in its metaphorical qualities of elasticity, fine lines, multiplicity of lines, sinuousness, and ability to be moved by any interacting element. In addition, and perhaps the most important, this metaphor reminds us that the spider web comes from the spider. The lines along which one is connected come from the agent. The lines are made from the subject's body, rather than outside material like the pathways that

ants carve. What this image lacks for me, however, is greater three dimensionality. Spider webs, though they can be quite complex, at first thought, have a two-dimensional attribute like a surface or plane. They also exist separated, out there, on which the agent and others interact. For these reasons, the image of origami brings together some of these missing elements.

Origami Logic

The metaphors of the rhizomes or meshworks make interesting proposals, but the terms and relationships in these images do not fully satisfy criteria I find relevant for the way I see things are connected and relate to each other in a world of lines. Instead, I prefer to think of origami. With origami, there is everything from the start. There is one piece of paper. The material folds and unfolds due to actions and traces. Behaviors mark and bring things into proximity. Surfaces touch momentarily and then find places to settle, tucked into back crevices. All parts are important even if forgotten or unseen. They provide structure and workings to build other things. A line creates a boundary between two surfaces, but it is the same surface at one point in the past and may again be in the future. Origami is not static. It is not a web attached to something else. The whole thing is self-determining. History and previous actions leave visible traces. An unfold does not erase a fold—in fact it weakens the paper. A multiplicity of folds in one direction makes folds in other angles less precise. The more lines we make, the more fragile it could become. The more lines we make, the stronger it could become.

Delueze and Guattari's description of rhizome against roots is to point out the infinite connections and to not get stuck in a binary. Rhizome and meshwork are both used to look at lines in a different way, not as segments in a network, but as finely tuned things that are a process. This is the same way Ingold speaks of, and more clearly compares, a network versus a meshwork. For my origami metaphor to be understood, we have to assume that the piece of paper is everything: everything, in that where we make folds is where we bend and categorize different human forms of attention, distinctions, inventions, and concepts.

I can argue that once you have a meshwork so taut, you have a plane, like a piece of paper. Ingold writes that smooth surfaces materialize from weaving of fibres (2015, 83). This is a logic of weaving, whether with yarn or lines of rock and geography creating the surfaces of Earth. With the plane of paper, a new line appears when this plane is folded, and this new line, this fold, is a practice, a result of a process. In this way, a paper is like a woven meshwork. Rhizomes connect things, and folds in the origami model also connect parts, but at the same times origami draws a boundary. While the rhizome wants to show the intra-active nature of mutually affecting each other without borders, the origami model acknowledges that our perception sees borders. Borders and difference and all-encompassing intra-actions can and do happen simultaneously.

As Deleuze and Guattari have stated there are no points in a rhizome, only lines (1983, 15), we may say there are points in origami. There may be perceived points in origami because there are surfaces and corners, but the appearance of a point is not problematic. A point is made up of surfaces and other lines coming together. It is not a place of isolation, unconnectedness, but the opposite.

In their concept, Deleuze and Guattari see the rhizome as a process, and roots and traces as something stuck (1983, 46). If we see lines as having movement, they are also a process. Or in the origami structure, the lines are responses to the process of the folds. A fold in an origami allows for the paper to be bent in two different ways. It also enables different sides to come closer to each other. It is in fact not limiting. A rhizome can come across as abstract and vague, and I feel the origami model can inhabit the same benefits of rhizome and meshwork in one. For example, two points of a web cannot be brought into proximity, but with origami, a simple fold can do just that. In origami, the lines from folds are made through gestures, by actions and decisions. They have connections to the past and are often preparations for future lines. What's more, some lines disappear and become hidden. Compared to the image of the spider's web, where all relations are seen, in origami, a fold can be made at any place and in

doing changes the weight of the entire structure. This type of origami logic can be seen in Brazilian artist Lygia Clark's *Bicho* sculptures (e.g. Máquina 1962) that showcase lines, planes, and surfaces of folded metal semicircles and triangles. These objects defy conventioal notions of front or back, rejecteding predetermiend forms in favor of an interactive, organic quality. They become unpredictable and even diviant 'critters' when handled by viewers, offering a sense of limitless possibilities for action due to the responsive quality and dynamic nature of the folds (The Musuem of Fine Arts Houston n.d.).

A rhizome, meshwork, and origami each serve a different strength. What I like about the origami image is that if we do unfold everything, in terms of give space for new information, we lose what was created. We have made folds and boundaries. In the end, we no longer have access to the how or when of what we are looking at or relating to. In the image of a meshwork or spider web, I imagine something caught in the woven fabric and we can see how it pulls and tweaks all the entangled lines. With origami, parts of time, process and relation are hidden when folded inside. This is important for an artistic research methodology, because it is not always possible to unfold, explain, and point at something. As Shotter states, we are very good at thinking about and naming things after-the-fact (2014, 594; 2016a, 2). By acknowledging there are things *with* us, learned from past experiences, articulated and folded, that come out at different times, that give strength and support but remain hidden in their relation, I do not have to pinpoint the path of relation, but can step back and appreciate the outcome. A line can separate and bring things together.

Neither of these three as models are a perfect metaphor for how lines and interactions relate, either for broad social politics, or for artistic research methods. Therefore, I take it even a step further and propose another metaphor: to view the human body as origami.

Human body as origami

Origami is a three-dimensional structure that is formed from a two-dimensional material. If we bring the folding of origami to Ingold's sensitive meshwork, it requires a bit of imagination to picture a foldable spiderweb. Here we can make a jump from the imagined foldable spiderweb, made of permeable, sinewy strands of tissue and knots to that of the human body, that in fact, exists just as a type of folded, sinewy tissue. The human body is a folded, meshwork of lines of living tissue and nerves, on which the outside world leaves traces and actions through senses and perceptions. The human body is origami—a type of origami where my image and logic of lines and origami meets Ingold's proposal of meshwork.

We can think of sound, song, writing, dancing, speech, gesturing, and different line making capabilities as crossing over each other through the human body and creating a surface we can call human. This is where the idea was generated to think of the human body as origami, a collection of folded surfaces, created historically of crossing lines held in our body through evolution. This does not only materialize the human, but this logic of the body as an origami is used to demonstrate also how certain foci or 'surfaces' are in the background, almost unseen, yet important, and are a foundation for other surfaces to be seen.

When we think of the human body as origami, nothing is subtracted when new folds are made, reforming the shape. This aligns with Barad's position that there are no boundaries, only new boundary making practices (2007, 93). This is important for line research and this artistic process, because we can understand moments in history where a drawn line became a symbol and later a word, or where walking a line becomes dancing a line. For this research practice, the body can use lines to rework these boundaries or folds and find ambiguous areas where these distinctions are less clear.

Here I speak about the logic of origami, about forms of human attention and about lines. What is the difference between spoken text and a song, between a sketch and dance? A melody and a tool? In one we bend the line and bring different dynamics through changing pitches. In the other we leave behind a mark. Dance too can leave behind a mark: tracks from dancing in sand or scuff marks from sneakers on the dance floor, or a trace in the audiences' memory. When looked through the frame of lines, these differences become distorted. We have made folds to say, 'this is a song' and 'this is text'. Surely, we know people speak in songs, and poets speak their words aloud phrased in cadence. The image of origami allows fields, forms, and practices to be of the same material but acknowledge a line has been drawn. An origami mountain fold creates a sharp angle between points once next to each other. Valley folds become enclosed in a container with depth. In fact, a fold somewhere between two points actually brings two points closer to each other. If we use the origami logic to theorize about the evolution of human practices, we could say: If dancing and drawing were two points away from each other and a fold was made to draw a line between them, then two other points are brought closer together. A trace through other points affects nearby points. Or inversely, if we say dancing and drawing could be considered similar, brought into contiguity, we have made a cut or fold, a distinction somewhere else. Without getting into existing theories of mathematics, or hypothetical structures connecting points in spacetime, the complexity of this origami logic is dynamic.

In this way of looking, there is no right or wrong. We do not prefer straight lines over curved, or traces over lines. It allows us to change scopes. I can see historically how human inventions for different forms of attention—singing, dancing, writing, language, walking—can be held together in the human as a whole, evolving and making forms, folds, distinctions over time. Also personally, as we grow, we accumulate complexity with new foundations. We become a certain image constructed from the interactions and accumulated traces we have made. Here, we could find ourselves looped back to phenomenology or hermeneutics. When a human body that senses and interprets as a folded, connected, layered structure, the human body as origami stands as a metaphor for these philosophical categories or methods. By thinking in visual images, I can bypass steps and the cookbook approach to artistic research first mentioned at the start of this chapter, and see dynamic relations as what to sense, instead of what to do. Additionally, the image of origami can dialogue with three of the most prominent writers on lines, Deleuze and Guattari and Ingold, who accordingly propose a rhizome and a meshwork.

However, Ingold says that the web is "not an object that I interact with, but the ground upon which the possibility of interaction is based" (2008, 213). He states the "essence of action lies (…) in the close coupling of bodily movement and perception" (2008, 214). The way lines materialize in our human evolution, and in our personal development, is the same way they behave in this artistic research. They cannot be isolated or contained. Lines are not the only topic that fits in the human body as origami image. The line or fold did not exist *de novo*,—they exist because of an action.

By acknowledging the human body as origami, I give space for the depth of experience, where different disciplines and ways of thinking meet and relate to each other. This is what I witness. This also becomes the paradigm for this artistic research. I do not look to keep lines separated or in distinct modes. I know my body can bring them into proximity. I know there are layers of information and connections that support the images I am seeing, whether those connections are visible or not. I bring into my practice the possibilities for different disciplines to meet. By opening, contiguity, folding, and metaphor, the artistic renderings give ways to explore ideas as starting points, together create the image of origami, specifically the human body as origami. I am thrown into the metaphor of looking at the human body as origami, as something that is the site of taking in the material world, navigating the kinetic world with one's body, and noticing the inner world of the mental landscape that arrives due to a responsive relationship, not something that is fixed beforehand.





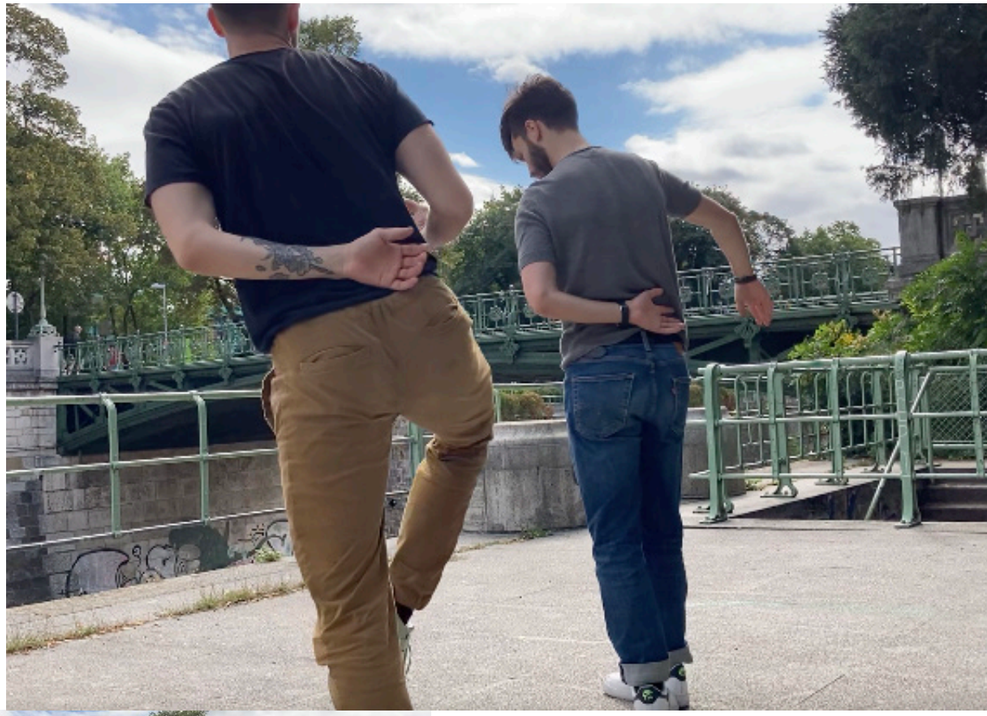




Fig. 35–38. Michael O'Connor and Samuel Feldhandler.
Dialogical dance practice. Vienna, Sept. 2021.

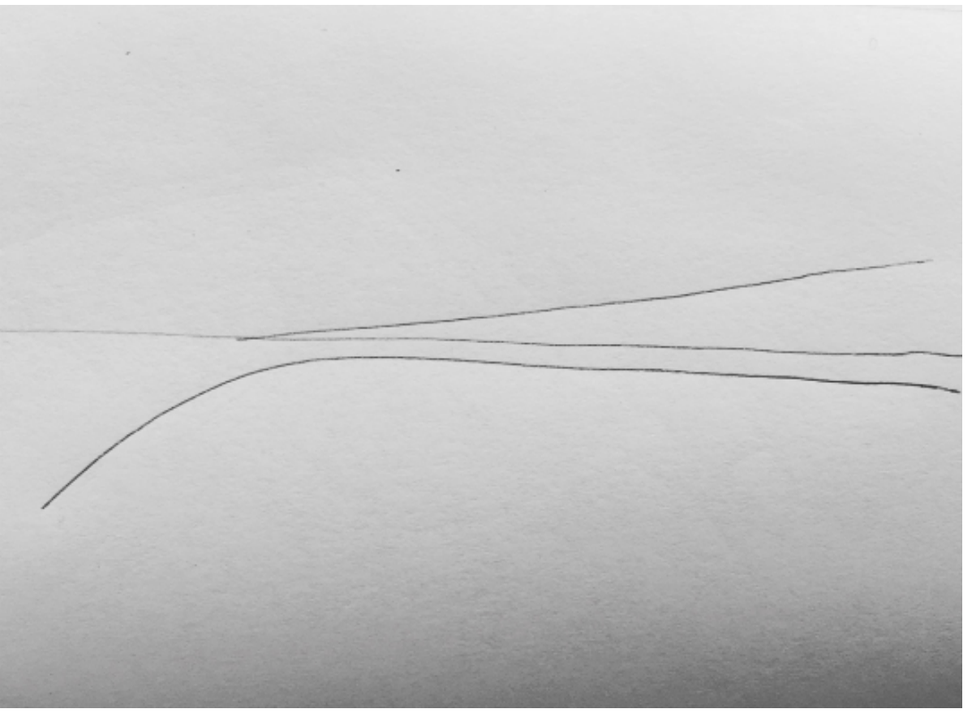


Fig. 39. Three people passing from right to left.

In the drawing of three people
walking past me, lines blend: FORWARD IS FUTURE,
LIFE IS A JOURNEY, SEEING IS KNOWING,
INTIMACY IS CLOSENESS. Gibbs states in
his article “Why do some
people dislike CMT”, “non-linguistic
actions have the same conceptual metaphorical roots as
seen in cogntive linguistic analyses of conventional and novel
metaphorical expressions“
(2009, 25). The act of drawing the
lines is based in a felt sense, rather
than a top-down analyzed thought
about after the fact sense.
When one person seems
to not be interested in the conversation,
they are not going in the same direction,
or not connected through emotional proximity.
Their eyes do not see the same thing the rest of the members
are looking at. In the drawing,
the visual trajectory of one’s eyes,
physical forward linear motion
and the emotional or
mental state of the three
get blended together into a line. The linear qualities of people,
thoughts and eye sight allow for
the blending to be
constructed in one line per
person by my observations and
metaphorical understanding.

as intra-active origami

In describing what happens when we encounter a new experience or situation, Shotter cites Wittgenstein (1953) before expanding on the ideas himself: "instead of telling us of the properties of the 'parts' constituting the situation in question, it 'produces just that understanding which consists in 'seeing-connections'' (no. 122) – in other words, it is a process aimed at bringing to light the always already existing internal relations at work within the contexts of our everyday practical activities ..." (Shotter 2016b, 51).

I propose that what Shotter describes here is a type of 'origami logic' when we look for connections internally. This image helps us understand what he is describing. Though it is a static image, its use functions as a way to comprehend something that is very entangled, but to additionally visualize the relations all coming from the same totality—'origami' supports the idea of intra-action.

Shotter describes how living things can be together: "at any one moment, their 'parts' owe their very existence, not only to their relations to each other, but also to their relations to their own 'parts' at some earlier point in time, as well as to their relations to the many different larger wholes within which they are from time to time embedded" (Shotter 2006, 591). Like origami, the parts we see folded are created through previous creation of lines and cuts. He continues: "So, while existing in space, they are all quantitatively transforming each other through time, and thus the history of their structural transformations is of more consequence than the logic of their momentary structure" (ibid.). Likewise, the image of origami is not to show anything static, but to give recognition to the histories and transformations that created the present, which is also only temporary, waiting to be refolded.

Origami logic is an artistic paradigmatic approach for bringing topics, theories, and practices into relation with each other through the renderings of folding, metaphor, contiguity, and openings. Origami logic is also a way to think about lines, to help us, the researcher and the reader, hold everything together. Origami logic helps illustrate the participatory makings of Shotter's withness and Barad's intra-action.

Body as Translator

The primary practice looked at in this research is titled *Body as Translator*. The body is used to translate lines from one domain to the other: the domain of imagined lines, the domain of bodily lines, and the domain of perceived lines. Perceived lines in the environment are moved to traced lines of bodily motion. Imagined lines of sound are moved to drawn lines of a pen. Lines in different forms or modes appear in these different domain locations of the perceived, the imagined, or the corporeally traced and are translated by the body and through different materials to another domain.

The use of three domains in my practice not only makes possible three movements of transfer, but a transfer can happen bidirectionally and even between different modes in the same domain (see fig. 40). Therefore, when you consider different forms of expression or what we could call modes (drawing, vision, feeling, movement, dancing, materials), the amount of translations possible is numerous. Even where you might expect a type of constraint, like with an imagined line to an imagined line, that appears to not express any change in mode therefore no transfer, I find it could be possible to take an imagined line from scanning a passer-by and translate that into an imagined line of music. In this example, the practice remains invisible to others, but possible for the translator.

The mode or subdomain does not need to be locked in one location. If we did, we would go against the very notation of origami logic by drawing more boundaries between things that are related. The modes or activities inside the domains can be re-folded into new locations depending on the artist's intention or attention. Therefore, a comprehensive list of all the types of modes or ways lines are expressed that can be in the three main domains is forgone. This is not due to a lack of precision, but for the very sake that we can find new ways to categorize and place lines in order to then find new ways to move them to find new moments of withness that come from the creative translations.

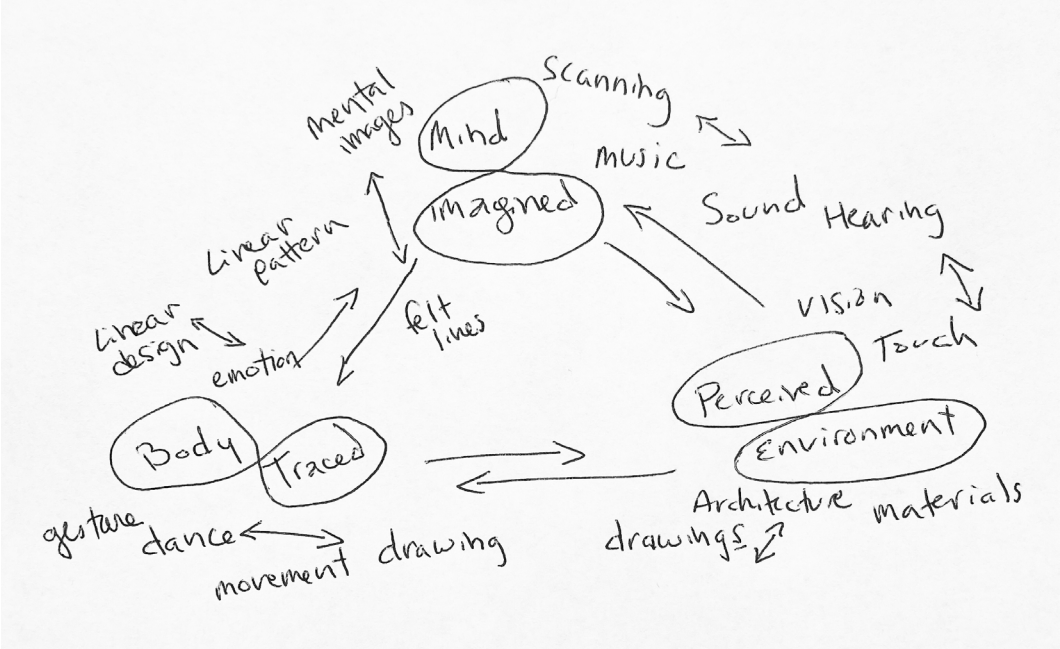


Fig. 40. Domains of perceived, imagined, and bodily lines and some modes of expression.

To illustrate, because drawing is seen as a bodily line from tracing, it could be seen as belonging to the domain of bodily lines or the mode of drawing. I can say that it is the mode of drawing that gets moved from the domain of a perceived line by a musician that translates it into an imagined line of sound through an instrument. Acknowledging that drawing is transferred to sound, allows for specifying what types of bodily lines are moved to imagined lines. These modes can even be considered domains or subdomains themselves in other theories, as we will see in the following chapter. In the practice, the term is less crucial, but the distinct felt sense that something has taken on a different shape from a different domain is essential.

Additionally, this does not have to be just a one-time movement translation but can continue in numerous translations. A line of sound is translated into the body as movement, movement is seen and translated into a drawing, a drawn line is translated into a feeling, and the feeling is translated into a line made of material that is used to create a line of poetry. Within this practice there exists principally an unlimited number of ways of creating an ongoing translation and finding new ways to espouse lines as tools to move creation forward.

With the aim of translating lines between domains, one must acknowledge which domain they choose as a starting location. Bodily traced movement can be understood in the domains of the *body* or *imagined* lines, depending on the context. Likewise, all three domains could be considered engaged if a trace is left by leaving a mark in the sand that then is left in the environment and the line is then *perceived*. If I see a mountain range and trace it into my body, the mountain contour moves from perceived to bodily, but could also be an imagined linear pattern in my body with a perceived line left in the sand if my tracing action touches the ground. Additionally, in the *Body as Translator* practice, the change of domains does not have to happen with the same body. I see another's body creating a line through movement and can put that into my body. Alternatively, I see a perceived line of a wall, use my body's linear design to translate that, and a musician turns my body posture into a line of sound. When I imagine a line conveying the word 'exploding', I change domains, bringing it into kinetic movements. When I translate my handwriting into a dance, both are movements from me, but the handwriting falls into the perceived lines domain before I return it to the body. The drawn line of my handwriting turns back into a temporal movement by myself. We can think of the act of making lines as a *describing*[1], in its etymological sense of *to delineate or mark a form.* Translating lines between domains then, by describing them, finds common ground between translation and description.

14 Eytmonline, s.v. "Describe", accessed September 1, 2022, https://www.etymonline.com/word/describe

In the *Body as Translator* practice, the intent is to *move* lines, not interpret them, to make more out of them, or take creative license with them. When I think of interpreting, I think of adding meaning, and when I think of translating, I think of keeping the meaning-and-form congruent as it moves. I do not deny that interpreting may be happening, but it is not the word that brings clarity for this practice. Lines are considered to contain meaning in their spatio-temporal-energetic form, and additional meaning or interpretation should not be added. In this practice, the artist is, in any case, translating what they are perceiving. The act of translation does not limit subjectivity, so different dancers will perceive different things and create different translations. The intent behind the practice is, however, to focus the translator on a task around an organizing principle of lines. Kandinsky calls linear expression of phenomena from the inner or external world a type of translation (1979, 121). This act of moving responsive impressions between domains of inner and outer worlds through the medium of Embodied Lines aligns with Kandinsky's consideration of translation.

Trans & Meta

'The Metaphoricity of Lines' chapter will argue that lines in this practice function as metaphors do since they move between domains. If the *Body as Translator* practice is viewing the process of moving lines between domains as a translation, how is that also a metaphor? To prevent misunderstandings, this section looks briefly at the relations between translation and metaphor. Though metaphor means something specific in relation to language usage and understanding, the Greek etymology of *metaphor*[2] is "to transfer, carry over; change, alter". The definition of the Latin prefix trans-[3], is also "to cross over". We also see the word *transfer* used in the etymological definition of *metaphor*. When we think of the imagined lines embedded in these words—the mental scanning of going across or over—the movement they make seems congruent. Translation and metaphor are both about connecting two locations or moving to a new location, and these terms are united by the imagined lines that they produce. Therefore, in this practice, looking at lines as metaphoric is yoked with their very nature to be translated through the body. Lines are made metaphoric through the translation practice of moving them to a different domain.

15 Etymonline, s.v. "Metaphor," accessed September 1, 2022, https://www.etymonline.com/word/metaphor

16 Eytmonline, s.v. "Trans", accessed September 1, 2022, https://www.etymonline.com/search?q=trans

The *Body as Translator* practice sits in relation to movement as a method and the conceptual proposal that lines can be metaphoric. A different way to look at it is to say movement is the method, and this, generally speaking, does contain both of those proposals—metaphor is about movement and the body translating lines between domains is done via movement. Lines can be a metaphor when viewed through certain theories and the practice of translating lines is equivalent to the dynamics of metaphor. Both approaches see lines in terms of something else. Lines can be seen as metaphorical in that they suggest something beyond their physical form. The concept of the metaphoricity of lines suggests that lines are not just physical elements, but that they can carry meaning that is constantly being negotiated and re-negotiated in the context of human experience.

The prefixes *trans-* and *meta-* as seen in *translation* and *metaphor* can be understood for their similarity to each other in the *Body as Translator* practice. Taken together, it is better to say that the metaphoricity of lines and *Body as Translator,* together with Origami Thinking as a paradigmatic approach, constitutes the framework of this research than calling the methodology a hermeneutical process or a phenomenological method. Phenomenology's original conception from Husserl was a "method that attempted to give a description of the way things appear in our conscious experience" (Gallagher 2012, 8). Hermeneutics, also a qualitative research approach found in the arts, is the science of interpretation, initially aiming to "decode the original meaning of the word by skillful procedures" (Gadamer 1986, 178). Translation and interpretation both involve the communication of meaning, but there are subtle differences in how they relate to the concept of lines. As noted, interpretation typically involves interpreting or decoding a message that is already there, like a line of text in a book. The interpreter is like a conduit, transmitting the meaning of the original message from one context to another. Translation, on the other hand, involves actively transforming the original message into a new form. That translator must navigate the space between the two forms and find a way to express the same meaning. This process involves the creation of new lines, as the original message is broken down, rearranged and reassembled in a new form.

Phenomenology is present in my use of the body in motion, my senses, and my perceptions to move the research forward. In this way, most dance research has a phenomenological aspect. The body translating lines could be seen as interpreting lines as a form of hermeneutics. However, I do not feel that interpreting is the correct word for the practices as said before. By contrast, Sheets-Johnstone explains that what affects us moves through us and is pre-reflective (2009, 279). Rather than reflective, this responsive declaration, acknowledging that we are affected by what moves through us, helps support my position that I am gathering data in a responsive way to be with, point at, locate, use artistically, and document a felt sense of how lines can be embodied. With the approach of *Body as Translator*, the focus is kept on the practice. I am observing or acknowledging lines and translating them to another domain. As an artist, my practice finds its specific way of operating with its own appropriate terms. For these reasons, *Body as Translator* touches upon the processes of phenomenology and hermeneutics, but the term focuses the artist into the correct mind state while grounding the approach with the practice rather than into pre-made philosophical history and methods.

Translating in my practice is about being in a type of flow and attuned to lines' presence in different domains. As a conscious act, Ingold states, "The skilled practitioner is one who can continually attune his or her movements to perturbations in the perceived environment without ever interrupting the flow of action" (2008, 214). Sheets-Johnstone describes our responsive actions as something often neglected for what they are. She states, "we fail to consider our inborn responsivity and those affective-kinetic coordination dynamics that are rooted in our being the animate organisms we are" (2009a, 397). While Shotter leads us to see that this responsiveness is a knowing how to go forward, he means so as practitioners, or philosophically, Sheets-Johnstone reminds us that it is also with us all the time.

Born to Translate

Ingold asks how can we translate between domains of experience (2015, 18). I employ movement as the answer. The act of translating brings the outer and inner world together. The body perceiving and in motion blurs what is subjective or objective and participates in making sense with its surroundings. "The experience of the body is intrinsically ambiguous precisely because this experience transcends subject/object dualisms" (Tilley 2004, 3). The ambiguous edges between domains are not just discovered as an artistic practice, but we can turn to child psychiatrist Daniel Stern's work to look at how some of these abilities are innate to humans at birth. What we might view now as ambiguous lines could stem from our perceptual system's ability to cross-domain map experiences. "Infants are predesigned to be able to perform a cross-modal transfer of information that permits them to recognize a correspondence across touch and vision" (Stern, 1985, 48). Stern found that "the ability to perform audio-visual cross-modal matching of the absolute level of intensity appears to be well within infants' capacity by three weeks of age" (1985, 49). If sound is an imagined line and vision perceives lines in the environment, the typically named modes of perception of audio and visual are placed into different domains in my categorization, allowing for a cross-domain map.

Stern states that, "Infants appear to experience a world of perceptual unity, in which they can perceive amodal qualities in any modality from any form of human expressive behavior, represent these qualities abstractly, and then transpose them to other modalities" (1985, 51). In composing his theory of vitality affects, Stern cites Heinz Werner (1948) for recognizing that "categorial affects rather than perceptual qualities" are what is directly experienced by infants (1985, 53). Stern notes a two-dimensional line can be drawn for happy, sad, or angry, claiming: "Affect acts as supra-modal currency into which stimulation in any modality can be translated" (1985, 53). Amodal perception that is present during childhood can be utilized in the *Body as Translator* practice as an adult. Using Stern's insights, I understand that we are not just hermeneutically interpreting but instead using

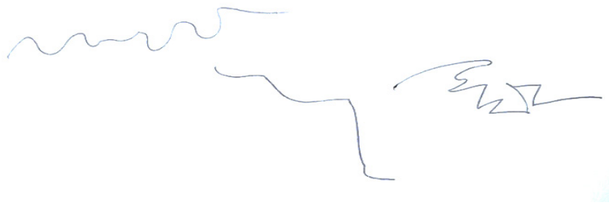


Fig. 41. Happy, sad, and angry lines.

cross-modal systems to bring lines between domains. Our ability to translate any stimulation between modalities can be understood as connected to our capacity to recognize lines and linear expressions in different domains. "Shape is not usually conceived of as an acoustic event; the shape transfer is easier to imagine across the tactile and visual modes" (Stern 1985, 49). When we use lines as an organizing principle for domain transfer, sound understood as a line can more easily be translated to touch, movement, or visual modes, as seen in the artistic practices in this research.

The *Body as Translator* practice starts with perception. Archeologist Christopher Tilley proposes that, "The lived body allows us to know what space, place, and landscape are because it is the author of them all. From the body, we learn what is near, what is far, that which is above, that which is below, etc., the horizon line: the limits of our vision" (2004, 3). The body, in the act of perception, is seen as authoring the world in which it is placed. Perceiving brings us information and connects us to that information. Art and artistic practices are seen not as representations but as thinking and knowledge. In the research practice looked at here, the act of creating lines from the translation of them between domains is a type of thinking-with. "What we need to acknowledge is that perceptual and pictorial shapes are not only translations of thought products but the very flesh and blood of thinking itself and that an unbroken range of visual interpretation leads from the humble gestures of daily communication to the statements of great art" states Arnheim (1969, 134). This sentence here correlates to Lambros Malifouris' idea in cognitive archaeology (looked at in depth in the chapter 'The Materiality of Lines') that lines do not represent something, but substantiate the concept in a thinking-with manner where body and mind are extended into the environment.

One Line

One line of sound can turn into a line of movement and then into a drawn line. When my hand lifts off the paper, the trace becomes a gesture, and this gesture can pull a violin bow making an audible sound. These lines, in turn, invite new lines to be drawn or described. In a way, it is possible to see that there is only ever one line that gets construed constantly in many different forms. Gibson, in his own words, says, "Perception does not *have* an end, perceiving goes on" (2014, 242). When something continues, we could describe it as linear. As it continues through time, the act of perceiving takes on linear properties manifested through the body. To move is our basic animate disposition. Ingold also notes that to perceive is to respond (2022). In the practices looked at here, the *art created is responses made in linear forms due to translations*. As lines are motion and vice-versa, the idea of one continuous line can be seen as the idea of simply perceiving—or as Ingold clarifies, responding. Lines give us a focus for stimuli. "The response is steered by the stimulus rather than by the initiative of the observer" (Arnheim 1969, 24). Keeping the focus on the response from the stimulus rather than an initiative of the observer is in line with the idea of translation. This responsive translation from one movement to the next can be seen by the person holding the camera in the film *Between Foam and Origami* and in the footage labeled Dialogical practice Amsterdam in the Appendix section 2021. The camera follows the lines of the environment and lines of my body while blurring them into the lines the of movement the camera makes.

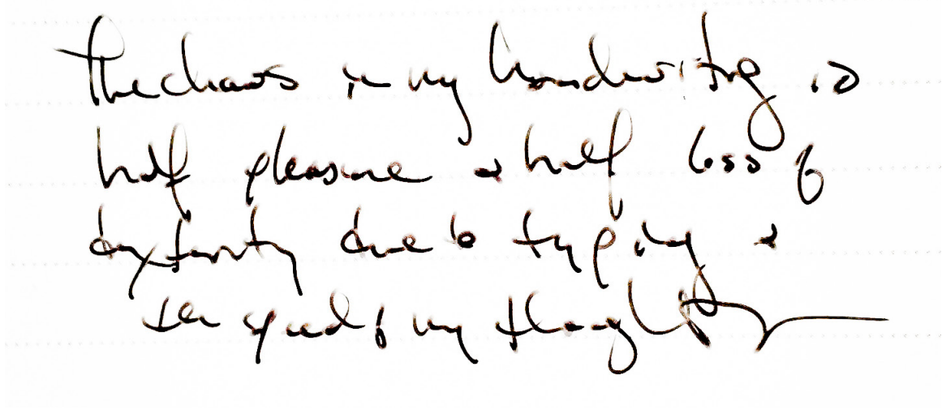
Lines of experience becomes an expression to frame what I am pointing at. Tim Ingold's book, *A Life of Lines* (2015), finds congruence with this proposition. Lines of experience could be considered redundant to Ingold's title if we assume that life and experience are related. We could argue, following Ingold's expression, that life is like a container—a life full of lines. Bringing our attention to 'a' life creates a feeling that life is a singular container where we can look at lines. Whereas in the expression *lines of experience*, I want to bring attention to unfolding moments of activity—which is less focused on the *what* and more on the *how*. Experience presents itself as an ongoing line, translating itself through different forms, domains, and materials.

Instead of using phenomenologically informed fuel for this research, I am specifically bringing in cognitive science studies and philosophy of mind theories that are grounded in experience and that prioritize not the body alone, but the animate body. By looking at the writings about cave drawings, material engagement, metaphors, memory storage, perceptual psychology, and ecological perception, I am engaging with the body as the site of research. The different contemporary bodily-informed theories and discourses this research dialogues with are also fields or theories where lines are explicitly present. The practice is not to use the body in any way but to use the *body as a translator* to see how lines move through our perceptual and expressive systems. Translation can be seen as a kind of creative act, involving the generation of new lines of communication and meaning. It requires a deep understanding of both the source and target forms. I would argue I am engaging with translation rather than interpretation, because I am taking one form such as a building, sound, or movement and transforming it into another form, such as a drawn line or a linear trace.

Bodily, perceived, and imagined, the three domain categories of lines, are created for artistic research to move lines between these domains as a translation practice. The aim is not to keep any line in these categories but to move them into another one. The classification slippage between these mind-body-environment categories is negotiated in the creative process of the *Body as Translator* practice, which finds ongoing ways to continue the movement of the line.



Fig. 42. Michael O'Connor dancing linear pattern and linear design practice.



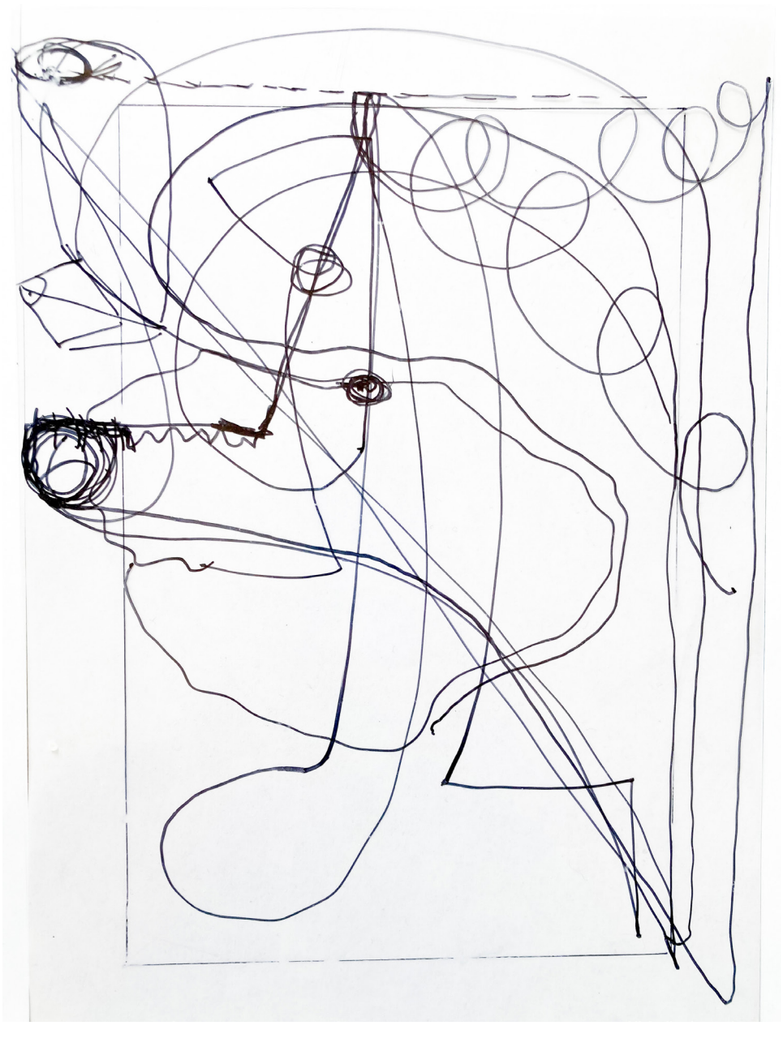
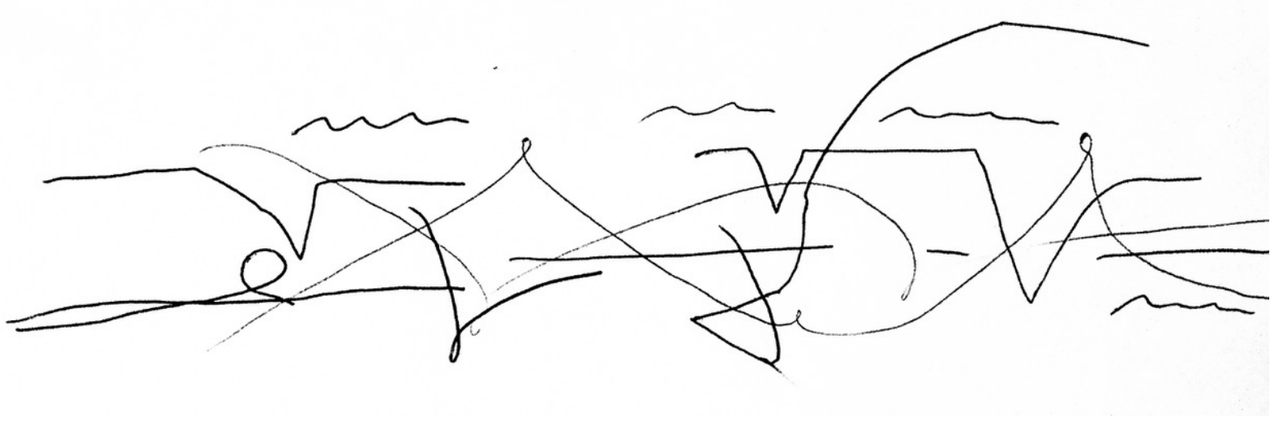


Fig. 43. Drawing from Origami Dancer Drawer practice, Amsterdam, Dec. 2019.

Fig. 44. Podcast.



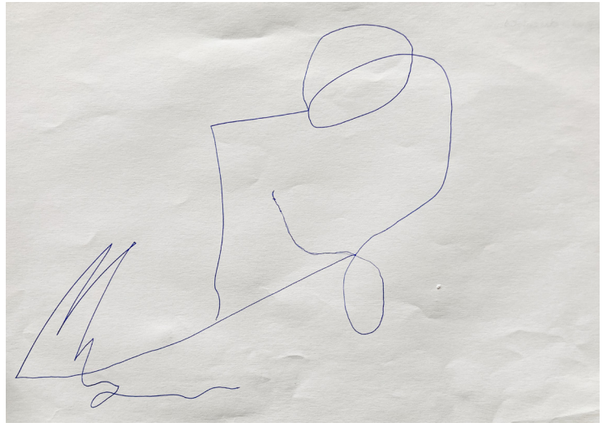


Fig. 45. Drawing from Origami Dancer Drawer practice, Berlin, Feb. 2021.

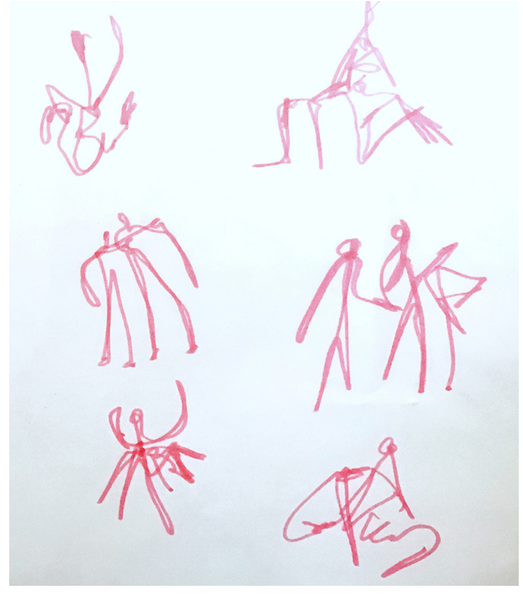


Fig. 46. Drawing from watching movement of dancers improvising. Paris, 2019.

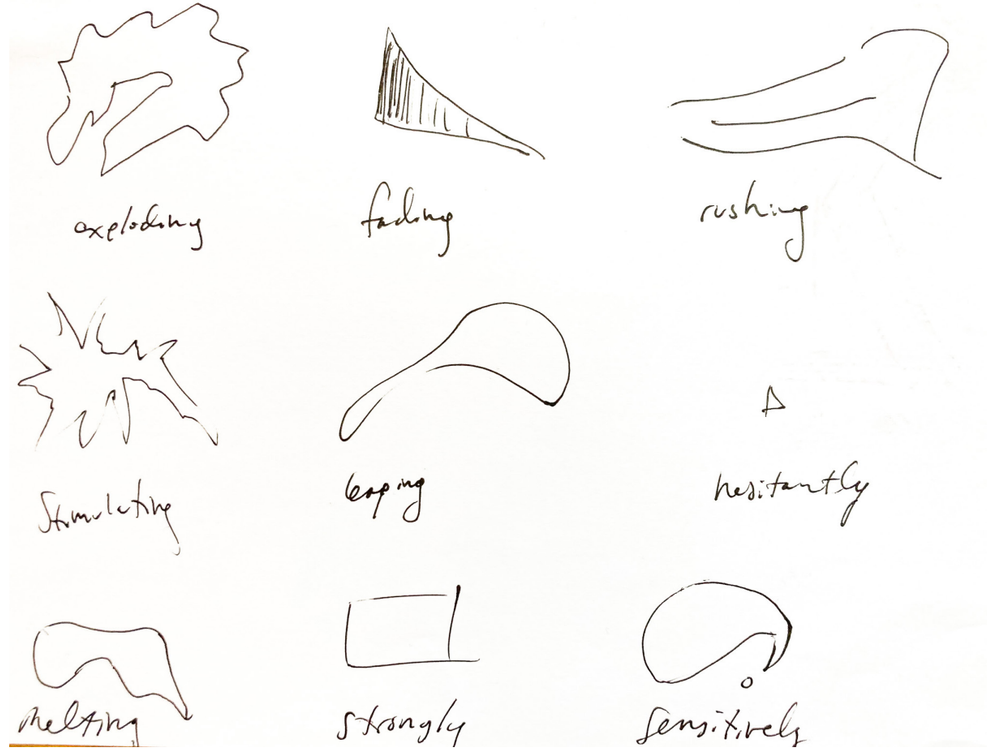


Fig. 47.

The Metaphoricity of Lines



In order to examine the potential metaphoricity of lines, the underlying question will be explored: "if lines are metaphors, then metaphors of what?" To understand how lines could be considered metaphoric, we must first define what constitutes a metaphor. The following will consider different theorists' definitions of metaphor to compare and contrast the ways they could be applied to lines, and the ways lines are used in the artistic practice of the present work. I will attempt to answer the question above, but perhaps more so, I will describe how lines in my artistic practice are used in different ways that move in the way and form that metaphor moves. These descriptions of practice will be included in the writing to give concrete examples, and to highlight how the question of line's metaphoricity came from practice-based research.

To start, George Lakoff and Mark Johnson, through their work on conceptual metaphor, state: "The essence of metaphor is understanding and experiencing one kind of thing in terms of another" (1980, 5). By definition, metaphor is typically considered a linguistic phenomenon, and with the contribution of Conceptual Metaphor Theory (CMT) developed by Lakoff and Johnson (1980, 1999), Lakoff (1987, 1993), Johnson (1987, 2007), it is also considered a cognitive event rooted in physical experience. The artistic practice and argumentation for the metaphoricity of lines rests on a propositional understanding of the dynamics of metaphor and the sense of metaphor—or as Lakoff and Johnson phrase it above, the essence of experiencing something in terms of something else.

As this is artistic research, the link between aesthetics and meaning in relation to how the creation of lines is metaphoric must be noted. Johnson says, "we need a philosophy that sees aesthetics as not just about art, beauty and taste, but rather about how human beings experience and make meaning. Aesthetics concerns the things that go into meaning—form, expression, communication, qualities, emotion, feeling, value, purpose, and more" (2007, 212). Since lines, in the way I use them in practice, become an element of form, expression, communication, and display qualities, Johnson's words are critically important for my research. His application of CMT to art paved the path for me to get to this point of looking at the basic building blocks of lines, their aspects of non-verbal communication, and their ability to exist cross-modally or across domains as metaphors do.

Archeologist Lambros Malafouris, considering how making marks as a metaphorical way of thinking that led to cognitive development in evolutionary terms, says, "the question we should ask is not about when humans began to represent one thing with another but rather about when and how they became fully aware of their doing so" (2013, 238). This line of thinking proposes him to then ask, "To what extent could the human ability for external representation and meta-representation have emerged or developed in the absence of those marks?" (ibid., 239). Looking at lines made by our body as ways of thinking can be considered an important practice shaping how we were able to expand our thinking and see things in metaphorical relations. Consider, for example, the drawn ox-head hieroglyph of ancient Egypt evolved into the Roman capital letter A (Davies 2006, 62; Ingold 2007, 125), depicting how a glyph can represent something other than itself, in this case the horizontal line in the A as the horns of an ox.

Sheets-Johnstone asks a similar question of how do 'doings' become familiar? She responds:

> The answer is clearly rooted in dynamics, in the qualitative tactile-kinesthetically felt kinetic dynamics of hammering, of brushing one's teeth, of sweeping, of typing, or playing a Bach prelude, and so on. Familiar dynamics are woven into our bodies and are played out along the lines of our bodies; they are kinesthetic/kinetic melodies in both a neurological and experiential sense. A melody to begin with is a qualitative phenomenon, qualitative in virtue of its spatio-temporal-energetic character (2009a, 393).

She confirms that a line of music can be understood with the same space, time, and energy characteristics with which one can understand a moving body. How we make meaning, through familiarly drawn lines, can be seen as the steps to making written letters from previous drawings and melodies from the dynamics of our daily actions. Lines as spatio-temporal-energetic data move between domains as expressive, communicative phenomenon.

Before I begin to examine different approaches to metaphor as a frame for thinking through the potential metaphoricity of lines, let me describe again a few examples of how lines move between domains in my research:

- A contour of a *visually perceived* cement *building* is translated into a *moving* gesture of a *living arm tracing* the length of the contour.
- An *extension* of the *leg i*s turned into a pull of a *violin* bow to create a line of *sound*.
- The prosody of a *human voice* is expressed as a *drawn shape* with a *pencil* on paper.

The above examples locate a line in one of the initial three domains used for this research. Applying verbal metaphor logic to nonverbal contexts may be inappropriate, "particularly because the application is made through a discursive account" (Hausmann 1989, 118). Dutch media studies scholar Charles Forceville, when speaking of pictorial metaphors, notes the same problem in that "the elements in pictures are not linearly perceived in the way a sequences of words is" (1996, 79). These points should be kept in mind while the next sections examine the definitions of metaphor and domains from cognitive linguistics before arriving to the final sections exploring the use of metaphor in art.

Embodied Conceptual Metaphor

From Lakoff and Johnson's CMT, metaphors are commonly understood as a cross-domain mapping, where qualities from one source domain are mapped or placed onto another target domain. CMT proposes more precisely that repeatable physical experiences of the body in the environment (sensorimotor domain) are often used as the source domain to map onto abstract conceptual target domains (1999, 58). When we say *She planted roots in Amsterdam*, the qualities of roots—stationary, gripping, securing, providing nutrients—are mapped onto the person, resulting in an understanding that the person did not plant a garden, but executed behaviors that allowed them to settle in one place, namely secured a place to live, found a job to nourish oneself, and stopped moving around.

Our physical experience of moving forward when we walk or travel by any means is mapped onto the conceptual feeling of moving forward in life, a relationship, or toward a goal. These examples are specifically used here also to get us thinking in lines. A line we make on the ground when moving forward, like riding a bike through dirt, becomes the metaphoric line we reference when we think of life or love as a line progressing in space. In addition to the basic metaphoric property of experiencing one thing in terms of another, in my work with lines, I am also taking the notion of cross-domain mapping of metaphor at its word. These two basic metaphor components (experience and domain transfer) are utilized when looking at lines and how they can also be seen as having metaphoricity. Lines can map between domains and allow us to experience something in different terms.

To continue down this line of thought, we first need to define what a domain is within metaphor studies. Before considering definitions of domains from American professor of linguistics William Croft (1993), I continue with the CMT use of target and source domain logic to structure metaphors. In CMT, the source domain is often understood as more concrete and experiential through sensorimotor systems, and the target domain as being more abstract and not directly perceivable. I note this does not appear to be a steadfast rule, in any case. In the LOVE IS A JOURNEY metaphor, it is understood that Love is the abstract domain in which we need the sensorimotor experience of a Journey to help us understand or describe love. Though I agree love can be abstract and metaphors about love as a journey are resonant, do we also not experience love as a physical sensation? Lakoff and Johnson describe metaphor's directionality by stating, "we tend to structure the less concrete and inherently vaguer concepts (like those for the emotions) in terms of more concrete concepts, which are more clearly delineated in our experience" (1980, 112). Here they shape the directionality through calling the target concepts 'less concrete' or 'more vague'. Though poets and artists for centuries have been trying to articulate love, clearly caught in its ambiguous dynamics, Semir Zeki points out, love is also an inherited concept, neurologically set up in the brain and body (2009, 26; 137). If it is so, that we are born to love, I will reason that love is grounded in the body (like all emotions) and that it is not only an acquired concept[1] we learn later, like time, relationships, or democracy. As I believe emotions should not be categorized as less experiential than physical activities, the gap between these domains perhaps is not so large.

17 The tension between love being an inherited concept and an acquired concept is why love feels unfulfilled, and dissatisfying, says Zeki (2009, 136).

Cognitive linguist Joseph Grady argues that complex and conceptual metaphors are grounded in primary metaphors, which, as explained previously, are defined as having a source domain that involves some aspect of physical perception or sensation (1997, 26). We can look at another emotional state, that of happiness, as it relates to a few primary metaphors.

HAPPINESS IS UP
HAPPINESS IS BRIGHTNESS
HAPPINESS IS FEELING LIGHT

In these examples, would I not understand happiness as an emotion in a physical way like the sun in my eyes or the moment I drop a heavy bag and my person is lighter? If we use the body as the source of information, these examples show a bodily basis in both the target and source domains. Though we use one domain to express another domain, the target domain, in this case happiness, is not less concrete. CMT claims there is only a tendency for target domains to be less concrete. There are also examples in complex metaphors (metaphors made up of multiple primary metaphors), like ARGUMENTS ARE WAR, where we can discuss which domain is more sensorimotor based. War and Arguments are both physical engagements and can both be concrete experiences. They are not abstract, like Equality or Ideas. This chapter does not plan to and cannot analyze all types of metaphors, and many do express a more significant gap between the abstract and concrete domains. Similarly, in these examples from CMT, I am proposing that the source and target domains may sometimes be at the same level of concrete physical experience. The aim with this analysis is to propose that the distinction between domains is not always black and white in everyday experience. It appears some of this unclarity in CMT is due to the lack of distinction regarding the domains of abstract and concrete actually being higher superordinate domains, though they are not labeled as domains of a different sort in CMT research (A. Cienki May 19, 2023 personal communication).

It can also be difficult to maintain particular distinctions between domains for lines in my practice. The primary way I look at domains is as the 'location' where lines are formed: perceived in the environment, imagined, or made with the body. Where CMT distinguishes two domains, those being a source domain, often of sensorimotor experience, and a conceptual target domain, using the mind-body-environment triad for lines' domains splits the sensorimotor source domain of CMT into two different domains: I view the lines of my body differently than I do the lines I can perceive as material out in the world. As stated previously, this allows for more transfer possibilities bidirectionally between domains and even within domains, compared to the one movement transfer seen in CMT. Though I acknowledge all three of these domains require an embodied engagement—hence the title of the research 'Embodied Lines'—we can still specify additional modes or subdomains as relating to each of these categories.

Imagined lines appear in various ways to be considered in this dissertation, including those of fictive motion, mental scanning, Sheets-Johnston's explanation of the body's physical and imagined linearity, and sound. Perceived lines appear as: objects, light/shadow, actions of others, or felt lines like edges. Lines formed through bodily movements include: drawing, gesture, dance, singing, or the perception of moving your tongue along your teeth. We could also see lines appear as different senses and processes: lines of vision, lines of hearing, lines of movement or lines of thought. Lines can appear in the form of different modes within the three major domains.

Therefore, when looking at the cross-domain mapping within my practices, lines can move from a perceived domain with different forms, to another domain, or a different mode. To understand how the *Body as Translator* practice considers these domain tranfers, I list some examples:

The visual outline of your body	is	This sound.
This imagined line of Love as a PATH	is	This material object I manipulate.
The imagined line I scan	is	This drawn doodle.
Fictive motion with the preposition "into"	is	This linear trace I make with my elbow.

With texture or color translation into movement, color or material needs first to be understood for its qualities: Wood is brown and light weight. Cement is grey and heavy.

Wood: Brown and light weight	is	This prosodic feature.
Cement: Grey and heavy	is	This movement I make.

Broadly, this metaphor is:

This perceived material	is	This action, gesture, dance.

Rather than adopting the definitions of target and source domain from CMT (but relying on the movement between domains), domains as described by Croft align more with non-verbal experiences like the way my practice understands domains. Croft lists sound sensation as a basic domain and vocal articulation as an abstract domain (1993, 344). Additionally, location and emotion are domains (ibid., 346) as well as living beings, physical objects, and space (ibid., 342). If shape (ibid., 342) and motion (ibid., 346) are unique domains according to Croft, when I trace a bird flying, it could be argued that I am bringing motion of a bird to a shape of my body via lines.If I move the emotion I experience as a line to a physical object of drawn lines, turned to vocal or instrumental articulation, I can move the line between three different modes: feeling, objects, sound—moving them between the domains of bodily, perceived, and imagined lines respectfully. *Lines move like a metaphor moves.*

Croft mentions that even the letter T is not only in the domain of letters, but is also in the domains of writing, vision, and shape (ibid., 342–343). I can combine my own three domain categories with the different domains Croft proposes. An example from my practice (see Appendix 2015 Collective prosody drawing ; 2020 Wagner duet) would be described as: music translated into bodily action maps the domains of imagined traces of sound into the domain of traced lines of kinetic bodies.

Other Approaches to Metaphor in Linguistics

Triadic Theory

The German professor of linguistics and gesture studies, Cornelia Müller, states "metaphoricity […] rests upon the assumption that two concepts or domains are activated in parallel" (2008, 26). We typically see this between the categories of literal and figurative, or source and target, to use CMT terms, but Müller also notes that a third factor is needed, bringing a triadic structure to metaphor, in that there needs to also be the process of *seeing-in-terms-of* (ibid.). Müller notes that even in two-part structures like CMT, the third part is implied, and she states Lakoff and Johnson express the third factor of "in terms of" when a person is experiencing or understanding the mediation (ibid., 28). The act of *perceiving* one thing in terms of another is noted thus as an important part of what

makes things metaphoric. Müller's argument is that metaphor is not just a *this is that* two-part structure, but that having the ability to understand or experience those two things as related creates a third factor to acknowledge. This third factor of *seeing-in-terms-of* is utilized in my approach to lines. The act of making a line needs a context in order to perceive or see it in terms of a metaphor. A line made by walking is not referencing any other abstract or tangible target domain by itself. It is only when wanting to speak about abstract domains like Life or Goals that the physically made line is brought forth in our thinking to glean qualities from the physically made line. Thus, to say lines are metaphoric, we need the two-step process and the context to present the third element to create the triadic structure where we can see the line in terms of something else. The line that is walked is made metaphoric when it is conjured into conceptual applications. If I were to later draw the path I think I made while walking, or when one draws a map for someone to follow, then the walk becomes part of the two-step process. The drawn line now metaphorically stands for the walked line when it is sensed in the term of recreating the memory of a walk. The walk that was traced by the body is imagined later, re-traced with the body when drawn and then perceived as a line on paper afterwards, moving between domains in this act.

Interaction Theory of Metaphor

Philosopher Max Black proposed an interaction view of metaphor that pre-dates CMT, but like CMT, is still grounded in linguistic metaphor. For example, one of his claims necessary for this view of metaphor is that "The metaphor selects, emphasizes, suppresses, and organizes features of the principal subject by implying statements about it that normally apply to the subsidiary subject" (1954, 291–292). I would not necessarily say that the transfer of lines between domains emphasizes or suppresses features or implies or discriminates features from only *one side of the metaphor*. As we are not dealing with words, which act differently, the referent object with lines still has only the dynamic contours that are transferred: this line is this leg movement—this building's edge is this posture—this movement is this sound—this fictive motion is this drawing. In fact, in the performance of these actions, one has the ability sometimes to see both domains at the same time, giving rise to the consideration of bidirectionality. Black writes "If to call a man a wolf is to put him in a special light, we must not forget that the metaphor makes the wolf seem more human than he otherwise would" (1954, 291). It appears Black might be referring to bidirectionality here, but others have noted that the appearance of bidirectionally from Black is mistaken and, that for Black, the sources cannot be reversed (Forceville 1996; Ojha & Indurkhya 2017). Cognitive scientists Bipin Indurkhya and Amitash Ojha explain that while verbal metaphors can easily distinguish a target and source domain, knowing which features are mapped in one direction, "visual metaphors can appear to be symmetric more than the verbal metaphors, because the lack of copula can turn the focus on the comparison between the source and the target, instead of the target itself" (2017, 93). This concern is noted by Forceville's explanation of pictorial metaphor used in advertising where a shoe appears in the place of a tie on a shirt (1996, 79–80). Forceville explains that we have a problem as researchers, trying to interpret non-linguistic metaphor by following the way metaphor is discussed in linguistics (ibid., 79), but finds a solution when context is considered in pictorial metaphor (ibid., 80), thus allowing for a metaphoric unidirectionality to stay prominent.

If others argue that verbal metaphors are linear (in the sense of unidirectional structure) and visual metaphors are holistic (Ojha & Indurkhya 2017, 99), the translation practice I engage in becomes an experiential aspect of metaphor. The experiential aspect of metaphor, I argue, after being created in a unilateral translation as a starting point, can continue in a dialogic experience where once the target is understood by the source, they have each potentially changed the understanding of each other and allow both to be seen or felt in terms of one another. Gibbs declares that "the whole point of interactionism is that both terms affect the meaning of the other. The 'seeing as' often associated with metaphor is multidirectional" (1994, 238). The context for all of the practices in this research lies in the agent doing the metaphoric task, the one interacting or *seeing in terms of.*

Black claims in his interaction view that metaphor in the translation process gives insight that is more than a usual literal explanation—the metaphor actually does more (1954, 293). If I watch someone make a short dance move and draw a line that translates the actions I saw into a pencil-drawn line, does this line give more insight

than the dance does alone? I believe it can. It gives insight in a bidirectional way. It gives more insight into that object from the perspective of the one doing the translation. Comparing to Black's linguistic example, if someone says *Man is a wolf*, yes, it is that person's understanding of man as a wolf, but that type of metaphor speaks more about men and wolves in general. In my practice, someone translates the exhaust trail of a plane by tilting their head to trace the trail as a metaphoric action. In that case, this movement reveals that for that person, perhaps the height of that line was significant, and the length of it was perceived as small (due to distance, as the line is actually kilometers long). If someone else were to translate the same line, they may extend their arms straight and reveal their perception wants to cross-domain map the straightness of the plane's exhaust, more so than its height or length. Potentially, all aspects of the line are being translated to some extent, but what is highlighted is *something more*, as Black states, through the lens of that person's translation. The cross-domain mapping of the lines' dynamic contours appears through the body and different senses interacting. The metaphoricity of lines is a metaphoric application of dynamics.

When lines are considered as dynamic action, they have to be seen differently than language. Forceville (1996, 27) mentions two statements from Lakoff and Johnson, the first (1980, 153) "metaphor is primarily a matter of thought and action and only derivatively a matter of language." The second point Forceville (1996, 27) draws our attention to is that metaphor is "not a figure of speech, but a mode of thought" (Lakoff 1993, 210). These comments are particularly important when we want to understand lines as action and inherently meaningful. Forceville's opinion then is that Black's definition of metaphor requires language whereas Lakoff and Johnson's focus is on understanding and experiencing something (1996, 28).

In short, though Black's theory is grounded in linguistics, the point he makes that metaphors *do more* is important, and that we can come to understand the source domain differently because of it being brought into relation with the target through the metaphor. For these reasons, in all of the practices in this research, one could implement these mentioned elements of the interaction view of metaphor when considering the metaphoricity of lines.

Inexpressibility, Compactness, and Vividness Hypotheses

Raymond Gibbs, American cognitive psychologist, whose research has considered the dynamics involved in embodied generation of metaphor, remarks that three tenants of metaphor are often recognized. The first, the inexpressibility hypothesis, states that "metaphors provide a way of expressing ideas that would be extremely difficult to convey using literal language" (1994, 124). Second, the compactness hypothesis states that metaphors make communication more compact, allowing for more information in succinct forms (ibid., 125). Thirdly, the vividness hypothesis states that metaphors "help capture the vividness of our phenomenological experience" (ibid.). Given that these functions were ascribed to verbal metaphors, it must be considered how they relate to the use of the metaphoricity of lines. Let us take the example of drawn lines translating sound to doodles (see fig. 49 and Appendix 2015). In this practice, a person listens to a singer or instrumental music and translates the sound into drawn lines. The drawing expresses what could be difficult to communicate verbally due to perceived spatial and qualitative aspects of music's form or perceived shape. Secondly, the drawing can hold a temporal aspect of music into a compact visual space. Lastly, the phenomenological experience of listening to music is also vividly portrayed through a drawing that is also created by the body over a choice of words. I believe these three components are relevant for how lines move as metaphors between domains and maintain the exact fulfillment of these criteria in the other *Body as Translator* practices. In another example, moving the form and contour of an object into a dance and gestural movement (see fig. 3 and Appendix 2020) succinctly expresses the vividness of how one sees the materiality, space, shape, and location of this object in ways that could be difficult to express through language alone, simply for the fact that language itself is not experience (Sheets-Johnstone 2009a, 390). The metaphoric mapping in these practices also could reveal more about one of the domains than words alone would. The debate about whether the target, source, or primary or secondary object in the metaphor gave more information is not exactly what I mean. I mean that because we are not shaping metaphors through language around concepts, but through moving lines between forms of action, sound, and materials, the creative output

reveals something extra because it is brought from a different location (imagined, corporeal, perceived) and involves a change in material (sound, pencil, flesh, concrete).

In closing, different approaches to metaphor, stemming from linguistic research, were presented in order to see how lines could be considered metaphoric. Different aspects of those theories do relate to how lines achieve metaphoricity in practice contexts. In the remaining part of this chapter, non-linguistic forms of metaphor discussion will be presented, namely, material culture, synesthesia, affect attunement, and art in general, as a way to investigate the material and experiential aspects of lines.

Non-Linguistic Perspectives on Metaphor

Material Approach to Metaphor

The material approach to metaphor is looked at here through the lens of archaeology, cognitive archaeology, and material culture studies. I will further elaborate in the chapter 'The Materiality of Lines' on how we can see the generation of lines through the theories of Material Engagement Theory (MET) as embodied and brought forth through extended mind theories. For now, I will briefly mention that in MET, the engagement of materials, minds, and bodies is seen to substantiate the conceptual world around us (Malafouris 2013, 97). Lambros Malafouris argues that line and mark making by ancient man was not an act of representation, but an active process of externalization where lines were a prosthetic means of making sense (ibid., 180). MET proposes, then, that drawing a figure can be seen as substantiating the concept of that object. It does not represent the object but brings forth the concept through extended mind. In my practice, I take it a step further, and I practice under the notion that we do not always have to have a tool in our hand to trace or describe. We can use our bodies to make outlines of objects that we see and that leave no residue behind but invest in the same type of activity as mark-making on caves. I use my elbow to trace the outline of buildings around me (see fig. 148). I let my hip follow along the distant rock (see figs. 108, 109). My hand traces the moving person passing by me. I bring the lines of those objects into the linear patterns I make (see Appendix 2021).

What I argue, then, is that the described practices here inherently involve metaphor because they are based in something material. Essentially, we need MET to be considered concretely to argue the metaphoric aspect of this practice. It is only when we take MET seriously and consider concepts belonging *out there in the world* or belonging *in our inner world* are *both* neurally indistinguishable (Malafouris 2018, 6) then we can make sense of the possibility that an animate or inanimate object and its corresponding contours are moved via my perception to a line of movement created by my body. For example, the windowsill moves from part of the building to part of my hand.

Anthropologist Scott Ortman claims that "it is critical to keep in mind that figurative language is merely a surface expression of an underlying metaphorical conceptual system, and there is no formal difference between metaphor as revealed by linguistic expression and metaphor revealed by other modes of human action, including the production and use of material culture" (2000, 616). Though this statement is supportive of the work presented here and ultimately recognizes non-verbal metaphor as equal to verbal manifestations, Malafouris critiques this statement based on the idea that the formation of materials is not taken into consideration and that materially enacted metaphors "present no text-like propositionality" (2013, 65). Malafouris states that "material metaphors objectify sets of ontological correspondences, making possible the construction of powerful associative links among material things, bodies and brains" (ibid.). The body with materials and metaphor go hand in hand as much as language and metaphor do. "What links together language use and the use of things is that both arise as products of an embodied human mind, i.e., a mind that makes sense of and intervenes in the world through the sensuous and carnal capacities of the human body" (Tilley 2002a, 24).

Using the logic of target and source domain from cognitive linguistics, Ortman investigates material metaphorical relationships between pottery and textiles in American Indian archeological findings. In Ortman's research on material metaphor, he believes POTTERY IS A TEXTILE can be seen as a metaphor (2000, 637), showing that designs across different materials can function in the same domain of physical objects, evidencing that conceptual structures unique to each medium have correspondence in a blended space "which serves as the source domain for metaphorical projection". Looking at material forms of metaphor, in architecture, the house has been seen as an extension of the human body (Tilley 1999, 40) and baskets are seen as visual metaphors to other "structurally similar cultural and mythological objects of knowledge" (ibid., 70).

In the event that we ride our bike through dirt or walk through mud and there is a physical trace left behind us, of either a long line made by a wheel, or a dotted line made by our feet, is this line now metaphoric? Compared to the 'going for a walk' example where there is no seen physical trace left behind, we needed an additional step of transferring something to create two steps, like drawing the pathway afterwards. In this example, however, we have a physical trace left behind. In this scenario, I argue that we could say that the trace on the ground is metaphoric or metonymic: metaphoric when seen as the person in the context of someone translating, metonymic when seen as the person's movement. It brings forth the person[2]. (Here we have possible slippage or overlap between Peirce's index, the metonym controversy, and an innovative adapation of MET.) Not only does it constitute the person, but based on how far the feet are apart or how squiggly the bike line is, we can know information about the dynamics of the person at that point in time. If they were moving erratically or calmly straight, were they running or walking with a limp unevenly. Properties of their actions are transferred to the line left behind. In this way that information is moved from one domain (lines of movement) to another domain (lines of perceived material), a non-verbal metaphor is created. If metaphors are the cross-domain mapping of information as qualities, we have in this example the same conditions—movement traces to tracks in dirt.

18 This could also be noted as an index in Peircian sign terms. "Anything which focuses the attention is an index [...] in so far as it marks the junction between two portions of experience. Thus a tremendous thunderbolt indicates that *something* considerable happened, though we may not know precisely what the event was. But it may be expected to connect itself with some other experience" (Peirce 1955, 108-109). In the example noted, a track is one type of index (Johansen 2002, 32).

One additional component that can be looked at is that a linguistic metaphor also implicitly explains what the object is not (Forceville 1996, 26). On one hand, yes, a danced line from a bird in flight's trace also shows that the human is not the bird. On the other hand, if we take the MET assessment that lines substantiate concepts through extended mind, then the non-verbal metaphor functions to show that *this line of dance* is as much *that bird*—it brings forth the reality of the bird. **In this way, material metaphor operates differently than verbal metaphor does.** In my practice, Müller's *seeing-in-terms-of* combined with the MET proposition of what materials can do provide a context that allows for a metaphoric mindset.

Origami Dancer Drawer

In one practice with materials and movement, a person describes the lines they see in a piece of origami. The structure of origami is used for its simplicity, architectural element, and small size, so one can turn it around and even create their own one-fold piece (Paul Jackson 2011) right before the practice. As the person describes the spatial and form elements of the lines in the piece of origami, one dancer and one drawer listen to the speech that is produced as instructions. A person sees the lines and folds of an origami figure and puts the visual information into a spoken description. They are describing the lines. This then takes on two different translated forms as a drawing and a dance (see figs. 17-19). The dancer, through the form of their body and the drawer using a pencil on paper, translate what they hear into their medium. The lines of the origami are transferred to kinesthetic motion and a two-dimensional drawing. We could look at a spoken description of the origami as a concrete source domain that produces two different target domains: a line of drawing and linear patterns of dance. In this context, the qualities of origami are placed into other domains. This poses a unidirectional practice like most metaphors in that the dance or drawing is not placed back into the origami. However, when the drawer and the dancer can both be witnessed in their translation process, the drawing and dancing take on a bidirectionality as viewers are then asked to see the drawing and dancing in terms of each other (see Appendix 2019).

Synesthetic

As the cross-modal mapping of lines explored here does not follow the same rules as a linguistic metaphor as it is non-verbal, we can turn to other non-verbal processes of cross mapping like synesthesia for reference. Similarities between metaphor and synesthesia are discussed due to their cross-modal constructions and because some metaphors are synesthetically based (Anaki & Henik 2017, Cytowic & Eagelmen 2009). Kandinsky attributes certain temperatures of warm and cold to different lines. As a synesthetic proposition, he expands the metaphoricity of the line and says different angles of lines intersecting have different sounds (Kandinksy 1979, 109x). Some speculate that synesthesia is the precursor to metaphor (Cytowic & Eagleman 2009, 166; Ward 2013). Synesthesia is normally seen as unidirectional, but some discussion and tests have revealed that for a minority, bidirectionality is present in some synesthetes, and some studies have shown that embodied metaphor can be bidirectional as well (Anaki & Henik 2017, 153).

Synesthesia and metaphor meet with synesthetic metaphors like a 'loud tie' or 'sweet person'. We could see this similarly in my work in examples like if one says 'this line is happy'. Though context and framing in prior analysis was needed to see a line as a metaphor, when thinking synesthetically, the line does not need to be predetermined as something or labeled to appeal to its metaphoricity. The spatio-temporal-energetic quality of the line allows it to potentially be perceived as happy or sad. I know that through making similar spatio-temporal-energetic actions with my own body through past lived experiences, I would suggest that I enact those when I see the line, via mental simulation, kinesthetic responses, and/or simply tracing the lines with my eyes as attunement. As Sheets-Johnstone has said, quoted above, I understand these lines due to the lived lines of my own experience. On a neurological level, sight, sound, and movement map closely onto each other (Cytowic & Eagleman 2009, 154). Tilley notes a comparison between "synaesthesia, or the transportation of sensory attributes from one modality to another" and metaphor, in that these processes expands knowledge (1999, 180).

Ultimately, however, the metaphoric practices I do cannot be understood as purely synesthetic as they are consciously enacted and not involuntary, as the phenomenon is for synesthetes. Nonetheless, I can speculate that the neurological mapping that is close between sight, sound, and movement for synesthetes is the same neural framework available for non-synesthetes, and when actively engaged in artistic practices, the framework can be partially accessed. The theory is that these mappings are there from childhood and some lead to metaphoric language. Synesthetic cross-domain mapping can be seen as moving like metaphors move, and as stated, can be a precursor to metaphor due to these similarities. These cross-sensory understandings are also approached through the notion of *dynamic forms of vitality*.

Forms of Vitality as Metaphor

In the realm of sensory development, besides synesthesia, Daniel Stern's notion of *vitality affects* proposes a way cross-modal mapping is carried out in childhood. Affect attunement is a matching of vitality forms (Stern 2010, 43). Stern (1985, 161) outlines in his proposal of vitality affects, that affect attunement between mother and child is metaphoric. "We appear to be dealing with behavior as expression rather than as a sign of symbol, and the vehicles of transfer are metaphor and analogue" (Stern 1998, 142). Stern describes affect attunement as the cross-modal mapping of felt qualities between people. The gurgle of the baby's voice is matched with the tickling of the mother's fingers simultaneously or in response to it. It is proposed that we understand these vitality affects before our senses are distinguished. "Infants do not attend to what domain their experience is occurring in. They take sensations, perceptions, actions, cognitions, internal states of motivation, and states of consciousness and experience them directly in terms of intensities, shapes, temporal patterns, vitality affects, categorical affects, and hedonic tones" (ibid., 67). In other words, we understand loudness before we understand the sensory differences of sound, taste, and touch. A sound can be loud, and so can touch or taste. Stern states this is different in adults "who, most of the time, believe that they subjectively experience units such as thoughts, perceptions, actions and so on, because they must translate experience into these terms in order to encode it verbally" (ibid.). Some

of these multi-modal experiences stay in our language when we say someone wears a loud t-shirt to mean it is brightly colored or contains many images. So, this perspective makes it possible to see responsive attunement as metaphoric when filtered through the senses.

Lines as temporal traces of the moving body or static lines in the environment hold these vitality affects as well. If I see the horizon or a tree, it is not the concept of a horizon or a tree that I am responding to, but in my movement practice, it is the distant line of the horizon or the tilted line of the tree branch. These lines become two-dimensionally flattened in my visual gaze. When approaching the described practice through the paradigm of lines, I can filter away the object's meaning. Its line moves a line in my body. The line moves from one domain to another and, in this explanation, can also be considered metaphoric.

We can also apply this to color. In my practice for example, the vitality effect of grey can be brought into a spatio-temporal-energetic understanding that can be drawn, played as music or made with bodily motions. We see this easily in other synesthetic uses of metaphor, like Vivaldi's *Four Seasons*, where a specific dynamic is seen as the season Spring. When the dynamic is seen as a linear contour, it is easier to bring it into a bodily action because a body can make lines. Thinking of context, is Vivaldi's *Four Seasons* only metaphoric because of the title? Would the crescendo and dynamics of the "Summer concerto" not move us in similar ways as summer, a recognized experience in a different mode, without it being explicitly stated? In discussing vitality affects, Johnson states, "We never abandon or transcend our early meaning-making ways; we only extend and build upon them" (2007, 44).

Likewise, in my Prosody practice (translating a singer's voice to dance, discussed in 'Wagner and Asymmetry'), if the pitch of a voice increases in vibration, heard as ascending the musical scale and I make a gesture with my arm increasing its height, I am metaphorically attuning this musical dynamic's vitality—both are perceived as going up. I can describe this by saying that I am moved by the image schemas of metaphor theory in this practice. The metaphor INTIMACY IS PROXIMITY appears when the singer has a *whispering* vitality and I move toward the audience enacting spatial layout to stand for intimate connection. In this example, CMT can become blended with vitality affects. This all happens through immediate, embodied translation processes where the metaphoric transfer of the vitality is moved. Johnson points out, "Because we so often express our thoughts in language, we are easily seduced into believing that human thinking has the form of a language" (2007, 202). As a component of CMT is that metaphor is embodied, vitality affects, and their ability for cross-modal mapping is a key solution for how we can understand the body translating lines as metaphoric.

Dancer Clarinet Violin

Inspired by Cornelius Cardew's graphic scores from *Treatise* (1967), a musician and dance practice using cross-domain mapping was to instruct musicians to see the lines of my body as a graphic score they could read as music (see Appendix 2019). More often seen is that dancers dance to music. Dancers can intuitively and metaphorically put the music into their bodies. Often this can appear as a narrative or the dance explains the music to some extent. In this practice however, the roles are reversed and the musicians were asked to translate the lines of my body into sound. Often within improvisation, the musician and dancer would both play off each other, but in this task only the musician is asked to translate the lines of the dancing body into lines of sound. The sensory-kinetic activity of my moving body is put into something more known for the musician. In this case, the body in movement as the source may be more abstract because it is not the musician's body or the standard lines used in reading music. Compared to CMT, this would mean the source domain is less familiar and the target domain is more known by the musician as the metaphoric transfer is made to their instrument. It could also be argued that the source domain is their relationship with the instrument and they are targeting my abstract body to make sense of the lines. In this example, different domains could be considered source or target, showing how metaphor use in non-linguistic situations does not follow a parallel use to language. Therefore, using Croft's definitions of domains, this practice simply challenges the musicians to map between sound, motion and shape. When asked what aspects of line were being translated of my dancing body in a practice session during the DAS Graduate School THIRD Forum in December of 2019, violinist Alison Isadora described that she was watching my arms, then changed to the speed of my activity and then the space between the ground and my legs (see figs. 14–16). The audience watching this practice may be able to see relationships to the musician's choices. They may also not understand the musician's choices, and the ambiguity opens up ways of listening. The audience then is caught in a sense-making activity in order to find other ways of seeing my body or listening to music.

You didn't say the pigeon was walking: Memory storage and Metonymy

One specific example is noteworthy in the practice of drawing the motion in cities into lines on a piece of paper. After drawing, I had asked the person I was sitting beside if they could tell which line of movement was the pigeon I had traced (see fig. 58). The person guessed and pointed to an incorrect long line. When I pointed out which one was correct, they immediately responded: "You didn't say the pigeon was walking!" What I found interesting was not that they had guessed wrong, but their immediate understanding that the line I pointed to meant the pigeon was walking, and they were correct. The concept of a walking pigeon is different from a flying pigeon. The sensory-kinetic experience of motion of the bird is placed onto the abstract drawn line. We know a bird cannot or usually does not fly in tight repeating angles, except for a hummingbird perhaps, but not a pigeon. We have experiences of birds making long paths or large curves in the air, or sometimes one sharp turn that is followed by continued direction forward. We also have plenty of experience seeing pigeons walking on the ground, making patterns similar to rodents. In this example, the line did not only metaphorically map the pigeon's movement but also how the movement took place. The spatio-temporal-energetic qualities of the line was cross-modally mapped from a drawn line to an imagined pathway in the person's mind.

Using Leyton's theory of memory storage (2006a, 15), I propose could also produce some aspects of line's metaphoricity, in the sense used here of, for example, mapping between movement and material. If lines hold memory of the past, their meaning—and in a way, metonymic reference—is also a domain transfer to the present. The line held memory of a trace I made that followed a pigeon's actions, that, due to the specific shape of the line, allowed the viewer to know the pigeon was walking.

This style of thinking is congruent with Leyton's explanation of lines and shapes as memory storage. If lines store memory of past actions, then I argue this helps us claim lines can be metaphoric or metonymic. To clarify, the use of labeling them metaphoric is not to suggest they are not really holding memory, but that the transfer of information from one domain to another domain also across time frames: *past* movement of a line to *present* perceived materiality of a line. I consider this also as metaphoric. Under the theory of memory storage, lines inevitably move between past and present within their domains—memory and information of past events is mapped and brought forth.

Perhaps a metonymic part is when we think of the cliff's edge as the cliff or the trail behind a moving car as the car. Both lines can be brought into my moving knee or gesturing arm. Again, it is not my whole knee or arm but the part that would create the trace in motion. However, two domains are enacted in the practice as the mapping is switching from the physical lines of an object perceived by vision and transferring to lines made by a living body exacted through movement.

In some instances, the lines clearly work more metaphorically, moving between distinct modes of emotion to sound or material to the body. In other ways, imagining the trace of a bird and tracing that on paper, is more metonymic. We could think of the space and location in the bird and the drawing being the same domain—both are perceived lines from physical objects. However, if the detour through this mapping is the imagined sequential scanning of the bird's linear movement, then we can argue that the detour through the mind took them to a new domain of imagined lines. If seen as only the movement of the bird, the drawing can be metonymic, whereas if seen through the lens of MET, that through material engagement I substantiate the entire bird, the interaction is metaphoric. The human body is a sight of multiple domains.

The attempt at using linguistic terms for non-verbal metaphors still makes a parallel analysis challenging. For these reasons, we can look at the creation of art in general as metaphoric as our final example of arguing for line's metaphoricity.

Art as metaphor

Shifting our attention to the role of art in metaphorical expression, the question now posed here is: is a drawing metaphoric of the thing that is drawn? Can we say that that *park out there* is this *park in the painting*? Some might say it is one-to-one in that there is a tree, and then there is a painting or drawing of a tree. However, the actual material of the tree and color and shape is transferred to the paper as other materials and shapes. It goes from three-dimensional to two-dimensional. Is any copy metaphoric? If metaphor is to move between domains, we could give less weight to the idea of a copy, but more consideration to the idea that the subject has moved. Someone has chosen to take specific perceived properties, parts that were felt to have meaning, and move them to another location and expression. Even if you draw from memory or create, we could argue the information comes from imagined lines or remembered interactions from the past and moves domains that way—from imagined to physical or past to present. In this way, the line serves as a phenomenon to ground ourselves in—to make sense of these peculiarities of experience and creation.

Returning to Ortman, he lists directionality as a property involved in the mental imagery of metaphor (2000, 617). I trace the mountain and the mountain does not trace me. I trace the bird and the bird does not trace me. Forceville explains, "Creative metaphors are to be seen as providing a certain perspective on the primary subject. Thus, innovative metaphors are intriguing, illuminating, dull, or obfuscating, but not true or false. Inasmuch as a perspective may be compelling, persuasive, or guided by hidden interests, novel metaphors are never value-free" (1996, 29). Visual metaphor in art is meant to see some visual expression as a symbol of something else. I would not want to say the lines are a symbol, or symbol of something else. The idea is that *this* line is *that* line. Again, from my approach, the suggestion from MET that the lines do not represent something, but are something, is what this practice is structured around and where lies some of the metaphoricity, in that lines are being sensed as something else. In my research, a musician may trace me tracing the bird, or two people may trace each other at the same time, allowing the metaphoricity to keep moving. I typically sense this directionality when I aim to view lines made as metaphoric. This directionality refers to the path of the domain transfer, which is not to be confused with the bidirectionality of information that the metaphor reveals about both subjects spoken about earlier.

Discussion in metaphor revolves around the literal use of a word, semantic meaning, or that one word triggers a cascading of other associated words. This is not what happens when we look at lines as metaphors because they are non-verbal. Forceville notes that British philosopher of arts Richard Wollheim believes "the aim of both linguistic and of pictorial metaphor is to set what is metaphorized in a new light" (Wollheim 1987, 307 in Forceville 1996, 30). Forceville highlights the arguments of art and metaphor philosopher Carl Hausman by stating: "The mystery of how something new in the world can spring from a combination of familiar elements and yet cannot be explained in terms of the sum of those elements—in short, the mystery of creativity—is pertinent not only to metaphor, but also to art" (1996, 34). Forceville notes (2017) that if we think in metaphor, then "metaphors should not just appear in language but also in visuals, gestures, sounds, music" (26).

Describing in the arts the application of pigment, stone, and musical tones, Hausman claims, "a metaphor modifies its medium, or more accurately, it modifies the usual function of its medium" (1989, 136). The question is all art metaphoric, then, requires us to investigate: does a painted mountain modify its subject? As noted previously, the mountain is not affected by drawing it. Hausman notes that verbal and nonverbal meanings might be intrinsically different but are potentially relevant to each other (1989, 118–119). Hausman lists three elements of verbal metaphor as (1) the presence of at least two major terms or subjects, (2) tension, and (3) integration. He explains that one subject controls how the other is interpreted (ibid., 138). In then applying these to material art,

he gives the example that the actual mountain controls a painted mountain as we know that an actual landscape exists somewhere that is not the painting (1989, 128). Hausman cites a comment from art historians David Robb and J. J. Garrison as they interpret Rembrandt: "More and more he grew to look upon objective reality as something to be translated in intrinsically expressive rhythms" (1989, 142). This is one example of how the second element of tension is achieved for Hausman. Hausman notes that we also engage with lines outside of art. "It should be emphasized that shapes, lines, and colors, when outside objects of art, may appear not merely as pragmatic, conceptual items of experience, but also as interesting patterns or attractive shapes" (ibid., 140). Seeing a line does not have to be within an artwork for it to attract our attention or for us to place meaning on it.

The use of metaphor in this research is not only visual or pictorial, and it is also imagined of the body, material, and of sound. "Inasmuch as metaphors are radically innovative, they by definition cannot reflect something that already exists in the world. Hence, creative metaphors call their referents into being" (Forceville 1996, 33). With this in mind, we return to the question of whether all art is inherently metaphoric. Forceville's insight underscores that "a creative metaphor can contribute something to our understanding and perceptions of the world" (ibid.). Hausman also offers a solution, stating, "The artist transforms the perceptual qualities that delineate faces and torsos into images that are not found in the world but that function in a different way so that the qualities constitute a different kind of object of attention" (1989, 142). Thus, we can assert that art often employs creative metaphors that enhance our comprehension and shape our perspectives.

Hausman describing that art, as nonverbal metaphor, in comparison to verbal metaphors, notes that: "Meanings are brought together in contexts that are strange in relation to the literally understood world. And they are transformed through a kind of interaction that is constituted by internal relations" (ibid., 142). Ultimately, the context and the attention of the actor doing the translation is imperative for non-verbal metaphors. Hausman explains that "the main character of aesthetic attention is found in the way it regards the qualities of an object both for their own sakes and as interdependent" (ibid., 133). The aesthetic attention Hausman describes helps to frame what we might realize as a domain, and could be considered the needed mindset of the actor doing the metaphoric translation. The translator notices the qualities in the object and brings attention to their interdependent possibilities of transfer.

Hausman aligns his view of nonverbal metaphors with American philosopher of art Virgil Aldrich's thesis on visual metaphors. Aldrich lists three main concepts that work together—the material, the subject matter, and the content—to produce a visual metaphor (Hausman 1989, 148). "The material is the shaped qualities – for instance, colors or values, texture, line, and mass, that form the painting. The subject matter is what is portrayed. The content is the outcome of the interacting material and subject matter" (ibid.). In dance or creative terms, the material is the body or the pencil in movement, the subject is what is being translated, and the content is the dance or the drawing.

Joining Hausmann's own metaphoric components—two subjects, tension and integration—with Aldrich's—material, subject and content—provides the translation of lines in my work a frame to see them as visual and experiential metaphors. The practice brings the body and material together to find metaphorical links where meaning can result. "The interanimation of material and subject matter brings about a 'transformation' of both the material and subject matter in the content or emergent meaning" (ibid., 149). As non-verbal metaphors do not resonate in the same function as language, Hausman invents a linguistic way of expressing a visual metaphor as "Space that is light and light that is space" (ibid., 152). Within my practice, I could describe an example in the *Body as Translator* practice as a verbal metaphor of "Material edges that are gestures and gestures that are material edges". In this example, I note that we see bidirectionality in Hausman's metaphor and mine.

Conclusion

In language, metaphors are seen as a type of semantic extension. I believe lines can also be seen as non-verbal

extensions. As lines by themselves are non-verbal, the regular discussion about metaphoricity grounded in linguistics reaches a limit, as this chapter has worked through. In this way, the discussions on material metaphor and vitality affects as metaphoric processes give us more insight on how to place lines as communication outside of semantics (in the narrowly linguistic sense). Lakoff and Johnson's definition of metaphor—understanding one thing in terms of another—is still the basis for this argument. That type of understanding happens with lines. I presented Black's and Gibb's insights on what makes a metaphor as additional beliefs that metaphor is more than just a semantic word game. Black's interaction theory of metaphor claims that metaphors do something more to the subject. Gibb's hypothesis describes that metaphors function for their features of inexpressibility, compactness and vividness that is beyond a literal description. Using Müller's triadic theory viewpoint that metaphor also must be understood *in the terms of* a metaphor, reminds us that the dynamics and sense of metaphor is present in this work when lines are intended to be seen metaphorically. I understand the spatio-temporal-energetic nature of this line of a path, and I, therefore, can understand it in terms of my body in motion. I can translate something stationary as a path and bring it to movement as a gesture, going from stationary to kinetic. I can understand fictive motion or sequential scanning as a dynamic in my mind's eye and bring it to actual movement with my body, and if I use a tool like a pencil, it becomes understood in terms of something perceived. Imagined, hidden, and fictive forms of lines are expressed as corporeal, seen, and kinetic supported by Croft's understanding. Vitality affects are what grounds these domain transfers as the sensed understanding that *this thing is like this thing*. By tracing the qualities, the vitality affects, seen as information as memory storage from that object, is moved to the traced lines of my body responding to it. In this way, these practices are metaphoric in that the lines move between domains.

Usually, lines are seen in a painting, felt in the flow of music, or temporarily witnessed as a movement trace. In these contexts, they are not generally itemized as lines, but a line's ability to be seen as a dynamic meaning-making phenomenon allows lines to open doors for metaphoric application. Hausman's and Aldrich's metaphor components found in visual art, in the end, apply the most easily to this research. Lines are part of visual and kinetic thinking that can both be enacted through creative and responsive actions in the practices presented here. Cognitive linguist Thomas Jensen and philosopher Elena Cuffari note that sometimes this performed situated metaphoricity takes on the traditional target and source structure and sometimes does not when looking at experiential aspects of metaphor creation between people (2014, 288). They promote the idea that the process of metaphoricity might be more fundamental than metaphor when looking at the felt sense of experience (ibid., 283). They describe a doubleness that is present in interactive situations of sense-making. "In using doubleness as a measure of metaphoricity, we thus mean the term to pick out meaningful contrasts, tensions, or multiplicities, which may occur at either of two levels—at the interactional level of events and affordances, and at the individual level of changes in experience" (Jensen & Cuffari 2014, 283). In the practices looked at here that involve multiple people—a musician translating a dancer, and that dancer translating another dancer—I argue that the same type of doubleness in experience described by Jensen and Cuffari is achieved through the metaphoricity of lines. "In the flow of inter-bodily and multimodal discourse the couple co-creates a place of co-experience in which they are both enabled to experience themselves in the other's experience" (ibid., 292).

This brings me back to the questions from Malafouris and Sheets-Johnstone at the beginning of this chapter, asking when and how we became aware of our ability to see something in terms of something else—how our doing becomes familiar. I turn to the words of Rudolf Arnheim:

> Spontaneous use of metaphor demonstrates not only that human beings are naturally aware of the structural resemblance uniting physical and non-physical objects and events; one must go further and assert that the perceptual qualities of shape and motion are present in the very acts of thinking depicted by the gestures and are in fact the medium in which the thinking itself takes place. These perceptual qualities are not necessarily visual or only visual. In gestures, the kinesthetic experiences of pushing, pulling, advancing, obstructing are likely to play an important part. (1969, 118)

Lines of motion are in the very act of thinking, as Arnheim points out, and it would be the act of motion that allows the cross-domain transfer to be accessible, where lines of different domain are united under the spatio-temporal-energetic character they evoke. The proposal of Embodied Lines helps us unite the domains of imagined lines, corporeal lines, and perceived lines through one phenomenon, allowing the metaphoricity of lines, in the sense proposed here, to be understood and expressed in different forms.

Fig. 48.

on academia

The focus of acknowledging that situations are new and unique poses an interesting question for reproducibility in academia. Using the practices in this research to exemplify a temporary, situated type of witness is to tease out and frame what is un-repeatable. Shotter states, "for generalities, inevitably, ignore the fact that we always find ourselves facing a unique task in a unique situation, the details of which matter to us" (Shotter 2016a, 74). One way we can address the expectation of replicability, common to many kinds of scientific research, is to say that we can repeat the rules involved or say that the scores used are the same. When given to dancers, they can 'do' the score, which has an aspect of reproducibility. However, we should aim to understand that the differences, if not more than the similarities, produce new knowledge, reveal insights, and, as Shotter points out, are a source for us to stay with and operate within. Additionally, even when the differences are highlighted by having the scores performed by a different set of dancers, when musicians instead of dancers translate them, or if we consider the simplicity of drawing the lines in a park on a different day, what ***comes to matter*** are the aspects of having something that is communicable, which means something for the people involved. Witness cannot be repeatable, for time, space, and circumstances are constantly changing. Taking from Shotter: "Thus our task now must be to seek to understand what we experience and perceive only in terms of what we experience and perceive, to understand a circumstance in its own terms, rather than in terms of another, external, eternal, perfect, hidden world, in fact, of our own creation — to explain what is real for us only by what is real for us, and the situated and time-bound only by the situated and time-bound" (Shotter 2016a, 82). Lines give us directions to perform these tasks. Lines can bring our focus to situated in-the-moment vitality affects or memory stores that give us new information that comes from the entanglement we are in. This may be ambiguous and requires the doer to let go of what is possibly already understood. For "when we understand, we merely elaborate what we are already familiar with; whereas, when we do not understand, we bring into existence new forms of experience, new movements of feelings; and we give them expression by relating aspects of ourselves to those movements" (Shotter 2015, 233). With this in mind, the concept of witness forgoes our preconceived understanding and truly asks us to see what can be newly recognized by means of not understanding. Wittgenstein states, "Try not to think of understanding as a 'mental process' at all—For that is the expression which confuses you. But ask yourself: in what sort of case, in what kind of circumstances, do we say, 'Now I know how to go on....'" (Wittgenstein 1953, no. 154). Lines allow us to know how to go on. This proposes an interesting circumstance for dance research on a doctorate level. If we understand the situation we are in through the concept of lines, is that understanding in terms of a different concept, like the external world Shotter mentions, or do lines help us see the situation within the dynamics and unfolding situation it is in? It can come down to intention and approach. The aim of Embodied Lines is not to find a type of 'string theory', or ultimate way to perceive. Surely there are other senses, as Shotter speaks about—smells, qualities, and emotions. Nevertheless, we often lack a way to hold together all the items of the moment we are experiencing. We have thoughts, see actions, and hear things in our senses that are different from static things in our visual field. Interruptions and words from the past affect how our mind will shift in the future. We are looking for ways to connect to the present, to each other, and to what happens between the moving parts. What happens when we perceive these dynamics as lines? Lines are movement. To notice lines, sensory traces, that are imagined or environmental, we are engaging with the movement dynamics of the moment through our body to expand our experience. The practices here strive for this when they are executed by trained dance practitioners, but these drawing or moving practices are simple and therefore could produce many similar outcomes for those who engage with them, allowing withness to be achievable at all levels of engagement and skill.

Shotter says the method for overcoming obstacles is to describe our surrounding circumstances. He says, "we can express the fleeting presence of new possibilities merely glimpsed in such a way that others, not only can glimpse them too, but also dwell on them long enough to make them items of public discussion and attention" (2007, 8). He explains that the radical or revolutionary move he wants to advocate for is to re-situate this withness (or joint action approach to noticing interactions), outside of the academy or intellectual, institutional settings, and put them into the everyday world (Shotter 2007, 9). If withness is also a kind of method, whereby I ***describe with movements*** (dance, sound, or drawing) what is around me, or describe my body along the lines of buildings or people around me, then I am creating practices to overcome obstacles. When I can view myself as the same thing I am perceiving—lines in space— it is not only an act of empathy but a tool to engage the mind, body, and environment across distinctly differently felt terrains for use in everyday situations.

It is here where I intend to take Shotter's guidance, and this is why I am interested in trying to situate these practices in the body in the ways we move in artistic situations. In trying to find other applications of the proposal outside of academia but also outside of client and practitioner relationships, I aim to take the philosophical and Wittgensteinian language games and utilize the delicately described intra-mingling responsive activity in other circumstances for dance improvisation or other creative acts. A goal of Shotter's is to reach a level where what we do at first spontaneously can eventually become what we consciously do deliberately (Shotter 2016b, 59).



Wagner and Asymmetry

Conceptual Metaphor Theory (CMT) provides us a way to see the metaphoricity of lines when lines are created by movement. Lines are also looked at metaphorically when they are seen, as Michael Leyton suggested, as holding memory, as in the *lines are past information*. Here I present some of the artistic practices used with CMT and Leyton's Asymmetry Principle of memory storage. Afterward, I will describe some practices where metaphor and memory storage can be seen as intertwined. In doing so, two unrelated theories making conceptual claims can be brought into proximity through specific artistic works. In the conclusion, the asymmetrical musings of Wagner can be seen to resurface, where memories are woken through the changing domains of the metaphoricity of lines—and the *Body as Translator* practice that moves them.

The Lines of Conceptual Metaphor

Two main points from CMT are used in this research. First, the use of imagined lines in image schematic structures like SOURCE-PATH-GOAL, or seen in primary metaphors like FUTURE IS FORWARD, are embodied when translating words or other entities into actions. The second use is embodied metaphor production during sound-to-movement translation when translating a singer's prosody or instrumental music like that of composer Richard Wagner. Johnson states that "The most sweeping claim of conceptual metaphor theory is that what we call 'abstract' concepts are defined by systematic mappings from a bodily based sensorimotor source domain onto the abstract target domains" (2017, 86). Bodily-based sensorimotor domains are referred to as image schemas, which create the scaffolding for the construction of primary and ontological metaphors.

Image Schemas

Images schemas are defined by Johnson (2017, 86) as:

1. recurrent patterns of bodily experience;
2. "image"-like in that they preserve the topological structure of the perceptual whole, as evidenced by pattern completion (see footnote below);
3. operating dynamically in and across time;
4. instantiated as activation patterns (or "contours") in topologic neural maps;
5. structures that link sensorimotor experiences to conceptualization and language; and
6. structures that afford "normal" pattern completions[1] that can serve as a basis for inference.

19 Johnson describes "'normal pattern completion"' with the examples of grasping or listening to music. He states we see the start of a grasping action, or music building up to a crescendo and we infer the end result—the object is grasped or the music reaches a climax.

The specific image schemas related to lines that I look at are primarily PATH or SOURCE-PATH-GOAL, as expressions or metaphors using them as their base would elicit an imagined line along the path or fictive motion that is mentalized. A list of inferences from the SOURCE-PATH-GOAL image schema (Johnson 2017, 101) are as follows:

- a trajector that moves
- a source location (the starting point)
- a goal (the intended destination for the trajector)
- a route from the source to the goal
- the actual trajectory of motion
- the position of the trajector at a given time
- the direction of the trajector at that time
- the actual final location of the trajector when the motion is terminated, which may be different from the intended destination

Simply, these path image schemas are comprised of movement, which can be seen as an imagined line.

How did nature manage to evolve such complicated architecture?
When speaking while moving or when hearing text, I can translate the imagined lines embedded in the words to actions with my body. The concept of *into* is the result of the SOURCE-PATH-GOAL schema blended with the CONTAINER schema (ibid., 102). To go *into* something is to trace a line and go over a line as a border to a container. I argue that two lines are presented with this preposition. This logic can also be applied to *outside*. In speech, imagined lines can be considered in different ways when a single word is spoken. When hearing the spoken word *outside*, an imagined line is produced in my mind that I can create through movement. Johnson claims: "outside activates the source-to-target mapping of the conceptual metaphor CATEGORIES ARE CONTAINERS, and we thereby enlist the logic of containers as we process the next utterances of the speaker" (ibid., 112). To start, I have to visualize some container, which may be the space of my body, the room, or simply a closed border. Once I have established what the container might be, I consider the container's edge as a line. Additionally, when something goes outside of that container, there is movement, and it leaves an imagined trace as the object that is spoken about is now placed outside. There is an imagined border and an imagined activity simply when *outside* is said. Using those fictive motions and mental images, I can translate those imagined lines into my body to produce movement as a bodily line. This is not acting out per se or pantomiming something precisely. If I quickly view or think of my kinesphere (the peripheral space around the body that can be reached through limb extension) as a container, raising my arm places my hand outside of this space and might satisfy this translation process. If I think of the inward-facing position of my palm as my arm hangs by my side, I can rotate the humerus bone, as well as bend at the elbow, in a complex joint action to raise and move my palm so that it faces outward and moves half a meter away from my body. The hand faces outside and moves outside of my center. This is felt by the rotation of different bones. I can simultaneously feel my palm now facing outside, and to get there, I imagine the trace it makes. Though a word is spoken, *outside* and a real action takes place, imagined lines are used for this cross-domain mapping within the *Body as Translator* practice. Imagined lines are in the image schemas of the word or concept, and then they are used in recreating the mental architectural logic to inspire movement, and then once movement is created, more imagined lines are felt through movement that satisfy the translation process.

Placing a hand outside or distal to my body as an attempt to translate or feel *outside* is not what I view as a depiction or representation of *outside*, but is a felt, real understanding of outside. In this way, I use the metaphoricity of the lines here, meaning I enlist the components of CMT for embodied understandings based on image schemas, which allow me to know how to create movement from the imagined movement of the word *outside*. As performed actions, the lines are perceived by any watcher. The imagined, corporeal, and perceived aspects of lines appear in all three domains in this simple action translation of a word.

In an activity carried out in Amsterdam and Copenhagen with Bachelor student dancers, musicians, and set designers from Europe, using English as a lingua franca, the sentence *How did nature manage to create such complicated architecture?* was used to see how participants would translate each word into an action (see Appendix 2015). The participants were asked not to pantomime or worry about conveying the message of the words but instead feel where the embodied understanding of that words sat with them and how that would be expressed as action by either bringing the mental constructs to kinetic forms or exaggerating potential felt shapes from each word so as to be visible as a movement. *How* was translated mostly as gestures moving upwards, using the vertical image schema as an imagined line demonstrating primary metaphors like UNKNOWN IS UP. *Did* was often performed behind the person, referencing the past, from the PAST IS BEHIND primary metaphor. *To* was performed by participants as a quick action, moving away, or as an opening. The body becomes geometric to be the *architecture* or curvy to depict *nature* in the sentence. When looking at it through the principle of lines, we see image schemas and primary metaphors guide the gestures. When looking at lines only in this activity, we forgo the line analysis of the gestures people made for *manage*, as the information that was seen was that people used two hands and placed them in front of their bodies. This indicates control like CONTROLLING IS OBJECT MANIPULATION and was something they could contain close to them. These choices reveal other image schemas and primary metaphors that I do not specifically relate to lines.

Specific prepositions like *into* or *outside* conjure imagined lines that can be translated into movement. Additionally, this text-to-movement practice shows that other words are found to trigger pathway or linear image schema logic by using the image schema of verticality or metaphors for time that can then be translated into movement. In the next practice[2], conceptual metaphor is seen in the translation not of the meaning of a word, but in the prosody of how words are sung.

Solo Dance Practice: from Sound to Action

To start, I will describe an example from an actual session of an improvised movement practice, carried out in Amsterdam with four dancers[3] from the Netherlands, Spain, Austria and Germany, using English as a lingua franca. The dancers were given the task of translating a singer's voice into bodily actions in real time while a song was played. They were instructed not to translate the meaning of the words that were sung, but instead only to 'translate' the vocal sounds. In this activity, the term *translate* is prioritized as the dancers were instructed not to dance *to* the voice – meaning not to be moved by it passively, in response to the sound – but to actively engage in the translation process. Six prosodic features of the singer's voice that are focused on for this practice are the sounds associated with consonants, vowels, pitches, volumes, timbres, with the sixth feature being the feelings or emotions one interprets from the quality of the vocal sounds (e.g., the perception of tiredness, happiness, etc.). These features were chosen as main categories, while other aspects like duration or rhythm were considered to be embedded in the length of the vowel or consonant and therefore translated within the main categories. When this task is first explained, often the dancers look confused and wonder how they will even start, realizing that it will be next to impossible to simultaneously account for all six features. In fact, though, these features are often entangled, where pitch, volume and mood may express the same affect. The aim of the exercise is not to reduce movement for easier individual analysis, but to throw the dancer's thinking body into the same complexity that a human voice can express.

To help, a trial run is first conducted where dancers are asked to "use your arm to make an A note from a musical scale". The instruction "make" is purposely ambiguous here, to leave it open to the dancers as to what to do. Some of them may know how to read music and can visualize the A on sheet music, or perhaps have an embodied memory from playing an instrument and accordingly use the memory of that to recreate producing an A pitch; alternately, they may even just think of the alphabet, where A is the first letter, and use that as information to help navigate a physical decision. Once they have their arm somewhere in the air, the dancers are then told to now show an A sharp. Typically, the participants either move the arm higher in the air or bend at the elbow or the shoulder. Different conceptual associations may motivate what they do: the common metaphor mapping the frequency of vibration of sound waves along a vertical scale, according to which sharp pitches are referred to as being higher than their basic counterparts; the thought of something sharp as having a pointy edge, leading to iconically making an acute angle with one's body; and so forth.

What makes it possible for dancers to take on this task is the intuitive nature of employing certain forms of iconicity, metaphor, and also metonymy as principles for mapping sound qualities to moving one's body (movement processes) and assuming certain poses (products of movements). The motivations are evident in the ways we might talk about these sound qualities, in English; metaphor plays a prominent role here. As mentioned above, it is common to interpret musical notes as going *up* and *down*. The timbre of someone's voice can sound *smooth* or *smokey*. Volume can be *strong* or *weak*, and emotional affect of a voice can be understood as *excited* or *sensual*, by metonymic association of voice quality with situations involving certain emotional states. The metaphors used in language to talk about music have proven a rich area of research, at least since Fónagy (1963). The metaphors often spatialize sound and render sonic changes in terms of movement (Pérez-Sobrino & Julich 2014); but, as the examples above indicate, they extend even beyond that, and include qualities from other sensory domains (like taste and smell) as well as animate/human qualities (e.g., relating to strength or sensuality) (Julich, 2018). Even beyond the possible framing of musical notions on the linguistic level, spatial axes, degrees of tension, emotionally qualitative, and spatial and structural aspects that characterize sound can also be executed by the

20 The following three sections are adapted from: Cienki, A. and M. O'Connor. 2022. "Researching embodied metaphor production through improvisational dance practice." In *Dynamism in Metaphor and Beyond*, edited by H. Colston, T. Matlock, G. Steen. 63–76. Amsterdam: John Benjamins.

21 Since its initial development, the practice has been taught to over one hundred participants mainly from Europe, consisting of bachelor's and master's students of dance, as well as amateur dancers.

body. The vowels and consonants in words that are spoken or sung rely on the shapes (spaces and forms) that are created by the mouth and tongue. The body can play with movement in the horizontal and vertical planes, flex or extend muscles, change qualities of actions, mime emotional stances, and design shapes and forms with the limbs and torso.

To use a notion from Conceptual Integration Theory, also known as Blending Theory (Fauconnier & Turner 2002), the domains of sound and bodily movement share generic features that make mappings between them possible. Johnson (2007, 258) characterizes this in terms of image schemas: "[I]mage schemas actually constitute the structure and define the quality of our musical experience. They are in and of the music as experienced; they are the structure of the music. And they have meaning because they are partly constitutive of our bodily experience and the meaning it gives rise to". Johnson explains how having a body is what allows the musical meaning to be created, and that the body is the way the listener is able to understand and make meaning of the music being heard. Image schemas and metaphor (as well as metonymy and iconicity) are the mechanisms allowing these actions to happen, and in turn, they can be creatively used to function in different embodied ways that allow for different kinds of translations, such as from sound to action, as used in the dance practice. If image schemas are patterns behind embodied actions, and those are used to create music, which is then understood by a listener who also has a human body, it is not a great 'leap' to see how dancers are able to turn the sound back into action; that is, they may use the same image schematic and metaphoric (and other) mechanisms that came from the body and were used to create the sound in the first place. The term *meaning* will thus be used here not in the narrow sense of 'lexical semantics', but in the broader sense endorsed by Johnson (2007), who draws upon Dewey's (1925/1981, 105) characterization: "The very conception of cognitive meaning, intellectual significance, is that things in their immediacy are subordinated to what they portend and give evidence of". To put it into more basic terms, Johnson (2007) sums it up that an embodied, experientialist view of meaning espouses that, "The meaning of something is its connections to past, present, and future experiences, actual or possible" (273).

Internal Dynamics of the Dancer's Translation Process

The exercise purposely involves an overabundance of features or qualities to be translated. The multiplicity of aspects of the voice in song leaves the dancers with a complex task that, while technically physically impossible to execute, gives them openings and possibilities to switch what features or qualities they are translating. This openness for switching also highlights for the dancer what moves them, what comes first to their attention, where their blind spots are (or we might even say their 'deaf spots' in reference to aspects they did not attend to in their listening), and also showcases the expert dancer's ability to multitask cognitively and slide between a blending of conscious and unconscious bodily responses. The method the dancers use to translate the sound qualities of the voice when engaged in the practice is constantly changing. In this way, it is important to remember artistic research is not only theoretical analysis of artistic practices post engagement, but also happening when the dancing body is engaging with the task and developing meaning (see Appendix 2021 Prosody Dance, HZT Berlin). As Johnson (2007, 260) remarks, the way music moves us suggests how flesh, blood, and bone provide an embodied experience for understanding how meaning emerges.

For example, I recognized that an 'm' sound would be a "touching of two entities together", schematizing intuitively from the method of oral articulation of the sound (whereby the lips are brought together); therefore, I would sometimes bring the palm of one hand to my thigh, or other times, bring my whole leg to the floor when I heard an 'm' sung. Upon hearing a 'k' sound, I and other dancers have discussed together that we sometimes translate that sound in a static pose, creating angles with our body, where the physical outline or structural pose of the body stands for the sound. This so-called *linear design* (Sheets-Johnstone 2011, 115) has arm and leg joints bent in order to create angular forms to map the plosive sound of 'k' or the angular aspects of the written K to the body. Other times, the dancers or I may dart a few feet in space, letting the toes point on the ground, or jump up and down, making sharp staccato movements, whereby the imagined trace of the moving body, defined as *linear pattern* (*ibid.*) would make sharp angles, representing the plosive sound of 'k'. (Compare the studies

in which participants consistently matched round shapes to novel words like 'maluma' and 'bouba' and angled shapes to 'takete' and 'kiki', e.g., Davis 1961; Köhler 1947, Ramachandran & Hubbard 2001.) Indeed, the *linear pattern* in the latter example involves a percussive or explosive quality, what Stern (1985, 53) would characterize as a *vitality affect*. Stern describes that vitality affects are a developmental feature, allowing us to understand, in this case the plosiveness or abruptness of 'k' between domains as either a sound, touch or action. A dancer may top-down translate if they visualize a 'k' after hearing it and make a 'k' shape, but Stern's argument supports the bottom-up translations where the quality or vitality affect is felt through the senses. Rhodes (1994) introduces the term 'aural images' when discussing the shape of sound and that the 'k' has abrupt onset and decay. The air turbulence coming from the pronounced consonant is the type of meaning associated with a vitality affect. When a 'k' in the mouth feels or sounds abrupt, a dancer can make an abrupt action with part of their body. The sound is abrupt not only because it is short, but there is also a confined layout to the structure of the mouth and the dancer can also create a confined shape or tight gesture.

The drive of the creative process, producing the sequential structures of the exercise, can have different motivations. The practice of physically creating one action as a translation of a sound allows the dancer to feel and test if they feel this action provides a satisfactory rendering of the source domain sound. In conversations with the dancers after the practice, they are asked to comment on their experience (or discuss if they felt they were succeeding with the translation). One dancer, for example, felt he was achieving an embodied translation of the sound and his desire to proceed with unfolding movements was guided by the desire to capture all six features. Another dancer noted she never felt she successfully found the correct gesture, movement, or dance to satisfy her translation of the voice, but it was the practice and investigation, involving trying to do so, that made the dance appear and continue to proceed and develop. However, as these choices can be articulated and explained by the dancers during discussions after the exercise, where they reflect on what particular sound qualities they perceived, other options may present themselves when new dancers engage in the task or may change when the dancer dances to the same song a second time. I believe these changing methods do not show inconsistency but highlight the dancer's cognitive ability to creatively problem solve and create new outputs with the same rigor and metaphoric explanation.

Heightened awareness of the interplay between full body engagement and metaphor is not only seen in trained dancers. For example, we know that heightened awareness of embodied experience can make people aware of the various meanings of polysemous words, which often build on a source domain related to our embodied experience (such as the word stand [Gibbs et al., 1994]) (Wilson & Gibbs 2007). Gibbs and Matlock (2008, 167) show that "moving the body ... in relevant ways facilities immediate metaphor comprehension"; one of the points that the exercise reveals is that this finding can even be extended to metaphor production, as seen in the impromptu creation of movements as metaphoric translations of sound qualities. In addition to sound, drawn lines can also be the visual stimulus for dancers to produce metaphorical movements, utilizing the same spatio-temporal-energetic qualities of lines as the starting points (see Appendix 2021, HZT Lines of Experience workshop).

In terms of any individual's movements, I agree with Sheets-Johnstone (1999b, 154), who explains that "the body is often not recognized as something that itself is already conceptually alive, attuned to its own corporeal-kinetic realities". Sheets-Johnstone elaborates the point that symbols are often prioritized over movement within communication and states: "Kinetic sense-making – making meaning through movement and making sense of movement – is nowhere recognized" (ibid., 170). While one could cite recent works by Gibbs, Johnson, and others as counterevidence to Sheets-Johnstone's claim, cognitive linguists who endorse an embodied view of cognition in some form could certainly benefit from greater attention to Sheets-Johnstone's points about kinetic sense-making. The next section extends the exploration from individual to dyadic engagement in the improvisational dance exercise.

Duet Dance Practice: from Sound to Shared Action in Interactive Dynamic Systems

Gibbs (2005, 41) notes that a sense of self is an emergent property of dynamic interactions between the body, brain and environment. This pertains not just to static aspects of the environment, but also to other moving beings in the environment. A major problem that Gibbs (2017, 64) recognizes is that metaphor studies rarely acknowledge full-bodied actions of coordination and collaboration between individuals. The following dance practice supplies an example of full-bodied actions between individuals in a way that pushes the boundaries of exploring metaphor production.

Once dancers are familiar with the task described above, feel capable of hearing the different features in the singer's voice, and have attempted to translate the sound features into shape and movement with their body, they are then invited to try the exercise in pairs. They are asked to translate the six prosodic qualities together. Without speaking or determining ahead of time who will translate which qualities, members of each dance pair attempt to translate together what they hear while watching their partner. In other words, as they are cross-domain mapping sound to action by listening and moving, they are simultaneously observing their partner and empathetically hypothesizing what their partner's actions correspond to. They may be relying on simulation of how that sound and action would be if it were in their body, allowing them to read their partner's behavior and understand a meaning associated with it. If they interpret their partner is translating the loud volume because they are making big movements, they may choose to focus on the vowels they hear. If one dancer gets a sense that their partner is focused on the consonants and vowels, the second dancer may try to block out the percussive nature of those qualities and translate the melody that goes up or down and the volume that gets strong or weak. The dancers are forming their own coupled systems that develop from translating complementary features of the vocal sounds, sometimes resulting in synchronous behaviors, and sometimes resulting in contrasting actions.

Importantly, improvisational dance is not a codified semiotic system with normative constraints on the forms used to express specific meanings but is in fact the opposite. In the exercise, if a dancer were extending her arms wide, there would be no way to distinguish between the opening up of space in order to translate an open sound and the opening up of space as arms extend to express emotions that correlate with such movement. The meaning performed or readable in the movement of arms widening would be spatially based, and at the same time grounded in an emotion. "A dynamical view of metaphor claims that multiple, nested hierarchies of constraints, operating along different time scales, interact in non-linear ways to produce metaphorical behaviors" (Gibbs 2017, 67). The dynamical view of metaphor creation and usage that Gibbs advocates (Gibbs 2017; Gibbs & Cameron 2008) can easily be seen in this modulating improvised dance practice, where one metaphoric action influences the other dancer's metaphoric action, which may or may not be interpreted as intended. Nonetheless, the feedback loop of metaphoric meaning making continues – allowing the bodies to influence each other. This type of reciprocal interaction where two agents embody each other through *cooperation with* each other (2009, 474) is termed by Fuchs and De Jaegher as *mutual incorporation* to explain moments where the "other's body becomes a source of impact on our own body as well" (ibid., 475). What I find in the duet practice is therefore more than "just" the well-known processes of alignment during interaction (e.g., Cienki et al. 2014; Louwerse et al. 2012; Pickering & Garrod 2004). Rather, the production of movements, described above, involves what can be called *participatory sense-making* (Cuffari et al. 2015; De Jaegher & Di Paolo 2007), where meaning is jointly and temporarily created. In this approach, "[t]he onus of social understanding thus moves away from strictly the individual only" (De Jaegher & Di Paolo 2007, 485). As played out in the dance exercise, the participatory nature of co-translating allows the dancers to make sense of their joint activity. Additionally, Sheets-Johnstone's (1999b, 169) observation that "meanings resulting from relations between events and dynamic happenings are contingent on movement" also suggests that the exercise has broader implications for how we understand interrelations between people in non-dance settings.

Sound as a Line

In the next practice, music is also listened to by a small group of dancers who practice the previously described exercise, but they translate what they hear into a drawing (see Appendix 2018). Sound is often understood as something linear due to its perception through time and the feeling it has as motion. Lakoff and Johnson (1980) bring our attention to two inconsistent, but coherent metaphors on time: TIME IS A MOVING OBJECT and TIME IS STATIONARY AND WE MOVE THROUGH IT (41–44). Johnson introduces the MOVING TIME (2007, 246) and MOVING OBSERVER metaphors (ibid. 247) to show that we understand motion in music because 1.) we see objects move, 2.) we move our bodies, and 3.) we feel our bodies being moved by forces. He hypothesizes that what we know about physical motion should be crucial to how we experience and think about musical motion (ibid. 247). In a footnote, he says vision is our primary mode of experiencing objects in motion. "The meaning of this musical motion is grounded in our bodily encounter with the motion of objects in space that are subject to physical forces" (2007, 254). Sheets-Johnstone might offer a different perspective in that "movement forms the I that moves before the I that moves forms movement" (2011, 119). We move ourselves, and we feel movement first, when we are picked up, held, fed, and stroked. She hypothesizes that movement is primary in how we establish ourselves. Thus, the visual aspect that Johnson is speaking of might be secondary in the entangled ping pong of actor and environment within human development. In CMT, the source domain knowledge of an action gets mapped onto the target domain concept. Because we make traces with our body when we go from point A to point B, the linear trace of this action is placed on to the linear aspect of music. In other words, we can deduce from his explanation, and explained with the notion of lines, the body-based experiences of line-making are tied to understanding similar line-interpreting qualities of music (see fig. 49).

Specifically, in the MOVING TIME metaphor, the cognitive proposition is that the viewer is stationary, and the music, like a river flowing or a train passing, moves past the listener in the way we view time (Johnson 2007 246–247). In the MOVING OBSERVER metaphor, you are traveling over the path, in this case, of music or sound (ibid., 247). When we conceive of the music as moving, we simply see how it could leave a trace and thus have a linear quality. In the MOVING MUSIC metaphor (ibid., 249), we view music as if it was a physical object moving.



Fig. 49. Translation of a musician's voice to drawn lines.

Lastly, music can be understood as A MUSICAL LANDSCAPE metaphor (ibid., 250-251), which has two perspectives, participant and observer (ibid., 252). The participant and observer perspectives can both be found in my Drawing Prosody/Joint Drawing of Sound practice that was carried out in Amsterdam with three other dance participants (see Appendix 2015). In this practice, the first drawer is listening to what they hear as a participant and drawing down their experience, translating sound to a line. At the same time, the partner or group is watching that person's experience. After the person has drawn, the sound or song is played again, and a new person starts from the beginning, drawing additional lines on top of the first drawing. In the subsequent turns, the visualization of the first line then becomes a map and gives the next drawer a chance to observe the full score, mark along as they listen, and add to the whole composition a new line. The first drawer creates a moving observer metaphoric line, but once the first line is drawn and the other participants add to an established line, it could be said that, like a map connected to the song playing, the new drawer is more passive, allowing time to move and adding additional drawings to compliment the line. If this is done in groups, for example, four people, the fourth drawer often adds very little, as the previous drawers have captured a majority of the sound qualities. They also add very little because as each person draws, the entire group is watching each time, and a type of participatory sense-making is created, whereby the watchers see the drawing of someone else as they hear the sound themselves. They experience the meaning-making of the previous drawers and have understood the drawers' drawings by watching. They are free to add discrepancies or additions to how they are perceived, but by multiple interpretations, the group has created a co-constituted or shared experience of listening. The lines may not have been what they would have drawn had they been alone, but in understanding why someone else drew the lines as they did, a momentary language is built through movement and gestures visualized by traces of shapes. MUSIC AS MOVING FORCE metaphor (ibid., 253) comes from our experience of seeing things move, like by the wind, or water, or ourselves being moved when pushed or pulled, and is also a metaphor that appears in this practice.

Moving Asymmetrically

The proposition from Michael Leyton that lines can hold memory of the past has been incorporated into this research when looking at static lines like architecture and drawing. The theory is then explored when approaching lines of movement, where temporal traces can also be seen as access to past information. Leyton, a practitioner of arts, mathematics, music, and philosophy, proclaims that shapes and lines, in their asymmetry, can be seen as holding memory. In his own words, he says, "Shape is the means of reconstructing history" and "Shape is the means by which past actions are stored" (2006a, 13). For Leyton, shape simply is memory storage. To make an example, Leyton draws our attention to wrinkles in a face, scratch marks on a car, or things like chips in a pot, for they reveal history. Leyton's application of his theory is wide-ranging. He applies it to accessing the meaning of art, holding memory in architecture, and reading the history of people's faces or marks on materials. Leyton states:

> For example, the shape of a person's face gives us information of the past history of growth that occurred; e.g., the nose and the cheekbones grew outward, the wrinkles folded in, etc. Similarly, the shape of a tree gives us information about how it grew. Therefore, from both a face and a tree, we can retrieve information about the past. A scratch on a piece of furniture is a memory store, because we can extract from it information that, in the past, the surface had contact with a sharp moving object. A crack in a vase is a memory store because it informs us that, in the past, the vase underwent some impact; i.e., this information is retrievable from the crack. (2006a, 15)

When applied to the dance practice and creative research on lines here, we can focus on certain points. Of the many principles Leyton has created, the one that is most relevant is the Asymmetry Principle which is dependent on the Symmetry Principle. Asymmetry is the means for recovering memory from the past. Leyton defines (2006a, 17) these below as:

> **Asymmetry Principle**
> An asymmetry in the present is understood as having originated from a past symmetry.
>
> **Symmetry Principle**
> A symmetry in the present is understood as having always existed.

Leyton explains the previous principles are inference rules, and lists additional points, notably that Memory Retrieval as Forensic Inference (ibid., 17):

> **Memory Retrieval as Forensic Inference**
> The following theory of memory retrieval is being proposed here:
> Memory retrieval is the application of a set of inference rules to an object such that the rules extract information about past actions applied to the object. Thus, memory retrieval is viewed as a process of forensic inference.

To simplify, this comes to a conclusion for Leyton that: **the mind runs time backwards from objects** (ibid., 19). To get to this, the steps (ibid., 18) that are outlined are:

Procedure for Recovering the Past
(1) Partition the presented situation into asymmetries and symmetries.
(2) Apply the Asymmetry Principle to the asymmetries.
(3) Apply the Symmetry Principle to the symmetries.

How these theories and steps are utilized in the present research can be summarized as "**lines hold memory of the past.**" Through Leyton, we understand this because the mind runs time backward from asymmetrical shapes, as asymmetry gives the viewer more access to the stored memory in the line. In contrast, Leyton considers symmetry as a form "with no history" (2006a, 7). It is not that symmetry does not have memory storage, but that symmetry erases it, so it is not perceivable (ibid., 22). This is an important point. Leyton acknowledges that things happened to symmetrical objects. When something is being made, it would have gone through moments of asymmetry to get to the symmetry. For example, when a building is being constructed, it has gone through many stages of asymmetry, but when finished, the skyscraper's symmetry does not give any access to the past asymmetrical actions that got the building to that shape. In his language, "the geometric part of an object is that aspect which cannot store information about past actions. Thus, conventional foundations in geometry are taken to be the study of memorylessness (ibid., 8). Leyton urges us to study the aspects of geometry that retain past information (ibid., 13). The new Foundations of Geometry, which Leyton requests us to consider, is that geometry is equivalent to memory storage as it stores information about past actions (ibid.). Leyton pulls these terms from Klein who introduces the term memorylessness. He equates memorylessness to the entire history of geometry from Euclid to modern physics (2006b, 12). Another important aspect from the theory of memory storage is "the maximization of memory storage is dependent on satisfying two criteria; (1) maximization of recoverability, and (2) maximization of transfer (2006a, 56). It is not that symmetry did not undergo history but that, as an observer, we do not have access to it. Therefore, it is key to understand that we have more access when more history can be recovered, and transfer is the history of history (ibid., 58), in other words, the changing of shape through actions.

Leyton calls the place where we look for memory storage in shapes 'the curvature extrema' and argues that there are only six types (2006a, 32). These six types[4] fall under rules and "each of the six rules of the Process-Grammar is an example of the Asymmetry Principle" (ibid., 35). Leyton's concept "Implies that the ultimate past of any smooth closed curve must have been a circle" (ibid., 28). Leyton gives an example of how a point expands to a circle, which then goes through depth to a become straight cylinder to ultimately become a deformed cylinder. He calls these four steps: point, rotation, translations, deformations (ibid., 56).

22 The six types of Process-Grammar are: 1. Squashing continues until it indents, 2. Resistance continues until it protrudes, 3. Shield formation, 4. Bay formation, 5. Breaking-through of a protrusion, 6. Breaking-through of an indentation (Leyton 2006a, 32–34).

Leyton also ventures into physics and gravity by saying, "The flatness of empty space-time is the most symmetrical condition possible. Therefore, the asymmetry in curved space-time acts as a memory store for the action of the gravitational force" (ibid., 87). This makes sense in that the bend in space-time is a result of an action having been enacted; that action being gravitational force from mass. We can poetically apply this to the moving bodies of humans, where our actions have weight and influence each other through time and space. The curves of our actions as memory influence those around us in the way the curve of space-time holds memory of gravitational action. In this way, it is not a poetic metaphor, but the lines in these two situations do hold the memory and cause an effect. In Leyton's most foundational book, *Symmetry, Causality, Mind*, (1992) he states that "explaining how things are caused" is the same as "converting them into memory stores" (2006a, 88).

What comes across as highly quantitative and systematic is also used in conceptual situations where shape and line are hardly what a person would experience. The theory's explanation that we can see the development of an embryo to an adult body by observing the shape of the body changing from the spherical egg to the adult shape (2006a, 14) is not a process we can perceive in the same way we look at the lines and shapes in art. The development of a human is a process taking years, and we hardly look at adults as expanded circles. However, one important underlying theme in the complex theories of Leyton is that we use our past knowledge to understand and to know what to do with the current knowledge we are receiving. He states, "It is a basic cognitive fact about human beings that they see any situation they encounter in terms of previous situations" (ibid., 54).

Memory storage: past to present

When looking at art, Leyton connects points in a painting, like from a figure's shoulder to their hands, to make imagined lines. He describes how Picasso put imagined lines in the background of paintings, or that they were at least semi-painted in as non-topics, as ways for holding some figures together (2006b, 142). This way of looking



Fig. 50. Drawing from Michael O'Connor tracing his own dance (2021) from the video Wagner Duet (translating pianist's left hand, 2015).

at lines allows lines as borders from nearby structures to become visible in the minds of the viewer and create shapes between objects. In addition, through these static images, he is saying the analysis of where lines used to be, or their history, requires the viewer to imagine the movement in the painting. The line holds the past—memory storage, as he says—but the lines also require movement, so the imagined past line and the present perceived line create an unfolding of meaning,

Leyton says expression goes from the past to the present (2006b, 127). "Tension goes from the present asymmetry to the past symmetry. Tension is the force in the present distorted state, that tries to make the shape return to its past undistorted version. This means that tension is directed backwards in time" (ibid.). When he says that tension tries to make the shape, it has to be understood that the line, shape, or the tension itself in the drawn line does not have an intention and wants to do anything. He is referring to the psychological precondition that he claims humans have to want to return things to symmetrical states.

I can apply and understand his point of tension going backward and the expression going forward when thinking of a human face as an example. We could say that we have a neutral face at rest, so when someone makes a face, the expression on the face is temporary and will eventually be gone. The movement creates a type of tension, and the expression we are seeing came from somewhere, so that is a type of forward action from past to present. At the same time, the tension is conceptually directed back to the past. "Tension and expression act in the opposite directions in time" (2006b, 127). This information is processed through slow analysis as the details of the lines are abundant. One could not imbue all this information quickly within the environment. Leyton's type of analysis when looking at art would take time, but it is my estimation that one can feel these understandings through a kind of pre-analysis, when getting a felt sense of the meaning of artwork.

A point to note is that this is Leyton's analysis after a painting is made. He is saying artists 'know' these things, and that is how they have meaning during the creation of the works. This would not be an explicit knowing but a more tacit understanding of line, tension, and form. It is important to understand that Leyton's method of analysis will not give a universal answer about a work's meaning. Art and practice came before the theories about it, so not only do artists have a tacit understanding of this, but they are also the ones that created it.

Through this approach, Leyton says, "The rules of artistic composition are the rules of memory storage" (2006a, 40). He has analyzed paintings and works of art to access what the 'memory' of the painting is and then, from that, understands the meaning of the painting based upon the process history the lines and angles went through. He also says, "Aesthetics is the theory of memory storage," as artworks are maximal memory stores (ibid., 89). He continues, "science is the means of converting the environment into memory stores, and that aesthetics is the means of extracting the memory from those stores. In other words, both the sciences and the arts are driven to create maximal memory, and aesthetics is the means of accessing that memory" (ibid.).

Asymmetry Dance Practice

When looking at the theory that lines hold memory of the past through asymmetry, the work is done through paintings, architecture, or other material objects that are perceivable or static. In my practice, I wanted to explore how the asymmetry of the moving body could be seen as memory storage. In Berlin in 2021, I taught these basic principles to dancers in two different workshops. The two groups each consisted of four dancers—one consisting of first-year bachelor students and the other group being upper-level students. This practice was explored another time by four selected dancers, additionally with one other dancer in Vienna (see fig. 51), and alone during self-practice.

The guiding question in this movement exploration is: *How does viewing the asymmetry of my body and its movements reveal information about the past and how do I use that to create movement in the present?*

My approach to this task has different starting points. The practice that generates the most movement and feels authentic to the question begins by noticing the asymmetry in my bodily position and using that information to reveal how I go into that position. By understanding the anatomy of the body, I trace back the action to the starting point or pass through to find a new asymmetrical position. I may also instantly understand my past action and choose to re-draw a new way I could have moved, thus using the past to rewrite the present action. This practice requires much mental work in that I must constantly monitor my current asymmetry and tune in to what it means—and what do I do with that information. I can also look at the body of someone I am dancing with and view their body as asymmetry of the past that elicits new movements in me (see fig. 37).



Fig. 51. Samuel Feldhandler exploring Asymmetry Principle/Memory Storage as a movement practice, Vienna September 2021.

I am viewing the linear designs of myself or someone else to infer what linear patterns were made to get to that position and what new linear patterns or linear designs could be made once my mind taps into that knowledge. My approach is to find new and different ways to work with that position, and other dancers may be motivated to work with that information differently. Additionally, I can use Leyton's theory when viewing my environment. Instead of applying the theory to temporal traces, I can use Leyton's theory more in the ways that he applies it to architecture and notice asymmetrical features in the environment. In the same way, I observed the moving body, traced those features in the environment, and, in doing so, got access to that object's past information. Viewing that as a connection to a warped pole, a bent tree, or an arching path through a park, I am under the impression that I have access to that object's memory storage and I move forward with that information, creating new movements.

I have interviewed and kept some audio recordings of the reflections from dancers after trying these practices, but the discussions with participants in general are interesting for conversation and teaching. Often each dancer takes on the task differently. Therefore, I find more value for a practice Ph.D. in showing what people do through demonstration videos, rather than relying on spoken or typed verbal responses afterwards (see Appendix 2021).

Lines as Extended Mind

> It is alive with time, and, because it is filled with memory, it is alive with mind. (Leyton 2006a, 23)

Leyton's stance that, as humans, our psychology engages with our environment for meaning, by bringing the past into the present, is acknowledging the situatedness of processes. Leyton describes: "A building must act as an external hard drive for the computational processes of a human being", continuing, "It is the person that is the computer, and the building is a hardware component that is part of this computer" (2006a, 92). Though statements like this perpetuate the body-mind divide and first-wave cognitive science models where the brain is seen as a computer (Johhnson 1997, 148) another way to approach what is being said here is to acknowledge that we are extended into the environment, and the environment is in us. This understanding is seen by theories on distributed cognition, explained by Hutchins: "cognitive processes may be distributed across the members of a social group, […] distributed in the sense that the operation of the cognitive system involves coordination between internal and external (material or environmental) structure, and […] distributed through time in such a way that products of earlier events can transform the nature of later events" (2001, 2068). Instead of seeing ourselves or things as computers and hard drives, we can use lines to connect our movement to our surroundings as an act of distributed cognition. Though Leyton's language and approach are analytic and formulaic, there could be a phenomenological and animate foundation similar to Sheets-Johnstone's process. One predicament in his thinking, though, is that there are objective meanings that can come out of his rules and steps. We do not all look at artworks in the same way and, on the whole, would not come up with the same precise feeling from everything we encounter. He does mention that orientation is about perspective. Therefore, one way to see something subjectively in his steps is to acknowledge the point of our perspective. If looking at a building, the steps to twist it back in time depend on where you are facing the building; then there are multiple interpretations and ways to reverse time backward.



Fig. 52. Drawing from Samuel Feldhandler tracing his own dance (2021) from the video Wagner Duet (translating pianist's right hand, 2015).

Leyton's suggestion that the environment can be extended mind and hold memory proposes another viewpoint when looking through Material Engagement Theory. Who holds the memory, or whose mind is extended? The person who looks at the building, the person who made the building, or the person who designed the building?

Recovering Wagner Metaphorically

Conceptual Metaphor Theory and the Asymmetry Principle are brought together in the following practice. Using the prosody practice described previously in this chapter, another dancer, Samuel Feldhander, and myself translated Wagner's *Liebestod* in 2015. In this version, the music is played instrumentally on the piano, and each of us tried to translate only the right or left hand of the pianist's performance. In the same way the prosody of a singer's voice is translated, each of us translated the volume, note, timbre, and intention but could not translate any consonants or vowels. Knowing that sometimes the right hand of the pianist crosses over the left and plays on the left side of the piano, creating lower notes, complicated the task, and we could not rely on assuming higher notes pertained to only the right hand, for example. During the improvised translation, we also notice what the other is translating, and each of us can use that as a reference to help stay translating the hand we were assigned. This performance was video recorded (see Appendix 2020 Wagner Duet) and was viewed in 2021 for the second part of a creative exploration.

In this second part, while watching the video, I focused on my movement and traced one line with a pen on paper that followed my perception (see fig. 50). Like the shorter practice, where watching a clip of movement and then tracing a quick doodle of what motion was remembered (see Appendix 2018, 2019 Watcher/Dancer), this practice is similar except done in real-time while the dance is being performed and extended for the duration of the six-minute video. Feldhandler also created his own one-line traced perception of watching his solo (see fig. 52). These two line drawings were then placed together (see fig. 53).

As a product, there are multiple ways to view these combined green and purple lines. In the *Body as Translator* practice, the drawing is made by translating lines of movement to drawn lines, taking them from temporal traces to perceived material. The dancing was translating imagined lines of sound into lines of movement. I also argue that the music can be understood as Wagner's understanding of love as a journey. *Liebestod*, or Lover's Death, is Wagner's process of translating a felt line of emotion or love as a pathway ending in death, turned into a melodic line imagined when putting sound to shape in the mind's eye while listening. Therefore, through different translation processes, the above drawing can be seen as if Wagner's understanding of love as a line. Through the asymmetry of the lines drawn, they can be said to hold the memory of the gesture that made them, which came from the dancing bodies that came from the translation of music that came from Wagner's emotional thoughts. Additional translation processes could also be outlined if we consider the person who notated the music or the performer that played the piano. This practice demonstrates how the body can be used to translate lines between different domains: lines from a different time period, invisible, can be brought to the present and made visible. The lines move from felt lines from Wagner in 1859 to kinetic lines of movement in 2015 to drawn perceived lines in 2021. In this context, the metaphoricity of these lines is seen as the asymmetry of dancing bodies and Wagner's thoughts on love.

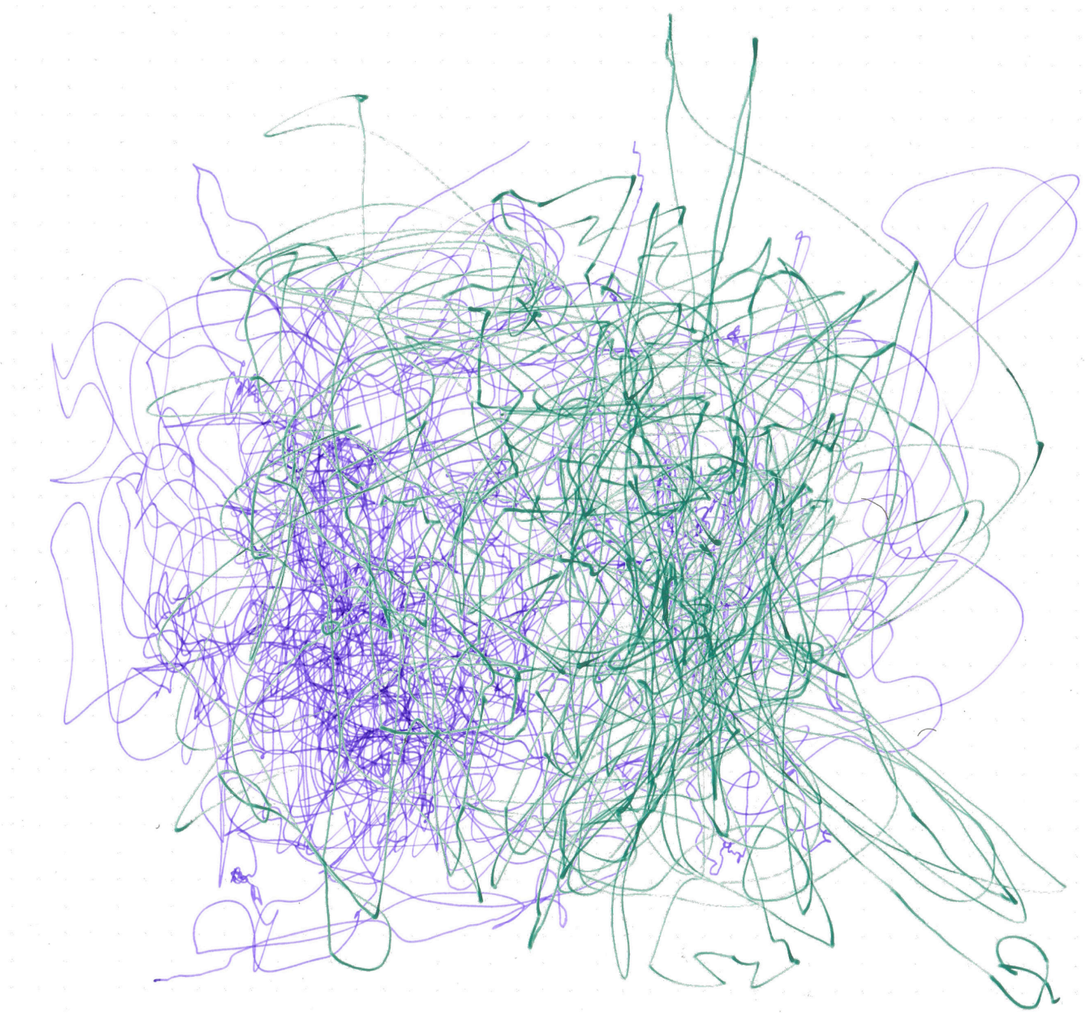


Fig. 53. The combined drawings (2021) from the tracings of the Wagner Duet (2015)—seen as the metaphoric translation of Wagner's understanding of Lover's Death (*Liebestod* 1859).

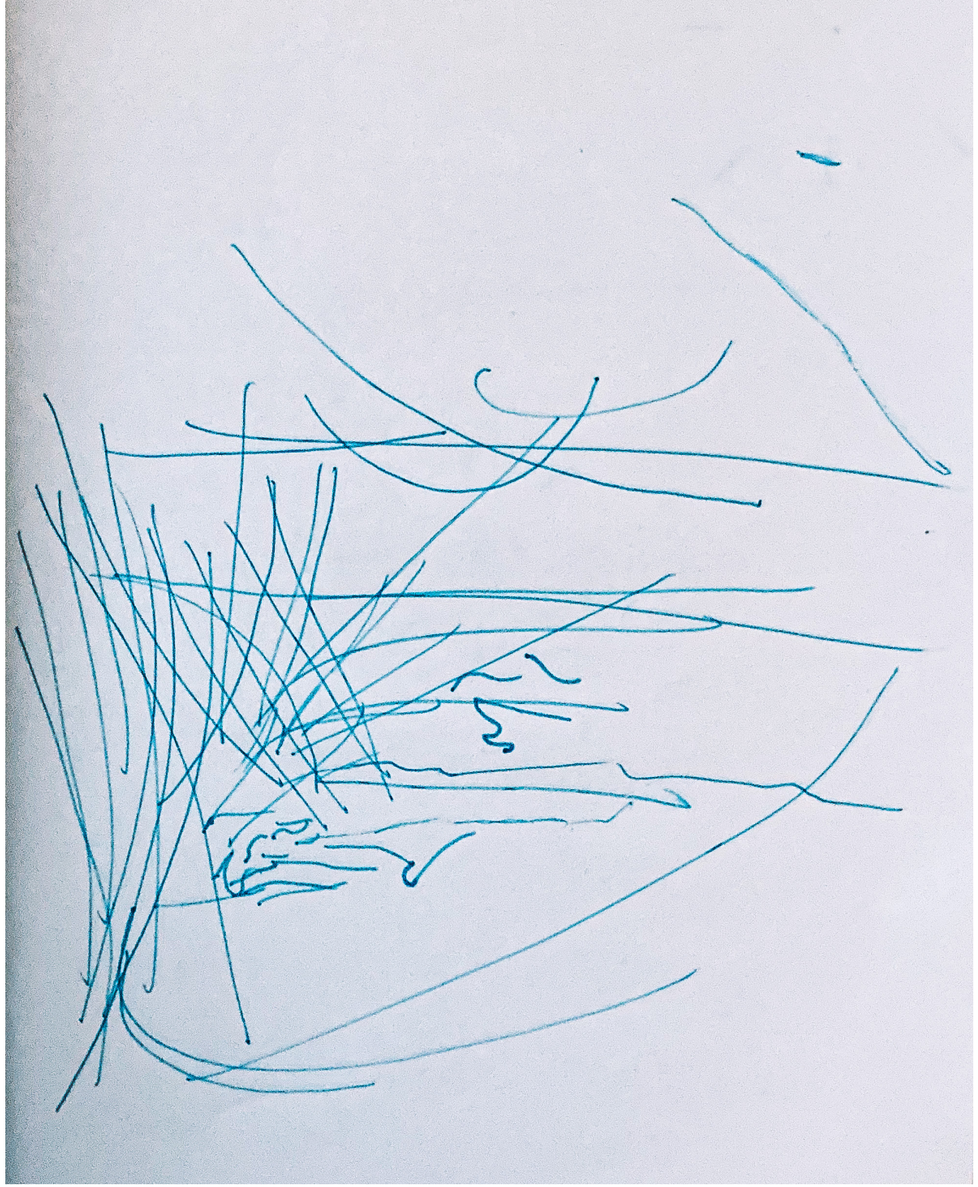
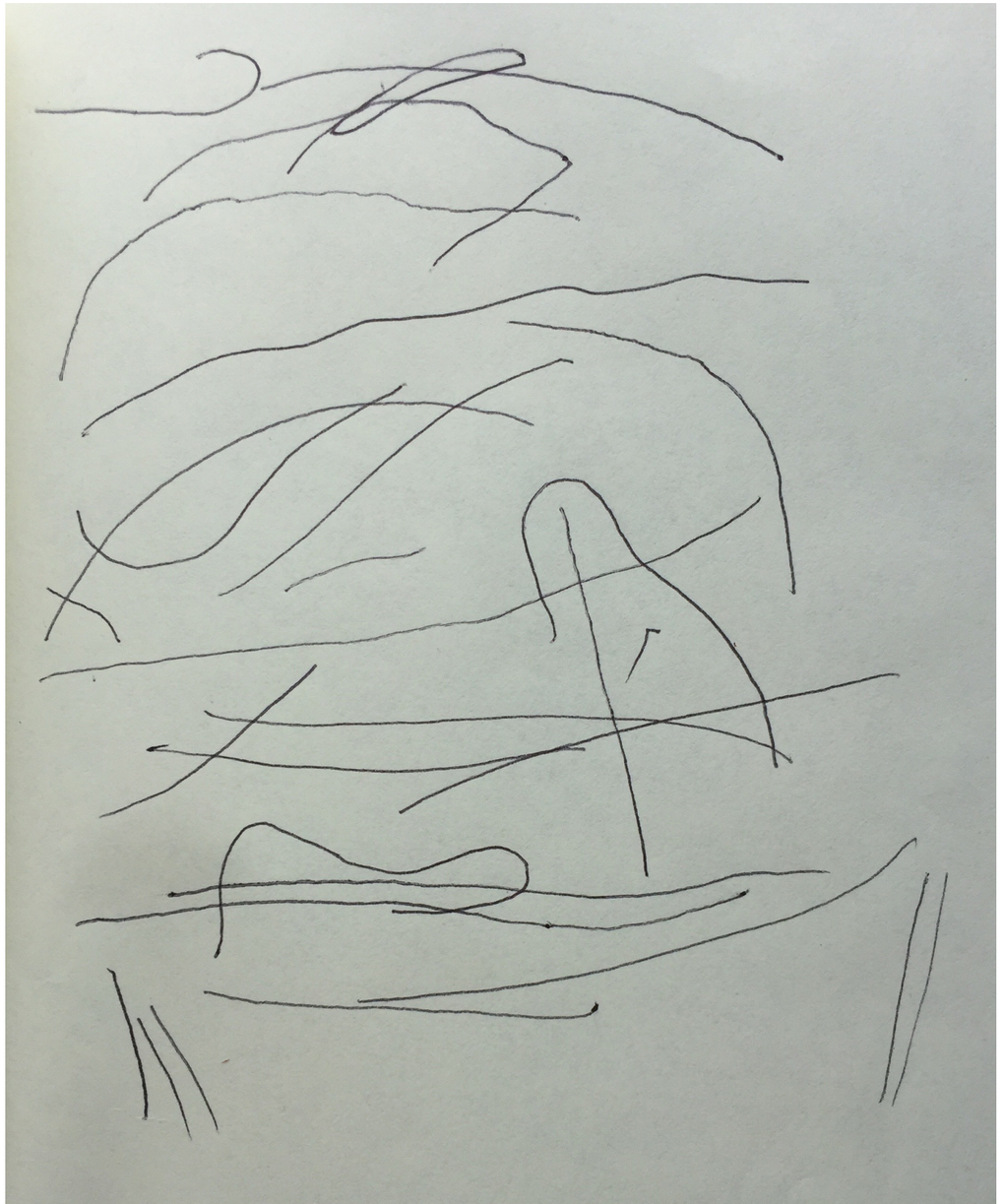


Fig. 54. The Bench: pigeons and people, Lisbon, Barrio Alto 2023.

Fig. 55. The Park: bikers, birds, passersby, frisbee, and dog, Berlin, March 2020.



I sit down, facing a certain direction with my paper and pen. I want to capture something about that situation. I do not know if I will make 100 lines, or 3 lines. I look around and try not to edit or select. If only people are walking by, then I will only trace people. If I am intent on capturing all the traces then I have to be honest and notice things that move in the reflections, or expand my perception if clouds are moving along with bikers and dogs. I feel like I am documenting without judgement. The landscape in front of me is placed on to the paper. If something flies above me in the sky that is put at the top of the paper. If people pass by my right side that is on the right side of the paper. I let the activity determine its own end. This means a balance between my aesthetic compositional interest, the activity at play, and noticing what is available in the environment. For instance, if I know it is 5pm and everyone is going home after work, there is no real beginning or end, there is a lot of action and I can just continue to trace. The accumulation becomes important. Likewise with the rain. If I am in a park or the beach, the diversity of the actions creates composition on the page and often I stop when the page looks a certain way. This may be full, or rather empty. In all cases I am letting my vision of the environment determine the composition, in the same way a painter would paint people in the park. I do not choose what type of lines, I just document, or rather translate the imaged line of motion to the pen. I do choose when it is over. This activity usually lasts 5-15 minutes.



Fig. 56. The Canal: ducks, bikers, and things in the air, Berlin, May 2020.



Fig. 57. Verde Beach: people, Monopoli, Italy, 2020.

Fig. 58. Baobá Café Bica: people, cars, motorbikes, trams, and pigeons, Lisbon, February 2022.



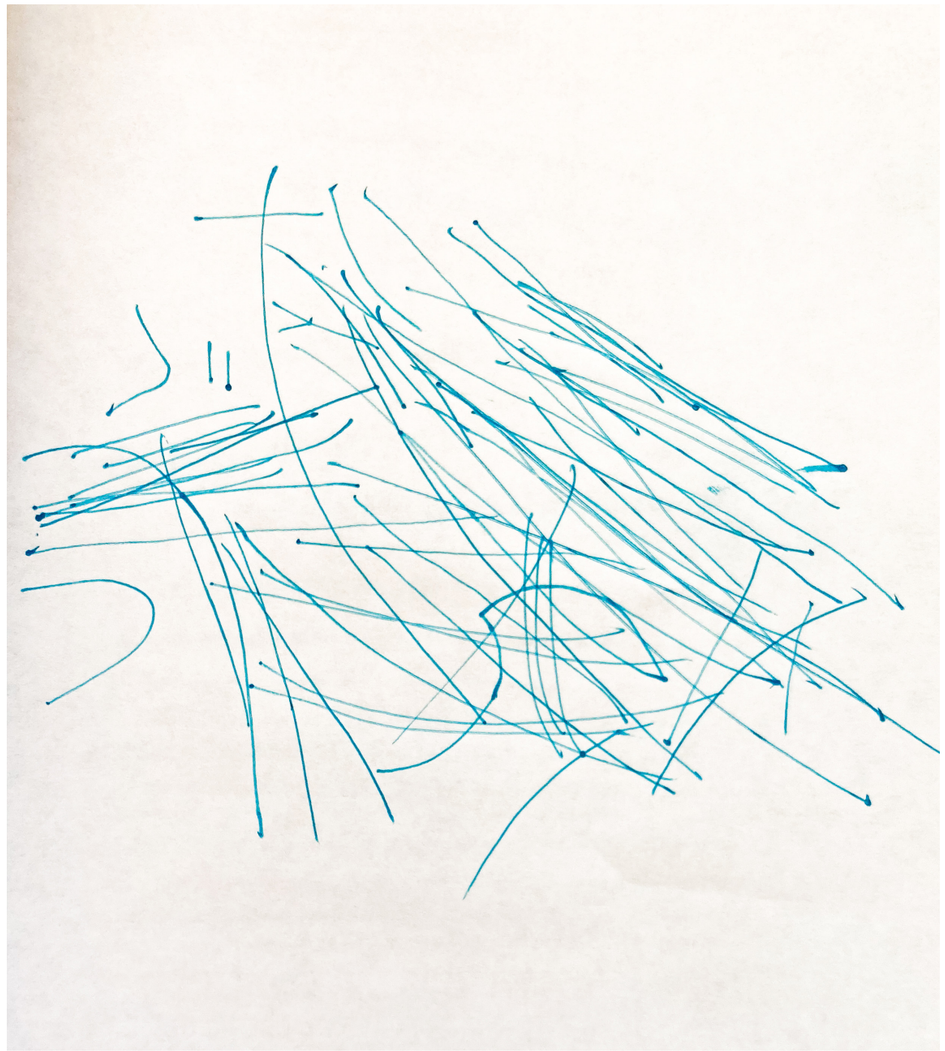
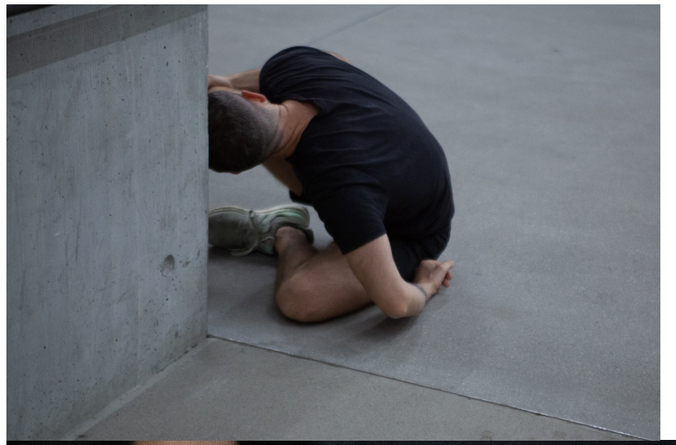


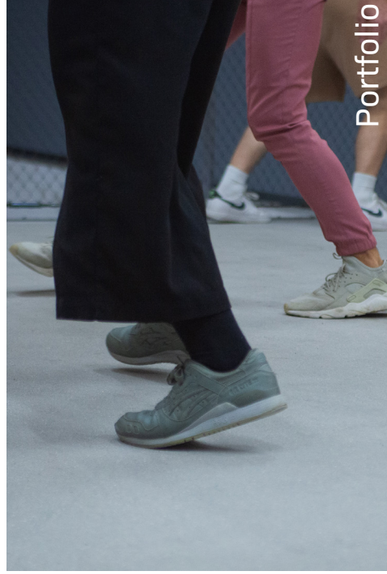
Fig. 59. Baobá Café Bica: people, cars, motorbikes, trams and pigeons, Lisbon, February 2023.













Previous pages: Dialogical dance practice. Berlin, November 2021.
Photos: Niels Weijer.
Fig. 60. Dancer Miguel Witzke Pereira.
Fig. 61. Dancer Sophia Obermeyer.
Fig. 62. Dancer Sophia Obermeyer.
Fig. 63. Dancer Michael O'Connor.
Fig. 64. Dancers Michela Filzi, Miguel Witzke Pereira, Samuel Feldhandler.
Fig. 65. Dancers Sophia Obermeyer, Michael O'Connor.
Fig. 66. Dancer Samuel Feldhandler.
Fig. 67. Dancers Michela Filzi, Miguel Witzke Pereira.
Fig. 68. Dancer Samuel Feldhandler.
Fig. 69. Dancer Michael O'Connor.

I want you to dance this way

The wind blows a napkin across the concrete. The linear trace of the tumbling, papery object, folding and unfolding over itself, has latent pauses and sharp, dynamic bursts when it unsticks itself from crevices in the concrete. The immediate trace that is observed holds the memory of how the napkin may move in the future. The napkin's paths and projected paths are sensed. I imagine these trajectories.

Dynamic forms of vitality or *vitality affects* could be described as temporal dynamic traces of linear patterns. As introduced in the chapter 'Making Sense of Lines', vitality affects describe the qualitative nature of something, but are more than just words (e.g. adverbs or adjectives) in that, as proponents of this notion claim, they are the mental construct used to understand meaning through our senses when we start engaging with the world. Vitality affects highlight the how without answering the what or the why. Daniel Stern argues that, "dynamic forms of vitality are the most fundamental of all felt experience when dealing with other humans in motion" (2010, 8). In addition to the experience of humans in motion, as described above with the wind-blown napkin, we can access the meaning in contours of movement with objects as well, and in the same vitality expressed in other modes of senses, like sound, touch or taste.

The notion of vitality affects is one of the initial places where the subject of lines caught my eye, even though it was not necessarily the focus of Stern's research. To visualize the concept, Stern drew little pictures of lines depicting different dynamic forms (2010, 8). Dancing, drawing, and as will be shown, handwriting can all contain forms of vitality, as they are created by movement. Dynamic forms of vitality can be seen in the spatio-temporal-energetic nature of lines. Before describing how vitality affects as a linear proposition has been utilized in this artistic research, an overview of Stern's claims will be presented through a neurobiological perspective.

Amodal Dynamics

A question exists as to how the brain is capable of switching between modes of senses. Historically action and perception were considered different modes within cognitive neuroscience, but the discovery of mirror neurons (di Pelligrino et al. 1992; Gallese et al. 1996; Ferrari et al, 2003) and bi-modal visual-tactile neurons (Graziano & Gross 1994) bring the two modes in tandem. The discovery of mirror neurons overturned previous models that suggested we needed to use higher level cognitive processes to understand the mental or affective states of others, and instead demonstrates perceptions of others are "mapped into our internal motor representation, thus creating a direct connection between self and others" (Ammaniti & Ferrari 2013, 371). Audiovisual neurons (Kohler et al., 2002) are another example of the multimodal functioning inherent in neural systems, linking experiential dynamics between senses. Stern points out (1985) that shape and sound can find translation connections through tactile and visual modes, as sound is often produced by the mouth; a visual percept when watching someone speak, or a tactile one with your own tongue, palate, and lips (49).

The studies on the development of our modes of sensing investigate early childhood. Stern points out: "the infant early on is largely multimodal. Experience is multi-sensory because the qualitative aspects of the modalities are not yet fully discriminated" (2010, 111). Being able to have a multi-sensory experience of something that is 'large and heavy' or 'sharp and quick' comes into one's perception at the same time as multiple sensory inputs work together. Additionally, we place touch as one sense, but the skin can sense warmth, pressure, wetness, pain, and movement. As Stern suggests, the modalities are not discernible, meaning something in our vision or something of touch might blur together at a young age when the senses are both engaged as well as the multiple sensors within just the skin. As we become adults, and use language, we can see the effects of these multimodal experi-

ences. Synesthetic aspects, the mapping of these senses across domains, develop into our language and become evident when we say a person can have a warm personality, a necktie can be loud, or a response can be salty.

As newborns, before language acquisition, it is thought that vitality affects exist amodally. Stern explains vitality affects have an "amodal representation, which can then be recognized in any of the sensory modes" (1985, 51). For example, a *tingling* vitality can be understood as a tingling touch, a tingly taste, or a tingly sound. In one study, researchers were able to see that visual shapes were understood haptically in the baby's mouth. "Infants are predesigned to be able to perform a cross-modal transfer of information that permits them to recognize a correspondence across touch and vision" (ibid., 48). The brain understands vitality amodally because our senses overlap more than they have distinct boundaries.

Where senses play across modes, Stern explains that vitality forms are discriminatory. A baby might hear a matched affect attunement when a mother makes a vocal noise that matches the babies own felt sense of a facial movement. They might both be expressing the same vitality force, but within different modes. During the interaction with his mother, the baby does not yet tell the difference between what is heard or what is seen. The infant experiences stimuli and the vitality affect is noted. Ammaniti and Ferrari write that during interactions between mother and infant "there is brainstem dopaminergic fiber activation, which triggers high levels of endogenous opiates when the infant watches the mother's joyful expression" (2013, 368). It is in our chemistry to notice affects and regulate ourselves towards meaning that derives from them. Citing Shore (1996), they also note attachment is structured around the pleasurable aspects of social interaction through biochemical processes. The attuning to dynamic forms of vitality is seen as an attachment strategy, as these affects are used to make meaning before our senses are differentiated.

Lines of Vitality

Stern describes vitality affects as "dynamic shifts or patterned changes within ourselves" (Stern 1985, 57). When moving, I can feel how the space, time, and energy I use change depending on the dynamics I create. When I see others move, I can also interpret the quality of their movement as a type of vitality. Stern states: "The vitality forms of interpersonal happenings are part of implicit relational knowing" (Stern 2010, 111). Here he describes that these vitality affects are what allow us to know and understand another and create meaning between people. If vitality affects are types of linear traces of movement through time and space with different intensity (force) and intentions, our linear designs and linear patterns are the materiality of vitality affects when created by the moving body. The focus here then is to look at vitality affects as a linear construct and use them as a tool to create different movements and understand lines as movement.

For example, if I push a bottle of beer or I toss a beer to a friend, the content of the beer stays the same, but it is not isolated from the vitality. In one way, the pushed beer becomes a beer *that needs to be drunk* or is used to suggest the person receiving needs to change states. The beer that is tossed is a beer that is recommended or persuaded to be drunk. Tossing and pushing have different meanings as they involve different vitality affects. In the very way that Stern says the vitality affects are attached to and yet not of the object/*the what*, is the same way the object/*the what* is not separated from the dynamic applied. The vitality belongs to the object and the object temporarily belongs to that vitality. Stern explains how motion will be imbued with force: "Movement is the most primary event and the most salient, but movement does not come alone" (2010, 111). In dance, other objects are removed, and only the body in motion carries this reciprocal loop of vitality and object. However, the body can multi-task. Legs might *bounce aggressively* while the dancer carries an arm moving *smoothly* and holds their neck *tightly*. The mix of aggressive bouncing-smooth-tightness creates a unique expression. Unlike the everyday scenario where two people read and share vitality through exchange of an object, in dance the body is its own focus for creating situated couplings of motion with varied forces and intents.

As we read these dynamic forces carried out in daily interactions like sharing a drink, or in abstract dance

practices, we are able to use the meaning in the spatio-temporal-energetic contour of the specific vitality affect to make sense or understand others. Studies looking at the neural aspects of 'reading others' suggest how this happens. In non-human primates, for example, it has been found that "Mirror neurons allow the monkey to *predict* the goal of the observed action and thus to 'read' the intention of the acting individual" (Ammaniti & Ferrari 2013, 372). Kohler et al. (2002) show how listening to an action stimulates areas of the brain involved in producing the action. "This multisensorimotor integration binds together elements of dynamic experiences into a format that is not exclusively sensory or exclusively motor (Ammaniti & Ferrari 2013, 372). Stern (2010) points out that this multimodality property of sensorimotor experiences is the foundation of vitality affects. The ability to map lines from sound to drawing, or action to vocal, or shape to movement appears possible due to these systems of bimodal neurons.

Stern states that information is probably held in a supra-modal form: "It is not, then, a simple issue of direct translation across modalities. Rather, it involves an encoding into a still mysterious amodal representation, which can then be recognized in any of the sensory modes" (1985, 51). As we can see, an exploding sound would be different than an exploding shape or an exploding movement, for the fact that the different sensory mode would require a different expression of exploding. A "direct translation" would not be possible in this sense. By considering the vitality affect for its linear properties, the *Body as Translator* practice can construct that affect within the mode it uses for expression. It is not about accuracy or consistency. Lines serve as temporary understandings of connection between senses and materials as the lines reveal the effect of the affect. Lines either traced with a drawn gesture, made as a sound with the mouth, danced with bodily contours, or visually traced with the eye along the border of an object are functional phenomena for pointing to the similarities between perceptions.

Vitality Affects in Dance Practice

Examining vitality as a movement practice draws attention to the relationship between the what and the how. If the vitality is the how by which something is done, what is happening with the what?

I propose that the *how* makes a difference to what the *what* is to some extent. Stern also notes that the what can be absorbed on a neural level by the why (2010, 55). During a rehearsal for a choreographic work I made in 2013, a dancer asked, "Why are we doing this?" They were trying to understand the choreographic relevance or my intention of this part of the work so they could perform better through greater understanding. I realized I was telling them *what* we were doing, but there was no clear answer to *why*, at least in a usual sense. I answered, 'The why of the what is the how' and this became a belief carried through my artistic practice. I was asking the dancers to create meaning by engaging in the quality of their movement. The *why* of the movement gets enveloped into what is happening when the dancer is aware of *how* they are moving. In other words, the meaning of the movement, 'a why, or what for' is conveyed in its execution. Qualities have meaning. A tender movement conveys tenderness. A tenderly moving body carries meaning as it is not interpreted as aggressive or scared. By guiding the dancers to see that 'the why of the what is the how', they were less interested in needing a reason to move and more interested in moving a certain way while knowing it had its own readability. They create the *why* through their choice of movement quality.

Vitality Affects Practice

Explore bringing different vitality affects (e.g. fading away, explosive, hesitating, smoothly) into your body as dynamic, spatial-temporal-energetic contours. You can also translate the colors and textures of your environment into their metaphoric vitality: blue as a vitality contour, or the dynamics of cement/wood.

List of dynamic forms of vitality from Shotter (2016b, 82).
Strange, terrible, uncanny, forbidding, menacing, charming, attractive, delightful, awkward, energetic, puzzling, bewildering.

List of dynamic forms of vitality from Stern (2010, 7).
Bursting, weak, fluttering, disappearing, tentative, bounding, swelling, pulsing, pulling, loosely, effortful, accelerating, tense

To better understand the linear aspect of vitality affects, I research the linear traces made with the body by practicing the different forms. A list of vitality affects is collected, and dancers are asked to 'do' the form. Through improvised movement, dancers take into their body each word that is said. When *explosively* is said, then dancers explore moving explosively. After a while, a new vitality affect is said and dancers then change and leave the previous affect behind. Some affects are more straightforward, like *swinging* or *pushing*. With more abstract forms of vitality, dancers must experiment and figure out what it means to *fade* or be *disgusting*. In this practice, the body's linear patterns and traces create different dynamic forms of vitality, as time, space, intensity, and contours are crafted by the dancers. Stern calls this the "temporal contouring of movements" (2010, 19).

When doing this practice, I notice which parts of the body initiate each vitality. With swinging, arms or legs are often used first as their anatomical joints make it possible to swing. After the initial expression, I understand the space, weight, time, and flow of swinging, and though not as natural, I can experiment with putting that vitality in other body parts; a swinging torso, or a swinging head.

Observations from a Vitality Dance Practice

During one practice in Berlin, a small group of approximately five college dance students were changing vitality. When the affect *brightly* was indicated, participants began exploring how to embody this vitality. While others did more explosive actions, perhaps mapping the intensity of light (vision) into the intensity of muscular action, one participant walked very evenly and securely as if going somewhere. I wondered what she was referencing. Bright can mean smart, so perhaps she was enacting confidence that came from being smart. This would be a different take on the meaning of the word. However, the crispness to the walk and clarity did on its own, seem *bright* to me. The sun can be bright, painfully so, like the intensity of the other participant's explosive actions. However, as I continued thinking, bright can be a simple value of a color or a note in music. She was also walking diagonally through the room, something she had not done before, going to the walls, walking along them, and then back to the corner to repeat. She was geometrically framing the room and making acute angles with her path, a linear pattern trace. The repetition of this walk established the diagonal and overall shape of a triangle and, therefore, the angle she was tracing. She did not choose to walk in a circle or even a square but delineated a triangle with her path. Is a triangle brighter than a square? The answer *feels* yes.

Does this outside analysis that a triangle is brighter than a square have relations to sound symbolism? Would a bright line be zig-zaggy? These are the moments where line research is hidden and comes to the forefront of research and I believe holds a lens to look through. I could flick my wrists for the sound of 't', also making angles with my body skeleton, as I feel the action of that sound in my mouth, as the tongue flicks against the teeth. There is a time involved; quick. I do not know if the kiki and bouba drawings (explained in the previous chapter) would equate so that kiki was bright and boba was dark, but this would be my hypothesis. As children, we often draw rays of light as triangles coming from the sun. Also, when the bright sun makes shadows, we then see the contrast of angles. Curvy lines can be just as distinct, but the curviness could equate to unclearness, and due to comparison, would more than likely be equated not to the sun or brightness, if there was a choice.

In these cases, though, I can also say that I am not exactly sure why what she did made sense, but it made sense in the moment. From the outside, I could not disagree with her movement choices. I felt the meaning made sense. The movement contours, linear traces of the time, intensity, and spatiality of the form *bright* were embedded in the linear pattern of the dancer's bodily actions. Her choice was different than the other dancers' but made sense in its own performance. The creativity of one dancer shows the amodal accessibility of vitality affects and the different senses available for reasoning an expressive performative choice.

Blurry Vision as a Tactic

In a different workshop with five upper-level dance students at the University of the Arts Berlin in 2021, one dancer expressed, while watching others participate in a vitality affect practice, that he watched peripherally, allowing his vision to slightly blur. Dancers were asked to move with the quality of *uncomfortable*. After a minute or two, a new vitality was stated like *reaching*, *sharp* or *explosive*. Dancers then changed their movement and tried to find ways to express the new word that was given. It is during this shift, that this dancer chose to blur their vision in order to experiment with seeing the qualitative shift. When I would announce a new affect, he would see the dancers move from the current affect they were creating in their body, to the new one and be able to perceive the shift. By observing peripherally, he was allowing himself to not focus on the what, but perceive more of the how in the dynamics of the movements.

By not explicitly focusing on what each dancer does to embody that affect, it is possible to sense the whole room and, in a way, absorb the dynamic contours. In this way, it is less about consciously analyzing what is happening, and instead about letting the body-mind's ability to attune to the others and become the mechanism for understanding the others' state created by the affect they employ.

In one rehearsal, dancers were instructed to be *tightly hesitant* and immediately after, instructed to be *lightly hesitant.* The aspect of lines that might be perceivable from the inside would be small gestures of linear patterns or how solid the muscle tonality is creating the linear designs. While watching from the outside, the preparation and stroke of slight movements, to use gesture analysis terms, carried the tight or light ways the dancers found to hesitate.

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Once dancers get a sense how different vitality affects can be expressed in their body, words no longer need to be spoken and dancers can simply play with the dynamic contours of their movement, knowing it produces different forms of vitality or think of specific ones themselves. Vitality affects also developed into the tool used to translate texture or color of the environment into movement. This could also be seen as a metaphoric translation (as seen in 'The Metaphoricity of Lines' chapter) but as discussed there, the modes of senses can blur, which can be the foundation for some metaphors; the cross-mapping of sensory domains or as a supramodal set up, as Stern has shown, is where we can see overlap between these theories. In the dance practice, if specific vitality affects are not spoken as words to be translated into movement, the dancer can see a cement wall or wooden beams and perceive the texture as a form of vitality. They can do the same with color. A dancer can translate the grey in a grey wall or the blue in a blue sky. This can be understood as metaphoric, if one thinks blue or grey is sad, but the dancer focusing on the vitality affect may see the blue as bright or intense and the grey cement as smooth, clean and neutral. The dancer has to turn the color or texture they perceive into a vitality affect by seeing the blueness as sorrowful or brightly, or the cement as smoothly. Vision allows color and texture to be perceived together. Then they dance smoothly neutral, or intensively bright. The dancer focuses on the possible vitality affects as a principle that may result in different translated outputs stemming from different potentials depending on what the dancer is perceiving. In this way, they use the notion of vitality affects to translate visual perceptions into linear traces of their body.

Writing Forms of Vitality

Lines visually perceived can be read for their spatio-temporal-energetic information and this is especially true for lines that are created by the body, specifically the hand. Handwriting is a drawn line that can have dynamic meaning in the quality of the line. The line on paper is a remnant of movement that made it. In the following practice, someone writes the sentence, *I want you to dance this way* and shows it to one dancer or a group. The

handwriting is seen for its vitality and that is what is translated into the body as a score (see figs. 70-74). Ingold agrees and notes that the timbre of someone's character can be left in their handwriting (2021, 215). Choreographer Ivar Hagendoorn draws comparisons to the space around written words that do not relate to the words content, in the same way a dancing body can be seen to relate to space that is separate from the material of the body (2012, 77). The traces from the body in both examples can create meaning through the space that is shaped.

To make the task more complicated for a group of dancers, instructions are given to translate the handwriting collectively. This means that maybe one person will translate the size of the letters or the space on the paper where the sentence was written, letting others translate the dynamic form of the writing. Without speaking with each other ahead of time, the dancers choose something to translate and watch what the others are doing to sense if they are translating all the aspects that can be captured from the handwriting.

In some instances, I played with not explaining the practice to the participants, and they were only shown the piece of paper with the written sentence. As the sentence has an unclear referent, *this* does not explain the way the dancer is being requested to dance. This is done to see if the strong nature of lines as movement and handwriting as expressive features of spatio-temporal-energetic information allows the dancer to solve the mysterious task. As most dancers I am working with know I am researching lines, the task does not stay a mystery for long. During a presentation I gave in Vienna in 2022, I asked some dancers in the audience to participate in this practice. I handwrote this sentence and placed it on the overhead projector. The dancer pointed at the writing and said, "This way?". Her solution to solving this task was to trace all the lines of the handwriting with different parts of her body. The participating dancers each took turns writing the sentence so different people's handwriting and creative choices could be explored. A different dancer solved the task by translating more the feeling of handwriting. Her translation performance was the shortest as she could satisfy the feeling of the text as a combined action. My interpretation of her choice would be to say that she took the vitality affect of the handwriting as a whole and then performed that vitality affect. Another dancer appeared to do a combined approach by tracing some of the handwriting curves and also capturing the feeling of some letters that were drawn very large, using the whole body as a form, rather than a trace.

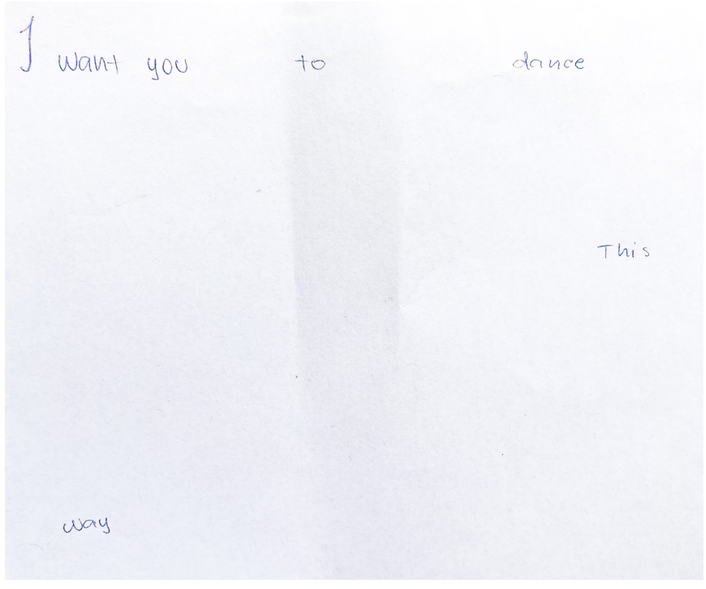
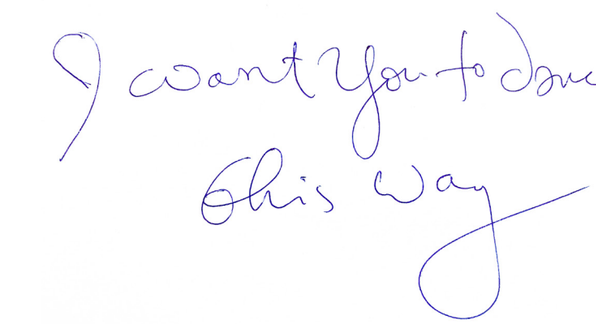
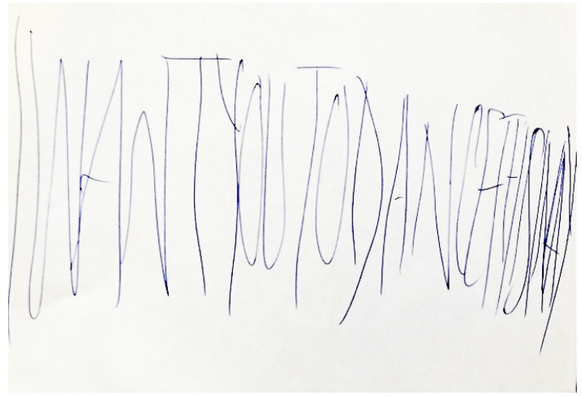
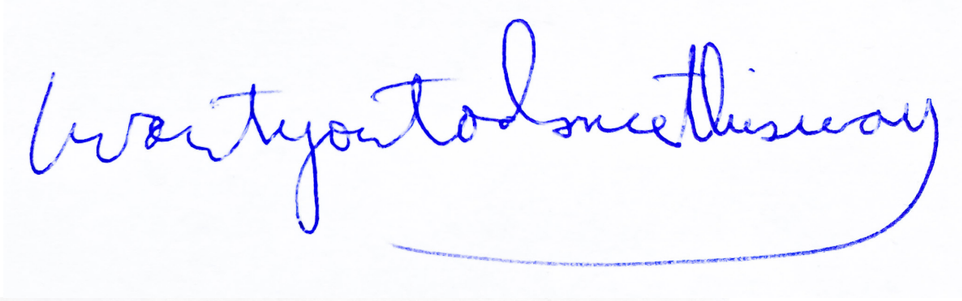
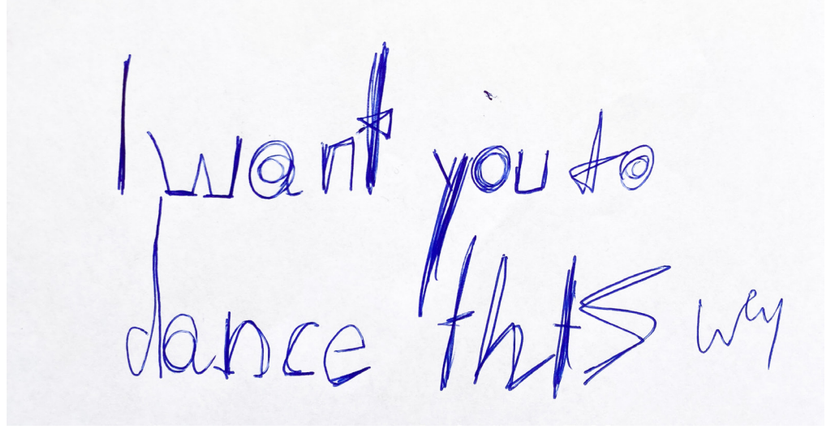


Fig. 70–74. Handwriting examples used as instructions for dancers.









Watcher-Dancer Duet Tracing

In the following practice, line drawings are used to show similarities between watching dance and the feeling of dancing. To start, a dancer does a short movement, and a watcher afterwards immediately translates the movement into a drawn line. The moving dancer also draws a line tracing the movement they feel they just performed. The watcher turned perceived lines of a dancer into a linear mark on the paper, translating from their visual field through a trace of their own hand into a line on a piece of paper (see Appendix Watcher-Dancer 2018, 2019 and 2021 HZT workshop). When the perceiver and dancer can show each other their line drawings, the evidence that the perceiver's drawing has some similarities to the dancer's drawing can create a sense of togetherness; in the same way, visual empathy studies (Reason & Reynolds, 2010) have sought to collect responses from audiences showing connection via kinaesthetic empathy.

This practice was also done through video where participants were shown two video clips of a dancer doing the short movement phrases (see Appendix Lines of Experience e-Resource 2019). Immediately after each clip, participants were asked to draw a line that traced the movement they had just seen. It is understood that watchers and dancers are combining aspects of the linear design of the body with linear patterns, that create one continuous line. Line drawings that result in similar shapes would indicate watchers' similar choice making between capturing the oscillation between sculpture features of the body and the traces of movement.

Hagendoorn speculates that if watching movement involved the representation of space on a neural level, that does not necessarily translate to spatial experience (2012, 77). In this practice, where the dancer draws their phenomenological kinesthetic experience of movement and the watcher uses movement of the hand to draw their understanding of space, the similarity of the line drawings would suggest the watcher has a similar spatial understanding and is in fact experiential as it is recreated in the drawn trace.

Rudolf Arnheim suggests in his book *Visual Thinking* that gestures are a forerunner to line drawing, and that gestures are useful not despite their spareness but because of their spareness (1969, 117). A line drawing is not only the drawing left on the paper, but it is also a trace of a "gesture" from the drawer. Therefore, I also suggest that the strength of a line drawing is also in its brevity, as it is inherently linked to the gesture that drew it. In this train of thought, we can see drawn lines also as a form of motion capture. In the described experiment, not only is the line drawn a motion capture of the drawer's hand, but it is obviously also capturing the motion of the dancer the perceiver is watching. The lines here appear as material after interaction, bringing together outer and inner perceptions of viewer and dancer.

By seeing Figures 01, 02 and 48, the reader now has a chance to imagine the type of movement that was shown in the two clips. Knowing the basic shape of a human body, and its capabilities, and by comparing the similarities and differences of the drawings, one is invited to turn the drawn perceived lines into imagined lines—imagining what short motion the participants saw. Is it possible to imagine what movements the dancer was performing by looking at the drawn lines of multiple viewers?

An interesting observation was made when doing this practice in Amsterdam in 2019 with a group of performing artists. One participant did a relevé in ballet—standing in place and raising up onto the balls of the feet. This participant drew a straight line for their experience, but all drawers moved the line slightly to the right (see Appendix 2019). It appears that time was conflated into the line drawing as we perceive time in the western world moving from left to right. In order to test this again, the same movement was recreated during a workshop in Berlin in 2021 with five dance students. In this version, all five drawings also showed the line moving to the right (see Appendix HZT 2021). These drawings indicate that time is added to the drawn vitality of the movement.

This small practice can be used in studio rehearsals to connect dancers' inner feelings of movement and visual perception with each other. Though full-scale research has not yet been undertaken on this, this project sees this as a potential advantageous tool for inclusive dance or mixed-ability workshops or rehearsals. Inner states, movement memories, and perceived actions can be teased out through the line drawings. The abstractness of the line does not show ability, age, experience, or other personal identifying aspects. Therefore, lines could be used as a teaching tool for multimodal interaction, where everyone is able to participate because everyone's motion is valued equally by bringing attention to the qualities in the lines.

Describing Dance Practice of Duet Tracing

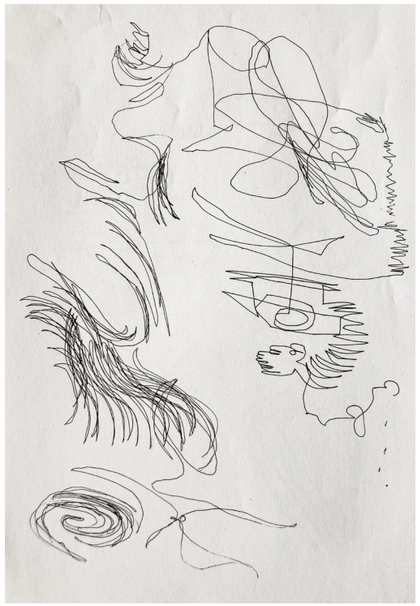
This practice is composed of a dancer and a watcher who draws traces of the dancer as they improvise, like the practice described above. In this version, the dancer does not draw and the dance is in space, moving however they feel like moving for five to ten minutes. The watcher sitting outside, using a pencil and paper, draws traces while watching. They are not intending to draw the dancer, like in an art class where one perceives a live model and tries to capture the likeness. Instead, the watcher is open to translate the dancer's movements and leave marks on the paper that stem from their engaged perception (see figs. 75-78).

The simple request to trace what one sees allows the drawer to not need to create documentation that can be revised, nor does it pressure them to succeed with drawing skills of bodily forms. In this practice, different drawers have taken different approaches. Some watchers may use the paper as if it were a spatial representation of the dance space and therefore create lines that mark where the dancer travels accordingly. If the dancer is moving in the right side of the space, in this case, the drawer draws on the right side of the paper. They may also make scribbles that reflect the quality of the movement or create symbols or shapes that signify something taking place. What is particular in this exercise is the openness, as this allows the drawer to respond with their own immediate interest and self-made logic. The watcher is translating perceived lines of a dancer into drawn lines on paper.

This arrangement happens for any duration of time, but typically around five minutes. After this phase, the dancer and the watcher look at the drawing together. The dancer is able to recognize certain aspects in the line drawing based on their own kinesthetic memory. The lines can remind the dancer of some movements they made. The lines may also not make sense for the dancer as the watcher's interpretation took on a different quality or created traces that were not representative. The dancer sees how they were seen through the watcher's lines. In the next part, the watcher is then asked to join the dancer for another five-minute improvisation after having looked at the drawing. Again, no other instructions are given. The dancer is not asked to repeat what they did. The watcher is not asked to recreate the drawing. The two simply enter the space together after having witnessed the traces on the paper.

The openness to the second part of this task finds underpinning in the statement: "Meaning is the temporarily emergent property of material engagement, the ongoing blending between the mental and the physical" (Malafouris 2013, 117). Using Malafouris's argument, the dancer is not trying to read any meaningful symbol out of the drawing but "meaningfully engage meaningless symbols" (ibid.). Lines do not work in the same way as symbols discussed in art—as seen in any of my practices, they are not "coded visuals" because their meaning is not stable or fixed (Forceville 2020, 146). Likewise, the drawer is not trying to create any meaningful representation of the dance. When watching, a temporary blending between the dancer's body and the watcher's pencil together creates an emergent meaning. "Meaning does not reside in the material sign; it emerges from the various parameters of its performance and usage as there are actualized in the process of engagement" (Malafouris 2013, 117). In this practice, compared to dance notation, the meaning that resides in the lines is restricted temporarily. If this drawing were to be shown to them at a later date, it would not hold the same meaning it had in the time it was created. As Johnson states, "trivial spatial logic is *not* trivial" (2007, 139). The spatial logic of the lines are not readable as symbols, but the spatio-temporal-energetic qualities of the line can be seen as "spatial and bodily logic that makes it possible for us to make sense of, and to act intelligently within, our ordinary experiences" (ibid.).

The point of these practices is to highlight how a line can be used to create an interconnected relationship between



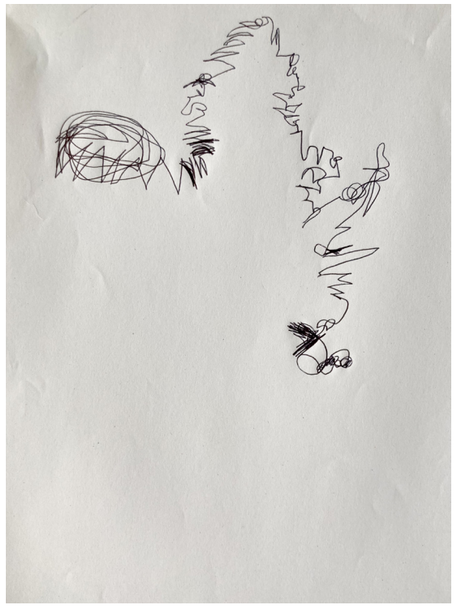
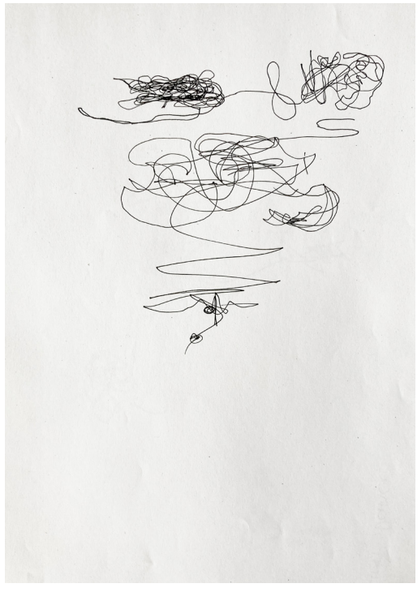


Fig. 75–76. Duet Practice. Two drawings from different people watching the same improvised dance solo.



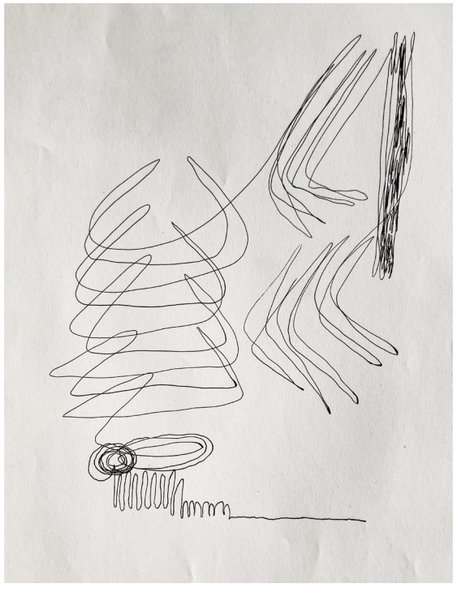


Fig. 77–78, (and 80). Duet Practice. Different examples of drawings from watchers watching an improvised dance solo.

two people, between movement and perception, that allows a process to go forward. Had the watcher not drawn, but only watched, and was then asked to join the dancer, I argue a different response and duet would take place. The drawing task gives the two participants a type of withness created through lines.

Duet Drawing Online

Lines of Experience was a course I gave, at first online and then in person, at The University of the Arts Berlin. During the online version, participants were told about the concept of vitality affects. The exercise online was organized in such a way that one person would dance while the other people traced what they saw with a pen on paper as the practice described above. Due to the nature of the class, that was introducing the concepts of lines as phenomena, participants knew and were not inclined to try and draw the person or dancer in any way to resemble a body. However, as the class was also a drop-in, there was one new student that participated for this task. This student, who had not come to previous classes, had a different take. He drew more images of what the movement reminded him of. He went into abstract drawing rather than trace making. He was not watching the dance the whole time, he acknowledged in a reflection afterwards.

Another participant commented that she used her felt sense to determine if the dancer's motions connected with each other. If they did, she realized she did not take her pen off the paper, but if a dancer was doing different movements that she felt were not connected, she noticed that she took the pen off of the paper. Movements are always connected as a person does not enter and exit their body, but the change in vitality or quality influenced whether the drawer connected movements or if they then took the pen off the paper. A change in the pen's connection to the paper was initiated by a change in the vitality performed. Having not given instructions that explicitly stated the pen should stay on or come off of the paper, this participant's own awareness determined different approaches that were structured by a felt sense of the flow between actions. In other words, did the vitality affects blend seamlessly into each other or were there stricter stopping and starting points? The feeling of starting and stopping is a stronger change in vitality.

If the drawer who is watching is attuning their gaze and hand to that of the moving body, larger dynamic changes in the dancer are seen and reflected in the pausing of the eye or hand of the drawer. This is not just a change in space, because as stated the body still carries through. It is a change in the vitality affect. The dancer moves bouncingly, then becomes casual as they change directions and spaces, and then suddenly moves awkwardly. Without considering vitality affects, one might see it as dancing with a bounce stopping to change places and then starting again dancing awkwardly. However, through the lens of dynamic forms, the casual gait, and sudden start are two additional dynamics that the body utilizes. Therefore, it is understood that the casual vitality affected the drawer to change pencil positions as that dynamic suggested a break.

These observations support the idea that we are one constant ongoing line. In regards to bodily traces, the appearance of a dotted line is only an illusion. As seen on the images of Benjamin Betts, an ongoing line represents real activity and a dotted line shows unconscious energy (Cook 1887, 18). In this way, the drawing records the perception of a change. Taking the pen off of the paper reveals the feeling of one of Betts' dotted lines—unconscious activity by the dancer. The drawing materializes something that is not permanent, objective or true, but becomes a questioned posed through the act of dancing while observed and drawing *with*.

.....

By viewing vitality affects for their linear properties, dance and creative practice can recognize that the temporal contouring of movement creates emphasis on how something is executed and on the temporary meaning of those actions. Lines allow the vitality to be examined in different sensory modes of vision, kinesthetically, and aurally that are expressed through options of drawing, gestures, and actions.



Fig. 79. Three people tracing their remembered walk at the same time as part of the Walking as Making a Line practice, Paris 2019.

Through the window (2020)

I hear the noise of a construction worker using a loud machine. The noise comes into my room, either through the window or by means of the walls vibrating. The noise takes over my room and it is hard to concentrate. Not only do I hear it, I feel it. I try to imagine what this machine looks like and think what are they doing? Usually these loud machines are chipping away at something. Digging a hole or removing layers of the walls or floors. If a caveman extends his mind into his drawings, whereby the lines drawn on rocks are substantiating his thoughts, I am left to wonder do other lines in space also extend the mind? An architect who draws lines of a building in its creation, could be argued to have left part of his mind in the drafting lines, which then become lines of the building we perceive when it is constructed. Or do the construction workers who lay bricks, like a potter spinning clay, put their thoughts into the brick and mortar of the building as they piece-by-piece lay down a wall, forming a surface with edged lines? What holds my attention now is the destruction of a wall and the sound it makes. As the worker engages with material that I cannot see, I hear his work through the sound the tool makes. If we take this noise to be a line of sound, we could argue that we hear his decisions, his effort through the continuity and melody the machine makes. The machine would make a different noise if it were simply just turned on without anyone using it. The shape of the wall, the goal of the worker, the craft of knowing how to engage the material, the mistakes, the pauses—all are managed within the sound. In the same way scholars have used the 'blind man's stick' to describe the possibility of extended mind, where the mind of the blind man extends into the stick he is using to see, which then touches the ground to feel and there, a specific border of where mind-body-environment cannot be located—we could look at the sound of a construction worker to fulfil the same idea. In this case however, the stick makes a noise that we hear. The lines of the building are being translated through the construction worker's body, and it becomes a line of sound. By translating that sound to movement in my room, I could say I am translating his thoughts. Painstakingly, I translate this horrendous noise into my body, in the same way I translate Wagner into my body, and allow the sound to become linear designs or linear traces with my moving limbs. In this way we have a double body translation, and we have physicalized some aspects of the construction worker's thoughts into my room, and made them visible by my body.

It is not really a stretch to imagine that the construction worker is in my room. The sound does exactly that. It disrupts and consumes anything I am doing, as if there was a stranger standing in the room suddenly. The experimental part is to imagine his thoughts are entangled in the sound, or the lines of the building get moved to his thoughts, back to the machine, appear as sound, that travels and can be translated into my body and re-materialized in another human form. I can also discern the difference between this sound and an ambulance that passes by, also consuming and distracting. But the ambulance's pre-recorded tone does not change based on articulation of the paramedic maneuvering the ambulance. We do not hear it change when he steps on his break for someone crossing the street, or dip in melody when he goes around a car. But there is a felt similarity between a noisy ambulance coming down your street during a dinner conversation and a construction worker starting to drill at 8am on a Saturday. There would be a message, a vitality affect, constructed in the ambulance siren, that has been agreed upon to mean something. It is not that the siren is void of meaning. Meaning can be extracted and the line of that sound could also be translated into my body if I felt like dancing it or drawing it. Here we see differences, and we must discern when is the line a transformation of a line from one domain to another, meaning to ask where is it originating? A motorcycle driving by, the hum of the engine that revs and stops and slows and speeds up is more like the construction worker than the ambulance's siren. This makes me think of the doppler effect however, where the oncoming dip and extended loud departure is an arch that is dependent on physics, rather than by manipulation of the motorcycle by the driver. Here the lines appear as waves in physics as the sound of the bike interacts with other materials, in this case air and ear (substance and measuring tools). This doppler effect is of course also married to the sound that we hear of the motorcycle that is derived from the driver's choices. I could assume that the total sound we hear is part extended mind of the driver and part physics.

Simultaneously, I hear a child's voice 'da da da, da daaaaaaaaa' come under these sounds. This melody, obviously, extends the inner thoughts and emotions of the child. Her voice box articulates a feeling, and even were it to be a robot child, or a recording of a child, the inflections in the melody highlight a joyous, carefree feeling that has meaning to me. I would translate this into my body as a whisping of wrists bouncing, with an extended pulling apart and up. We surely think of someone's voice as an extended mind. The sounds they make travel outside of their body and end up somewhere else, full of meaning and message, not contained to the inside of the child's skull.

Is the construction worker using a tool, instead of a voice box, interacting with a wall, instead of lips, moving thoughts of the architect, rather than a child, in the end doing the same thing? When organized under descriptions of lines, it becomes easier to make these connections and openings for thinking in this way. I listen differently.

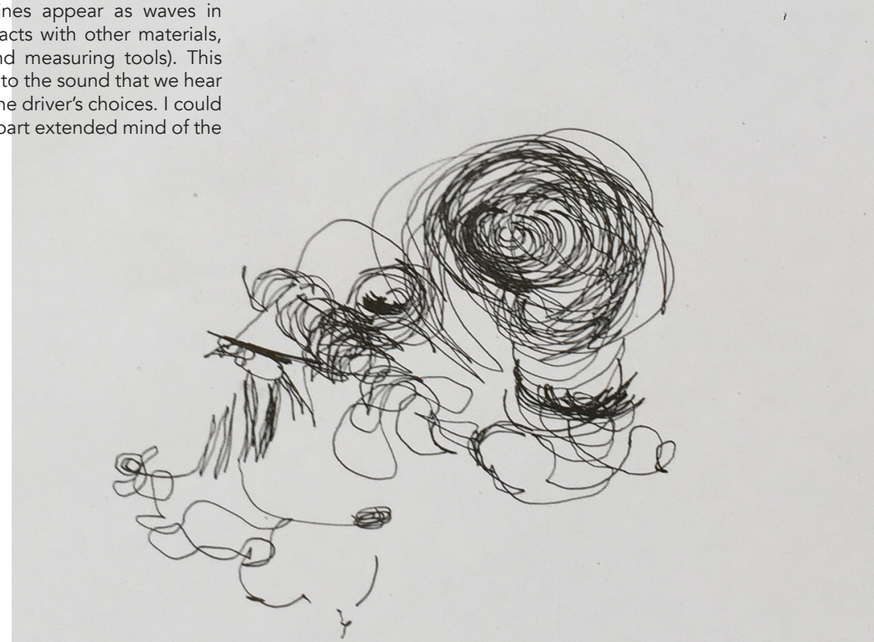


Fig. 80.

The Affordance Chapter: Flat, Rigid, Living, Adapting

Affordances are properties available in the environment that are dependent on the perceiver's capabilities, whether that perceiver is human or animal. From his writing on the ecology of perception, J. J. Gibson is regularly acknowledged for his contribution of the concept of affordances. "The *affordances* of the environment are what it *offers* the animal" (2014, 119). Affordances, when introduced, were a new way to associate meaning to things in the environment. For Gibson, "the affordances of things for an observer are specified in stimulus information. They *seem* to be perceived directly because they *are* perceived directly" (2014, 131). For more understanding, the direct words of Gibson are important to hear without interpretation:

> An important fact about the affordances of the environment is that they are in a sense objective, real, and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal, and mental. But, actually, an affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer. (ibid., 121)

Though this passage is one of the more vague descriptions from Gibson, what is addressed here in the last sentence is the environment and actor's relational nature. Ecological perception is seen as being environmentally based and as not dependent on the observer, yet in Gibson's own words he states affordances point also to the observer. In this section, I continue to introduce Gibson's understanding of affordances as well as further propositions on affordances that have come decades later. In my own research, the theory of affordances is applied as a movement practice which is also described.

1966/1979

In his book *The Senses Considered as Perceptual Systems* (1966), Gibson introduces the term affordances (285). However, it is in his book *The Ecological Approach to Visual Perception* (1979) that Gibson is most recognized for his explanations of the concept. "The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment" (Gibson 1979, 127).

Gibson calls the theory of affordances a radical hypothesis as it "implies that the 'values' and 'meanings' of things in the environment can be directly perceived", and he continues that the "values and meanings are external to the perceiver" (1979, 127). Gibson clarifies that objects are not composed of their qualities, but when looking at an object, we perceive its affordances (ibid., 134). An alternate view stemming from Gibson's second definition of affordances points toward the relational properties that arise or potentially arise between structures and animals. In this view, "affordances are defined relatives to the skills or abilities that the organism possesses" (Baggs & Chemero 2021, 2182). On one hand, he is expressing that one can 'find' the affordances in the environment as they are independent, and on the other hand, he is saying they exist in relation to the perceiver. This means stairs can afford to be climbed by an adult capable of walking, but the stairs do not afford to be climbed by a two-month-old baby until that baby learns to walk and the affordance changes for that individual. The environment is different depending on who is doing the interaction. In his argumentation for a radical embodied view of cognition, professor of philosophy and psychology Anthony Chemero proposes that affordances should not be considered as properties of objects or the environment and instead should be seen as relations (2009, 140).

For a definition of the environment, we can also pull from Gibson who says it is made up of "various things—places, surfaces, layouts, motions, events, animals, people, and artifacts that structure the light at points of observation" (2014, 59). He adds also that the subject depends on the environment but the "environment does not depend on the organism for its existence" (ibid.). When dealing with the traditional definition of affordances, this relationship must be noted, that the inanimate environment does not depend on the perceiver. As we will see later in this section, two animate beings create a different dependency concerning affordance.

Gibson explains that basic attributes like horizontal, flat, extended, or rigid afford interaction relative to the animal (1979, 127). These can be so basic that their affordance is missed when we look around our environment, scanning and attempting to understand affordances. We may more readily understand that a cup affords to be held or picked up, or a computer keyboard affords to be typed on. More basic, and what we should not forget, is that a horizontal surface affords to be walked on. A slanted ramp allows for ascending. A vertical wall can be leaned against, but one cannot sit on the vertical side of the wall. Gibson reminds us that "Geometry began with the study of the earth as abstracted by Euclid, not with the study of the axes of empty space as abstracted by Descartes. Therefore, the affording of support and the geometry of a horizontal plane are not in different realms of discourse; they are not as separate as we have supposed" (1979, 132). We must also pay attention to the object's substance; solid versus liquid and even food offer different affordances, and substances such as clay can be formed, while other substances cannot be formed or deformed (ibid., 131). In relation to substances, he also gives the example that the same shape may cover a doorway, but with one item being a glass square and another being a cloth curtain, the glass affords seeing through but not walking through and the curtain affords the opposite, to walk through but not see through (ibid., 137). Gibson, however, makes one comment I would disagree with when talking about the earth. He claims the earth only affords walking and standing, and that all the other things on earth afford all of the other behaviors (2014, 71). If the earth affords walking, it also affords jumping, crawling, laying, and rolling. When it comes to dancing, all the infinite possibilities a dancer can do while in varying degrees of jumping and moving, could also be afforded by the earth because it is always simply the solid supportive ongoing foundation under us, carrying all of our actions.

The feeling we have when experiencing the world "is the contact of our bodily state with the affordances provided by our surroundings" (Johnson 2017, 65). As Johnson expressed here, affordances give credibility not just as a psychological component but as a direct connection to how we feel as we experience the world. The feelings and movements that come from affordances can be used in creative ways. Affordances are used in this artistic research in two practices: one allows our visual perception to elicit movement and the other uses affordances of linear objects to create new metaphors. The latter will be discussed in the chapter 'Rope as a Thought'.

Affordance as a Dance Practice

Affordance theory is used as a practice in this research to elicit movement. In this practice, I look at the shape and border of an object, oscillating between our conscious awareness of the object's intended use—in Gibsonian reasoning, its meaning—as well as pausing my sense of traditional meaning to allow for atypical affordances to register. If I see a chair from a distance, I could move my body as if I were sitting in a chair, or if I see a doorknob, I could reach my arm out and make a twisting action as if I were opening a door. My actions would involve bending at the waist and twisting an extended arm. The intention is not to pantomime sitting in a chair or to convey a message that I want to open a door. A viewer watching me move may not be able to read the actions connected to specific objects because the movements may be abstracted. Those examples would be using what I call a traditional or typical affordance. In an atypical affordance, I might view the doorknob as a protrusion and make a fast-slicing action with my arm or leg as if I could easily cut the doorknob off of the door's surface. I might see a window open, and the framed space may inspire an action as if I were placing my arm in the opening but in reality, could not do so because the window is out of my reach. I might also read the window's glass as breakable and swing my head as if I were strong enough to punch through the window. These atypical affordances require looking at the objects based more on their form, size, materiality or even recognizing their normal function and going against it. We usually would not want to knock a vase off of a table but seeing the vase as a fragile object not attached to the table's surface, I argue, does elicit the knowledge that the vase's affordance is 'breakable'. We understand the meaning of the situation when we see these objects. So instead of mimicking 'putting flowers in the vase', as a dancer, I might move my hips to knock over the vase as if I were bumping the table or the vase directly. Scanning and reading the environment for typical and atypical affordances creates movement and allows the dance to unfold that is shaped by the dancer's perception of their environment. The perception of the environment is largely based on basic understanding of an object's shape and size formed by viewing the linear aspects.

The atypical affordance practice differs from Gibson's approach to affordances because the dancer is often doing things they could not do normally. A tree branch may afford the weight of a human to stand on it, but the way the dancer might interact with the perceived affordance would not be possible if they were given the actual opportunity. A dancer might move as if they were hanging from scaffolding attached to the ceiling. The scaffolding is hangable, and the dancer may be strong enough to hang, but the movement the dancer would create related to that affordance might not be within the dancer's actual strength or the scaffolding bars may be spread too far to achieve the action the dancer simulated. Both approaches to affordances in the environment as movement impetus look at the shapes of objects, and thus in fact mostly the basic lines that the shapes are comprised of and allow that to give the dancer data that engages them through movement (see fig. 03 and Appendix 2020). The dancer needs to see the object's shape, the space around it, and how that changes as they change position. Some objects surrounding the dancer could be classified as tools, which leads to more current discussions on tool use in regard to affordances.

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In Gibson's own writing, affordances are spoken about across different situations and conceptual applications. When written about by others, more commonly, affordances are investigated with regard to objects and tool use. In the essay "What is an affordance? 40 years later", the authors Osiurak et al. take another look at affordances and focus their evaluation on tool use. Affordances are "action possibilities offered by the body and those provided by tools" (Osiurak et al. 2017, 403). They define tool as an object that "amplifies the user's sensorimotor capabilities" (2017, 404). They describe complex tool use behavior as involving the use of "objects to implement transformations that convert movements of the hands into qualitatively different mechanical actions (Osiurak et al. 2017, 412). They list tool use examples such as a knife to cut or a pencil to write.

Osiurak et al. propose a different and more conservative way of looking at affordances and have developed their own categories in what they call a three action system (3AS), that assumes "that the 'cut-ability' of a knife and the 'strike-ability' of a hammer are not affordances, because they correspond to the description of what these tools provide within a tool-centered frame of reference (2017, 414). Using neuroscience studies to show that tools become an extension of bodies, they, therefore, argue that the action is no longer a behavior of someone in the environment. Since they assume affordances to be contingent on what the hand can do, and in these examples, it is what the tool can do, they have made a distinction.

Although I have found the connection between visual stimuli and hands powerful, looking through the lens of the affordance dance practice, the dancer can feel and think past their hands and engage other parts of their body into the affordances in their perception. For example, as stated previously, I may see a window, and the first affordance would be to make a gesture with my hand to imagine that I open it. However, instead, I explore other options, like imagining that I burst my knee through the window and create a movement from that perceptual response. Dancers are trained and are encouraged to use more than just their hands when simulating interacting with the affordances of an object in this practice.

For my research, the distinction between knowing if it is a hand tool, a tool-centered action, or even a simple or complex affordance, as distinguished by Osiurak et al. is not necessary because the dancer is scanning the affordances in the room in real-time and being moved by a variety of ways that come from their creative process. The tacit knowledge is brought forth from the dancer perceiving the environment in the process. It would be distracting for the dancer to define which items are tools versus hand-operated, or simple versus complex. The dancer is scanning the environment for available affordances that they personally see, responding to how those would move them, allowing their body to unfold that movement, find alternative ways to be creative with the movement or find alternative affordances and blend them through time as they move to the next moment of their visual field. The dancer is not actually interacting with the object or environment through tactile touch, so the tool-centered objects they may use to stimulate movement would be the same as non-tool objects. What is similar, however, between the scientific look at tools' affordances and the affordance dance practice is the moment the object comes into view for the perceiver.

Osiurak et al. cite Ellis and Tucker (2000) to describe the term micro-affordances to be "automatically activated when an object is seen, whatever the context and the intentions of the observer" (2017, 408). I can acknowledge this micro-affordance feeling from my engagement with this practice. The dance skill that develops in this practice is exaggerating the micro feeling to a macro action and shortening the time between the simulating actions. The dancer's vision must constantly scan for affordance options while also deciding which body part should simulate a typical or atypical affordance expression. The dancer in this practice likely becomes attuned to noticing the micro-affordances of everything in their visual field as they are seeking out ways to be moved. These micro-affordances become instrumental in the sensing process.

Lines themselves can also amplify sensorimotor capabilities by creating movement that was not there moments before. Regarding tools, Osiurak et al. explain that compatibility between the tool and the agent should be considered. For example, a skilled dancer, when approaching composer Cornelius Cardew's work *Treatise* (1967), may find that the graphic lines afford improvisation by translating the experimental abstract lines and shapes typically used as music scores into movement, but a non-dancer would likely not view the lines as an instigator of movement that expands their sensorimotor capabilities. What seems abstract at first even to dancers (or musicians) is however met with some capability; and even more so through repetition, greater ability is reached in sensing the affordances in the room or when viewing graphic lines as scores and deriving movement from them. "The boundary between the mental and the physical collapses. The line between intention and material affordance (Gibson 1979, Knappett 2004) becomes all the more difficult to draw" (Malafouris 2013, 176). Because lines form a basic element in our perception, we have an ability to make sense of them across mental and physical domains.

Osiurak et al.'s suggestion of distinguishing tools as a specific category of affordances proposes the question of whether lines are a tool in my practice. At first, I would not think of lines as a tool or similar to a tool, as the objective of a tool is not there, and the term *tool* seems prescriptive. Conversely, if lines within the practice aim to move, to sense, to be moved by, to 'read', to connect to something, to be with—then the lines, instead, could be considered a material in the same way that clay is a material to make a bowl. The clay becomes the bowl, but it is first a material in creating it, enmeshed with the hands. If the pot is the product of the clay, and the clay shapes the user's usage, meaning the clay's affordance determines how the pot is constructed, do lines function similarly between the actor and "tool"? How would this type of relationship function with the ways lines are constructed?

When we step away from the affordance dance practice and look at lines and their construction with regard to the body, we can question the line's connection to affordance in general. Does grass afford a line to be made when a person walks through the grass, creating an indentation? Do certain words like *life* or *love* shape how the line affords itself to appear as a pathway image schema where LOVE AS A JOURNEY evokes an imagined line? What would it mean for a line to be drawn that the body affords to be drawn? To approach this question more deeply, we can turn to a thought on embodiment.

Embodiment as Affordance

As the term affordance becomes more known, the concept appears in other authors' writing with different uses. Ben Spatz, an embodied practice theorist, proposes and explores embodiment as the first affordance. They describe affordance as something before the environment or material (2017, 261). Spatz defines embodiment in the sense of the first affordance as "a zone of engagement in which the sediment of relatively reliable pathways (technique) interacts with the emergence of fractally complex material potential (2017, 265). The term *embodiment* often resists a standard definition and is used to mean various things and is applied in different ways. Spatz's definition makes sense, and by itself, I agree with it. However, I would not advocate putting this embodiment before the material world. If I understand them correctly, I disagree with this idea that affordance happens before the external environment because this is another game of separating things that cannot be separated—the type of thought games Sheets-Johnstone criticizes (see 2011, 148–149).

Spatz is aware of this separation that they are proposing and acknowledges the question of why one should situate embodiment outside of the material world. They answer their question by saying that embodiment can be called the first affordance due to its relationship to ecology and technology. It sits in between and therefore becomes the primary affordance (2017, 267). I understand that their advocating to keep the body present around technology motivates their position to give space for embodiment as an affordance prior to technology. I would still not say that it is the first affordance, as in 'before environment', but it is the first in the sense that it is the immediate one that I sense and that comes to me—that is me. Though I am aware of my environment and can learn how the environment influences me through cognitive scientific theories, it is still my body that I feel first. However, as I feel this type of embodiment while standing on the ground, sitting in a chair, and holding a pencil, I cannot feel this 'firstness' by subtracting the environment. I often think many body questions get looked at as if the body is suspended in a vacuum, weightless, touching nothing. The notion that Spatz brings forth creates that out-of-environment understanding by suggesting it can exist before the material world does.

To flip what Spatz is saying, we can propose that affordances are the first zone of embodiment. By acknowledging that affordances produce a type of embodiment as we bring that stimulus into our kinesphere, we then can see that the practice I have of letting the shape of objects' affordances bring movement in my body is a way of becoming embodied by the environment. Therefore, affordance is a way for embodiment to bring perceived lines in the environment into your bodily awareness and be moved by them. In this way of thinking, we see how affordances are a means for embodied lines, to bring lines of the environment into lines of my body. Lines of the environment can also mean lines from other living beings.

Affordances in Living Beings

Though the term is typically used for objects, affordances between animals can mean a variety of things. Take, for example, an animal eating a bug. If the bug was nutritious for the animal, then it could afford to be eaten, but if the animal did not eat it because it looked like a poisonous bug, then it did not afford value for the animal. Taken from his section on other animals, Gibson describes affordances between living human beings as follows:

> The richest and most elaborate affordances of the environment are provided by other animals and, for us, other people. These are, of course, detached objects with topologically closed surfaces, but they change the shape of their surfaces while yet retaining the same fundamental shape. They move from place to place, changing the postures of their bodies, ingesting and emitting certain substances, and doing all this spontaneously, initiating their own movements, which is to say that their movements are animate. These bodies are subject to the laws of mechanics and yet not subject to the laws of mechanics, for they are not governed by these laws. They are so different from ordinary objects that infants learn almost immediately to distinguish them from plants and nonliving things. When touched they touch back, when struck they strike back; in short, they interact with the observer and with one another. Behavior affords behavior,

> and the whole subject matter of psychology and of the social sciences can be thought of as in elaboration of this basic fact. Sexual behavior, nurturing behavior, fighting behavior, cooperative behavior, economic behavior, political behavior—all depend on the perceiving of what another person or other persons afford, or sometimes on the misperceiving of it. (1979, 135)

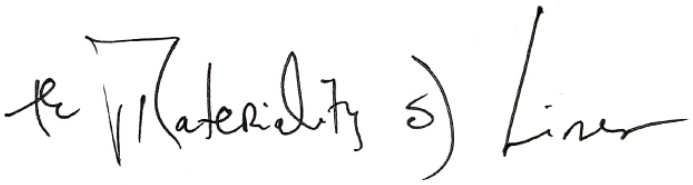
When the body is considered as part of the environment, which includes other people moving in it, Gibson points out (through the laws of the ambient optic array, introduced in the 'Edges, Boundaries and Origami' chapter) that parts of the body will be revealed and remaining parts will be concealed (1979, 136). Looking at affordances between two living beings that move, or dance becomes a place for investigation. When two people are dancing with each other, what comes into view, what limbs are hidden, or what new linear designs or traces are created, provides new and changing affordances from the dance partner. Likewise, as they move, their affordances are also changing toward the partner. The idea of applying affordances to dance first came to me during an improvisation where one dancer was moved by a partner who had their eyes closed. As multiple pairs were dancing in this arrangement, moments presented themselves where two pairs would find themselves near each other. The leader was the one with their eyes closed and could, therefore, not be responsible if they directed their partner into another dancer. Therefore, as the two dancers with eyes open were being led and manipulated, the possible affordances present within one couple and between pairs became visible. As one of the manipulated dancers, I had to read the movement capabilities of a pair approaching me and my partner leading me in order to judge if we would possibly be in a situation where bodies could collide. I could read the other couple and understand through their positions that they could not jump or perform any large actions that would strike us based on what position their body was affording. Their moving bodies in that entanglement did not afford any dangerous interactions. They could not afford jumping while lying down. In one moment, the other dancer would have run into my partner had they made a sudden action with their arm, but while watching their movements I could see that their arm's position was between the floor and their body in a way that it could not afford striking. The interaction's safety depended on the dancers who had eyes open understanding the affordances available as the situations developed.

When it comes to inanimate objects or the environment, Gibson has previously stated that the "thing" that affords is not dependent on the actor in the way that the actor is dependent on the environment. In the affordance theory dance practice, two dancers can use each other's body as affordances to create movement with each other. Though their existence, as Gibson stated, is not dependent, their movement and dance can be coupled in those moments they are affecting each other, as their sense-making that they are engaging in is dependent on each other's actions.

Cognitive scientist Michael Kimmel and social anthropologist Christian Rogler research and write about affordances in movement situations like dance, sport, and other social interactions between moving bodies. In these skillful interactions, they state: "Agents shape and are shaped by smoothly adapting to each other's ongoing actions and the environment" (2018, 196). These interactions "are drawn from spatio-temporal information such as geometry between the bodies and relative timing" (2018, 196). Their concluding summary in regard to affordances between dynamic skilled bodies is "that interactivity-based affordances are not fully definable relative to an agent or even to a summation of both agents but only relative to their dynamic entanglement, that is, the history of cross-causation and the self-organizing properties of their unique engagement" (2018, 218). When I am dancing near and with another dancer, what their body affords me spatially, or geometrically, is contingent on other dynamic factors. I may have noticed how I previously saw them moving and have a sense of their inner timing, who else is near us that can influence or disrupt our interactions, or I may notice my own proximity to them changes their actions and thus the affordances I had previously noticed.

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In the domain of perceived lines, the environment *out there in the world* cannot be looked at without considering what it affords. The materials, objects and other people in this research are looked through their linear properties as a basic approach to perceiving affordances as movement provocation. In this practice, I may see another's arm hanging and palm open with fingers slightly curled. I do not interact with the hand or fingers and the flesh that they are made of, but I notice the contour—the size, length, shape and placement of the linear design—and respond with movement. The affordances of animate and inanimate objects can be viewed in the same way—for what action potentialities they bring forth. Of course, when I do interact with another human, I am aware of my own human linear design as we are moving as the same material. Another human moves in relation, changes position and is also embodying their perception of affordances in the environment. Together, the environment and other dancers are coupled by movement through sense-making activities structured around lines.



The kinaesthetics of bodily movement uniting dance and prehistoric cave art

Lines, as simple geometric forms, have the potential for complex, multimodal realizations[1]. This can be seen in terms of human experience with linear forms: in the various ways we encounter them, lines can be perceived visually or by touch, and can be ephemerally created by the body or generated more concretely with materials. In this chapter, three contemporary movement practices of line creation through the lens of ancient cave drawings are examined. The intent with this comparison is to foster thought around the relationship between movement, line, and extended mind. First, a drawing activity is presented where movement in cities is captured by simple drawn lines and consider how this could be compared to ancient humans drawing their surroundings on cave walls. Then the examination focuses on how arbitrarily drawn lines can, when perceived, be brought into kinesthetic and kinetic expressions by dancers. Lastly, the final practice explores how dancers translate the lines of landscapes and architecture into their body.

A key element that these (and many other) movement practices have in common is the role of lines. Considering the animate nature of lines (the way they can be traced through movement) and the kinesthetic response they have on the body, contemporary dance practices can glean felt knowledge from perceived lines in space, lines of others' bodies (traces and designs), and imagined lines with felt meaning. These can find parallels to the nature of ancient rock art if we recognize the similarity these fields share in the formation of, and interpretation of, meaning through movement. Lines are a phenomenon that, when looked at as traces—memories of movement that once took place (Leyton 1992, 79)—become an organizing principle that brings distant fields like rock art and dance together. Thus, instead of approaching lines through abstract proposals like those of Deleuze and Guatarri (1988), where a 'body without organs' is desired, this chapter will engage with material culture studies—resourcing the analysis of lines from ancient cave drawings/rock art and the phenomenology involved.

Lambros Malafouris (2004), and Colin Renfrew (2004) together developed Material Engagement Theory (MET) with the intention to contribute to the theory of extended mind (as per, for example, Clark & Chalmers, 1998) and propose that cognition is discovered through the body's engagement with materials. Going a step further than embodied or embedded cognition, MET argues for a serious look at the workings between body, mind, and the material world because "once the conventional demarcations of skin and skull are removed it appears that conventional cognitive science loses the analytical purity of its object of study" (Malafouris 2013, 228). In additional to MET, the kinesthetic approach to analyzing rock art from Christopher Tilley will play a key role in this article's exploration of lines. Traditionally, rock art, encompassing colored cave drawings (see fig. 81) and rock carvings (see fig. 82) made with incisions (types referred to interchangeably within this chapter), has fundamentally been approached with the question of 'what does it mean?' (Tilley 2008, ch. 1, par. 6). Typically, the drawings consist of items such as animals like deer, horse, rhinoceros, fish; objects like boats and tools; geometric shapes; and occasionally human figures. Tilley suggests that to interpret rock art, we should not analyze it like words on canvas. Instead, "a truly phenomenological study of imagery is grounded in the kinaesthetics of bodily movement. It explores the manner in which imagery impacts on and through the body and is understood through the medium of the relationship of the body to the phenomenal world within which it is enveloped" (ibid., par. 12).

23 Originally published as: O'Connor, M. and A. Cienki. 2022. The Materiality of Lines: The kinesthetics of bodily movement uniting dance and prehistoric cave art. ***Frontiers in Communication*** Vol. 7, Article 956967. https://doi.org/10.3389/fcomm.2022.956967. As the writing is originally co-authored, the version presented here has modified the use of 'we' in order to maintain a consistent tone throughout the text, and includes other minor changes for context.



Fig. 81. Cave drawing from Lascaux II paintings, Lascaux, France.



Fig. 82. Rock carving from Gobustan National Park near Baku, Azerbaijan.

As proposed by Julian Klein (2010), scientific research and artistic research should not be distinguished as mutually exclusive categories because they both seek new knowledge. Artistic research is itself the method whereby artistic creation and theoretical reflection are inextricably linked (Klein 2018, 78). Artistic research blends theory-informed practice and practice-informed theory, often drawing on theoretical paradigms from diverse fields of study. The following practices will discuss the possibilities for how lines, as phenomena with multimodal potential, can blur the demarcations of what is mental, corporeal, and material within artistic practices. In doing so, it is proposed that lines, as concepts, take on a materiality of their own.

Drawing Linescapes

The first practice[2] to compare alongside cave drawings involves drawings consisting of lines of motion. The traces of lines that are "created by movement are not perceived or perceivable but are, through and through, imaginatively constituted phenomena. The patterns emerge in the form of imagined trajectories that a moving body draws in the process of moving" (Sheets-Johnstone 2016, 116). In this practice, the drawer uses any writing utensil, a material to draw on, usually a simple piece of paper, and finds a location to observe. Over the time frame of five to ten minutes, the drawer translates any line of movement imaginatively perceived into a line on the paper. When it comes to imagery created by drawing, Ingold proposes that "the pencil is not an image-based technology, nor is the drawing an image. It is the trace of an observational gesture that follows what is going on" (2010, 310). The paper stands for the visual field of the drawer and starts to accumulate lines whereby no distinction is made between what is being translated—a passerby, car, bird, or bicycle—all items appear simply as a line. They take on no other distinguishing element. (see figs. 83 and 84). In this way, the traces only show their spatio-temporal-energetic nature (2011, 117), to use Maxine Sheets-Johnstone's language, or the possible vitality affects (dynamic qualities of experience) of the original movements, using Daniel Stern's terms (1985, 4). The difference may reside in the quality of the line, thus the spatio-temporal-energetic gesture that translates the

24 Henk Borgdorff's definition of practice in the arts: "Art practice—both the art object and the creative process—embodies situated, tacit knowledge that can be revealed and articulated by means of experimentation and interpretation" (2007, 14)

seen line into a kinetic and material form. Ingold proposes that in the act of drawing, a pencil "does not hover but carries on its way from where the hand is now positioned, responding only to the present conditions in its vicinity rather than to any imagined future state" (2010, 301). In this practice, the hand responds to the present perception the drawer has of the landscape.

Michael Leyton, in his book *The Structure of Paintings*, credits Picasso for discovering that "sight is a creative act", and continues himself that "Sight is an active exploration and manipulation of objects" (2006, 152). In the practice described above, the drawer is visually engaged with the landscape bringing seen movement into traces on the paper through the use of the tool in real time. Anthropologist and archeologist Christopher Tilley aligns himself with Merleau-Ponty and they both state that touch and vision "involve the same sets of embodied relations between the subject and the world" (2016, ch. 1, sec. The Fleshy Image: Merleau-Ponty, par. 8). Tilley states: "we look at things in the world and become fused with them. We become part of them and they become part of us" (ibid., par. 10). Mark Paterson agrees and in his book *The Sense of Touch* gives us an example stating that, when looking for something lost, "eyes and hands explore and we realize that vision and touch are equally prehensile and kinaesthetic" (2007, 30). Paterson also directs our attention to the investigations within disability research, particularly Gabriel Farrell's book *The Story of Blindness*. In the chapter "Fingers for Eyes", Farrell quotes blind teacher and psychologist Pierre Villey: "Sight is long-distance touch, with the sensation of color added. Touch is near sight minus the sensation of colour, and with the sense of rugosity [texture] added. The two senses give us knowledge of the same order (in Farrell 1956, 93). In this sense, vision is not passive, but connects us to what we see, and brings proximity to what is often regarded as distal.

When we acknowledge that sight is a way to as-if touch material, our eyes have the capacity to take on similar engagement as our hands do. Therefore, as the drawer's eyes engage with the different movement qualities, what is seen can be translated without difficulty back into movement by our hands and left within the lines drawn. When looking at the function of the pencil drawing in this exercise, we can consider Malafouris' (2013, 154) suggestion that tools function as enactive cognitive prostheses. In extended mind theories (e.g. Clark & Chalmers 1998; Gallagher 2013), there is no demarcation for where the mind clearly stops[3]—but the engagement of cognition extends into the action and material and in this case extended into the lines and markings left. Malafouris proposes that "early markings and lines do not externalize anything but the very process of externalization" and that he "will approach mark making not as a passive representational object but as an active prosthetic perceptual means of making sense. That is, marks will be treated as enactive projections" (Malafouris 2013, 180).

By considering sight as a prosthetic tool that connects us to our surroundings, the lines of motion we see in this activity allow perception to be an important component for extended mind. Here we can draw upon the notion of mental scanning, as characterized by the cognitive linguist Ronald W. Langacker and introduced as an imagined line in the 'Embodied Lines' chapter. Describing it as "tracing a mental path" (2008, 82), he notes, "It is by means of scanning—through space in the case of objects, and through time for events—that their constitutive patches or states are integrated to create the seamless conception of their spatial or temporal extensionality" (2008, 109–110). Additionally, as proposed by MET, the pencil can be seen as a tool extending cognition into action. But even more radically, MET proclaims that we can see the lines left as externalization of sense-making and perception. Mentally scanned, imagined traces, when rendered visually, translated into drawn lines, made through gestures with a tool, capture the qualitative movement between perception, objects, and materials.

From disability studies, art, cognitive linguistics, and anthropology, a variety of fields speak of externalization through different forms of mental, visual, or physical movement as lines. The ability to easily integrate scanning as touching and drawing as perceiving in this practice, exemplifying an extended mind, can be explained by the words of Sheets-Johnstone: "The quality of our movement in drawing extends into the quality of the lines drawn, just as the quality of our movement in everyday life extends into the character of our doings" (2011, 117). The lines we make engage the quality of our character with our surroundings.

25 This proposal mirrors the Blind Man's Stick hypothesis where Bateson (1972/1987, 324) asks ,"where does the blind man's self begin? At the tip of the stick? At the handle of the stick? Or as some point halfway up the stick?"



Fig. 83. Haarlemmerstraat: walkers, bikers, cars, Amsterdam, July 2020.



Fig. 84. The Square: trams, tuk tuk, taxis, people, coins, motorcycles, birds, Sé Alfama, Lisbon, February 2022.

In Figure 84, one may try to decipher which lines would be coins being tossed versus taxis driving by, based on the spatio-temporal-energetic nature of those objects in relation to gravity and context. The size of one's own body, when viewing this image afterwards, creates a kinesthetic response in relation to the imagined movement. In Figure 83, the three types of moving objects remain indistinct due to the similarity of their drawn qualities—straight lines clustered in the same location. In both drawings, the background landscape that these moving elements operate in remains undrawn, but greatly influences the objects' movement and the drawer's perception during the creation. The negative space on the paper (what was not drawn upon) suggests by means of absence what could be there; inanimate parts of the landscape: buildings, streets, city squares. The lines that overlap also convey a passing of time, something which can be seen as providing a visual instantiation of a particular type of mental scanning that Langacker calls 'summary scanning'. He points out (2008, 83), "As we scan through a complex scene, successively attending to various facets of it, the elements apprehended at each stage are summed, or superimposed. In this way a detailed conception is progressively built up, becoming active and available as a simultaneously accessible whole for a certain span of processing time." Indeed, the drawing, by reifying this scanning, provides a material product that allows for temporally unlimited and shared accessibility to it.

In this artistic practice, we can see how lines blur the demarcations of the mental, corporeal, and material through the body's ability to move them between modes of the traced, the visualized, and the imagined. Sight, when approached as a tactile act in combination with drawing, bring vision and movement together as perceptual tools creating a feeling of fusing the body with the environment. For Ingold, the ocular itineration of joining tactile with the visual is where vision resides and is the practice of what he calls *togethering* (2010, 308). When drawing the imagined traces from movement, the vitality of the objects and subjects is felt by the drawer through the material engagement of line making. Additionally, the completed drawings themselves offer a viewer a kinesthetic engagement through the possibility of sensing their spatio-temporal-energetic nature.

Components of Cognitive Archeology

The line making practices discussed here seek to share the same approach as MET—in that marks from creative gestures are continuations of thinking in time and space (Malafouris 2021, 114). This commonality is where we find resonance with these studies, and as artistic research, seek to draw upon theoretical notions from seemingly diverse fields. However, researchers of ancient mark making (the perceived or felt difference of lines on or in a surface) (ibid., 95–96) draw upon other scientific fields of study as well. The field of cognitive archeology defines lines, and marks in general, according to certain criteria in order to determine their significance and to distinguish their relevance as forms of material engagement. Cognitive archaeology can be defined as "an approach to studying human cognitive evolution that applies theories and concepts developed in the cognitive sciences to archaeological remains of the prehistoric past" (Coolidge & Wynn 2016, 386). Four general criteria for identifying instances of mark making in archeology are: antiquity, artificiality, intentionality/deliberateness, and symbolism (Malafouris 2013, 184). Within a contemporary artistic research practice, antiquity would be irrelevant, as the distinction between contemporary marks and ancient marks is already known. Likewise, artificiality is not a relevant distinction here because all lines created here are made by the artist. Whether imagined, seen or made with the body, there is no confusion where the line comes from—they are a phenomenon brought into a present body.

The third and fourth criteria, however—that a mark is deliberate and symbolizes something demonstrative of human thought processes—are important for this discussion. Deliberateness is seen in the practices because the lines are actively translated between different domains: from imagined to drawn, drawn to kinetic, and perceived to kinetic. Lastly, the criterion of symbolism is concerned with the point that the mark is attached to meaning. In the previous and upcoming practices, what can be interpreted as the meaning of the lines resides in their spatio-temporal-energetic form, which stems from the materials being translated. Therefore, these two criteria from cognitive archeology are also applicable to use to look for traces of cognition in material engagement, via the marks and lines left behind in the artistic practices. Combining these two criteria, we will call this deliberate sense-making. Here we build on Sheets-Johnstone's notion of kinetic sense-making, which she defines as "making

meaning through movement and making sense of movement" (1999b, 170).

Let us imagine a dance floor is covered in sand (see fig. 85), for an example with a natural sand 'floor') and a dancer starts moving in the space, creating strokes and traced lines behind any of their movements that touch the floor. The traces in the sand constitute an embodied, enacted thought process left by the dancer through movement. While feeling the texture of the sand under their feet, the sand informs and influences how the person moves. Knowing the texture of sand, the dancer can be precise or careless; both qualities creating either defined or vague lines left behind. The interaction of the dancer's thinking through the body while being with the sand as material is rather easy to see. The marks left behind do not represent anything specific, but constitute the *thinking while doing*. Likewise, as Material Engagement Theory wants to posit, a person holding a tool or a drawing apparatus is doing the same thinking by doing. It is this shift away from representation that is relevant here, or as Malafouris explains; "Marks made with a pen on paper are not an ongoing external record of the contents of mental states; they are an extension of those states. Cognition and action arise together" (Malafouris 2013, 74). Ingold defines drawing as a tool of observation in that it "combines observation and description in a single gestural movement" (2010, 303). Lines become the material from which we can perceive a type of deliberate sense-making.



Fig. 85. Video still from dance film *Between Foam and Origami* (2022). A circle is seen drawn in the wet sand from the dancer's foot before it quickly disappears in the tide. Camera: Lukas Georgiou.

Turning back to cognitive archeologists, one question they look at is focused not on what the incisions in caves and rocks mean, but "what did the activity of mark making do for the ancient mind" (Malafouris 2013, 190). The lines show the maker's cognitive template, thus in that way, mark-making action and thinking are the same. Malafouris points out that studies in scribbling[4] have received little attention in archaeological research and suggests this crossover of different fields could support each other (ibid., 193). Like studies from Stamatopoulous (2011, 166), that show scribbling actions stimulate further actions and subsequently contain and express meaning, improvised dance is also a type of trace making, but involves 'scribbling' in the air, which stimulates further actions and likewise expresses meaning. In the following section, the next practice will examine doodled lines on paper (a kind of pictorial extension of scribbling) and their transfer to kinetic traces made by the body. This translation of drawn lines into movement reveals dancers' ability to find and make meaning out of what seems to be meaningless forms.

26 It is no coincidence that etymological connections can be traced for the word *scribble* and words in several Indo-European language for 'writing' (e.g. Latin *scribere*, German *schreiben*) to the Proto-Indo-European root **skribh*-, meaning 'to cut', as in to carve marks into a surface (Online Etymology Dictionary, s.v. "scribble," accessed May, 2022, https://www.etymonline.com/word/scribble#etymonline_v_22988).

Dance Doodles

In this next practice, arbitrarily drawn lines are used to create performed lines of movement by dancers. Each of five dancers were asked to draw one doodle on a separate piece of paper. The term *doodle* was used to invite the drawing of a small line that did not take up the whole page. Each dancer then privately chose an order for the five drawings. For each doodle, they translated the line drawing into their body as movement. Then they created a movement sequence that came from that order. One at a time, the dancers performed their dance of five doodles as one connected action. The other four dancers watching tried to guess the order of the doodles for that performer (see Appendix 2021, trial A and B).

In this practice, the watchers are not neutral. They are the drawers of the doodles, and even more, they are familiar with the doodles in that they too have chosen an order and put the lines into their own body. They each have a drawn relationship to one of the doodles, and a kinesthetic translation into action for all five doodles themselves. While watching the others dance, they were in fact not looking at the drawings while guessing an order. As they had translated the numbered doodles into a sequence of actions for themselves, they could use memory and self-movement translations to recognize the other dancers' actions, rather than referencing the drawings to compare. In the first run through, the correct orders guessed were inconsistent. Those who thought they knew the correct order of the dancer's line movements were not necessarily correct. Those who thought their guesses were partially accurate actually guessed perfectly. What can be noted in the first time is that the dancers were asked to just draw a line without knowing what would follow (what the experiment was). By calling it a 'doodle' this may have been why some of the drawings in the first try out were similar, as people drew what they had thought by definition a doodle was. Many of the lines looked rather similar, which would make it difficult to differentiate between them. In the second trial, repeating the exercise, the dancers already know what the experiment was. Even without seeing what others drew, or agreeing to make larger distinctions, the variety between the drawings was more diverse. Additionally, three of the drawings could be said to convey simpler proposals allowing for greater readability. Participants used more recognizable features in their drawings, like angles or curves, meeting points or symmetry. In addition, the second trial had the advantage that the participants had more practice in reading movements within this abstract exercise. They also had the insight to create more recognizable translations, knowing others will be guessing them.

What stands out however, is not how precisely the dancers were able to match the movement to the drawing, but more interestingly, the different approaches that each dancer used to translate the same lines, and the knowledge they had of other dancers' attempts to read the movements, even while their own translation was distinctly different. For example, in a discussion afterwards they stated they could recognize that their two jumps were another dancer's two claps. In this case, it should be noted it is not just the number of elements that is the same, but the similar sonar, rhythmic, temporal, and percussive aspects involved when feet hit the ground or hands clap together. This is an example of what Sheets-Johnstone means by making meaning through movement and it highlights the deliberate sense-making components that this practice shares with mark making in archaeology. The doodles hold meaning in their spatio-temporal-energetic form that can be reproduced and understood in a variety of ways (see fig. 86).

Trial B
Doodle one: A tight wavy line running vertically.
Doodle two: Two angles of the same size with an open bottom and an additional angle.
Doodle three: A circular wavy line that turns back in on itself before making a vertical drop with a horizontal bottom.
Doodle four: Two small vertical dashes.
Doodle five: Two lines crossing like an asymmetrical X.

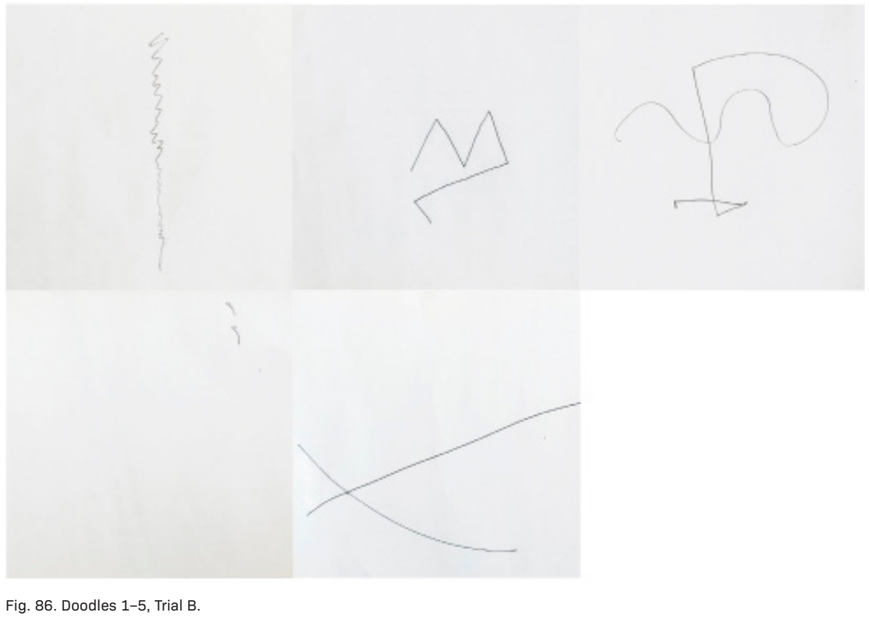


Fig. 86. Doodles 1–5, Trial B.

In the second trial, three of the dancers took the same approach to translating the first drawing of the wavy vertical line, rendering that by vibrating their body while standing in place. For the fifth drawing, one dancer ran across the diagonal of the space, ran backwards and then turned to a different corner and ran diagonally across the space again. The cross of the X was a point in the middle of the space and her body translated the X as a pathway through the room. The second dancer crawled across the floor in a straight line and then retreated back on the same line. The X was not made, but symmetry and straightness was translated. The position of the X on the paper also resembled the position in the studio space, from the audience's perspective, on the lower left side. Another translation approach from a different dancer depicted the two lines crossing by looking over each of her shoulders. This translation used eyesight as an imagined line through space and the X was crossed where her body stood. Lastly, the final dancer translated the two crossed lines by swinging each one of his arms from a raised position down and behind him. The crossing point was his hands held together from the starting position.

Tilley outlines the process of textual interpretation as follows: "A person wishing to understand a text places him or herself immediately in a dialogic situation involving a question and answer process" (2015, 117). In the translation process in the present practice, when a dancer sees lines that they have to interpret, though it is not a text of words, they need to fall into the same dialogical question and answer situation (which will be considered below using John Shotter's [2010] term, 'withness'). They have to decide what parts of the lines speak to them, what spacing, what contours— what information can they translate into movement.

In the case of our study, the lines are not symbolic or representation—they are purely abstract. Therefore, the watchers, as trained dancers, have to interpret what possible array of choices a colleague may be pulling from in order to make a conclusion about what action would pair with the drawing. By being able to recognize how the dancer was translating the line into their body, the watchers can make guesses for the order. In order to guess, they need to pull from the spatio-temporal-energetic qualities made by traces, designs and imagined lines. The nature of this experiment requires the observers to be flexible with the unfinished and ambiguous nature of the line. One doodle that was two dashes on the paper was translated as hand gestures. Rather than a symbolic approach where these lines would mean hands, the lines have an open-endedness to them, that allows a dancer to translate in a variety of ways. This requires the dancer and watcher to engage in a dialogical relationship with the intertwining meaning that the lines hold. The dancer did not translate that doodle the same way into their own body, but can recognize what another dancer was thinking with their translation, due to the effort involved, and temporal and qualitative similarities[5]. In addition, certain features like symmetry or quantity are recognizable, for example when the two lines are translated as two jumps, or two claps. The task of translating drawn dashes into a jumping action, or an auditory action from two hands coming together, should not be underestimated. "Simple line drawings can give visible shape to patterns of forces or other structural qualities" (Arnheim 1969, 135). This argues in favor of considering lines from a multimodal perspective, considering their ability to materialize as sound or actions, with timing and dynamic information that is translated with and through the body.

Tilley's (2008, ch. 1, sec. From Sensory Experience to a Kinaesthetic Perspective of Rock Art, par. 9) definition of kinesthetic is relevant here: "the study of the active effects of imagery in relation to the human body, its balance, effort, postures, and gestures". In a previous study, a short movement was performed and the dancer as well as the watcher then drew a doodle translating what was felt or seen into a drawn line. In this reversed practice (O'Connor 2023, 368–369), whether felt or seen by multiple people, all of the drawn doodles had some similarities (see Appendix 2018, 2019, 2020). This suggests commonalities in what traces are imagined as movement when watched and a general ability for people to translate those into drawn 'gestures'. Considering this reverse practice reveals a type of empathic ability to see similar imagined lines from kinetic movement, and the ability to translate those into drawings, it is not surprising that the ability to guess a doodle's translation into movement is also possible. "Meaning is derived from and through the flesh, not a cognitive precipitate of the mind without a body, or a body without organs" (Tilley 2008, ch. 1, par. 12). Thus, if we follow the view that Lakoff and Johnson (1999) characterize as 'embodied scientific realism', we can point out that the people in both practices have the same body and its capabilities that they can draw upon for reference when they are imagining lines, and translations of lines to actions. Turning back to Sheets-Johnstone, she explains this is possible because we are aware of the shapes of our bodies through joint angularity created through imagined lines, as well as imagined lines that appear as traces, e.g., when we reach for a book—"What are imaginatively constituted in all instances are *lines*" (2016, 116).

Studying the translations that are possible from line drawings to embodied movements and back again illustrates the same approach Tilley proposes for analyzing rock art: "The body both limits and constrains, and enables us to perceive and react to imagery in specific embodied ways" (2008, ch. 1, par. 8). Ingold explains that "following materials and copying gestures both call for observation" (2010, 308). He states that these activities require "an intimate coupling of the movement of the observer's attention with currents of activity in the environment (ibid.). He argues that one does not observe passively from a distance, but instead one participates within the process of the production of drawn lines, and when watching graphic lines, one is "reunited" with the "inked traces" (ibid.).

Moved by Materials: Tracing Contours in Space

In the last practice discussed here, lines, body, and materials take on a different composition. Compared to the first exercise where traces of movement were perceived (and imagined) in space and translated into a drawn line, or the second exercise where drawn lines were brought into traced lines of the body, in this practice, lines already existing in architecture or landscapes are only traced and brought into movement of the dancers' bodies. Whereas in the first practice, we could discuss whether the drawn lines have some symbolic status, as they leave

27 Mirror neuron studies in monkeys have looked at and debated the ability one has to understand the actions of others from inside, even when one has not done or cannot do the action themselves (Rizzolatti & Sinigaglia, 2010, 260). These studies have also proposed that understanding the "motor behaviour of others might require a mechanism different from mirroring" (ibid.). Differences in recognizing others' motor actions versus motor intentions also opens up questions about which mechanisms in the brain are required. If these doodle practices require more than mirroring mechanisms, no neurophysiological data can explain how the 'mentalizing network' might work" (ibid., 271).

a perceived trace that stays after the initial action has happened in the environment, and in the second practice we could equate some desire to seek symbolism with the fact that, in the practice, viewers were searching for iconic features between the drawings and the performed interpretations, the third practice here bypasses the question of sign or symbol in the creation of lines. Lines perceived in landscapes or architectural components are brought into the body of the dancer by tracing the lines with parts of their body. Tracing used here is similar to the tracing mode of presentation used in gesture studies where the shape or path of an object is drawn as if tracing its contour (Müller 2014, 1691). The lines created by tracing the perceived lines do not stand for anything other than 'captures' of the mental and/or visual scanning involved, but aligning with the proposal of MET, they aim to substantiate the material and concept the body is engaging with. In a way, this practice is similar to the first, but the lines here are visually perceived instead of imagined from movement traces, and the tracing happens without a pen and paper. The similarity of this practice to the second practice is that the dancer is also bringing visible lines into their body as movement, but the tracing practice does not require interpretation, but aims for copying the contours of the lines as tracing actions.

As MET hypothesizes, prehistoric humans, using their own kinesthetic sense, engaged with materials to substantiate concepts of deer, boats, and fish etc. in the process of creating cave art. We could say that the drawer was also *moved* by these objects (in both literal and figurative senses), and through movement, united their own gesture with materials to create lines on cave walls, allowing their expression to be surrogates for their emotional and mental activities.

Malafouris (2008/2014) uses the potter and clay as another example to understand how material, action, and cognition work together. Malafouris acknowledges the potter's sensorimotor attunement to the clay's affordances by means of visual-haptic engagement, with 'affordances' here referring to any action possibility formed by the relationship between any property of the physical environment and an organism (Gibson 1979, 127), as introduced previously. The dance practiced in the current study proposes the same material engagement is happening through lines but without tactile engagement. The dancers themselves engage with materials, but instead of holding materials in their hands to create lines, the lines of material are already embedded in the walls, architecture and even other dancer's bodies around them. The dancers are not touching the buildings or materials they see, but they allow the affordances and perceived vitality affects created by the lines to literally move them, through traces and responses. When we remember that vision itself can be considered a type of touch and connection, and that the architectural lines are brought into gestures through an act of tracing, this coupling of action and perception could be also considered a type of material engagement.

Instead of a person using a gesture to place a line on the wall in the act of drawing a horse or deer, a dancer traces the lines they see already in the environment. In both instances, the human engages with the lines, bringing forth or activating the conceptual elements the lines hold. When scanning the environment for lines during the practice, it is the different kinds of lines, textures, and vitality affects associated with those lines, that then bring movements into the dancer's body. The gestures and movement express what the dancer is perceiving, using lines to foster movement and substantiate their own subjectivity through the engagement of material and lines. The improvisation the dancers create is based on their individual perception. How and what they see in the space takes on different forms in their body. By bringing the lines of space into themselves, they substantiate—in other words: bring meaning to—the intertwinement of action, perception, material and body. The meaning that is involved here is the kind Mark Johnson's describes as concerning "the character and significance of a person's interactions with their environments" (2007, 10). Embodied meaning for Johnson is about ongoing experiences and how things relate and connect to other things. In Figures 87–89, each dancer reveals their own perception of the same architecture by means of different interactions with the lines seen in the environment.

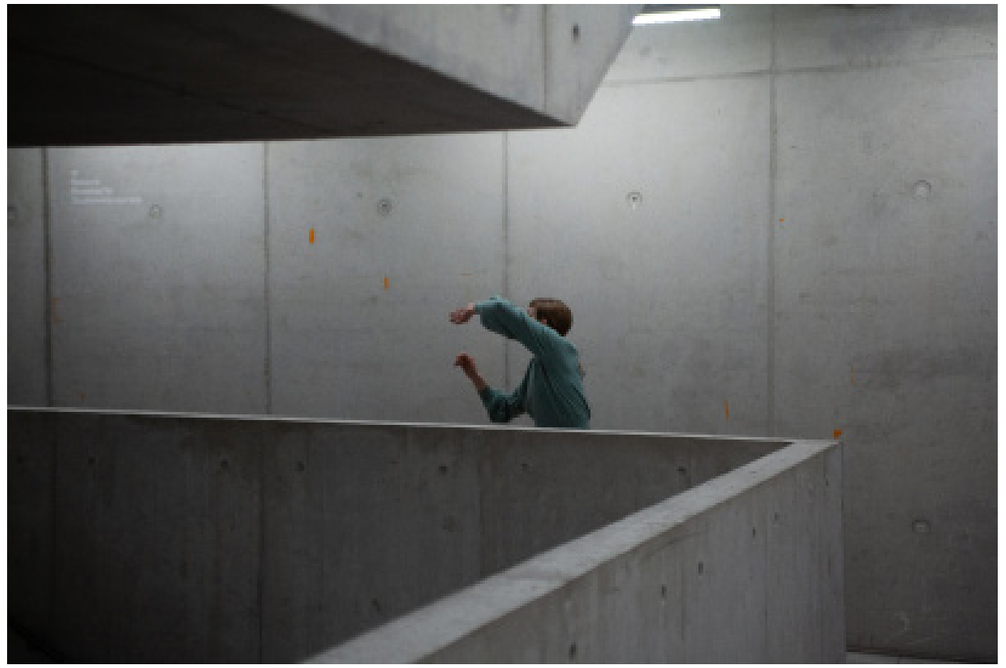
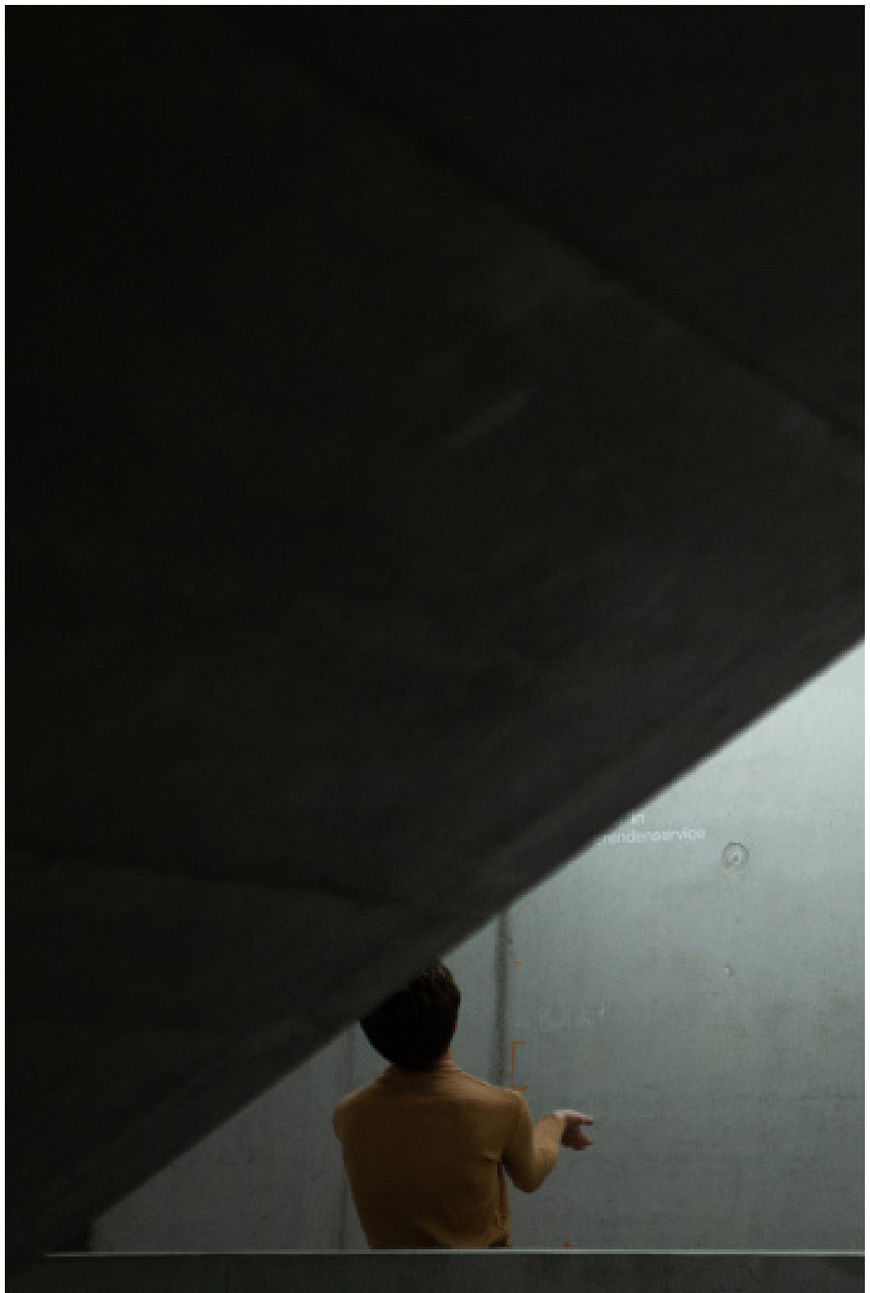


Fig. 87. Sophia Obermeyer tracing lines in architecture as a dance practice. Berlin 2021. Photo: Niels Weijer.

Lines as a phenomenon do not inherently constitute a codified semiotic system, nor do they necessarily rely on other signs for their forms or meanings. Tilley, as well as MET, also questions the reflective approach to interpreting ancient line drawings in the attempt to propose that cognition extends into materials. "Meaning does not just reflect; it is also produced, contrived. In other words, meaning arises from operations performed on things" (Tilley 2015, 126). In the dance practice, one dancer explained her position. She noticed that one dancer may have been translating a line of color on a wall as a linear movement in their body. Another dancer then used that dancer's body as an affordance[6] to incite movement in themselves. Lastly, she then used the second dancer as material that she could trace. She summarized the situation as, "I am translating the body of someone translating someone else's interpretation of grey." The meaning exacted in this description exemplifies what Tilley is highlighting—that meaning is not passive and reflective, but through the performance of these dancers interacting and their awareness of each other, this unique moment of situated understanding prevails. As the third dancer, she is aware she may be holding the color of the wall that is extended through the body of two other dancers by her deliberate engagement. The meaning of color, in this case, extends through the materiality of multiple people creating lines. Returning to think about this in relation to ancient cave drawings, Malafouris points out that we could surmise how over time they took on symbolic functions (2013, 193) due to the original embodied kinesthetic actions needed to create them. As dance is an embodied kinesthetic action, the main difference between dance and cave drawing lies in whether the gestures made leave perceived permanent lines, as with drawn figures, or imagined temporal lines, as with dance.

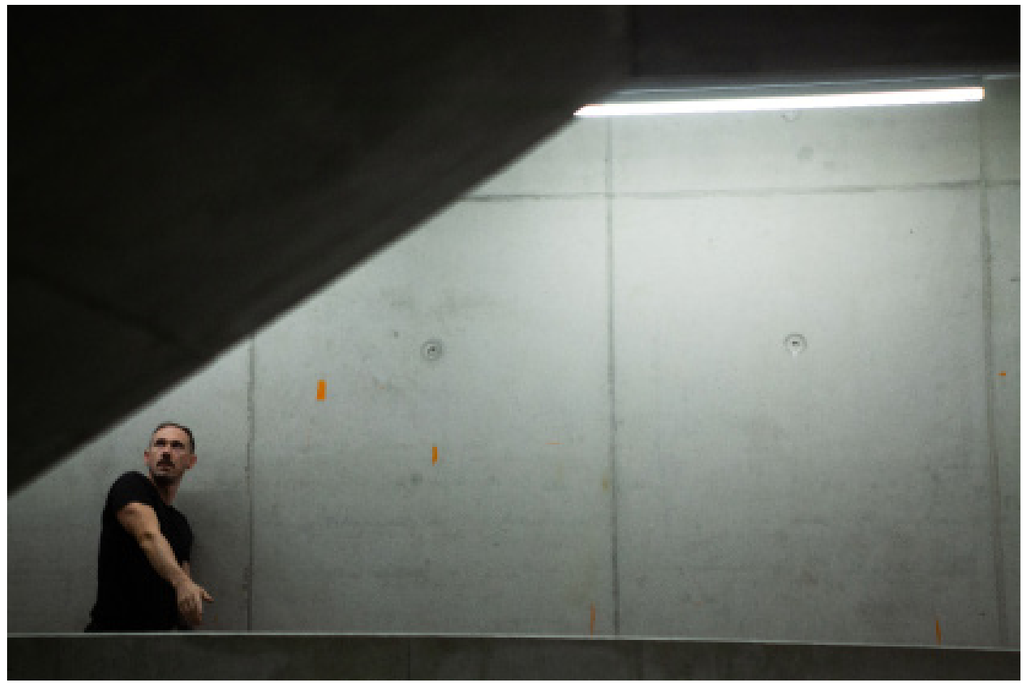
28 Affordances, in the Gibsonian definition as it relates to interactions between humans, are the behaviors and possible interactions that another person affords (Gibson 1979, 135).

Fig. 88. Samuel Feldhandler tracing lines in architecture as a dance practice. Berlin 2021. Photo: Niels Weijer.



In the dance practice, the dancers bring the lines they see around them into their body by using different parts of their body to trace proximal, distal, large, or small lines. Through their movement, their perception of the space also changes. Compared to the creation of the rock art that Malafouris discusses, Tilley explains throughout his writing that engaging with rock art, be it cave drawings or rock carvings, also requires movement; one must move across landscapes and situate oneself in certain positions in relation to the images while standing on the very rocks themselves. "All perceptive experience has a bodily basis in movement through and exploration of the landscape, as the site of all the sense organs and the brain, and as a sense organ in itself with the skin as its boundary" (Tilley 2008, ch. 1, sec. from Sensory experience to a kinaesthetic perspective on rock art, par. 4). Tilley explains that the dynamic interconnection between kineasthetic and sensory experience connects the perceiver to the environment they are in, changing them. "The landscape provides a rich and structured sensory domain through which the body moves and thinks, and the manner in which this movement and thought take place is fundamentally influenced by their particular material characteristics" (ibid., par. 7). Like the prehistoric cave drawer and the archaeologist investigating, the dancer is the line creator and simultaneously the perceiver, moving through the landscape's surface, observing as they create. The relationship the dancers have to the lines in the architecture are not like relating to art hanging on a wall, but like Tilley brings our awareness to when viewing rock art, the dancers are also on and in what they are perceiving.

Fig. 89. Michael O'Connor tracing lines in architecture as a dance practice. Berlin 2021. Photo: Niels Weijer.



Signature: Becoming One with the Line

In the 'reading' of cave drawings and rock carvings, the lines marked to account for elk, people, boats and fish, had been traditionally deciphered as if they were a text (Malafouris 2013, 91). Tilley and MET approach rock art differently. Tilley proposes the body in motion is a necessary element in reading rock art and MET proposes the rock art should not be seen as representational signs to begin with.

"A kinesthetic approach" says Tilley, "is one that attempts to restore the power of imagery in relation to human agency. Images are fundamental in society not because they can be verbally described as meaning this or representing that, but because they require different forms of bodily actions in order to encounter and experience them. Experiencing the image through our bodies is powerful because these images alter us in subtle ways that may require no talk of their meaning" (2008, ch. 1, sec. Images in the Landscape, par. 6). Here Tilley brings our attention to the idea that the importance of imagery is not what it stands for, but that the experience of the body when interacting with them is meaningful in itself, and that this space of interaction moves us in ways we are not able to articulate with words. He continues, "So the significance of the image is not primarily what it stands for, or seeks to represent, but the event of its bodily experience" (ibid.). Malafouris agrees: "Material signs do not represent; they enact. They do not stand for reality; they bring forth reality" (2013, 118). For this reason, MET sees external representations not as a starting point of investigation but as an ending (Iliopoulos 2019, 50). The act itself makes the experience important. In prioritizing the drawing of a line as an act of improvisation, Ingold states: "A graphic anthropology, then, would aim not at a complete description of what is already there, or has already come to pass, but at joining together with persons and other things in the movements of their formation" (2010, 304). Ingold defines drawing as a tool of observation in that it "combines observation and description in a single gestural movement" (ibid., 303).

Phenomenologist Sheets-Johnstone also directs our attention again to the moving body's importance in the development of signs and language: "When we frame the inquiry 'how did human languages originate' in terms not of adaptations but of living bodies, we are necessarily confronted with the creation of meaning, a creation that did not arise *de novo* but that was grounded in an already present semantic repertoire, itself grounded in archetypal corporeal-kinetic forms and relations, as suggested, follow along biological Family lines, i.e., for hominids, along primatological lines" (2009b, 234). What she is addressing here reminds us, when thinking of how we as humans developed and learned language and meaning, not only within our own individual development, but as a species, the prelinguistic movement and experience went hand in hand with the growing thoughts and then came to be expressed in language systems.

Following on the proposals from Tilley, MET, and Sheets-Johnstone, if lines in rock art are not approached for their symbolic reference, the abstract lines seen in these different creative practices are not themselves after-the-fact signs of reflection either. Instead, as argued, these creative practices aim to place importance on the materiality of the line as an act of extended cognition. The lines' potential for multimodal interpretation in terms of their movement characteristics (either the movement required to create them or the movement they inspire in the viewer) allow them to be meaningful. In the act of using cognitive archelogy to compare the use of lines as deliberate-sensemaking tools in dance, the concept of *signature* comes to mind as a more applicable term than that of *sign*. Whereas a line drawing of a rhinoceros provides a representation that is sufficiently iconic as to allow one to link it to the actual animal, drawn lines from cars moving in landscapes or ephemeral lines of the body tracing cracks in the cement of a building do not bring the original object into focus in the same way, but rather only the dynamic qualities and contours from those lines themselves. In this way, lines bring focus to the movement within the perception of the referent object and this brings us to why the term *signature* is offered here in exchange for *sign*.

A signature marks a personal, distinctly unique, situated time and place for one subject. It is recognizable by the line's movement characteristics and even is expected to be different each time. For these reasons, a signature varies greatly from a sign, as it gestures toward a movement of sense-making of identity and location. A signature extends the individual thoughts as traced lines into the world as movement. "To bring forth a world means to enact dimensions of meaning and significance through the living body in action and through multiple kinds of physiological, sensorimotor, and interpersonal couplings. The mind is what occurs in these enactments and [is] not what goes on in the head" (Di Paolo et al. 2018, 17). Here we find a question from Ingold (2010, 300) appropriate: "What if the living being *is* the line of its own movement?" A signature is a sign in motion connected to the internal/external world of one person.

A person's signature (in the traditional sense of the word as well as the way we are using it here) is also directly related to one's body. Thoughts from Bergson on the body relevant to this are referred to by Tilley: "As my body moves in space, all the other images vary, while that image, my body, remains invariable. I must, therefore, make it a centre, to which I refer all the other images. My belief in an external world does not come from, cannot come, from the fact that I project outside myself sensations that are unextended…. *My body* is that which stands out at the centre of these perceptions: *my personality* is the being to which these actions must be referred" (Bergson 1991, 46–47). Tilley explains that, for Bergson, the moving body and personality are indistinct from each other in that they are the person (Tilley 2008, ch. 1, sec. Body, Image and Memeory in Bergson, par. 3). If we think of the moving body as an act of *signaturing*, we can also make correlations to one's personal way of moving as the center of their perception. "Cognition is not about transposing a world of predefined significance into the inside of an agent. It is about agents moving within the world and singly or collectively changing it in ways that are significant according to the forms of life they enact" (Di Paolo et al. 2018, 21). The act of signaturing can be seen as a form of deliberate sense-making—a making sense of lines as movement and the intertwined materiality of body, cognition, and world.

By bringing focus to the enactive creation of the line making, and the kinesthetic movement involved in perceiving lines, we can see the relevance in the term *signature* in order to put focus on meaning that originates from the engagement. "Meaning does not reside in the material sign; it emerges from the various parameters of its performance and usage as there are actualized in the process of engagement." (Malafouris 2013, 117). MET acknowledges that a material sign can be both a signifier in itself and simultaneously a signified representation of something else (ibid., 17). Due to this double nature of material signs, the shift toward the term signature also brings together the maker and the traces left when focusing specifically on the materiality of lines. The act of signaturing is then thought to bring individual meaning through the proposition of extended mind to the lines that are drawn. What seems like meaningless lines, can therefore be given importance when we focus on the actions involved in their material creation. "In the case of material signs, we do not read meaningful symbols; we meaningfully engage meaningless symbols" (ibid., 117). In this way, the materiality of lines in this practice maintains a scope of ambiguity over iconicity: only the spatio-temporal-energetic meaning related to the lines is intended to be conveyed in the practice, rather than iconic forms for the purpose of communicating what the referent object is. Therefore, let us look at the element of ambiguity within the context of linear engagement within artistic practices through the lens of material culture.

Ambiguity: Landscape to Mindscape

The field of material culture studies proposes that an artefact may be ambiguous in its meaning because it relays a variety of information, often layered and contradictory, through the same media (Tilley 2002b, 28). From the perspective of visual thinking, Rudolf Arnheim draws our attention to meaning made through experiential associations. "Remember the old laws of association: items will become connected when they have frequently appeared together; or when they resemble each other" (Arnheim 1969, 54). He goes on to say things that "resemble each other are tied together in vision" specifically (ibid., 55).

Tilley proposes that images of different concepts resemble each other, or look the same on purpose in cave art, to create ambiguity. The ambiguity is thought to be used to link things together (Tilley 2015, 144). In the

drawings, "Many of the boat depictions resemble water birds" (Tilley 2015, 76). Tilley also points out that the removal of the elk's legs transforms it into a boat. "Such ambiguity, it might be suggested, is not just the result of incomplete preservation or of a technically inept artisan but is intended to forge connections and links" (ibid., 77). Neuroscientist Semir Zeki studies the neurobiological foundations of ambiguity and explains that the brain's organizational structure makes possible the ability to see things with multiple interpretations and that this attribute makes ambiguity for the visual brain a stable feature (2004, 187).

In viewing these links, "Visual perception, […], is not a passive recording of stimulus material but an active concern of the mind" (Arnheim 1969, 37). We could also say it is an active concern of the body, as the eyes move, the breath and body engage in a whole kinesthetic response, as Tilley has drawn our attention to. Malafouris sees perception as a mode of probing the outside world rather than representing it and thus the cave drawings are continuous prosthetics of this probing mechanism which extend the visual brain (2013, 203). Perception is not discovering things already there—it is about being present and aware in the very moment of formation itself (Ingold 2022).

Instead, the articulation of ambiguous lines is an attempt to bring like-minded things (in the thoughts of the one drawing or dancing) together. I propose (2022) that the ambiguity of lines allows for a type of *withness* (Shotter 2005, 2006, 2010) between the mind, body, and environment, allowing us to consider the mind as extended. Shotter defines withness as our ability to "think along with subsidiary awareness of certain felt experiences as they occur to us from within our engaged involvement in a particular unfolding process and […] these inner feelings play a crucial role in guiding our actions" (2006, 586). As cognitive archelogy suggests, lines with indistinct references do not necessarily appear because the agent could not articulate better what they meant, or what they wanted to express. As Zeki shows us, ambiguity is a natural part of human experience. Shotter proposes, when we experience things we do not fully understand, we have the opportunity to orientate ourselves around yet-named "things" and we should move "to *sensings of likeness* that can be meant and understood as one-and-the-same in countless different circumstances (2015, 234). Shotter points out that we "continually ignore the original openness and unfinishedness of world processes" when we seek out determined things with the mindset that they just need to be discovered. (2016, 37). Rather than approaching lines that we make as some problem to solve, we take Shotter's suggestion in that "we are seeking to resolve what we at first encounter as an indeterminate, ambiguous, or bewildering situation by our active inquiries within it—conducted in the course of our living, engaged, attentive movements within it" (ibid., 79). Respectively, Ingold describes these moments as "coupling our own movements of description with our observations of what is going on in the world, which are, in turn, necessarily coupled—through the participatory act of togethering—with the trajectories of those with whom, or with which, we join" (2010, 304).

How this can be understood within the practices here, is that the practitioner should not try to be creative, nor try to execute a goal, a specific movement, nor aim for bringing oneself to a certain after-the-fact thought-out ideal situation. Instead, the practitioners engaged in these tasks should allow the perception to be indeterminate such that their actions can forge ambiguous connections with the material environment. Zeki relates the relationship of ambiguity to unfinishedness as a strength in art work, allowing works to be open for different interpretations (2004, 190). If we consider lines as something that moves, then the very nature of lines in architecture conjure movement when viewing them. By translating those lines into movement made by the body, we give the opportunity for our movement to make sense because of proximity and relational similarity. "Meanings resulting from relations between events and dynamic happenings are contingent on movement" (Sheets-Johnstone 2009b, 169). It is the deliberate sense-making, or (what can now be called) signaturing one does when generating lines in these practices that, like the similarities between figures in rock art, bring meaning between the ambiguity within lines.

Malafouris invites us to see that while the "toolmaker brings forth the possibility of a new form of tactile thinking, the image maker brings forth the possibility of a new form of visual thinking (2013, 203). With this

approach, we can see that the dancer, using their body as a tool to make kinetic images, either drawn or through gestures, brings forth a *visual-tactile way of thinking*. Thus, if in these practices, the body is attuned with the lines in the space around them, the thinking is taking place with the material. The lines are the material in which the dancer is engaged. Further, as Arnheim proposes: "Thoughts need shape, and shape must be derived from some medium" (Arnheim 1969, 226). In continued questioning of what the medium shaping thoughts is, if we consider the moving body, which makes temporal lines, to be *thinking as an extended mind through its engagement with linear materials*, the medium, the materiality of thinking, is also lines. As Arnheim (1969, 27) asks, "What are the mental shapes of thoughts[?]", we would not go further in finding what the shapes are, but rather we can consider what all shapes are made of, and for this we can say: lines. The shape of our thoughts can be seen in the shape of the lines we produce.

Possible Beginnings

Looking at the lines of dance practices in the way we look at ancient rock art involves not only a metaphoric logic, mapping thinking about the latter onto the former: the kinesthetic approach to rock art proposed by Tilley brings movement-based meaning as a crucial element to this field, opening the door to dialogue with dance as artistic research. These fields of inquiry find a common ground in that "The counterpart to linguistic metaphor is material metaphor, metaphorical *material* relations between things, or aspects of a thing" (Tilley 2008, ch. 1, sec. Kinaesthetics and phenomenological semiotics, par. 9).

Malafouris states archeology has yet to reach a consensus on how to answer the question of how modern symbolically competent humans came to be. Perhaps dance research cannot answer how we came to be, but can demonstrate, in real time, the multifacetedness of our ability to move, perceive, and think in lines, which enacts remnants of our ancient cognitive processes. But whereas in cave drawing, there is a tool, a tool maker, and the tool users, in dance, to say the body is the tool and the dancer is the tool user is inappropriate, because it separates the body from the dancer. The body and movement combine to become the material.

Tilley proposes that a new method of analysis is needed in order to rethink the semiotics of rock art. The method he promotes explores understanding the rock art by placing emphasis on what the rock art *does* to the body. This kineasthetic method that Tilley seeks is comparable with the approach in the practices described here because, as seen in the argument we have presented from Tilley, the images produce sensory effects on the bodies of those who perceive them and one does not have to know what they might represent. However, Tilley also incongruously claims that a kineastehetic approach to rock art without reference to meaning "would be deeply and unacceptably reductive since we would learn rather little about the specific form and nature of the images themselves" (2008 ch. 1, sec. Kinaesthetics and a phenomenological semiotics, par. 2).

Being moved by the images in the artistic practices here *is* the active product itself. In these works, describing the lines substantiates those materials and concepts on a visceral level, and the understanding is placed only in that particular moment. In contrast to the idea that "thinking takes place through the syntactic arrangement of symbolic representations, MET must rely on a model of cognition wherein new thoughts emerge through a dynamical engagement between the human mind and the material world (Iliopoulos 2019, 44). As the present practices are intended to investigate movement generated by perception of lines for artistic purposes, what the environment *does* to the body and how that reveals the dancer's temporal and situated perceptions is what is looked at and is what differs from rock art analysis. The significance is the signature it creates with the individual who is moved. By sensing, and attempting to notice, as a means of describing without words the dynamics of the lines that we can access, and how they move in and through our body, we gain the opportunity to understand a situation in the terms of the situation that we are part of. We need to be able to assess and access how we are involved, and to do so in an ongoing way from within, as Shotter requests (2016a, 82). Ingold proposes that doing, observing and describing can be joined together in the acts of "following the materials, to copy the gestures, and to draw the lines" (2010, 304). Only then, from this point, where we are moved by the materials through our own

linear engagement, can we move towards a different way of making sense with objects, materials, and landscapes. Through the perspective of material engagement and extended mind we can understand city landscapes through the lines of drawn gestures, and we can *make sense with* a building by translating its lines appearing as cracked cement, structural beams, and designed edges.

Material Engagement Theory wants to go against the view that a person has a closed off mind inside a skull, chooses to pick up a tool (disconnected from their own body), creates a line or mark somewhere out in space, and then the residue of that trace is something to be interpreted. This piece-meal approach to disjoined parts in time is for some easier to understand, but similar to Karen Barad's notion of intra-action[7] (2007, 33), we are making what Malafouris calls, "category mistakes" by thinking we can isolate minds, body, and things (2013, 208). This is where dance, providing a trace in space, can be used functionally to offer a comparison with rock and cave art, to show how mind, body, and material unite. Dancing as line making uses the body as material, where cognition and body unite in motion and may leave subtle traces on surfaces or imagined ambiguous traces in space. Having put a tool in someone's hand, they can use the same gestures and movements that then create lines that only differ from movements with empty hands in that the line making with the tool has a more permanent or more visible result. Lines are seen here for their ability to intertwine cognition and material culture. Malafouris proposes they should not be seen as boundaries that separate (2013, 201), but instead as the practices here have shown: as having a nature that slides between modes of expression and perception, creating a type of materiality of experience.

29 Karen Barad defines intra-actions as agencies that emerge through relational mutual entanglements. "It is through specific agential intra-actions that the boundaries and properties of the components of phenomena become determinate and that particular concepts (that is, particular material articulations of the world) become meaningful" (2007, 139).

temporary and before-the-fact

It may be difficult to discern if our ways of responding to situations are construed from past experiences or are from the temporary and situated parts in front of us. Shotter describes the difference between ways of thinking. He states we need to distinguish "between the thinking that we as adult thinkers ***do*** deliberately and know of ourselves as doing, and the thinking that ***just happens within us***" (2016a, 73). The thinking that just happens within us may be the heightened type of responding I mean to describe, when the intuitive, tacit, connected, embodied engagement of lines is attuned with its surroundings. In contrast, the activities done deliberately would be the forms already brought from a different circumstance and re-used in this circumstance hoping to have similar effects. Shotter calls this already known knowledge 'aboutness'—the opposite of withness. He states, "I have called 'aboutness'-thinking that functions in terms of features and properties, we need here to practice 'withness'-thinking, a way of thinking in which we permit, allow, or invite the ***unfolding time-contours*** of our experiences to shape our expressive activities" (Shotter 2016b, 107). As stated in the previous 'Withness' section however, it is a goal of Shotter to bring the withness doings back in a deliberate manner, to replace the deliberate about-ness thinking that we get attached to.

A question arises: if the research here aims to highlight the temporary knowledge created in the moment, that is truly before-the-fact contained, how do we look at the documentation aspects of this research? Shotter addresses this circumstance, stating: "while the after-the-fact use of concepts aimed at ***explaining*** our everyday affairs would seem to be misplaced in, there is still a before-the-fact use for them in a ***descriptive*** role—their use would be to direct our attention towards crucial features of our everyday circumstances that we might otherwise not notice, features that we are in fact being ***responsive to,*** without our being aware of the fact" (2016a, 77). Therefore, this section on withness reminds us that the chapters are to be seen for their descriptions of the temporary, responsive, before-the-fact understandings.

Withness is an action, and it is in this action we find the temporary and the attempt to orient our actions toward something. Shotter notes that we tend to see "spatial 'things', that can have 'boundaries' and exhibit a ***self-contained*** existence, and temporal 'things' that are always 'unbounded', 'unfinished', 'incomplete', and thus open to further development — but on occasions, we can place temporary, temporal boundaries around them" (Shotter 2016b, 147). He goes on to give the example from Ingold: a drawing of a line into a circle, as a temporary action that has a sense of bounded wholeness momentarily (ibid.). I would also note, spatial things that are bound can also become temporal when given enough time. Spatial things that seem defined can be made temporary and open when we view them through a different temporal frame.

Shotter interprets Wittgenstein, in summary, to be saying that we should focus on those moments where we simply "'go on' with each other in spontaneous, unthinking, unproblematic fashion" (Shotter 1996, 399–400). Though he, but not always, often references language and the language games of Wittgenstein in these proposals, in the urges or impulses people have to say something, the embodied relational knowing of gestures, actions, and non-verbal communication are also included. And there is where I include creativity when it's a responsive act of relational activity. Shotter gives examples of moving furniture, negotiations within sports, and walking around people on the street as activities with no external rules (1996, 401). Knowing how to go on in practice, to describe a line, in its relationality, is to see something metaphorically that, in its articulation, is an act of sense-making and thus a form of a withness encounter between environment and movement, where body and mind meet with material.

Lastly, we can of course be shaped by both the current situation as well as our previous embodied experiences (Shotter 2011, 448). Relating back to our understanding of the intra-active practices we have done that have shaped our current circumstances, our current ability to sense what we notice and are part of is co-constructed from previously drawn lines and descriptions. Shotter argues, "what we must observe/sense in our explorations are not 'things' or 'events' out in the world, but the intra-related ***felt*** differences/distinctions that their occurrence occasions in us" (2014, 602). Withness is to be caught by the present making of lines while understanding their relation to the ***just immediately passed*** and the timeworn actions that are not currently perceivable but that affect our way of moving forward.

Lines of Experience



Lines of Experience is a documentary that introduces each individual practice in the dialogical dance practice alongside interviews from the dancers describing their engagement with the practice(s). A cameraperson and small crew were invited to document the practice that was arranged to take place in different locations within one building in November of 2021. This practice is also used by the dancers in the films *Linear Engagement, the Occluding edge*, and *Between Foam and Origami.* The footage shot on that day captured *Linear Engagement*, which was shot in one take, and in contrast, *the Occluding edge*, which was heavily edited afterwards. *Between Foam and Origami* is a composite of just a few short takes that were all filmed within thirty minutes.

As the research is in the body, there is no denying the camera in these films attempts to capture the dancers' lines. But the camera also captures the lines of the environment, and a human itself operates a camera, who is also improvising. Choices are made in the moment, therefore choreographed, pre-planned decisions between camera and dancer are foregone in all of the films.

In *Linear Engagement* and *Between Foam and Origami* the camera enters around a corner. Though the stylized 'around the corner' camera work could be considered a troupe or gimmick, we can note that it communicates openness—no specific beginning of a movement. The dance is in process, and there is nothing more important to capture. Edges make lines that inform us of hidden spaces and proximities. This is seen even more so in the film *the Occluding edge*, where the camera and the editing processes follows lines primarily and the dancers are only seen consequentially, among edges.

The documentary showcases moments of practice while also giving the viewer an understanding of the work the dancers are doing in the other films. The other three films, either through chance encounters *making-sense-with* the space, or through editing, have a compositional beginning and ending as a film. *Lines of Experience* is a compilation of moments captured by the camera crew, utilizing a documentary format to uncover the lesser-explored intricacies of dancers' thoughts as they express their moving bodies through sense-making experiences.









2022

Click for Film

Concept and movement practice: Michael O'Connor
Dance: Sophia Obermeyer, Michael O'Connor, Miguel Witzke Pereira, Michela Filzi, Samuel Feldhandler
Camera: Jubal Battisti
Video and sound editing: Michael O'Connor
Second camera: Valentin Braun
Assistant: Harumi Terayama
Color grading: Jubal Battisti

Fig. 90–94. Stills from film: Jubal Battisti.

scores

Layering of Lines

Notice visual lines. Start with ones made by man. Then notice ones that move and leave traces: people, birds. What else moves? Notice the movement of lines bring qualities—*vitality affects.* We can say it is emotional data that's readable of people's or things' inner worlds. Go back and think that some of that same data is in the permanent architecture. How do the lines that do not move speak to you? What do you hear? Notice the line of sound. My voice as a sound that is a dotted line giving these instructions. Now think of your own inner thoughts as lines that you analyze—a train of thought responding to what I say, or a border you make between people and inanimate objects as a line. Now bring your body lastly into the equation. It moves in linear patterns and has a linear design. See a multiplicity of lines: out there in space, in your thoughts, what you hear, and with your actions. Imagine the lines your body makes. Imagine time passing as a line. Allow yourself to get lost in these lines. Lines are movement. Trace, re-create, respond. Move the lines.

Walking as Making a Line

Go for a walk. When you finish, you might be at the starting point, or not. Draw the shape of the walk you think you made, trying to remember the path. Then use a map and find a way to draw the actual shape that was made from the walk. Compare the two drawn lines. If doing this with more than one person, compare your lines with each other. Another option for more than one walker: after drawing your individual paths from memory, put all pens from each person on one paper at the same time and starting point and try to reconstruct the path walked together without talking.

Draw a Concept

Draw a line of argumentation, inquiry, defense, questioning: a line of past-present-future.

I want you to dance this way

Write this sentence on a piece of paper, paying attention to your hand writing and spatial choices. Hand it to someone.

Face Tracing

With the hand that is not holding the pen, use a finger to trace along the features of your face. Simultaneously with the other hand, draw on a piece of paper the same trace: eyes closed, one line, a self-portrait.

Rope as a Thought

Use a linear material (rope, string, tape) or a material that can make a line (salt, chalk) to stand for a concept (love, life, time). Interact with the material and write new metaphors, replacing the materiality with the concept. Tape is sticky = Love is sticky. Salt doesn't last long = Time doesn't last long. After creating a list of metaphorical sentences as research and having experimented with different engagements with the material, use the text and practices to create a short performative solo from what you learned about the concept or material.

Peripersonal Space

Without touching the person, scan the peri-personal space of another dancer with your hand while making sure not to touch them or go too far away from them, so that both of you feel the simulation of touch. Go slow. Start with one hand and let one person be the *landscape* and the other the *researcher*. Change rolls. Eventually, both be landscapes and both be travelers at the same time.

Doodle to Dance
Someone makes a doodle and gives it to a dancer. The dancer dances a list of doodles. Can outside watchers know when their doodle has been danced? Can people recognize the order of the doodles? What are they recognizing? Any version of this experiment is possible.

Along these Lines
Watch a dancer do a short solo and then copy them with your own solo, along those lines. This means to use the term 'in the way of', but also literally translate their lines into the lines of your body.

Drawing Linescapes
Sit somewhere with a paper and pen. See in your surroundings what is moving. It could be people, cars, rain, in the distance, or moving slowly. Draw traces on the paper for only the things that move.

Drawing Prosody/ Joint Drawing of Sound
Make a drawing of sound or someone's singing voice. As a group activity, have people draw on the same paper in silence: one at a time. Listen to the song again for each person, as they add new lines to the previous drawing, allowing an understanding of what each person is perceiving to be visible for the group.

Duet Practice
Someone dances and a person watching traces their actions on a paper in the way they feel like. When the solo is over, the two of them look at the drawing. Without speaking about the drawing, they now perform together a new duet.

Origami to Dance
Look at an origami and then translate the lines you see into the body. Another version: have someone describe the lines and turn that verbal description into a drawing and a dance by two different people.

Withness Talking
Speak in a way that allows what you are perceiving in your environment to influence how you talk. Be concerned with noticing the moment, and let your words ride on that, rather than the need to accomplish a thought. A thought will be accomplished in any case. If a line of thought, and a voice as a line of sound are creating a braided dotted line while you speak, allow the pauses to be spaces where the listeners train of thought can become entangled. The act is not intended to arrive to a point where the listener from the outside can reflect and understand after what-has-been-said has been said, but the listener is folded into the words, allowing them to be with you and understand in a responsive manner instead.

No Backwards
"We cannot retrace our step, we can't go backwards but only forwards" (A quote from Maxine Sheets-Johnstone 2011, 126).

Dancing Thoughts
Someone draws Thought as a Line, or the Shape of Thought. The drawing is shown to a group of dancers. The dancers translate the lines into movement.

The Body to Sound
Ask a musician to read the lines of your body (its shapes and traces) as if sheet music and have them translate the lines you create into sound or music. Resist dancing to the music that is created. Just make lines and let them translate.

Thinking Dance
Thinking of your thoughts as a line, translate that line to a bodily trace. You might also hear the imagined prosody of your inner voice and can translate the prosodic elements (vowels, consonants, pitch, volume, intention and timbre) into movement.

Dancing from Drawn Traces
Look at a drawing that was made by tracing movement from a previous exercise. Translate the drawn lines of the paper into the space by using your body.

Linear Design/ Linear Pattern practice
Move your body from the perspective of its linear design, or from the imagined linear patterns it makes. Can oscillate attention between the two.

Material Engagement practice
Like prehistoric humans, trace the lines you see in the environment, leaving temporary lines that substantiate the object of your perception.

Affordance Theory practice
Use the lines and shapes of objects or people in the environment to elicit movement… movement that is relative to the perceived affordance.

Asymmetry Principle/Memory Storage practice
Consider the asymmetry you see in the environment and others' bodies, or your own body as information of the past. Allow that to move you in the present.

Vitality Affects practice
Explore bringing different vitality affects (e.g. fading away, explosive, hesitating, smoothly) into your body as dynamic, spatial-temporal-energetic contours. You can also translate the colors and textures of your environment into their metaphoric vitality: blue as a vitality contour, or the dynamics of cement/wood.

Conceptual Metaphor Theory practice (Prosody practice)
Translate lines of sound into movement: the pitch, volume, timbre and with a human voice the vowels, consonants and intention as well.

Dialogical Dance practice
Combine the 6 practices above. View them as different ways to approach your environment and others around you, allowing yourself to oscillate between them or practice them simultaneously. Your body is the site where the practice and theories dialogue with each.

Between These Lines
Gesturing for the Dialogical

In a solo practice that entangles speech and movement, I use dancing and talking as a way to synthesize the information and theories I am working with. Professor of cognitive linguistics Alan Cienki reminds us that, more often than not, gesture research is done by third-party researchers observing from the outside (2020, 66). This solo practice, titled *Between These Lines*, offers an opportunity to be my own outside observer of my movement practice, where I was previously inside and aware of the multimodality of my speech and movement. Cienki notes two reasons that we should research the multimodality of speech; the first being "that there is no known culture in which speakers never gesture" and because of the "consensus now among gesture researchers that gestures are produced not solely for communicative goals, but also can play a role in formulating one's thoughts" (ibid., 65). In the following, I first examine a few specific moments during the last few minutes of this solo practice where gestures move between speech and dance. This speech and movement practice formulated my thoughts toward the realization that the theories I was working with could inhabit my body simultaneously. After a look into some examples during this combined line of thought and line of movement practice, I will introduce how this practice developed into a dialogue between theories resulting in the main movement practice reflected in the film works *Between Foam and Origami* (2022), *the Occluding edge* (2022), *Linear Engagement* (2021) and explained in the documentary *Lines of Experience* (2022).

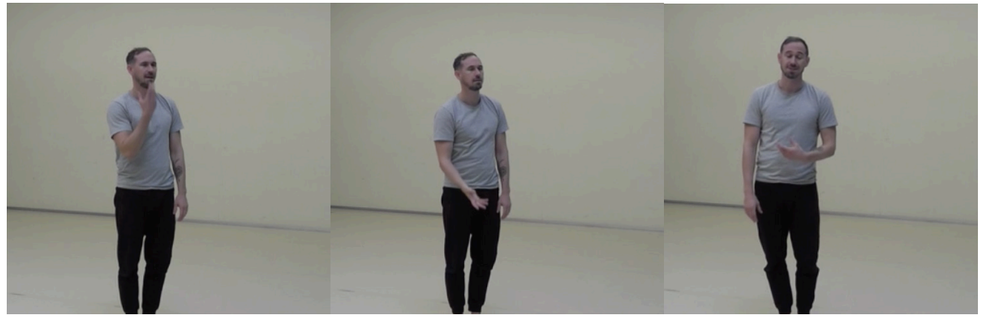
Traces of Silence

Kandinsky calls silence a point. He comes to this proposal in relation to the period, as it is a point that marks a pause in the written word (1979, sec. Point). However, I have found in my dialogical practice of speech, gesture, and self-reflection, silence can be a line due to its temporal element. In the following two examples, I trace a gesture that brings silence to a temporal realization as well as a trace made through movement.

When shape and motion are understood to be present in the acts of thinking, as Arnheim (1969) notes, lines work to unite visual and kinesthetic spaces of our thoughts and gestures. In other words, lines that appear in mental space or imagined while thinking can be expressed by means of the body in movement. In the first example, I say the words "Does my" while I make a quick gesture with my right hand as if speech is coming out of my mouth. A linear trace of the arm replaces the imagined line of speech or sound. Based on Müller's four representing modes of gesture: *molding*, *drawing*, *acting*, and r*epresenting* (2014, 1690), the gesture used to show my 'sound' (see fig. 95) could be a *drawn* mode of representation for the pathway that is enacted. The preparation of the gesture is made when I say 'Does', and the stroke is an open hand palm towards self that ends with palm facing out. This happens as a downward arched motion when I speak 'my.' As the gesture and spoken word 'my' happen simultaneously, the meaning generated is that the stroke downward presents speech coming out of my mouth. This is conveyed because the starting point of the gesture is proximal to my mouth, and then it is in a peripheral position after the stroke. As my sentence continues, I resume the thought, make another gesture with a left open hand and mark a beat when I say the actual word 'sound'. The stroke of the left hand appears more pragmatic but is ambiguous due to its low position and because the open hand almost appears to be presenting an object, but the gesture does not reach a hold and instead retracts.

The gesture seen in A–B starts before I would say 'speech' implying the movement is synchronized with the anticipated speech. As a performative act, the linear pattern I make does not represent speech, but the gesture stands in for speech. As Kendon (2013) says: "Kinesic expressions can also be like words" (20). In the pause that is then performed after, I respond to the gesture that I felt and have seen, and in this gap replace the *would have been spoken word* 'speech' with instead the word 'sound.' The gesturing act of a line changed which word I decided to say. Additionally, as I paused before I said 'sound', the gesture standing in for 'speech' was in fact a trace of silence instead (see Appendix 2020 for video excerpt).

Does my sound or argumentation as a line substantiate the very thing I'm trying to say or does the thing I want to say already exist?



A B C

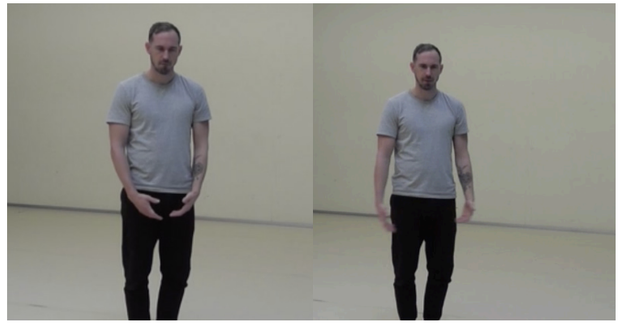
Does my sound

Fig. 95a, b, c. Stills from recording of Between These Lines practice.

In the next example, the linear gesture in Figure 96 happens when I speak 'formation'. Similar to the gesture mode of Figure 95 A–B, an imagined line is drawn by a traced gesture, but here two hands are used. Both hands are open hand palm up and start from lower center opening horizontally in a straight movement direction, maintaining the open hand and ending with palms diagonal toward the body of the speaker. In this example, as I am trying to understand the possible linear nature of silence, the spoken word 'silence' has an effect on my train of thought. I allow the silence to be present before I finish my sentence. The gesture that unfolds is simple in its design but complex in its meaning. The gesture could be seen as a representation as if I am depicting how something is formed as the gesture is synced with the spoken word 'formation.' I am also using two hands to trace or draw a path that could represent a line—in this case a line of silence. As we know from music, silence can be temporal between played musical notes. I am also exposing empty space between my hands, which could be considered molding or holding something but since it is space, the hands do not take the shape of anything specific—the palms stay relaxed. In the message carried in this performative act, empty space is presented as silence and as distance between my hands. I feel a line having been made between the tips of my two middle fingers. In showing how empty space can be a line drawn with my hands, the silence that I simultaneously enact becomes conflated as also linear. By marking silence with a gesture, silence becomes multimodal—auditory, visual and kinetically felt. The silence is made present in the auditory realm by my pausing in speech and is made visible through the drawn line of gesture and the held space after. The silence as something linear can also be depicted in the annotation above the images, where physical empty space between words is placed for the temporal length of silence between words.

Perhaps silence is not a break in the line,

but a formation of another type of space…



Start finish

...formation...

Fig. 96a, b. Stills from recording of Between These Lines practice.

Music composer John Cage used a similar way of writing in his book *Silence: Lectures and Writings* (1961) seen in his "Lecture on Nothing" (109) and "2 Pages, 122 Words on Music and Dance" (96) for example. In these writings, we see space signify absence and lack of spoken word, as the words are spaced out linearly along the page unconventionally in different ways. As printed books structure words and sentences along lines, due to the English language, among others, use of consecutive letters to make words and words to make sentences, writing is presented as spatially linear, and therefore spaces as silence also appear as linear.

When words and gestures are performed, lines come off of the page and create meaning together. A study by Poggi and Caldognetto (1997) showed that though one gesture could have different verbal paraphrases (a thumbs up) when participants were asked to attach a meaning to the gesture, the semantic expressions meant the same (ok, all right, yes). Conversely, Poggi (2014, 1486) explains how the tulip hand used by Italians can have complex meanings depending on the context. This tulip gesture (hand palm up, with fingers joint together) can mean *What do you want?* or *What you are saying is not true* (among many others) depending on the act's amplitude, velocity, fluidity, repetition, and muscular tension (ibid.). Similarly, the simple opening of my hands within the context of the spoken words holds multiple meanings for myself (and a viewer). As I feel the multiple meanings, the concepts of space, silence, lines and formation become entangled into a felt meaning for myself. With the speaking of *formation*, I form silence as a line. When working with editing software, the line of silence functions in the same quantitative way as lines of sound do, taking up space by measurement of time. By working with these materials, we see visual representations where silence is not represented by a point as Kandinsky has stated. The point can be silence, but silence does not have to be a point—a silence can also be a line.

Substantiating Meaning

Material Engagement Theory argues that the traces used to make cave drawings, were not representations of the items drawn, but under a theory of extended mind, the actor engages with the material whereby the product and action substantiate cognitive concepts (2013, 180). We see similar propositions in gesture studies, where "*the actual motion of gesture itself*, is a dimension of meaning. Such is possible if the gesture is the very image; not an "expression" or "representation" of it, but *is* it" (McNeill, 2005, 8). In gesture expert David McNeill's proposal, the gesture does not represent some aspect of language, but through the form is the embodied meaning. Lines bring the field of gesture studies and Material Engagement Theory into proximity. The cavewoman draws a trace as she engages with the material, whereas a person speaking with gestures also makes a trace with their hands but without a tool that leaves a mark. The cave drawing is left as a perceived line, revealing cognitive processing of someone thousands of years ago. The gesture becomes an imagined line to the perceiver, as well as a linear pattern that is imaginatively felt by the actor (Sheets-Johnstone 2011, 116), which does not leave a trace beyond the moment it is created. As a dancer aware of the gestures I am making, I choose to perceive my movement traces as temporal marks of cognition.

When I am making a line by dancing in the practice, the line making movement does not add to speech or replace speech—it is a choice instead of speech. As a dancer, the movements in this practice are conscious choices and not unconscious actions as gestures are often. These gestures are not coupled to speech—they are coupled to thinking. I am using these forms of lines to engage with the environment, to translate, which presents this form that is at first an engagement and then secondary a communication. In this same way, like a signature, it is uniquely marking a temporary moment whereby its actions in time and space are substantiating the doer's meaning-making capabilities, and later in context, function as something readable.

McNeill and Duncan propose that gestures offer "a window into thinking" (2000, 143). There exist different perspectives within gesture studies between the relations of speech and gesture and between meaning and thought, but in my practice, I take the position that moving is thinking, and therefore align with the side that argues how gesturing is a type of thinking. Yes, gestures offer a window into thinking, but gestures, as is movement generally, is thinking in itself. Even if it is not overt, conscious thoughts, but responding and reacting bodies can be a type of thinking by means of moving. For Maxine Sheets-Johnstone, she notes the inverse and states 'thinking in movement' does not mean "that a dancer is thinking *by means of movement*" but that to "think is first of all to be caught up in a dynamic flow; thinking is itself, by its very nature, kinetic" (2014, 200). In the previous examples we have seen how the kinetic features of the thought 'speech' and 'silence' have been substantiated through linear movement. My movements in this solo practice change and develop my thoughts and could be means of thinking themselves, but the point Sheets-Johnstone is making is also seen—that the thoughts themselves move and the process of thinking, moving. and speaking become an entanglement of different linear expressions.

Dance is not the same as gesture, where every movement has a representational or a pragmatic meaning. We can find synergy between these two fields in the point McNeill argues—that gesturing is substantiating meaning in the act of doing it. In improvised dance, choices are made that do not already represent something, but in the act of doing them, meaning is tested through engagement that feeds back to the dancer. *Movement becomes meaningful*, more so than it represents meaning. This distinction is essential. As a dancer, I understand this practice's blurred boundary between gesturing and dancing. I use my arms or body and make slight gestures when I speak to navigate ideas in a usual pedestrian way as others do. I access this same starting point, engagement with movement, when I intend to do something more performative or artistic. Dance training moves the available areas of skill from only the hands gesturing to the whole body.

While I speak, I do not plan and set out *to do this gesture as I speak* but the gesture is part of my thinking. In the same way as it has been shown that gestures sometimes arise slightly before the word they are attached to (McNeill 1985, 354), improvised dancing also is not planned out ahead of time but through the movement

merge the thinking thoughts into meaningful action seamlessly to the present moment. "Cognition and action arise together" (Malafouris 2013, 74). Likewise, I operate under the idea that the gestures or movements I make without a tool can also be considered extensions of mental states.

In the final example I highlight during this practice, while speaking, I noticed a table on the other side of the room, and I raised my left arm horizontally to act as if it was resting on the table. This movement practice uses Gibson's Affordance Theory (1979) to elicit movement. Using Müller's modes, besides an enacting mode of representation, when my arm begins to move again, this could be considered a type of drawing, but instead of using a finger, I have chosen to use my elbow to trace. Furthermore, as my speech continues, I allow the same part of my body to represent the table and model its shape and size. At this point, I bring in my right hand and make a crooked hand shape with 1+2 fingers where the wrist is raised, and the fingers are bent to 1 (descriptions from Bressem 2013, 1089). The fingers measure the size of the table in the distance as this hand rests above the left arm. Then the right hand pulls back along with my head, and I can visually replace the table now with my left forearm, allowing the crooked fingers of the measuring right hand to stay the same distance apart. With this second gesture, measuring substantiates the idea that the left arm embodies the table (see fig. 97). From my measuring perspective, I state that the table and my arm are the same sizes though I know this is not true. My measuring hand brings the table and other arm into a metaphoric relationship. The perceived line of the table and the linear trace of my left arm are brought into relation through the imagined line that is the space between my measuring right hand fingers. At this moment, I force the gestures to switch between enacted, drawn, and represented/embodied through the artistic practice of entangling speech and movement.

If I look at the line of the table and the line of my arm, I am seeing that this line metaphorically substantiates the same space as the table I see changes the space in that the table is that big and my arm is this big but in reality, we know the table is bigger.



Fig. 97. Stills from recording of Between These Lines practice.

Proposing the Dialogical Body

In the solo practice originally titled Between These Lines that is looked at here, I combine different movement practices. Each practice was created from the cognitive or perceptual theories that involved lines listed in the 'Making Sense of Lines' chapter (the six theories used to guide this research), which I used to stimulate movement for myself. Each practice has a different starting point or score. As I do those practices, I am also explaining what I am doing while highlighting some points of the mentioned theories. In this practice I can oscillate between

the different practices, allowing different theories to guide the movement exploration. Through practice, I can also sense how the practices can happen simultaneously, where my movement is confronted and guided by the multiplicity of approaches. This then affects my speech.

As stated by McNeill, the relationship between speech and gesture is seen as dialectical (2005, 3) because the speech and gesture stay as their modes and work together to shape meaning. In my work, I look at how the body becomes the site of more than this dialectical process, and I propose it is dialogical. First, I allow the space and objects to affect my body, which affects my movements and words in a looped system. Additionally, the theories I am incorporating into my body inform or fold into each other through my movements and perceptual changes.

In explaining the difference between dialectical and dialogic, sociologist Richard Sennet explains dialectic is a "give and take in exchange that arise in a conclusion or form of closure. The dialogic is a form of exchange that doesn't seek for closure…but a different kind of inter-relationship" (Harvard GSD 2012). Sennett continues that this definition of dialogical originates with Bahktin and is explained as a listening skill where you look at the intent behind the words and this listening is "a skill of exchange which focuses on responsiveness to the covert rather than the overt" (ibid.). What McNeill is supposing is that words have specific meaning, and gestures have meaning, and they work in tandem dialectically, seeking closure. As shown in the examples above, I however, listen to my own words, respond to my movements and remain open to the overlapping theoretical approaches to movement I bring into dialogue in my body. Though when reading McNeill's definition of the dialectic relationship of gesture and speech, it sounds to me in fact more dialogical when understood from the fundamental idea, (I turn to statements by Malafouris, for consideration), that "the active mind cannot be contained. Cognition is not a "within" property; it is a "between" property (2013, 84). Likewise, John Shotter says that as humans, our nature is indeterminate and unfinished; "what is of importance to us exists not *only in relation to* what else is around it and us but also in our sense that there is always a *something more* beyond it" (2015, 232). In other words, our individual state of being is by nature in a dialogical relationship as we are always in relation to something with indeterminate possibilities. Lastly, Lemberger notes that Wittgenstein and Bakhtin both agree that a "dialogic process can be affected by an individual as well as by a group, because dialogicity means an encounter between points of view, states of consciousness, or separate consciousnesses. *Such an encounter can occur insides one person's mind* [emphasis added]" (2018, 39). Encounters also happen between different forms of lines.

Between the lines of my body, the spoken lines, the imagined traces of gesture and movement, and the lines that materialize from the cognitive theories used within the solo, a dialogue is enacted through my thinking body. Gibbs notes, "Metaphor, metonymy, irony, and other tropes are not linguistic distortions of literal mental thought but constitute basic schemas by which people conceptualize their experiences and the external world" (1994, 3). As lines exist as a particular phenomenon, in that they exist as traces of movement, fundamental perceptions, and structures of our body, they are direct forms of communication and, at the same time, are also metaphoric, even more so when they are translated between domains as proposed in the chapter 'The Metaphoricity of Lines'. As Gibbs reminds us—which I see fit to the study of lines—if metaphoric ways of communicating are fundamental ways in which we conceptualize our engagement in the world, then the metaphoric tendencies of lines function as a way of conceptualizing and being with our experience. They are not ornamental but allow for the dialogical.

Dialogical Dance Practice:

The intention of the speech and movement practice Between These Lines was to introduce the theories by verbally explaining them as an act of speech that happens while my body is also doing the individual practices. That practice-based research activity led to the development of engaging with the six practices simultaneously that no longer used speech to describe the theory or be coupled with the movement.

The individual practices are:

Linear Design and Linear Pattern (LD/ LP) as a practice: In this practice, I move with the awareness of my linear design. Simply, the sculptural aspects of my body. This practice tends to move slower, as I feel my limbs and spine as linear objects. Linear pattern is the practice of perceiving my body in motion as traces. This practice tends to be quicker to more easily perceive the imagined traces the body would make moving through space. However, one can be aware of the trace their foot makes as it is pulled slowly through space, just as one can be aware of their physical body as linear when moving quickly. Both of these naturally happen simultaneously; therefore, separating them as a movement task is only a practice. Accordingly, one can then bring attention to the designs and patterns happening simultaneously.

Conceptual Metaphor Theory (CMT) as a practice: In this practice, the knowledge of image schemas and sound symbolism are used to translate different perceived sounds into the body.

Material Engagement Theory (MET) as a practice: By tracing the objects I see with parts of my body, I make temporal lines to substantiate the concept of the object I am tracing.

Asymmetry Principle (AP) as a practice: I understand that the asymmetry I see in the environment, in others' bodies, or in my own body is access to memory storage of past events. I use that understanding to move my body in the present.

Affordance Theory (AT) as a practice: I use the shape of objects, architecture, and environments to stimulate motion that comes from the possible affordances that are perceived.

Vitality Affects (VA) as a practice: I translate the lines, colors, textures, and sounds perceived into the body as dynamic forms of vitality.

I first started with CMT, translating the sound in space into my body. The AT movement practice was added—to use the lines one sees, the edges, and shapes to elicit movement. Then VA as a practice was included where I could explore dynamic forms of vitality like hesitant, fading, or explosive as linear contours. This is where Sheets-Johnstone's terms of LD/LP appear. We do not have to think of an affect, but we can simply be aware of our sculptural positions, the traces our body makes, and how they happen concurrently. MET, as a practice, allows me to simply trace the lines in the environment I see as if my body was a tool extending my mind. For this practice to have depth, I have to take seriously that my mind extends into the environment through the lines I trace. Lastly, AP has me look at asymmetrical lines as a memory of the past. In this practice, I view asymmetrical lines in nature, others' bodies, or my own as memory storage and allow the understanding of lines as past actions to make current actions in my body. This is typically a slow practice as it requires noticing how asymmetry can reveal information and what that means, and how it plays out. To do these practices together allows the theories to dialogue with each other in the body. The environment invites choices, and I also see how my body opens up itself to overlapping information.

In the dialogical dance practice, the dancer combines six different practices as movement options as they perceive the space. (see figs. 60–69). The dancer traces a line in architecture with part of their body—an elbow raising along a vertical outer edge of a building. The dancer is experiencing the straightness of that part of the building in their body. As the elbow reaches the end of the building's line, at this point, the building and moving body conflate even more. The horizontal line around the top of the building comes into view at the same time the elbow reaches the limits of the arm flexing. At this point, the elbow unfolds as the lower arm opens up to give space for the wrist to take over, initiating the movement. Now the wrist and hand trace horizontally. An unlimited amount of scenarios can play through as the movement can be initiated with changing body parts and matched or affected by anything appearing in the dancer's vision. To some extent, sight has to be one step ahead of the

body. Alternatively, the body can also carry out a linear contour while the eyes calmly latch on to something else. The quickness of the body can then transition its movement into a new practice or get interrupted through sound or by another dancer.

In letting the space choreograph me, the stimuli that come to me takes over. I see lines and then trace (MET), am moved by certain edges (AT), get lost in pondering the past that is held in the line's shape as I translate it into my body (AP). I recognize that in translating by tracing, a large line becomes a bold sweep of the leg (VA), or the color of something I can put into my linear designs and traces in a metaphoric (CMT) or dynamic (VA) process that are the same. When I trace a line in the environment (MET), which happens to be asymmetrical (AP), I feel the vitality (VA) that line has. I can, at the same time, be aware of the traces I am making. In doing this, I hear a sound and then translate that sound into my body (CMT) which brings my eyes to a new place where I see the edge of a door and interact with the angle (AT) from the door's edge. While being moved by the affordance, I recognize I am also tracing the door (MET) or can blur the affordance response into a (MET) trace with a different part of my body. In allowing the theories to be practices in my body, the dialoguing process is held together and blurred by my body moving. My body cannot fall out of the practice because I would always be making lines (LD or LP) and in so doing, notice my own dynamics (VA).

Continuing...

Starting from a practice where I analyzed my gestures as the subject and object, I was able to turn an investigation of theories held together by my body and speech into a movement practice that no longer used words to explain what was happening. The dialoguing was happening through the practices and the inner monologue guided by perception. Though each practice can be done alone, the dialogical practice has become the main way in my research to incorporate lines into a movement practice as a performative improvised dance. The ability to change practices and use different theories gives me different options when seeing an environment. The different practices also allow each dancer to find their own signature and sense-making relationship to the space and to which practices move them.

The dialogical dance practice allows for unexpected outcomes and changing dynamics and creates a familiar language or aesthetic between the dancers. When performed by multiple dancers, the purpose of the practice is not to entertain or use the others in different ways that could allow for individual ego or intention to stir an improvisation into different directions. In this practice, the different practices allow each dancer to choose what they want to work with within the six theories, what to translate, and exposes their individual perception of the shared space. As the visual space becomes information translated into the dancers' bodies, the space also holds the practices together. The individual movement choices find a relationship and appear to speak to each other as the mental engagement, and physical execution appears consonant between dancers. The following chapter will look at the dialogical dance practice as an activity within architecture and landscape through an enactive and ecological understanding.

Linear Engagement









2021

Click for Film

Concept and movement practice: Michael O'Connor
Dance: Miguel Witzke Pereira, Michael O'Connor, Michela Filzi, Samuel Feldhandler, Sophia Obermeyer
Camera: Jubal Battisti
Assistant: Harumi Terayama
Costumes/Sound: Michael O'Connor

The space is limited and confined, and the bodies search for lines, looking for possibilities of engagement. The moving bodies never appear overtly as linear, but bodies are constantly engaged as line makers. The dancers share a job description of translating the space, bringing the environment into their bodies. Each dancer embodies the task and combines the six individual practices into unlimited possibilities in their own dialogical style. It does not create a form from one choreographer's opinion or fingerprint. The signature comes from the dancer. A thread of one dancer disappears, and a new dancer appears. Two lines of dialogue leave moments of intersection.

The dancers have little contact with each other when you think of contact as only being in unison, making relations through gaze or touching each other. Speaking the same language, being in proximity, and under the same task, they *are* connected through the building's materiality and their describing of it. A de-SCRIBE-ing. They even translate each other sometimes. Between two dancers, a brief moment finds them mirroring while only in each other's periphery. The two dancers fall into an asymmetrical, analogous position. This moment can be confusing if you wonder about the connection, but the ambiguity of why and how is captivating. In the distance, one dancer, when also looked at closely, has created a similar pose. Who came first? Contagion is hard to follow. The group has a brief point of pause. They are responding as a listening, so these moments appear suddenly and fleeting. Dancers are aware of each other, but their influence over each other is subtle and easily missed. The dancer at the end traces his arm above the back of a dancer bent over. Their precise playing of form-shaping happens almost as if choreographed. The translation and dialogical practice of both continues. Each other's body is just another in space. No preference is given for animate over inanimate lines.

When one dancer turns, their squeaky sneakers make echoes against the wall. Sound waves reveal proximity. The lines of the space become auditory. Linear patterns, twisting against the edges of shoes, turn lines of architecture into lines of sound. Like the dancers, the sound disappears and reappears. The sound's extraction intends to bring focus to the body as a line maker, momentarily leaving some of its sound-making qualities out of the picture. Gravity seems affected when I cannot hear their weight. Their line-making is visual. The colors of the costumes are soft, muted, and neutral. The clean color choices allow the dancer to be the focus. The diversity of the clothing resists a uniform. The dancers are individuals.

When tracing, dancers reveal where they are, which may or may not be where you see them. They put something into the world and retain it simultaneously. They translate distant sounds or things seen off-camera. When dancers make traces that directly and clearly relate to the surrounding in front of them, the viewer and fellow dancers are brought into their metaphoric or contiguous relationship. They are simply there, traces gesturing to externalizations of mental states. Mind is extended into the building, into each other, and through the body. Little distinction is made between the three domains.

The film is not to make explicit *what* the dancers see but to document the dancer's *seeing* and the responses they make in return. The camera traces the lines running through the dancing bodies and the lines in the architecture.

The camera moves in the volume of the space and goes toward up-close moments of the dancers' perception. As the camera also improvises, capturing whole moments and full-body dancing is not the intention. Movement from the dancers is substituted with direction by the camera. The camera moves as a dancer. The camera does not intend to be objective or distant but allows each dancer to solo-perceive and offer their signature and dialogical practice. Instead, it is part of the unfolding, intermingling activity. Asking the camera to be with the dancers, frames portions, and perspectives. Because the camera dances with the movers, it is more than documentation. The camera is part of the material they see and is material the dancers can translate back into movement.

Fig. 98–101. Stills from film: Jubal Battisti.

Architecture, Landscape, and Foam

Lines move and movement makes lines. The design of buildings or lines in nature hold movement in the affordances they trigger as well as in the way our eyes run along their edges, taking in their size and shape. Why does this matter? Manmade and natural lines carry an emotional quality through their affect, or through the storage of memory that designates meaning from the forces that led to their creation. The body and mind both reach out to the materiality they are surrounded by and meaning is construed through these entanglements. Malafouris explains that "materiality matters because it refers to more than mere matter. It refers to the constitutive intertwining of mind with matter" (2019, 13). Matter is used here in line with Barad's double meaning usage, which in fact is not a play on words but a proposal for a contingent relationship between matter's two uses. Barad states:

> Meaning is not an ideality; meaning is material. And matter isn't what exists separately from meaning. Mattering is a matter of what comes to matter and what doesn't. Difference isn't given. It isn't fixed. Subject and object, wave and particle, position and momentum do not exist outside of specific intra-actions that enact cuts that make separations—not absolute separations, but only contingent separations—within phenomena. (Barad 2014, 175)

Barad brings our attention to the idea that what comes to matter for us is constructed by how we differentiate matter itself. Architecture and landscape may seem like separate matters, but when looked at as lines that move, they both share common ground. We should not separate the natural from the artificial environment, Gibson advises, because it is a mistake to consider there are two—manmade things are made from natural substances (1979, 130).

Along the same lines, historically different approaches to agency can be seen as a similar "substance" or rather similar *matters*. The separation between the environmentally dependent ecological view of agency and the actor dependent enactive view of agency is also a dichotomy that is currently being re-considered. These two approaches could serve us better by expressing and articulating ways for collaboration. As Barad proposed, separations do not have to be absolute. Enactivist and ecological approaches both agree that agency must be explained by relationships between the organism and environment, but each side focuses on different aspects of this relationship (Segundo-Ortin 2020, 2). Traditionally, the difference between these two approaches can be articulated as follows: "Enactivism takes sensorimotor capacities and contingencies as the basis for action, whereas for Ecological Psychology perception is not constituted by sensation and, therefore, perceiving/acting based on affordances of the surround is the cornerstone of cognitive functioning" (Read & Szokolszky 2020, 3). Enactivists prefer "structural coupling" and ecological psychologists claim "organism-environment mutuality", when actually both imply organism-environment co-dependency (ibid., 8).

To frame a space for collaboration, a radical embodied theory of agency is sought after by combining enactivism and ecological psychology (see Baggs & Chemero 2021; Segundo-Ortin 2020; McGann 2020). The dialogical dance practice, introduced in the previous chapter, can be seen as one where relationship to the surroundings is contingent on both approaches. "Agency is not a permanent feature or property that someone (human or non human) has independently of situated action but the emergent product of material engagement seen in our image as a creative tension of form and flow" (Malafouris 2019, 11). The following sections will explore the dialogical dance practice in relation to architecture and landscapes (a built environment and natural ones) through the lens of a combined ecological and enactive approach. As Gibson states that architecture and landscape should not be separated, enactivism and ecological psychology can also be viewed in tandem, brought into a dialogical relationship through the dance practice. In the third section, Foam is looked at as both a substance and a concept where two matters meet—a metaphor used for radical embodied agency where mind, body, and environment blur.

ARCHITECTURE

> To a large extent, scientific psychology is the science of agency—the ability to select, perceive, and actualize affordances appropriately based on intention. (Wagman 2019, 148)

> Thus, art, architecture and anthropology have in common that they observe, describe and propose. (Ingold 2011, xi)

Before diving into a discussion on how the enactive and ecological approaches can convene, it must be understood what each camp claims. In the ecological approach, Gibson states that perception is direct, which means that perception is conceived of as information detection (Segundo-Ortin 2020, 2). The second point in the ecological approach is that perception is active and is "an achievement of the individual" (Gibson 1979/2014, 228). It is not something that happens to the individual but is something that the organism does (Segundo-Ortin 2020, 2). The third aspect of perception for ecological psychology is that it is action-oriented (ibid.). Affordances, described previously in more detail in 'The Affordance Chapter', are a staple in Gibson's ecological approach. Withagen et al. propose that affordances are not only opportunities for action but could be looked at also as invitations, stating: "When actively exploring the environment, the agent is attracted or repelled by some of its affordances, and the ensuing behavior is partly the result of these invitations" (2012, 257). However, an often-neglected argument can be pointed out here; though affordances "exist independently of being perceived by the individual, for an affordance to invite, it needs to be perceived" (Segundo-Ortin 2020, 5). Therefore, for affordances to invite, the actor must already be aware of its agency. The ecological approach, known as the environment dependent approach to visual perception, guides our actions, but as Segundo-Ortin reminds, this is contingent on one's awareness of their agency.

In a different manner, the enactive approach, named and developed by Francisco J. Varela, Eleanor Rosch and Evan Thompson consists of two points: 1) perception consists in perceptually guided action, and 2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided (Varela et al. 1991, 173). Varela et al. state, the "enactive approach is the study of how the perceiver can guide his actions in his local situation. Since these local situations constantly change because of the perceiver's activity, the reference point for understanding perception is no longer a pregiven, perceiver-independent world but rather the sensorimotor structure of the perceiver" (ibid.). The enactive approach to perception intends to draw links "between sensory and motor systems that explain how action can be perceptually guided in a perceiver-dependent world (ibid.). They express that this was Merleau-Ponty's approach and insight as well, as they go on to quote a passage from him:

> When the eye and the ear follow an animal in flight, it is impossible to say 'which started first' in the exchange of stimuli and responses. Since all the movements of the organism are always conditioned by external influences, one can, if one wishes, readily treat behavior as an effect of the milieu. But in the same way, since all the stimulations which the organism receives have in turn been possible only by its preceding movements which have culminated in exposing the receptor organ to external influences, one could also say that *behavior is the first cause of all the stimulations.* (Merleau-Ponty 1963, 13 in Varela et al. 1991, 174)

In making a distinction from the ecological view, the enactive view states that "perception is not simply embedded within and constrained by the surrounding world; it also contributes to the enactment of this surrounding world. Thus, as Merleau-Ponty notes, the organism both initiates and is shaped by the environment" (Varela et al. 1991, 174). The person moving in their environment shapes their own perception of it.

Varela et al. note that though at first many points between their enactive view and Gibson's ecological perception seem congruent, one key factor differs (ibid., 203). They do not agree with the point that ambient light specifies invariants in the environment to be perceived directly. Though both views forego the representationalist view of perception and agree that perception is perceptually guided action, Gibson's view states that the optical invariances do not depend on the guided activity of the animal (ibid., 203). Varela et al. quote Gibson in their analysis to support this point: "Invariance comes from reality, not the other way around. Invariance in the ambient optic array over time is not constructed or deduced; it is there to be discovered" (Gibson 1972, 239). As we saw with Gibson's theory on affordances, the properties are not dependent on the perceiver knowing them but are independent and thus need to be discovered. In enactivism, Varela et al. propose that the environment is enacted and that perception is a sensorimotor enactment (Varela et al. 1991, 203). They explain that since there is a mutual coupling between environment and animal, some believe this provides direct perception and aligns them still with Gibson, but this is the part which they disagree with. They split themselves from an ecological theory of perception that they consider builds entirely from the side of the environment as it neglects the autonomy of the animal and "the codetermination of animal and environment that we have gone to such great lengths to stress" (ibid., 204–205). Understanding the critical point of difference in these two approaches allows for acknowledging the intricate interplay we experience when moving our own bodies through architecture and landscapes.

Jelic´ et al., coming from fields of archeology, psychology and physiology, incorporate affordances into their discussion on the enactive approach as it relates to architecture. They propose that during the design process, in order to replace the disembodied model of architecture, there needs to be a framework for how to consider the human as an experiencing subject (Jelic´ et al. 2016, 3). In these authors' analysis, affordances from the ecological viewpoint can be applied. Affordances are at play in the enactive approach described here because "the way in which we perceive, experience and engage with architecture depends on the particular kind of body we have and the possibilities for body-environment interactions that are inscribed in terms of the motor or skillful knowledge as potential for action" (Jelic´ et al. 2016, 3). Here Jelic´ et al. bring the enactive approach as the desire and the aesthetic experience of being with architecture, together with the action space and movements that are triggered due to affordances in the environment. "Accordingly the enactive approach to architectural experience brings together the biological perspective on the human being through the concepts of embodiment and motivation on the one hand, and affordances as an artificially designed possibility for interaction, on the other" (Jelic´ et al. 2016, 3). Though they do not call it a radical embodied approach, their proposals find common ground between the two theories.

Returning to the example of vision, the enactive approach claims that "objects are not seen by the visual extraction of feature but rather by the visual guidance of action" (Varela et al. 1991, 175). As seen in the enactive approach, perception and cognition of an autonomous agent rely on the organism's interaction with its environment, where the brain-body-environment are attuned. The embodied aspect dependent on movement is a claim we know from the perspective of Sheets-Johnstone, where 'animation' is actually used in lieu of 'embodied'. She states, "we fail to consider our inborn responsivity and those affective-kinetic coordination dynamics that are rooted in our being the animate organisms we are" (Sheets-Johnstone 2009a, 397). Though I agree that our animation as beings is quintessential, I believe the environment must also be equally considered.

We engage with a building in a way that demonstrates aspects of our humanity. We do not fly to the top like a bird, nor look for a crack like a bug. Under Gibson's definition, if I am not a mountain climber, then my personal behavior would not afford a building as a climbing object, but to be used in the ways we typically interact with it. When I enter a foyer and I see a curved staircase arching up to a second level, I am aware I can ascend those stairs, but my eyes are also pulled along the curve. The fact that the staircase might be longer than it needs to be also holds a time and a place for my eyes as well as the mentalizing I would do if I were to walk the stairs. The stairs afford to be climbed, but they afford a certain way to climb, a meaning and dynamics I perceive, and am invited through their form. I respond to the stairs in relation to the way I am familiar with knowing the body I have. Again, sense-making is part of my perception and action.

Sense-making, listed by Jelic´ et al., is one of three themes of the enactive approach: sense-making, constitutive relatedness (through embodiment), and embodied action (as sensorimotor couplings of perception and action) (2016, 4). Jelic´ et al., citing Colombetti (2010), express that "the organism as a whole is understood as a vehicle

of meaning because the significance and valence in the world is created by the organism itself, and therefore, sense-making can be more accurately described as a bodily cognitive-emotional form of understanding" (Jelic´ et al. 2016, 4). Though they consider that this is a more accurate description, the term sense-making itself provides a specific poignancy when it comes to improvised dance. Dancers usually know they are using a bodily, cognitive, and emotional approach to create form, but to remind them that they are in a way also sense-making provides another layer for comprehending their engagement. The dancer makes sense with their movements in their dynamic process that moves them forward. I believe the term sense-making captures the entanglement of motion and cognitive-emotional understanding through the body.

To illustrate, in my dialogical dance practice where different theories lead to movement practices, if I were to allow the affordance of that curved staircase to be embodied in my movements, I might move at a certain speed based on the length of the stairs. I would not be mimicking climbing the stairs, but matching the energy that would be required when steps are slightly too far apart, which slows down the walker. If I were to trace the stairs with my limbs, I embody additional logic through the properties than just the size, or angle of curve. Therefore, when I am moving in relation to the affordance of the space around me, I am making sense through the engagement. The body in motion, then, is articulating, to use Jelic´ et al.'s preferred definition, a cognitive-emotional form of understanding that revolves around embodied lines. The lines of the objects and how I situate myself around them, and the lines that I make and trace with my body in a responsive nature, constitute a form of sense-making. Jelic ' et al. state: "We start from the premise that architecture can be described as a designed interaction between life and form" (2016, 3). When moving with the architecture, the interaction allows different forms to be embodied in different ways than so-called normal behavior.

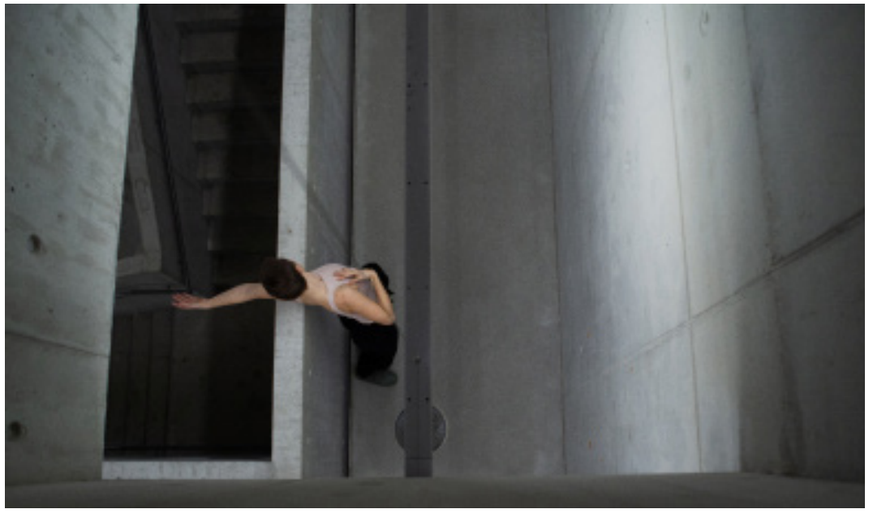


Fig. 102. Dancer Michela Filzi. Photo: Niels Weijer.

In the dialogical dance practice, the dancer is moving in order to trace or respond to asymmetrical aspects or certain understood vitality contours in the space. The movement simultaneously brings in new features in the architecture as new stimuli to move with. The "human nervous system evolved as a link between continuous stream of sensory activity and movement" (ibid., 5). We move because we sense, we sense because we move. As Thompson and Varela put it, "what the organism senses is a function of how it moves, and how it moves is a function of what it senses" (Thompson & Varela 2001, 424). Here we can find responding and responsivity is at the center of sensing and moving.

Alva Nöe, a philosopher of mind, points out that "perceiving is understood as a way of acting: perception is not something that happens to us, or occurs inside of us, but it is something we do" (2004, 1). In relation to the previous thoughts on the term sense-making, I can continue to draw from Nöe, in that "To perceive is not merely to have sensory stimulation. It is to have sensory stimulation one understands" (ibid., 181). By understanding perceiving as a type of action-understanding, I return to Jelic´ et al., to reference emotions as well. "Speaking in enactive terms, the intrinsic constitutive coupling between perception, action and emotion is fundamental for capturing our reality as lived bodies and experiencing subjects, and at the level of the organism as a whole is organized as the functional mechanism of body schema" (Jelic´ et al. 2016, 6). It is important to consider that the perception and action part cannot be uncoupled from emotional sense-making. When we are in a dance practice, attuning our actions to the perception of a building, emotions are present in the lived experience of the body. They are present not in the explicit felt sense of having an emotion, like feeling sad, but the linear designs that are made hold an emotional readability, as do the affordances and lines of the space around (see writing "By the Canal", in which the angle of the line behind me on the curb makes me feel safe). Thus, I could understand that the concept of emotion can be seen in the curves of a perceived line, as well as in the speed in the action if the lines move, creating a vitality affect, which can be read as having a corresponding emotional equivalent. "Emotions move us, and in moving us are quintessentially linked to kinetic/tactile kinaesthetic bodies", Sheets-Johnstone makes clear (1999a, 274). An exploding vitality form can be surprising, scary, exciting, or sad. Exploding by itself is not limited to one emotion, but in context, can reveal, in sense-making terms, a situated felt emotional quality. Communication between the body and architecture, or body and the architecture of other bodies, produces meaning for the dancer that is part cognitive, part affective, and part emotional.

Jelic´ et al. propose that the "body lies at the essence of *pre-reflective architecture-body communication* for two reasons: firstly, because it enables us to engage with the built environment in a profoundly animated, pragmatic and meaningful manner and secondly, because it provides us with an access to our bodily self and thus, to conscious experience of a situation (e.g., architectural space) at hand" (2016, 6). This embodied enactive approach has a similarity to the argument that "architecture initiates, directs and organizes behavior and movement" states Jelic´ et al. (2016, 6) citing Pallasmaa (2005, 2011). Jelic´ et al. claim that architecture does not require us to think how to engage with it because doors and stairs are built in a way that depend on our sensorimotor knowledge that allows us to use previous memory of situations to grasp how to encounter the new architectural structures (2016, 6). The William Forsythe museum exhibition *The Fact of Matter*[1] (2015–2016), in contrast, required people to interact with objects and space differently and in ways they were not as familiar with. This was Forsythe's way of tuning up, triggering, requiring more active states of embodiment where people were forced to make new neural pathways stemming from new forms of engagement with their bodies. Visitors had to crawl if wanting to enter a room that was less than a meter high or walk through swinging pendulums.

31 *THE FACT OF MATTER* Curated by William Forsythe and Mario Kramer, is part of Forsythe's Choreographic Objects. Exhibition period: October 17. 2015 – January 31., 2016. MMK Museum für Moderne Kunst, Frankfurt.

While I can be moved by the architecture in the dialogical dance practice, it is also my own mental architecture that guides what I select, in the cognitive process of being engaged. Though architecture can move us, in general, it does not move on its own. In nature, parts of the landscape do move or are perceived to move: sun, wind, wave, animals, trees, shadows over cliff edges. The next section examines the body moving in nature through the continued discussion of enaction and ecological agency.

LANDSCAPE

> The moving observer and the moving sun are conditions under which terrestrial vision has evolved for millions of years. […] Whatever goes out of sight will come into sight, and whatever is lighted will be shaded.
> (Gibson 2014, 84)

In this section, I bring our attention to the dialogical dance practice and discuss its application when carried out in a landscape and with other moving bodies. The practice brings together the six different theories (LD/LP, MET, AT, VA, CMT, MS/AP) into a dialogue in the body through movement and in relation to the dancer's perception of the environment, and the ways they choose to create lines of movement as a responsive interaction. In the practice, I may use the affordances of a cliff, trace a passing bird as a material engagement, be moved by the vitality of rumbling rocks, translate the color of the ground into linear patterns or perceive my own track of footprints as memory storage of previous actions and refollow them. In practice, these theories as practices merge through movement and create a dialogic process with my perception. As the quote in the previous section from Merleau-Ponty proposed, seeing an animal in flight proposes the interlocking of stimulus and actor's behavior. The complex dance practice exemplifies this clearly. I can trace a bird, thinking of Material Engagement Theory's claim that I bring forth the bird through my act of tracing it, while at the same time I can view its imagined trace of sequential scanning behind it as memory storage. As I see the straight path of the bird and feel the speed of my arm moving at the bird's pace, I have moved its form of vitality into my body through a linear pattern and metaphorically understand this translated movement as the bird. This takes place in a matter of seconds until I am either moved by something else in the landscape or allow my perception to find something that comes from the previous actions. Thinking of these practices as making lines in the environment, Ingold views "the environment as a zone in which these lines become comprehensively entangled with one another" (2010, 300). The practice brings the entanglement into the movement of the dancer. This entanglement, between lines created and those in the environment, I see as a type of understanding *with*. Witness, to review, is a type of dialogical process.



Fig. 103. Photo: Michael O'Connor.

Thinking similarly as myself, Ingold, and Shotter, Tilley also describes the process of understanding the experience with materials and landscapes as a dialogic process (2004, 221). "We enter into them, they in turn enter into us; we form them, they form us. We have attempted to describe what we see, feel and understand through our senses and with our bodies" (Tilley 2004, 221). Here he says we describe through our bodies. The world in which a person moves is the world into which they bring their movement. In the artistic practice of improvised dancing, the movement is coupled to the environment. Returning to Tilley's words about the kinesthetic approach to rock carving, his words could be understood and applied to the carving of space and time of the dancing body in nature: "Sources of stimulation from the structure of the landscape become encoded within the bodies that move within it in relation to a complex of surfaces, edges, and textures perceived in relation to bodily movement" (Tilley 2008 ch. 1, sec. From Sensory Experience To A Kinaesthetic Perspective On Rock Art, par. 7). When these fields of thought are discussed in regard to agency and autopoiesis, they are often related to basic needs, as in the active agent following a footstep to know if it leads them to food, or with regard to social or biological behaviors. When these discussions on affordances and behavior revolve around the topic of artistic expression, as in these practices of dancing or cave painting, sense-making takes on a different value and ambiguity when it is beyond biological agency and autopoiesis.

Segundo-Ortin claims that the reasons enactivists like Di Paolo et al. (2017) are against ecological psychologists is due to a misguided understanding that Gibson concluded that perception involves processing sensory information from the environment like a computer processing code (2020, 10). I agree that this view of Gibson dismisses the specific abilities and choices of the perceiver. Instead, it can be conceived that "agency is a property of the relation between the organism and its environment, where this coupling is made possible by the existence of ecological perceptual information the organism can directly detect and exploit in guiding its action" (Segundo-Ortin 2020, 8). Ryan and Gallagher simply propose the coupling between an agent and its environment can be seen as part choice and part attraction (2020, 2). Indeed, in the dialogical dance practice, a balance of choice and attraction is entangled through lines of movement and the ways of reading lines in the environment.

For Di Paolo et al. (2018) sense-making does not add meaning to the environment, but instead subtracts from it by responding to only certain influences on the sense-maker (36). "*Sense-making* is the capacity of an autonomous system to adaptively regulate its operation and its relation to the environment depending on the virtual consequences for its own viability as a form of life. Being a sense-maker implies an going (often imperfect and variable) turning to the world and readiness for action" (Di Paolo et al. 2018, 33). For this research on artistic practice, I will ground these notions within the world of the moving dancer. I participate in the sense-making activity when I select through my perception what affordances are available to (and invite) me to enact meaning in the form of movement, by means of spatio-temporal-energic changes. Philosophers Erik Rietveld and Julian Kiverstein working in the realm of embodied cognition argue that affordances are dependent on abilities and practices but that the practices are also dependent on the material environment (2014, 339). They too acknowledge an ecological-enaction hybrid approach to cognition.

Selection is a key component that happens while engaging with the environment. Segundo-Ortin summarizes that for ecological psychologist and philosopher Edward Reed, "an intention can only emerge whenever there are multiple affordances available for the organism to choose" and a perception and action competition arises resulting in the emergence of intention for the animal (2020, 3). In my dialogical practice, dancers have noted that with the six different practices they bring together based on their perception of the environment, a competition can occur. One dancer during the making of the film *Linear Engagement* explained, "Sometimes different practices come in conflict because I consciously decide I want to play with my elbow and then someone else drops in who takes my attention." She then continues with describing the mixing of practices as multiple ways of perceiving and acting out intentions:

> *Sometimes they go well together hand in hand and it feels quite fluid and sometimes one or two of the dimensions come in conflict. For example, if there is a loud noise or sound from the outside at the same time I consciously put my attention to do something with that knee, then there is a short struggle or competition, which then gets solved by the body itself. So, the easiest way to solve it or communicate it, is to see what happens and if its stillness then its stillness.*

Stillness is then seen as a product of a dialogical practice. Baggs and Chemero have chosen the word dialectical when describing the potential overlap between the two approaches: "The ecological account of external structure is compatible with the enactivist account of internal organizations of the animal. Life happens in the dialectical confrontation of the two" (Baggs & Chemero 2021, 2188). As there is a theoretical distinction between these two approaches, it makes sense in their analysis *about* this junction that they understand it as a dialectical relationship.

However, as a dance practice, when these theories are brought into movement as a way for the dancer to be *with* the environment, their body is in dialogue with different approaches that do not seek any agreement, but instead seek to make sense through engagement in that moment between others, the physical world and themselves. In turn, the dance practice can be seen as a form uniting the enactive and the ecological standpoints. When these two matters of agency are brought into practice through the moving body, I argue it is in fact a dialogical relationship—as stated before, part attraction and part choice.

Marking the Land

> The body carries time into the experience of place and landscape. (Tilley 2004, 12)

The dancer engaging in the dialogical dance practice is using the creation of lines in the landscape to generate meaning for themselves. I reference again briefly rock carvings for a similar comparison. Tilley argues that the significance of rock carvings lies "in the ways in which they combine an experience of the surrounding landscape and qualities of the rock itself with a capacity to think and feel in images requiring movement and having definite bodily effects on an observer" (2004, 214–215). The dancer, moving within the dialogical practice, uses their body as a line maker to carve into space, creating images through their own self movement that makes sense for them. For rock carvings, "The images and the stone on which they were carved, and its landscape context, had the power of eliciting, or causing to perceive, meanings according to how they were seen…" (Tilley 2004, 215). In both practices, the dancer and the cave drawer are perceiving and what is perceivable in that landscape is made visible through the practice. For Tilley, with a kinesthetic approach, the carvings were meant to be experienced sensually (ibid.), uniting the land they are carved on with the observer through the carver who created them. In this way, the dancer doing the dialogical practice, translating the lines in the landscape into their body, is also bringing together the environment, sensory experience, and meaning through lines and movement.

Thus, we can view the lines made by rock carvers in the same way as we can temporary lines made by dancers. When sharing an environment with members of the same species, Gibson's argument states that "the environment for any given individual is the same as the environment for any other member of that species" (Gibson 1979, 43 in Baggs & Chemero 2021, 2180). Baggs and Chemero point out the flaw in this statement and why it fails: "It fails because it does not acknowledge the role of learning or the capacities of the perceiver's body in shaping the way the world appears to the individual. There remains a sense in which the world can appear differently to two different people, even if we take turns positioning ourselves at the exact same positions relative to the surrounding surfaces" (Baggs & Chemero 2021, 2180). Baggs and Chemero offer an approach to try and "overcome the ontological differences between ecological psychology and enactivism" by describing a view of the relation between animals and environments that both sides could adopt (ibid., 2176). They, in turn, split the environment into two subsets; one called the *habitat* for typical members of the species and another the *umwelt* for the lived surroundings of a given individual (ibid., 2180). Baggs and Chemero state:

> Gibson realized that most of the physical world is not part of the habitat of the animal, and such it does not contain meaning. The habitat, which is a subset of the physical world considered as resources for animals with particular kinds of abilities, does contain meanings. An individual member of a species develops and learns and is enculturated and comes to have a portion of this habitat as its unwelt. (ibid., 2188)

When dancing with others in this practice, though each person is doing their own translation practice, a type of language appears in the sense that the dancers move in familiar ways, though they each may be doing a different theoretical-based aspect of the practice. When being in proximity with others, we can empathize and be sensitive to "perceive the relation between other animals and *their* surroundings" (ibid.). The lines the dancers make with their body, reveal their impression of their surroundings, giving others access to their perceptions.

In the habitat, the different umwelts materialize for the dancers, while they become familiar with and describe their surroundings. Comprehending how this is possible, can be found in the words of Ingold who claims we must "recognize that the ground on which we stood was not really a supporting platform upon which things rest but a zone of formative and transformative processes in train through the interplay of wind, water and stone, within a field of cosmic forces such as those responsible for the tides" (Ingold 2011, 131). It is a mistake to think of the landscape as something that the dancer moves on, but rather it should be understood as an area that the dancer moves with—an understanding with that is reliant on movement.

The dancer gets to know the movements of the place through their actions and attractions. "Understanding place is a gradual process of familiarization in which description is ultimately the last act. Sensing, perceiving and understanding are conjoined in a fundamental way. Understanding and experiencing a place is a process of learning how to understand and how to feel" (Tilley 2004, 223). Here Tilley speaks of traditional research where a written description comes after the sensing and experiencing. He claims a phenomenological approach should be joined with descriptive exercises of writing and incorporate metaphoric texts as links between things (ibid.). However, when we think of line-making, the body engaging with the lines when in a place, it *is* a type of describing as a first step. Describing is not only to write down but is also, as said before, to "delineate or mark the form or figure of, outline" and to "form or trace by motion". In the dialogical dance practice, the experiencing is connected with the describing as a metaphorical practice that comes with the sensing, not after it. To describe is a form of sense-making—a form of sense-making that comes from the dialogical meeting of different matters.

FOAM

> The material agency of foam therefore is always *situated.* (Marcel Finke 2017, 152)

Foam was coupled with origami at the start of this research because both forms make lines in specific ways. Origami lines are edges that are connected and most are hidden and folded inside a design. Those edges and lines disappear when unfolded. Foam on the edge of tide or waves makes a clearly distinct line that is temporary. Foam's appearance and disappearance is hypnotizing. While lines are routinely seen or thought of as static, rigid, concrete phenomena, lines within foam and origami bring a different understanding to what a line can be. With origami, lines are made because of actions and histories, folded to create a form. If it were to *unfold*, as concepts are so often beckoned to do, the edges disappear. With the logic of this metaphorical expression, we do not get closer to knowing, but farther. Leaving it folded allows it to be examined. Consequently, I understand the lines in origami insist on an acceptance—a belief in the past. To see its current form is to understand its past actions. However, the foam lines materializing on water's waves say something different. They epitomize temporality. You look closer to see the exact shape and they are constantly morphing and simultaneously disappearing. They also require acceptance, but due to their constant collapsing of certainty.

Foam's vanishing properties are set up by Sheets-Johnstone as she guides our attention back to the discussion on enaction. She references the poem from Antonio Machado that Evan Thompson cites as his and Varela's inspiration for the proposal of 'enaction' (2016b, 123). The first two lines are specifically cited by Varela and Thompson (Thompson 2007, 13) to highlight the aspects of movement for describing the enactive approach.

Wanderer, the road is your footsteps, nothing else;
you lay down a path in walking

Sheets-Johnstone brings our attention to the whole stanza of Machado and how it also conjures the idea of impermanence (2016b, 124). With the idea of impermanence, two different lines stand out:

Wayfarer, there is no way—
only foam trails in the sea.

It was upon reading this that the image of foam as an impermanent line, connected to one's own wayfaring, resonated with me. Foam trails or the tide-line—foam either as crests on the waves in the sea, or the edge of the wave that reaches the shore—are clearly visible and present, and yet disappear before one's eyes. Foam is a type of edge; a boundary between two surfaces or matters—of land and sea when part of the tide, or made of water and air when on a wave, that keeps reappearing—the same as before but clearly new.

Sheets-Johnstone argues that the enactive approach is geared to motor talk and not movement or "attuned to the realities of kinesthetic experience" (2016b, 124) and thus misses the foam-like nature of movement. German philosopher Peter Sloterdijk is known for using the idea of foam[2] as well. New terms, like origami and foam, can give rise to new ways of seeing things, and for Sloterdijk, his use of this metaphor has a specific political function—foam is hard to appropriate ideologically (Borch 2008, 566).

32 The similarity of combining the concepts of architecture, landscape and foam to that of Peter Sloterdijk's *Sphere Trilogy* (2004/2016) is coincidental. Sloterdijk looks at foam as a societal metaphor for architecture.

Sloterdijk uses the foam metaphor to bring attention to the individual cell units of foam bubbles that are "drawn into an interactive network based on the principle of co-isolation" (2016, 56) and the "pluralities of space and processes whose cells can neither be truly united nor truly separate" (ibib., 54). In my use of foam, the emphasis is not on the individual cells but on the distinct, yet ephemeral, line where two matters merge together. Where Sloterdijk brings attention to the micro cells that are separate yet connected to each other, I see foam as a generative form that comes as a result of different substances being entangled. I see foam not as a metaphor of society like Sloterdijk does, but as an individual in movement, describing their own withness between matters.



Fig. 104. Film still from *Between Foam and Origami*. Camera: Lukas Georgiou.

As foam can be seen as a temporary line formed by the joining of two matters meeting, I propose to use foam as a metaphor for seeing the achievement of the combined enactive-ecological approach. As foam is made from a type of spontaneous generation and is ephemeral, it is also appropriate to think of the dialogical practice in the way lines of foam materialize—lines are made through movement, ever changing, and embedded in the dynamics of the environment. "The agent is not simply caused by the environment, and the environment is not simply constructed by the agent" (McGann 2020, 5). Likewise, the water alone does not make the foam, but against the air or against the sand, foam from waves or the tide is made where two substances meet. Foam is a place, like our coupled perception and action, where we can see our sense-making agentive being emerge and evaporate.

In describing the sea, for Ingold, what is visible is "not objects and surfaces, but materials in motion" (Ingold 2011, 131). Foam is the space between enactive and ecological approaches. The dialogical practice allows the body to alternate between environment-dependent and actor-dependent attention. Foam is the dialogical body engaged in its practice. Like the dialogical practice, "foam signifies a fragile structure that can easily collapse" (Borch 2008, 552). Art historian Marcel Finke writes in an essay in which he thinks through the materiality of foam, that "liquid foam carries on as 'stuff in action'; its materialization is open-ended, never reaches a final state" (2017, 142).

Malafouris suggests "that the enactive-ecological framework can be the basis for a more adequate approach to the study of human perceptual experience" (Malafouris 2021, 111). Barad, claiming the need for a performative understanding of scientific practices, states, "knowing does not come from standing at a distance and representing but rather from *a direct material engagement with the world*" (2007, 49). Here we can use the words of Barad to lend description to the *withness* I seek through my practice, and to the flow of sense-making and agency that is imparted when we move in our environment:

> This ongoing flow of agency through which part of the world makes itself differentially intelligible to another part of the world and through which causal structures are stabilized and destabilized does not take place in space and time but happens in the making of spacetime itself. It is through specific agential intra-actions that a differential sense of being is enacted in the ongoing ebb and flow of agency. (Barad 2007, 140)

While the enactive and ecological camps have evolved with different beliefs due to intentions to explain different perspectives, it seems surprising that it has taken so long for theories uniting them to emerge. As a conscious being moving and making movement expressions as my art form, I am aware of the oscillation between when I am moved by movement and when I am moved to move. In other words, when I am moved by the environment and when I am moved by my individual perceptions and emotions. The environment that is created by the individual "is not something we are trapped in because we can always see beyond it to the next thing we can learn (Baggs & Chemero 2021, 2187). Performing arts bear similarity to the philosophical and scientific proposals on perception, sense-making, and agency as they require movement and communication as their material. Ryan and Gallagher describe the dynamic account of improvised jazz music as another example where "ecological resonance and enactive attunement" can be seen materializing at the same time (2020, 11).

I return to the main problem: Enactivists are said to believe that ecological psychologists think the world has a specific structure prior to the agent and the ecological psychologists argue that enactivists fail to consider the environment early enough and meaning thus solely resides with the agent (McGann 2020, 1–2). The radical embodied theory of agency is however a new way to sense these activities mutually. Shotter points out that Wittgenstein says we can use images, metaphors and comparisons to make distinctions with the newly sensed activities around us (Shotter 1996, 389). This chapter has proposed a solution: part metaphor and part practice. Foam is an impermanent, dynamic place where these two approaches or matters meet through a linear edge. Additionally, foam is the feeling for the dialogical dance practice, where agency and sense-making are negotiated and described through the environment-dependent and actor-dependent *goings on* that begin and end in the dancer's body while dancing—bringing to light what matters for them.

Differences that Matter

Barad states, "Meaning is not a property of individual words or groups of words but an ongoing performance of the world in its differential dance of intelligibility and unintelligibility" (2007, 149). Barad, elaborating on Canadian philosopher Ian Hacking, explains that "experimenting and theorizing are dynamic practices that play a constitutive role in the production of objects and subjects and matter and meaning" (2007, 56). Similarly, Malafouris (2019, 3) draws our attention to Charles S. Peirce to remind us that we are mistaken when we "conceive of the psychical and the physical aspects of matter as two aspects absolutely distinct. Viewing a thing from

the outside, considering its relation of action and reaction with other things, it appears as matter. Viewing it from the inside, looking at its immediate character as feeling, it appears as consciousness" (Pierce 1994, 6.268). The question proposed by Malafouris, "where does the thinking of the potter end and the forming of the clay begin?" (Malafouris 2019, 9), can be likened to the situation when drawing lines, but requires a closer look when posed in relation to dance and the lines as traces that are made. The dancer does not carve out the landscape, but their actions can affect other dancers, move the landscape by means of footprints and in the enactive-ecological dialogical claim, the dancer describes the spatio-temporal-energetic nature of lines. In other words, through describing space and time, movement as material results in specific types of energetic qualities.

To reiterate, foam is looked at here for its ephemerality as a type of line, seen in waves or the tide. It is constantly there and yet perpetually changing. Simply, foam is movement that comes from the meeting of two matters. Be they, architecture and landscape, or the enactive approach and the ecological approach to agency, the perceived differences between the two can also be brought together creating a zone of interaction that is transient because it depends on our perception that is coupled with our body and the environment that are both always in motion. As a dance practice, the body does not seek any agreement, but seeks to make sense through engagement of itself *with* the materials around it—and in doing so, *foam matters.*

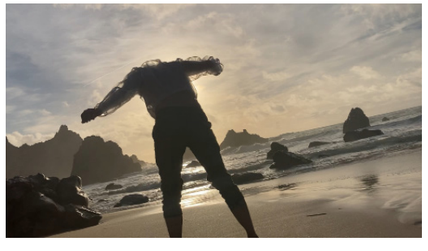


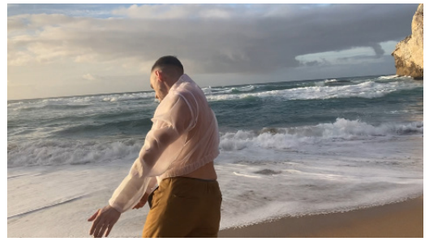
Fig. 105. Film still from *Between Foam and Origami*. Camera: Lukas Georgiou.

Between Foam and Origami









Click for Film

2022

Concept and performance: Michael O'Connor
Camera: Lukas Georgiou
Editing: Michael O'Connor

Between foam—a line that is there due to pushing and pulling of substances, and origami—an edge that is a line due to a fold—exists a feeling that is temporary and contextual and partially illusionary. To unfold the origami, the line disappears as the edge is gone. Wait briefly; the waves recede, and the line made from foam is gone. In a world where perceived lines are seen as static and bodily lines are the ephemeral or imagined ones, foam and origami produce lines with the same vulnerability as the moving body. Between these two concepts, I can also disappear when I organize my own movement around their structures. Partially like foam, the lines I make are contextualized, from my biography, and lines we make in relation to our humanness as a species—writing, building, drawing are held together metaphorically like origami where if we unfold the experiences that made those divisions, we lose what we are looking at. What I can do is made due to the folds and cuts that have left some things hidden. What seems so clear now, like a tideline, is gone before I can fully exhale. Origami gestures toward the lines that appear through extended time, and foam comes from the type of lines that are there for but a moment. Between these two physical, concrete concepts, time creates or time takes away. We can photograph a tideline, but no one will ever be able to see that line again. We can unfold an origami to show where that edge came from, but then we have lost the whole image the folds had created. We cannot see both at the same time. With this in mind, there is an acceptance that lines move, disappear, and cannot be used to point at aboutness. Near and far, rocks and body. Eye line on the horizon line and the ambient optic array are visible in the dancer's gaze.

The shadow line is straight and clear. This line between light and shadow merges into a sand fold. The camera shifts between the human and the landscape. What parts consist of the landscape? The passing birds, the tideline that keeps reprising, myself, and the camera. As movement is a method, the camera's movement insists on its own rhythm, revealing its own perspective. The lines of thought of the viewer are not guided but interfered with.

We seek narrative. We strive for understanding through a convention. We are uncomfortable with the unknown when we cannot step back and name what we want to be after-the-fact knowing. To look for the connection between the dancer and their surroundings misses the practice of no distinction between dancer and landscape. The describing-with-their-body is the relationship. The environment moves the dancer.

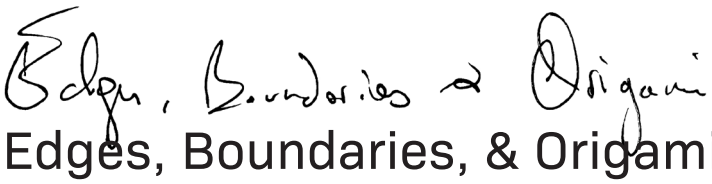
The dancer is not concerned with his own shadow or footprints left in the sand any more than the lines they make with their body. Some are visible, some leave marks, and some are temporal traces. The leg draws a line in the sand and the sand, as soft and impressionable material, becomes marked. The water washes it away, creating its temporality. Ronde de Jambe—a beautiful and historical and also the most basic and personal type of in-SCRIBE-ing.

The dancer gestures. This gesture of pointing does not point to—the gesture ends just shy of indication. Before we shoot off to the place or the thing that the hand gestures to, we fold back towards the landscape. In the dance, the body folds because it can. If we think of folding as a responsive entangled action of listening, then listening with our eyes in the dialogical practice, the environment creates folds in the dancer. The reaching out also folds back in.

The person filming senses the details, and their body is implied. The movement of the images makes visible specific lines, which the camera then abandons for other images, contours, and delineations. The camera makes present a visual tactility of the watery or carved lines. The sensuous is intellectual. They are not separate. The camera allows the viewer to see metaphors and compositional contiguity. The linear designs of the body in silhouette match the edges and perimeters of distant rock formations. The dancer as a line maker makes lines in the same way as the camera makes lines, as do the waves, the birds, and the edges of cliffs over time.

The changing of attention in the image does not mean a lack of awareness or focus but documents the space of witness where the perceived lines of rock, the sound lines, and the dancer's moving lines work together. The rock becomes the body; the body leaves traces in the sand, and the water erases the traces through a moving crisscross of water, and a new tide line that disappears, affording and inviting the dancer forward. As the sun sets, the water moves higher, more forward into the beach—a moving line into the landscape as the sun gets closer to the horizon line.

Fig. 106–109. Stills from film: Lukas Georgiou.



Edges, Boundaries, & Origami

Edges allow us to see lines in a specific way. Edges are often seen as the borders of objects, allowing lines to be the material that creates the shape and perimeter of every object. Within the concept of origami, an edge is a result of folding, as mentioned before. It is created through movement. This edge, however, is not the border of the object, as the fold bends the same material into the other side. Gibson differentiates between these two and would call this kind of edge a corner: "An *edge* consists of one surface in front of another, and a *corner* consists of one plane surface joining another" (1983, 200). This edge creates a line that is a boundary between two surfaces. Edges and boundaries also appear in the corporeal and imagined places of our body.

An edge can both be used to describe a border and a boundary. A border traditionally evokes an idea of a specific line around a perimeter of something. A boundary references a line between two areas. In Sheets-Johnstone's book *Insides and Outsides* (2016a), boundaries and edges are conjured by the title alone. To be inside or outside of something, an implicit line is crossed—an imagined line is brought forth in this conceptualization. To step inside or outside of something, our awareness is brought to those boundaries—to edges of distinction. Mark Johnson's analysis of the CONTAINER image schema in Conceptual Metaphor Theory points out that the nature of a container is that things are either *in* or *out* of it (1980, 39). In this way, containment presents edges and borders within its logic. Johnson also makes correlations to one's perception of self as a container: "The INNER-OUTER pattern also supports the imposition of a SUBJECT-OBJECT orientation, in which our subjectivity is defined in terms of that which is inmost or central to our conscious being" (1980, 125). I can sense a boundary to what is me in my understanding of myself. Edges, boundaries, and folds are looked at here in a variety of ways because it will provide us with a specific way of looking at relationships. From perceptual psychology to neuroscience, lines can appear in forms of edges or boundaries that bring vision and touch together.

To examine edges, we must not only look to vision but also acknowledge the tactility that is evoked. "Vison learns from touch" says Sheets-Johnstone, proposing that concepts coming from our tactile-kinesthetic body pave the way for visual concepts—for example, "the concept of an edge giving rise to the concept of a line" (2016a, loc. no. 365). The edge is a line we can feel. In the sense of vision, an edge is perceived as a line. Sheets-Johnstone wants to acknowledge that our tactile and kinesthetic body introduces us to edges that inform our vision, which creates concepts in our thoughts. Acknowledging the relationship between kinesthetic and tactile experience in the world that informs visual concepts and subsequently shape abstract mental concepts, is important as it brings the body to the center of discovery.

Running your tongue along your molars, Sheets-Johnstone points out, as you progress to your front teeth, you discover a tactile change in that the surface starts out irregular and bumpy and ends in a thin, even, single edge (2016a, loc. no. 4416). "Straight edges are paradigmatic of synesthesia, straightness being a visual datum, edges being a tactile one. Tactility, in other words, determines the evenness of an edge, not its straightness, as any few moments with a blindfold will attest. Thus, with respect to straight edges, vision appropriates what is originally a tactile datum and makes it its own. In the process, a new meaning is forged. Straight edges produce straight lines…" (Sheets-Johnstone 2016a, loc. no. 4459). The example of our tongue in our mouth, that we can all do right now as we read, bridges this inside tactility with outside visual or conceptual understanding. I can feel what she means. I can also ask that you look at your elbow and see the sharp defined edge of the bone. Yet, when touching it, the feeling of the edge is different. Our eyes and tactile feeling bring different senses. As Sheets-Johnstone brings our attention to our tongue, to investigate ways we understand edges and thus lines, Gibson brings our attention to our vision and the movement that is so tightly paired with it.

Ambient Optic ARRAY

To explain his concept of the *ambient optic array*, Gibson gives us drawings of the structure of light in the environment. In Gibson's drawings, he situates a person in an environment and from the perception point of a viewer, light is drawn at angles illuminating the space (see fig. 110). Light is depicted as line segments directed to the point of the person's eye and other lines are cast back out toward the objects that are in the viewer's eyesight. Alva Noë says, the ambient optic array, or light from a specific perspective, to put it simply, "is how things look from here in these conditions" (2004, 104).

With the introduction of the term ambient optic array, Gibson theorizes that we should not separate space and time, as if space were a bunch of points frozen in time. Instead, he proposes an ecological optic that considers the fact that "the optic array *flows in time* instead of going from one structure to another" (2014, 67). A break in this flow, for Gibson, produces an edge: "The *edge* of a surface in the room is specified by a discontinuity in the flow of optical texture" (1983, 199). Compared to theories and research on light by Gibson's contemporaries, who looked at light on the back of the retina, Gibson was applying a psychological layer in that it was the ambient array that "provides the basis for our awareness of the environment (Noë 2004, 105). Our vision moves and moves us, uniting time and space hand in hand. Noë clarifies that Gibson's approach was radical, for it "suggested that we directly perceive meaning and value in the world; we do not impose meaning and value on the world" (2004, 105).

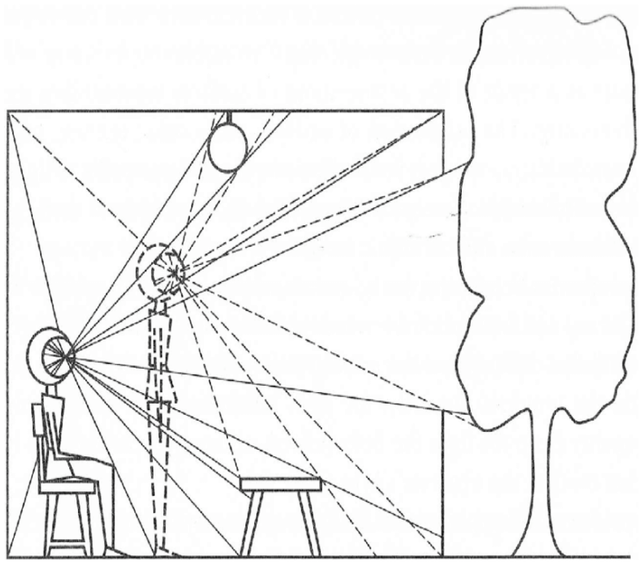


Fig. 110. Drawing of Ambient Optic Array from Gibson 1979.

The edges or outlines of what is visible by means of ambient light changes as the viewer moves (1983, 196), and yet as Gibson explains, we are able to understand the actual shapes of things even though they appear differently depending on our moving perspective. Something that we know is square does not always look square. Gibson proposes that a moving point of observation is actually the basis of our visual field and that observing things while stationary comes secondary. Gibson differentiates between physical motion and optical motion, calling the former an event and the latter a stimulus. Whereas the former involves mass and inertia from physical bodies,

the latter does not, because optical motion concerns itself with the proximal stimulus at the eye and this is not the same as the physical event out in the world at a distance (1983, 201). Furthermore, our locomotion through a rigid world, and observation of the layout of the rigid world, happen simultaneously (Gibson 2014, 68–69). Similar to Sheets-Johnstone, Gibson is asking us to avoid a psychological trap to think of objects in space, but rather to realize that we navigate by means of motion, and our visual system perceives and picks up on these varying changes.

The ambient array is what allows us to see affordances, which are directly related to our own capabilities. Being aware of the world and our movement in it, Gibson says: "exteroception is accompanied by proprioception—that to perceive the world is to coperceive oneself" (2014, 133). Coming from the psychology of perception, Gibson appears to be grounded in phenomenology by recognizing that the biology of our animate being brings our self and our environment into entanglement. This leads me to reply: we are not what we think—*we are what we perceive*. Ingold, in a talk on Gibson's affordances, shares his idea on perception: "Perception is not about organizing sensory data in terms of acquired concepts but rather attends to what the world itself affords in the practical conduct of life. Then to perceive the world as others do, we don't have to get inside their heads. It is enough to join with them in their activities. All perception entails movement, and as Gibson pointed out, moving observers can be at the same place at different times. It requires no effort of conceptualization to share the same world" (Ingold 2022). Perceiving is not objective—it is relational to one's surroundings, and one's self.

To see one's surroundings, what Gibson means by the ecological approach, is to see surfaces and therefore edges. We see surfaces and edges mark other surfaces that are hidden or covered due to our position between the object and the light source. Visually scanning the space reveals implied hidden surfaces due to the edges that appear when objects overlap each other from our perspective. "The information provided by kinetic occlusion and its variants is extremely rich. It specifies the existence of an edge in the world, and the depth at the edge, but it does even more. It also specifies the existence of one surface behind another, that is, the continued existence of a hidden surface (1983, 104). In discussing the ambient optic array, Gibson organizes his main observations into seven points, under the title Optics of Occlusion. To occlude means to block off or obstruct. For this research, points three and five through seven will be looked at.

The Optics of Occlusion (Gibson 2014, 77–78)

1. In the ideal case of a terrestrial earth without clutter, all parts of the surface are projected to all points of observation. But such an open environment would hardly afford life.
2. In the case of an earth with furniture, with a layout of opaque surfaces on a substratum, some parts of the layout are projected to any given fixed point of observation and the remaining parts are unprojected to that point.
3. The optically uncovered surface of an object is always separated from the optically covered surface at the occluding edge. At the same time, it is always connected with the optically covered surface at the occluding edge.
4. The continuation of the far side with the near side is specified by the reversibility of occlusion.
5. Any surface of the layout that is hidden at a given fixed point of observation will be unhidden at some other fixed point.
6. Hidden and unhidden surfaces interchange. Whatever is revealed by a given movement is concealed by the reverse of that movement. This principle of reversible occlusion holds true for both movements of the point of observation and motions of detached objects.
7. We can now observe that the separation between hidden and unhidden surfaces at occluding edges is best specified by the perspective structure of an array, whereas the connection between hidden and unhidden surfaces at edges is specified by the underlying invariant structure. Hence, probably, a pause in locomotion calls attention to the difference between the hidden and the unhidden, whereas locomotion makes evident the continuousness between the hidden and the unhidden.

Point three remarks that the optically uncovered surface of an object is always simultaneously separated from and connected with the optically covered surface at the occluding edge (ibid., 78). We see in points five through seven that Gibson investigates the relationship between hidden and unhidden surfaces. Returning to point three, an uncovered surface creates a hidden surface for objects behind it. In addition, in our visual field these layered objects are perceived as connected due to the edges that overlap. The objects are also felt as unconnected because we are aware of the hidden areas we cannot see, which distinguish them as different objects and the distances between them. We perceive through imagination the elements that are out of view and that can come into view through changing our positions. Gibson explains that the things we do not see are important for depth and for us understanding the environment we are in. He states that this "information is implicit in the *edges that separate* the surfaces" (2014, 69). The edges become the lines that we see separating the object from other objects as well as revealing hidden spaces and distances between locations in the environment. These selected points can, for the sake of this research, be summarized as bringing our *attention to the relationships between hidden surfaces, layered objects, and the relationship those make through the edges*. We now turn to applying this information to artistic practices.

As I write this in my kitchen, I see a vertical white pipe for water drainage against a white wall. We may not actually see the edge of a white pipe against a white wall, but we see the shadow caused by the position of light. This shadow behind the pipe, and our stationary position, creates the appearance of an edge. Whereas a box would have an edge on its sides, a cylindrical shape does not in fact have a vertical edge, as it is round on all sides. Here our eyes actually see a line, but we could call this an imagined edge or perhaps a fake edge. The edge created by the shadow informs us that the pipe is not on the wall but slightly away from the wall, revealing depth and difference. It is this shadow resulting from the ambient optic array and the covered areas that becomes a line that can be worked with by a dancer in what has been called the affordance dance practice. In this example, I would work with the affordance of the pipe being grip-able, and that the unseen hidden space, as Gibson explains is present in our understanding, allows for my hand to want to slide behind it. Doing the affordance dance practice, I might make a gripping or sliding action in relation to the hidden space provided by the affordance of the pipe that is made visible by its edge due to our understanding of hidden surfaces that Gibson points out in the optics of occlusion. Though this may sound complex, the action is performed quite easily because we operate using this awareness on a daily basis.



Fig. 111. Pipe against a wall.

It is in this play between hidden and unhidden that we understand the separation of objects, and this is the space that the dancer plays in. Further examples from my practice include: sliding a hand under an object to gesture flipping it over, bending down to go under a branch of a tree in the distance, or pivoting a shoulder to enter through the darkness that a door slightly ajar creates. In these examples, the surfaces are first made available through their edges, and then the size and knowledge of their features allows us as humans access to their affordances, which then get realized as movements by the dancer. Compared to wanting to put your hand inside the toaster (because one knows a toaster holds objects the size of one's hands), looking solely at the edges

and hidden surfaces provides movement relationships that do not bring forth the already known affordances of the object. Simply seeing a toaster as an independent object that has space under it or behind it, gives me movement possibilities like flipping it. The toaster could weigh 500 kilos or be glued down and not be flippable, but the covered and uncovered surfaces bring knowledge and are not just color variations as they provide spaces to interact with. It is the direct perceived affordance in relation to objects as a type of knowledge that allows the dancer to move, more so than knowing the function of the object and pantomiming it. As Noë had reminded us above, we can directly perceive meaning from objects and it is that type of interaction that this practice relies on.

When seeing our environment, Gibson says a "surface is *projected* at a point of observation if it has a visual solid angle in the ambient optic array; it is *unprojected* if it does not" (2014, 71). He then lists three situations where the surface may become unprojected, namely when we are located in a certain relationship that it becomes 1) just a point, 2) if the angle is compressed to a line, or 3) if it disappears (ibid.). What we get from this observation is that a surface may have multiple lines as edges when we see the full surface, but if we are placed at a certain perspective, the angle of the surface may fold into just one line. These changes that happen through movement of the agent in the environment are what allows lines to constantly reform themselves, appear, disappear and offer different affordances based on the psychological knowledge that that line offers. Looking through a window to see a tree in the distance, the many branches lose distinction and only the edge of the outline of the tree is made visible to me. I know it is a tree, but if I stay attuned to what affordances and the optic array are revealing in my perception of this tree, I have a small curved object that appears to be the size of my hand, and within *that* object is where I interact with its edges and lines to either trace, respond and translate into actions. I do not interact with a tree in how I know a tree in its full detail, but I interact in how I perceive that tree, at that distance, in that situation—its apparent size, the time of day, and its movement. Building upon this concept of perceiving edges, the following section delves into a photo series that explores edges, folds, and surfaces in a different manner, using skin and paper as materials.

Flesh and Origami

For something to have an inside and outside, presumably it must have edges. When thinking of origami, the folds create insides and outsides that are only situated and temporary as origami or any form of folded paper is always unfoldable. Sheets-Johnstone speaks of the body as having an inside and outsides, but in regard to the body, edges are difficult to pinpoint. Like in origami, edges within a human body are more like folds. The apparent lines are connecting surfaces. Edges are tactile and lines are visual, as we now identify.

Instead of lines of the body being created by limbs of linear design or traces of linear patterns, lines are also seen in the following pictures through shadows and folds. The origami used in this work is created from the invention of Paul Jackson's (2011) one-fold origami designs. Black and white images allow the white paper and skin to both reveal shadow and light through edges and boundaries. Paper and skin, both folded, line up origami and human side by side. Through the artistic renderings of metaphor and contiguity used in this methodology, the folds of the body and paper contrast and complement each other. By bringing the flesh and paper next to each other, metaphoric relations are created where paper and flesh are seen in the same quality—folded. Sharp edges of paper abruptly dissect space, though the paper also finds arching contours and gradations of depth.

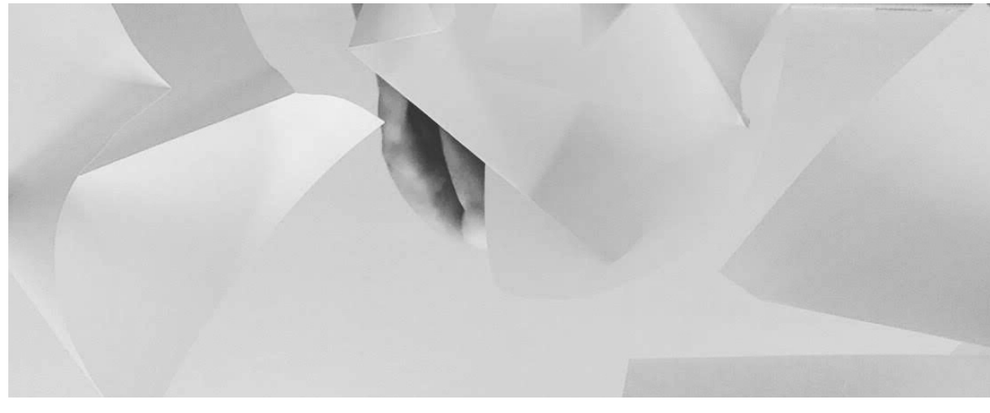
As a visual product, the photos bring to this research a proposal of human body as origami. The body is able to be seen in its folds and as metaphor. As noted in the section of Art as Metaphor in 'The Metaphoricity of Lines' chapter, this artwork functions in the way visual metaphors do as proposed by Hausmann (1989, 152). In this case, HUMAN BODY AS ORIGAMI and ORIGAMI AS HUMAN BODY. The body is seen in its line and in juxtaposition to lines in space. Compared to the optic array that makes visible edges in the environment that a dancer can interact with, in these photos the dancer is not actually interacting with the folded paper, but the viewer is given the opportunity to make correlations between edges, folds and lines that unite a body with the environment. Occluding edges separate and connect the human folds with the paper folds.

FLESH and PAPER FOLDING











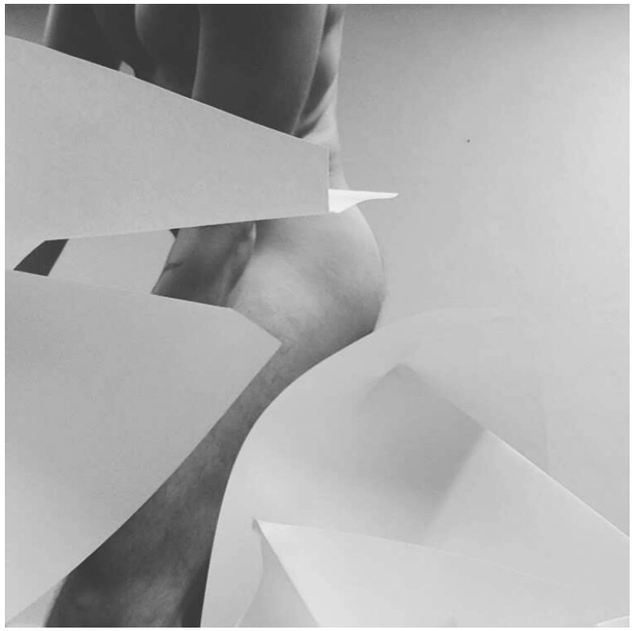


Fig. 112–117. Dancer and Camera: Michael O'Connor.

Peripersonal Boundaries

In the previous images, the light on surfaces allows the viewers to make inferences that the paper is close to the camera and the body is farther away. The occluding edge as Gibson has shown is seen in those pictures to draw boundaries between objects. However, edges are not only a property of physical objects. Edges of one's body actually extend outside of its physical form. An imagined boundary around one's body is another line our physical and mental worlds create due to the brain's responsiveness to its environment. The imagined boundary around a person is made evident in cognitive science studies for which a different movement practice exploring edges will now be presented.

Peripersonal space, also called extraperonsal space, is an area around a person typically from 5 cm to 1 meter. Extrapersonal space is represented in the brain by visual-tactile neurons (Graziano & Gross 1994, 1021). Neurons that respond to both somatosensory and visual stimulation are referred to as 'bimodal neurons' (Maravita & Iriki 2004, 79). Bimodal neurons were even found in some studies to respond as far as 1.5m from a subject's arm, resulting in extrapersonal space that had a visual receptive field which simulated the impression of touch (Graziano & Gross 1994, 1024). Certain areas of the face can also respond to a stimulus that is 1m away, but in general, the whole face becomes responsive and is sensitive to stimuli between the 15–30 cm areas of the extrapersonal space (ibid., 1026). Tests to discover these types of neurons have largely been conducted on non-human primates, yet neuroimaging studies in humans suggest similar visual and tactile bimodal neurons in the human brain (Gentile et al., 2011, 910). When the subject can even see an object entering their visual receptive field, touch is simulated approximately extending 10 cm out from their tactile receptive field, meaning their body (Graziano & Gross 1994, 1023). This last study mentioned also showed that the response was weaker at the edge of the field and the response was stronger when the stimulus was moving toward the face, compared to a stimulus that was moving away from the face (ibid.). Knowing these details helps approximate distances for the upcoming described practice.

Visual tactile neurons do not only fire in regard to one's own body. In an essay by Ishida et al. (2004), research is cited (Blakemore et al., 2005; Keysers et al., 2004) supporting the claim that the somatosensory area in one's own brain is activated when observing another person being touched. Studies that looked at the bimodal visual tactile response when seeing others touch also pointed out that the subject can predict the point of impact or determine the visual location of a tactile stimulus on the other when an object is approaching (Ishida et al. 2004, 94). The study from Ishida et al. concluded that the "coding of others' body parts occurs in the same area that encodes self body parts, and that the map of self body parts is referred to in perception of others' bodies" (ibid.).

Whether the eyes or the arms move, "the visual receptive field adjusts in order to remain attached to the tactile receptive field" (Graziano & Gross 1994, 1028). This highlights the stability present in the body's schema that is flexible and adaptable to the movement coming from either the eye or the body in motion. The edges for the peripersonal space that simulate touch move in relation to what is visible and adapt to the body changing places. The face and arms are the strongest areas for bimodal neurons that contain "a somatotopically organized map of the extrapersonal visual space near the animal" (ibid., 1030). In other words, "the visual space near the animal is represented as if it was a gelatinous medium surrounding the body that deforms whenever the head rotates or the limbs move" (ibid., 1031). This description of gelatinous medium that surrounds the body is a helpful way to envision this imagined boundary and to remember that it moves in relation to the body moving. Though we envision it covering the whole body, visual responses were not found in legs or lower trunk areas of the body, but it is suspected they could exist but in much lower proportions (ibid., 1032). Furthermore, when we touch objects, we bring those objects as well into our own gelatinous medium: *two imagined blobs where edges overlap without hidden surfaces.* In studies looking at tool use (Maravita & Iriki 2004), a subject holding a tool to extend their action space, also extends the border of their extrapersonal space. Our imagined borders can grow and increase in size, depending on what we interact with. Edges of ourselves move and transform.

Peripersonal Practice

Johnson describes that when we look for a common structure of being *in* something, or for locating something *within* another thing, we are usually sensing a three-dimensional spatial experience that involves differentiation and separation (1980, 21–22). The edge of our peripersonal space is the imagined line where we cross over *into* someone else's boundary. When the boundary of this space is on the lower end, 5–25 cm, it is an area we often ignore or pass through. When we are in this range with a person, it is usually in situations like an elevator or a crowded subway. We do our best to ignore that our border is overlapping the others'. We feel it and it averts our gaze or alters our breath. Or, we encounter this space right before actual touch happens with someone. It is not a space we are accustomed to spending time in. Therefore, under the pretense that this is true, and that humans also have the perception to feel touch in the extrapersonal space around them, a peripersonal movement practice was created to allow us to navigate this imagined border. This imagined edge between the boundary of neuron activation is used to explore touch before tactile interaction happens.

In this practice, dancers use their hands to navigate the peripersonal space of another dancer (see fig. 118). Dancers are taught beforehand about visual tactile neurons and the concept of peripersonal space. Moving slowly, the dancers involved never touch skin to skin, but simulate touch through the neurological processes of visual tactile neurons—touch is experienced before contact is made. As sight is an integral element for activating the bimodal neurons, the dancers track their eyes with their hands, not only to make sure they stay in the 5–20 cm zone away from the physical body, but also for the required condition that vision is the component to simulate touch.

By moving my hands along the peripersonal space of my partner, my partner sees my hand, and through their vision, feels that I am already in contact with them. Additionally, watching my own hand engage in this space, vision also connects me in that I feel myself that I am touching them. However, the component of vision is also constructed for any audience or outsider watching. For an outsider watching the two bodies (or more) engage in each other's peripersonal space, their vision also becomes a component that simulates the responsive field of the visual tactile neurons, as explained in the studies listed above.



Fig. 118. Peripersonal practice from *TERTIARY* (2014). Dancers Karin Pauer, Raul Maia, Michael O'Connor. Photo: George Scheu.

In this practice, all of the dancers can be the toucher and the touched, or what I refer to when teaching this exercise as the researcher and the landscape. The researcher is aiming to investigate the edge and how to shape their hand in accordance to the body they are investigating. The term landscape is used so the researcher feels invited to move their exploration along a changing terrain and so that the 'touched' role has a sense of stillness. The touched should feel they are not passive but are an equally important part in the relationship. Pulling from Gibson's use of 'ecological', the sensing and perceiving that is happening resembles his reciprocal proposition of how an environment and subject inform each other. "The ecological approach takes as its unit of study the animal in its environment, considered as an interactive system. The relations within this system are reciprocal, with the reciprocity including a species evolving in an environment to which it becomes adapted, and an individual acting in its own niche, developing and learning" (Gibson & Pick 2000, 14).

When both subjects are moving at the same time, one must move slowly and be aware of where all parts of one's body are in space. In addition to focusing on your hand and maintaining its placement in the peripersonal space of the other, your peripersonal space is also a landscape that is being explored. The dancer only needs to slowly move the hand and the areas in which the hand is in contact. When the dancer wants to move from the front to the back of their partner, their body or feet may be able to walk at a normal tempo as long as their hand can maintain a slower speed. However, when both participants are engaging in the practice at the same time, the other person may have their hand alongside the leg or foot of the other dancer who intends to walk. Therefore, both parties need to be simultaneously aware of their point of contact and where the point of contact is with the other on them. This intention is to eliminate possible situations where a fast movement by one person would detach the other's hand from the peripersonal space of themselves. Slowness is also a function that is needed to feel the simulation of touch. The practice can speed up once the initial effort has been made for a felt sense of being touched which usually is achieved through slowness. When movement is too quick, the participants lose sight and feeling of the imagined borders.

Through practice, strategies are developed that can creatively cover mistakes or allow for quicker transitions. To illustrate, one dancer's hand may be between the other's legs and their palm is facing toward the left leg as it moves down toward the foot slowly. The other person inadvertently steps back with their left leg, and this forces the hand to no longer be in the peripersonal space of the left leg. Noted by the details in the bimodal neuron studies, the hands need to be in a certain centimeter range to initiate the sense of touch, therefore performative solutions were explored for this type of scenario. The dancer or researcher's hand could quickly flip palm orientation and since their hand was between the legs, the right leg is still in the same position and now the focus has been placed into the peripersonal space of the right leg as a new landscape. The palm facing toward the skin helps create the feeling that one is being touched as this is the most common way we grasp or touch items. However, the researcher does not necessarily need to flip the wrist as the only option. If the left leg quickly steps back accidentally, they could also pull the back of their hand into the peripersonal space of the right leg and not flip to the palm facing side. As the hand more or less is already in position anyway, the actual performance of the hand to acknowledge the switch in leg connection could be a relaxing of the fingers or angling the back of the wrist to contour the shape of the other's leg. These small details attune and align the two body parts. Lastly, if the researcher's hand had been near the ankle when the left foot was surprisingly stepped backward, the researcher could also run their hand to the floor and maintain an equivalent distance to the peripersonal space of floor. This tactic keeps the hand near a surface so that it does not get left hanging in completely empty space, and while hovering over the floor, the dancer can very easily bring the hand over to the partners right toes and continue up their right foot that is available. After a prolonged practice of being in a person's peripersonal space, these moments of engaging in the floor's space would not activate any bimodal neurons from the floor as the floor does not have a brain, but for the dancers involved and those outside watching, an illusion is felt as meaning has been established at this distance. This then allows for continuity until peripersonal space is reestablished.

In order to keep the investigation going that the dancers are touching each other through the peripersonal space, it is important that they never touch skin to skin and that the hands do not get left hanging in empty space as the

visual tactile neurons are not responding if the hands are farther than the periperonsal boundary of the person. It was also found through practicing that if the hand reaches the end of a person (e.g., top of the head, end of the fingertips, etc.) and due to the constellation of space and entangled body parts, the dancer has no further space of their partner's body to cover (e.g. their eye sight is also blocked or someone is in the way for them to return the direction they came), the dancer could also enter their own peripersonal space. The hands become the subject exploring the imagined peripersonal landscape of themselves that is felt due to vision eliciting bimodal neuron responses. The tactics of pausing, touching one's own peripersonal space, using the floor or changing the focal point from the front to back of hand allows the dancers to stay in this space, without increasing speed, exiting the peripersonal space, or engaging in tactile touch. The need to adapt in this practice can be seen simultaneously through the flexibility of the peripersonal space and the evolving, ecological interaction between the reciprocal actions of the dancers acting as landscape and researcher—toucher and touched.

This practice has been explored by professional dancers in contact improvisation groups where touch is normally the means of communication, as well as used in a full evening piece of mine titled *TERTIARY* (2014) that was about stimulating empathy for the audience. For ten minutes, three dancers in *TERTIARY* explored the peripersonal space of each other. What could be seen as performative minimalism, the act was relying on the neuroscientific claim that touch was being registered by the dancers and more importantly the audience. This practice has also been introduced twice at festivals for men working on intimacy and connection, once in 2019 and in 2022, each attended by 60 participants. The practice for a workshop setting was titled Being with Apart. Participants included men of all ages and experience levels, from professional dancers to those with no dance training. Participants afterwards told me[1] in both years that it was the best workshop they had taken, due to the novelty and depth of the practice. Other feedback that came from short group discussions afterwards touched upon psychological and emotional responses they had experienced. For example, one person said while working in a trio, they felt they connected though not touching, and when one of the men left their peripersonal space and crossed over into the other dancer's space, they had the realization what being in polyamorous relationships might feel like. They felt the practice had aspects of being erotic, sensual, playful, serious and that it morphed easily between these observations. The changing of emotions and thoughts was intriguing as it was connected to a stable movement practice. The practice itself I find is simple and approachable for beginners and can be challenging for experienced movers who can explore the nuance and details this space affords and the changing edges and complications movement brings to the practice.

33 Unrecorded conversations with participants of the workshops. Verbal feedback and responses are typically given after a movement workshop where participants share observations.

Edge of Perception

Movement itself does bring challenges and complexities. Sheets-Johnstone's attempt to distinguish between two sets of feelings when moving, pushes one to what I could call the edge of perception[2]. "In effect, any movement I make creates a certain spatial dynamic in virtue of its spatial qualities and is at the same time a three - dimensional happening: it is both kinesthetic and kinetic. In Husserl's terms, it is both an internal and external happening" (Sheets-Johnstone 2016a, loc. no. 728). She differentiates between this internal and external feeling, describing that movement is spatial in a double sense. She says movement consists of "*kinesthetically feeling* a certain qualitative spatial dynamics (curved, jagged, twisted, straight, constricted, confined, expansive, open, and so on) and of my *kinesthetically perceiving* the three-dimensional reality of my movement" (ibid., loc. no. 732). I can use her own terms combined with Daniel Stern's to make sense of what I understand her to be saying. We can perceive the linear designs and linear patterns our body is making when we do a movement, and we are also aware of the vitality affect (Stern, 1985) those movements mean through time and effort. Sensing the difference of these two within the same action feels like an edge of perception. The oscillating between two ways of sensing something creates an edge of differentiation in our perception.

34 In 2021, I invited visual and performing artists Kimbal Bumstead and Tony Orrico to a few online meetings to discuss lines. Our shared interest was using the body to create visual and movement-based art out of lines. In these discussions, the term 'edge of perception' was introduced as a new type of line we could explore.

However, Sheets-Johnstone proposes that when it comes to self-movement, we cannot label it as a perception or a sensation. We do not have a sensation of it, she says, but it is something we feel. It is not the same type of sensing when we encounter light or smell because it is something that happens inside of us, whereas perceiving involves

something we know is out in the world. Therefore, when moving our bodies, we experience flow and dynamics with our actions, unlike sensations that, as Sheets-Johnstone states, have no inherent connection because they are not dynamic events (2016a, loc. no. 771–776). Yet, when our own self movement is translating the movement of something or someone else, perception of something out there is entangled with our inner feeling of movement.

The drawings that follow were created in 2021 where I had followed a live figure model, Asher Lev, who was broadcasting online their posing sessions to an art class. From attending virtually, I had created these line drawings from noticing my perception of the situation and its movement. The term edge of perception also seems fitting for the type of line creation that came from those interactions. I was perceiving the model's movement and where my own attention went by means of noticing my ocular movements. The tracing of lines in the drawings is a fusion of my ocular movements and the perceived motion of the model and camera. The edge of perception could be



Fig. 119. Drawing of self eye tracking.

understood as the felt difference between these two motions: movement of the model and that of visual tracking.

In Figure 119, the model held his smart phone in his hand and had it facing him. Occasionally he would turn the phone around and broadcast the people in the room drawing him. My initial approach to this session was to have my pen draw where my eyes traced. Different than figure drawing, where I see the whole subject and am trying to proportionately capture the entire model by its form, I started by allowing my eyes to track as one line and I then had my hand trace accordingly. Therefore, when he flipped his phone around, in the same location as his chest, the live drawers in the room were now on the camera and they appear in my work drawn inside his chest area. His turning of the camera phone flips the scene, and as an online drawer participating in his broadcast, two different scenes get drawn with one line on top of the other. His flipping of the phone was unexpected but because I was not trying to draw him, my task was to translate the tracking of my eyes into traces of hand drawing, the same task continued when the phone showed another scene in the room. I did not have to stop the practice. My vision flowed. I did notice that I was looking down at my paper in order to stay on the page and did not draw the visual trace my eyes made to the paper. I had given myself the logic to only trace where my eyes tracked within the broadcasted video.

In Figure 120, the model was lying down, and the camera was broadcasting his chest rather close up for a five-minute pose. As there were no edges for my eyes to move around, like in the previous engagement, and he was not moving his camera like in the previous session, the only movement was from him breathing. In this drawing, the pen on the paper traced his inhalation and exhalation. The optic array did not reveal hidden surfaces or edges, but the breath caused movement which was seen in a change of shadow. Deeper breaths took more time. Time and space of the breath is charted as lines. What I saw visually was translated into drawn lines.

Fig. 120. Drawing of chest breathing.



In Figure 121, I was tracing the movement of the camera. Unlike the first drawing where the camera was not moving when it was either facing the model or those drawing, in this pose, the model was moving the camera constantly, so the image of himself appeared to move; in fact, his arm holding the camera was moving, which created movement for the static part of him he was filming. He mainly moved the camera around his shoulder area and a few times made sudden changes, as well as brought his head into view. His head is outlined less than this shoulder area in the drawing below. As my perception is coupled with the camera's movement, the traces in the drawing follow the line of his movement. I view the edge of perception, like in the other drawings, as the practice of staying attuned to where my eyes are traveling or allowed to travel and not attempting to override the experience with executive decisions or desires for outcomes.



Fig. 121. Drawing of moving camera.

The edge of perception in these drawings was found by staying present in the unfolding dynamics when engaging with the situation. In each drawing, different elements were proposed, and I had to sense where lines were available through boundaries, borders, or movement. Sheets-Johnstone says, "The concept of space derives from movement" (2016a, loc. no. 741). In these drawings, the edge of the model's body, or the movement of his breathing or the camera actions created space for my eyes and hands to trace. Having no clear approach when I sat down with the pen and paper, I relied on my knowledge of lines and movement as a line to guide—knowing the *Body as Translator* practice would allow me to move lines across different domains. "Thus the leading edge of action, where it pushes out into the unknown, is a moment not of doing but of underdoing, not of mastery but of submission — a moment of exposure to a world that may or may not afford possibilities for carrying on" (Ingold 2015, 139). Action, which is a type of perception, is seen here also described by Ingold as an edge that when followed can guide us toward new possibilities. Using the edge of perception to guide myself with different approaches for these moments of figure drawing created drawings that I otherwise would not have set out to do beforehand. As noted in 'The Materiality of Lines' chapter, the ambiguity of lines in cave drawings allows us to sense similarities and likeness; the drawings here are not inarticulate, but capture the essence of something underspecified.

Folding back in

My research intends to allow the concept of a line, be it an edge, a fold, or a boundary, to come into proximity and move through different senses without the need to be retitled but relocated. This is somewhat similar to Ingold's approach, who does distinguish threads and traces but considers them all lines. Gibson's approach is to separate a fiber or thread from a geometrical line as something different (ibid. 30). The location categories I propose of imagined, traced, and perceived bring our attention to those domains, but the lines hardly stay categorized in those boundaries. This is the nature of lines and therefore I argue we lose some insight into our ability to see similarities if we define edges as something radically separate from a line. It is this flow of lines' ability to be felt, seen, traced, and imagined through different senses that make it difficult to implement a complete taxonomy over different types of lines. This is why for the research presented here, the location of the line is prioritized more than distinguishing if it is an edge, border, thread, fiber, or cut etc.

As seen with this double spatial sense Sheets-Johnstone introduces, an edge can be imagined between the felt awarenesses of our movement. It can also be a phenomenon in our vision that allows us to understand depth by means of exposing hidden spaces—or creating the illusion of an edge on cylindrical objects as Gibson describes. It can be imagined as a blurry boundary demarcating our extrapersonal space. An edge can be found in the physical, corporeal, mental, and visual world. It can be animate itself, moving as the body moves and can change through the influence of other elements. "Lines are visual translations of tactile contours" (Sheets-Johnstone 2016a, loc. no. 4457). As Sheets-Johnstone has brought our attention to the fact that an edge is tactile, it is something we feel, and this feeling gives way to our visual and conceptual understanding of lines. "Tactility and kinesthesia are indeed commonly intertwined: our tactile-kinesthetic bodies are the bedrock of the dynamic invariants that shape our everyday lives" (ibid., loc. no. 885). It is for these reasons, I have brought attention to the edge and the edge of perception, not that it distinguishes a different type of line, but for the fact we can simultaneously see how a physical sense of edge supports the multifacetedness of lines and also expand the breadth of what a line is without the need to isolate its form from lines themselves. Edges are a type of line imagined as a boundary around our peripersonal space. Edges can be felt as a line between two approaches to our self-movement. Edges are folds, where surfaces meet momentarily drawing a line of distinction—folded body and surfaces in shadows. The edge of perception brings the tactility of physical edges into the dynamic movement of our visual-conceptual thinking. Edges are lines that also exist in our perceived, traced and imagined domains. Edges are not different than lines: they are a different way of noticing a line. Their emphasis is connected not to their mark, but to their relation to something else.

the Occluding edge



To occlude means to block off or obstruct. The edges become the lines that we see separating the object from other objects as well as revealing hidden spaces and distances between locations. Relationships are made between hidden surfaces, layered objects, and moving bodies. The occluding edge is the point where things are simultaneously separated and connected.

In this film, the camera was asked to distinctly follow the lines of space and ignore the dancers' bodies all together. Compared to the other films that were shot in one take, or with long unedited sections, this film relies on the editing process. The dancers are still engaged in the dialogical dance practice, but the editing process chose after to follow the edges and gaps between surfaces that the camera captures in the architecture. The result creates perplexing moments of orientation, where sideways steps are seen upside down and floors become ceilings.

Four seem to be in the same place, but missing each other—near but attuned to something else. The muted space encloses them. The film is in reverse and all actions are retrograded, but one can barely notice. The dancer's movements are translating the space, the concrete, the shadows. Do edges move differently backwards or forwards? When choreographed by the space around you, forward and reverse look similar. Future and past cease to differentiate in moments of translating edges of perception.

It is a dance of edges, a dance of occlusions. Like an eclipse—moments that line up, cement horizons, a dance between line, camera, and architecture. A dance of abandoned bodies.







2022

Click for Film

Concept and movement practice: Michael O'Connor
Dance: Samuel Feldhandler, Michela Filzi, Miguel Witzke Pereira, Sophia Obermeyer
Camera: Jubal Battisti
Video and sound editing: Michael O'Connor
Second camera: Valentin Braun
Assistant: Harumi Terayama
Color grading: Jubal Battisti

Fig. 122–125. Stills from film: Jubal Battisti.

as improvised dancing

We are always moving in relation to other people and other things. Shotter calls on us not to focus on individual people but on "the momentary relational encounters, or on successions of such momentary encounters, that occur on the boundaries between us and our surroundings" (1996, 387). Meaning is made through relational encounters. Shotter (2016b, 84) cites Wittgenstein's definition (1993, 133) of a relational type of understanding as: "the understanding which consists precisely in the fact that we 'see the connections'". Continuing to dialogue alongside Wittgenstein, Shotter continues:

> –we can arrive to a secure sense of being oriented, of knowing our "way about" (Wittgenstein, 1953, no. 123) within the landscape of possibilities available to us, and of how best "to go on" (no. 154) within that landscape in ways which others will see as intelligible (even if, after-the-fact of having acted, we still cannot give them any good reasons for having so acted). (Shotter 2016b, 84)

This explanation is appealing for the dialogical dance practice because it details how we may orient ourselves in the know-how of moving bodies, in actions and readings of those around us, rather than in how we think we should be dancing or what we think would be exciting; instead, it underlines how our movements come from the unfolding experiences. Dancers may not be able to articulate with words their sense-making understanding or reasons for certain actions after-the-fact. Their know-how, or tacit understanding, is different than their know-that mode of understanding that is conveyed through words (Nelson 2013, 41–45). A specific answer may be offered upon reflection when asked why they are moving this way. However, it can be admitted that an after-the-fact answer may or may not grasp everything, and there may be metaphoric and decision-making processes happening that are not known consciously to the dancer (Okonski et al. 2020, 39). Even if unknown overtly to the practitioner, the responsive decisions and actions are still skills developed through practice.

When doing the dialogical dance practice, as seen in the films *the Occluding edge* (2022) and *Linear Engagement* (2021), the dancers show—to use Shotter's words—that "everyone is able to act in their own different ways, while at the same time being oriented in their investigations towards the same overall goal" (Shotter 2016b, 87). The goal is to move in the space through the dialogical dance practice scores that create a sense of withness. I am seeking an applied withness, not just a philosophical proposal. What Shotter says is radical is to take this into our everyday lives. He states:

> In turning away from abstract theories, and toward a direct focus on the unique concrete details of our living, bodily involvements – or participations – in the world around us, we have become concerned with what goes on within the different 'inner worlds of meaning' we create in our different meetings with the others and othernesses around us, and with noticing the ever present background flow of spontaneously unfolding, reciprocally responsive inter-activity between us and our surroundings. (2005, 44)

Rather than didactically giving information for how things *should* look, keeping the act as an improvisation allows me to sense shaped circumstances and conjure moments where the dancers seem to all feel the same way even with different inner worlds of meaning because they are working with the unfolding environment and their intra-related responsive activity. Lines create a type of "understanding which consists of 'seeing connections'" (Wittgenstein 1953, no.122) and in so doing, creates a type of withness.

> Mere information does not do it; we need to be 'touched', to be 'moved', to be 'arrested', to be 'struck'; and when we are struck, it is not by what is familiar to us, but by what is unfamiliar; by rare occurrence (Nussbaum, M. 2001b; Taleb, 2007) that can in fact dislocate, or disorient us in our everyday assumptions, and leave us at first bewildered as to how to 'go on' in the circumstances in question — but sooner or later, open up to us something uniquely new, unclassifiable, yet closely related to the circumstances within which it emerged. (2016b, 150)

Speaking from inside a dance improvisation, attuning to those around me, it is the moments, as explained here, that I am struck by something that disorients myself but also allows me to go forward because inside the unfamiliar is something that is also familiar. Embodied Lines, the noticing of lines I imagine, and create through movement, and the lines in my environment I move alongside, provide a frame for continual investigation and a know-how to practically move myself forward. Shotter describes this type of activity:



In this chapter, I examine what it means to feel a line. Feeling can be regarded as touch—the tactile sensation of skin-to-skin contact. Feeling can also refer to an emotional awareness of inner states. We can also think of walking as a felt line. As seen in the previous chapter, Sheets-Johnstone proposes that calling walking a sensation is not the correct description when it comes to movement. She states that movement, as in self-movement, is not like sensations of light or sound, but instead, "we have feelings of movement, just as we have kinetic motivational feelings, bodily felt urges and impulsions, and affective feelings of joy, disgust, fear, and so on" (2016a loc. no. 771–776). Here she combines self-movement with emotional "movement" under the notion that these kinetic qualities are best described as a type of feeling.

Under the notion of a felt line, three different practices are introduced that explore the varied ways a line can be felt. One practice is drawing the inner affective dynamics felt during heartache. Another practice is the act of drawing portraits based on a tactile feeling of touch. In this practice, the act of tracing one finger along yourself places the active line-maker on a surface, in this case, skin. Equally, walking can be looked at in a similar construct. In this practice, the walker, instead of using a finger, uses their feet to make traces on the surface, and instead of skin, the ground is the explored surface. In this case, I draw our attention to the act of motion in walking and the feeling of each step on the ground.

Walking the Line

> Walking is such a fundamental human practice that it cannot fail to inform our other activities.
> (Lucas 2008, 183)

The idiomatic expression 'to walk the line' means maintaining an intermediate position between contrasting choices or behaving in a socially accepted manner by exercising self-control. The scanning between choices or the fictive motion implied in 'walking the line' conjures imagined lines under the categories outlined in this research. As imagined lines, they exist in the mental realm when thinking about one's actions or where you conceptually place yourself during choice-making. However, in the writing that follows, 'walking the line' is not used idiomatically but describes a physical path made with the body.

While walking, our body draws a line extended into space. Other artists have explored the notion of walking as a line making practice, notably Richard Long *A Line Made by Walking* (1967) and Bruce Nauman's *Walking in an Exaggerated Manner Around the Perimeter of a Square* (1967–68). In Long's work, seen as minimal, sculptural, as well as landscape art, a line is made in the grass from repetitive walking. A question arises in Long's work, if the art is the performance of this line, or the documentation afterwards existing as a photograph. In Naumann's performance, which is seen as a short film, Naumann simply walks one foot in front of the other, slowly along a white line on the floor with exaggerated motions in his hip. In Long's work, we see the line emerge in the grass left behind by movement while in Naumann's film, the straight lines of the square guide his movements in space. As walking is one of our most common activities, it can be easy to neglect the meaning derived from different modes of walking.

As a researcher in anthropology, architecture, and drawing, Raymond Lucas argues that walking can have two of the same forms as reading does, as pointed out by Tim Ingold (2007, 15). Lucas (2008, 170) claims that originally, reading involved interpreting and hunting for meaning, while modern ways of reading expect a chronological order to inform the reader quickly. Lucas describes this same dichotomy when applied to walking—in the case

of the flâneur who strolls as opposed to that of "the shopper, tourist or commuter" who has agendas, time frames, and operates in an organized manner. In one style of walking, meaning is looked for, and in the other, meaning is supplied to the walker. The flâneur has so much agency in searching for meaning that Lucas proposes this style is more than reading and could be seen, in fact, as an act of writing. "The flâneur inscribes upon the city, writing rather than reading it" (Lucas 2008, 171). In this sense, I look at walking as making a line with your body, as writing does. We could consider going for a walk not as an activity of passive visual perception where meaning is organized for us, but as making a line with your body as writing does and thus it is a more sense-making activity. When thought of as a writing action, the movement is intertwined with the visual perception and scanning that actively takes place during a walk. Further, even the imagined mental scanning that arises during thinking about the things on our walk makes imagined lines, actively bringing together movement, perception, and mental processes.

Walking, reading, and writing use the body to make lines in such familiar ways that the line-making aspects can go unnoticed. Walking as a line-making practice has found different outputs in this research because using walking to make a line is a practice that informs other ways of thinking.

Walking as Making a Line

Go for a walk. When you finish, you might be at the starting point, or not. Draw the shape of the walk you think you made, trying to remember the path. Then use a map and find a way to draw the actual shape that was made from the walk. Compare the two drawn lines. If doing this with more than one person, compare your lines with each other. Another option for more than one walker: after drawing your individual paths from memory, put all pens from each person on one paper at the same time and starting point and try to reconstruct the path walked together without talking.

I go for a walk usually knowing I will do this practice, but sometimes I decide to draw after a random walk. Since I am curious about the differences between remembered lines and the actual pathway, I try not to be too simple with my path but walk freely. Unless I am walking through a park and can veer off track, I notice the shapes of roads and sidewalks still organize the walking. Afterward, I use a pen and paper and draw my memory of the walk starting from the beginning. I do it just in one go and any drawn mistake remains. This is important as it is also a condition in all the other drawings in the other practices—no editing. In order to aim for responsive data, instead of reflective data, the focus is placed in the present moment of engagement. I then use Google Maps, and with another piece of paper, either hold the paper to the computer or draw while looking at the map, to create a line for the actual path walked. Having the two drawn lines in front of me, I can compare what parts I left out of memory or what proportions did not match the physical route taken.

The practice is not about how accurate one's memory is. In drawing the path of the walk, the pen on the paper becomes a material engagement of mind, body, past and present. The pen metaphorically stands-in for the person, and the linear trace is the movement and path. The attempt to recreate the path with small curves brings those moments back into the present moment. Scale is changed. One kilometer becomes 24 centimeters. This can be looked at through Fauconnier and Turner's Conceptual Integration Theory, or Blending Theory as mentioned previously in the prosody dance practice, where mental space in scenarios like this is seen as comprising what they call input spaces, generic space, blended space, and the process of cross-space mapping (2002, 41–42). The input spaces provide data when two scenarios intend to be thought of simultaneously, like the remembered walk and the drawn walk. Similarities in the two mental spaces are then cross mapped. Lastly, where a generic space shows what both spaces have in common, the blended space brings the image to a single construct (ibid., 41). They write, "As we run the blend, the links to the inputs are constantly maintained, so that all these 'sameness' connections across spaces seem to pop automatically, yielding comprehension" (ibid., 44). In this practice, the drawer starts to associate imagined lines to drawn lines. Previously physically felt lines of the body turn into gestures made with a pen. In comparing the two drawings, (visualizing two blended spaces) the walker remembers the areas they forgot or sees their embellished areas. In Merlin Coverley's book, *The Art of Wandering: The Writer as Walker* (2012), one chapter relates to the imaginary walker, noting different routes that were planned

in the mind's eye ahead of time as well as descriptions of people who followed maps others had taken as a way to revisit lines walked (61). In this way we see an imagined line linked to an imagined walk. Reflecting on the blended space makes one realize new elements in the input spaces. Sometimes the imagined map has more details, and sometimes the actual path has more details. Finding truth in the line is not the aim, however. Drawing the lines makes the walk more memorable as it is given another chance to become a line in another form, as lines are translated between domains. Sometimes the shape is disappointing. It does not capture the depth and entire movement that was felt. To some extent, time is missing. What felt like a whole sensory experience is reduced to a warped circle as we usually end where we began.

Guy Debord describes one of the basic situationist practices from the late 1950s, the *dérive*, as a "passage through varied ambiences" that is different than a stroll or journey and though can be done alone is best done by groups of two or three (1958/2006, 62–63). Where a flâneur may be said to watch the city passively or detached, in the dérive, the surrealists of the 1950's intention was to "drift", letting their senses guide them based on what they found attractive as a way to get to know the city better. Debord describes "the randomness of a dérive is fundamentally different from that of the stroll, but also that the first psychogeographical attractions discovered by dérivers may tend to fixate them around new habitual axes, to which they will constantly be drawn back" (1958/2006, 63). As Lucas argued, the flaneur's stroll can be seen as writing as they search for meaning, resisting the organized structures of modernity, the dérive goes even further, perhaps re-writing the city by getting lost and experiencing the environment in a new way. Coverley notes modern cities are well planned for a reason, stating, "it is precisely through helping the walker to find their way that these street plans deny one the possibility of getting lost; and it is perhaps for this reason that the older and more labyrinthine layout of cities such as Paris and London have proved historically more conductive to the aimless stroll" (2012, 218–219).

September 2020 walk, Berlin

I notice the pathways of the city afford me the ability to remember my path and organize my walk because of the turns, angles, and landmarks. In a wide-open space, I would not easily know how I walked and I would not be able to trace it afterward either. The layout of a city (a map) does not simply allow me to document accurately afterward—it allows me to do the practice at all because my mind is extending into the landmarks as I walk, which stimulates memory. I can then trigger the memory of the walk when I look at the map after drawing it the first time without the map.

Someone could walk with me and have a compass and chart how I walked without having a map. Therefore, I could walk in an open field or desert and base my remembered line against the documented line. A smartphone or watch with GPS can record the exact path. In this case, tools are still used. There always has to be some way to document the actual walk. So, in this example, the way to document is either a map or Google map, a person, or GPS.

If I were to do it without a city and just in a desert or open field, my abilities would be weaker. There are cultures or professions (farmers, sailors) where people always know which direction of the compass they are facing, and those people would have a different embodied skill and would not need the city environment in the way I do to know which way they are facing. They have the skill to monitor things like the sun or shadow and could do this without a compass or landmarks. Still, the city provides reference points, anchors for remembering changes of directions and lengths estimated.

The feeling of making a line comes and goes. When I turn, when I cut across, when I see the length of a street, the notion I'm making a line is more present. Otherwise, I am listening to music, thinking of my thoughts, noticing people. I wonder what kind of line I make as my footprints would make a dotted line using steps. However, because my hips are connected, I have the experience of feeling continuous movement and not a dotted line of only footsteps. My whole body moves forward. The

feeling of a walk is not left-right-left-right, but my entire body is moving forward constantly as one being. In some ways, tracing a path is a very minimal part of the felt experience. There is sight and sound and knowledge of the area. Safety, warmth, and emotions. I think about people I know in my life and I look for a place to have my hair cut the next day. But afterwards, so easily, the line appears again. I can tell myself, now draw a line of where I think I walked, and the line appears clearly on the page.

As I drew the line, I could sense proportions were off. There were blanks in my thinking. I was also enticed to connect lines because I know the walk took me in a circle back to the starting point, so I chose not to leave the line open-ended. I forced it to come together. This created a line that I knew was false in my memory. The end was off due to the areas where I tried to be accurate. I could say this was an active attempt to create a blended space, using Fauconnier and Turner's Blended Theory.

Below is the documentation of this practice from two other participants. Here, the participant chose to label the reconstructed walk that uses a map for accuracy rather than memory as "the real one". We can see three path components blended actually: the walk that happened, the remembered walk drawn, and the walk reconstructed more accurately with a map.

Drawings from Walking as Making a Line practice. HZT dance students. Berlin June 2020

Fig. 126.

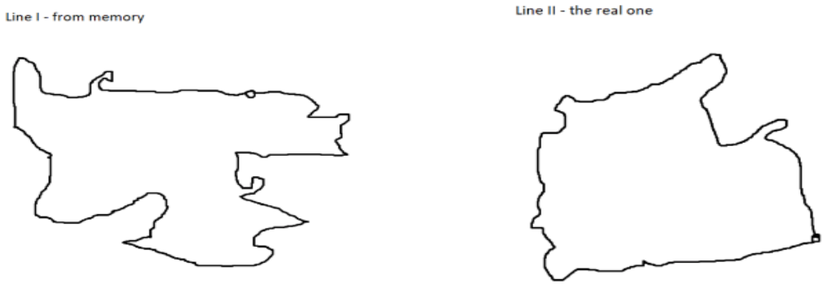
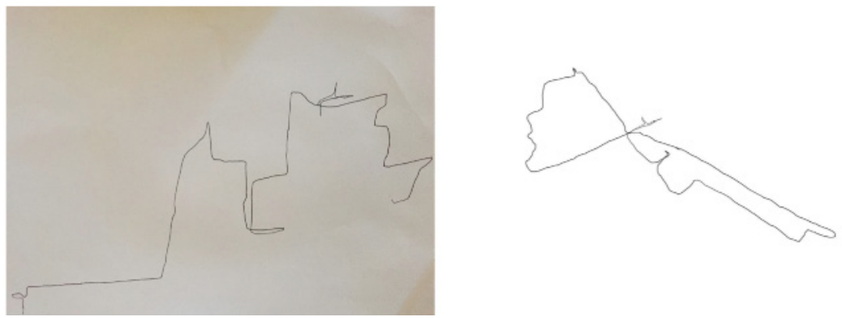


Fig. 127.



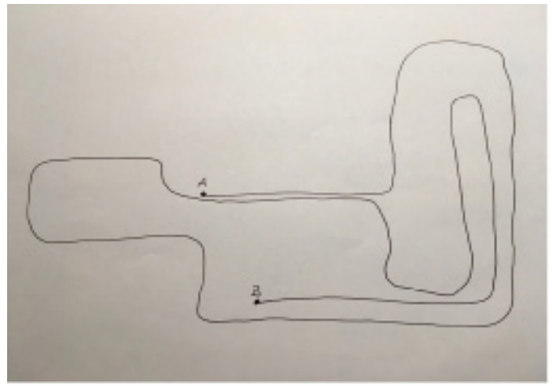


Fig. 128.

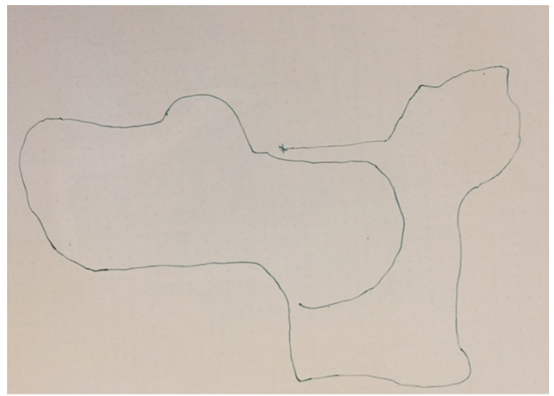


Fig. 129.

Fig. 128-130. Walking with a colleague. Drawings from Walking as Making a Line practice.

When compared to the actual path (Fig. 130.) drawn using Google Maps, the two remembered lines (Fig. 128. & Fig. 129.) allow me in the moment of viewing to see the qualitative differences and make meaning from those differences.

This practice's strength is not in the walk, nor the final two line drawing's aesthetic qualities, but in the practice of sensing how a line made from the body can be re-imagined and traced again in a different mode to be perceivable on paper, transitioning between traced during the walk as movement, imagined, and perceived after.

When done with others, the different lines give us access into the other's world. When people draw the line together on the same paper, the line being drawn not only brings forth the path walked and remembered but the pens negotiating on the page together work as proxies for the whole body and create a type of participatory sense making where different memories are brought into contact with each other without words (see fig. 79).

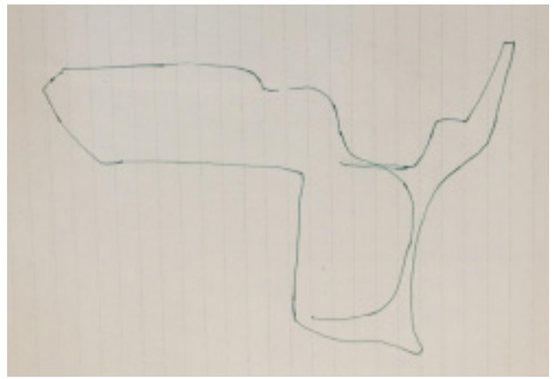


Fig. 130.

.....

This practice of drawing a physical path can be compared to drawing abstract paths. When we think of LIFE AS A JOURNEY metaphor, the path of that imagined line in someone's mental space is unknown. When asking a person to draw what this journey of life would look like for them, the line's dynamics become evident as they pick up their drawing pencil and make a first mark on the paper. With a simple hand flick, a line is present that imbues meaning and carries the drawer's thought process. These lines are not only drawable as paths from actual walks or metaphorical journeys, but people can also trace a path for abstract concepts like lines of inquiry and lines of defense (O'Connor 2023, 366). Path making can be considered a process through time and space in various situations. For these reasons, I also used walking as a physical practice to work with other choreographers rather than dialoguing while stationary.

Walking as a Dialogical Mentoring Practice

I mentored a master student's choreographic work in the summer of 2019. He was also researching lines. I decided our meetings and talks did not have to happen across from each other over coffee. Facing each other creates a speaking rhythm. Silences can be awkward. Time is felt and calculated. By proposing that we walk a line to discuss the nature of lines, which were objects in his work, we can engage with the body, making a line while talking about that very topic. Going for a walk creates a line of movement as we discuss lines of movement. While walking, we typically face forward and talk without seeing each other's facial expressions; and instead, we listen to each other's voices and sense each other's movements. A line is made through continuous motion. The movement affects how we speak and our eye contact. We also interact with objects, other people, and events in the environment, influencing our tempo and the quality of the line. This practice reveals to us some information about the phenomenon of lines.

Alice Twemlow, while interviewing Krijn Christiaansen and Cathelijne Montens notes that walking as a method provides chance encounters and new perspectives (Christiaansen & Montens 2020, 59). Twemlow also notes, "Walking means being present, bearing witness, putting one's body into the research process and into the world" (Twemlow, 2020). Montens adds, "When you walk you can decide when and where to stop and how long to stop for. We also need to relate to the area of our research in a physical way; we literally put our bodies in that area – our bodies become our research method" (Christiaansen & Montens 2020, 59). Walking as a method for research and artistic practice is currently developing more contemporary uses beyond the method found traditionally in anthropology. Walking as Research Practice (WARP) and *WalkingLab* (n.d.) are two to mention which "[advance] the theory and practice of critical walking methodologies through interdisciplinary arts practices" drawing on queer-feminist, anti-racist, anti-ableist, and anti-colonial thought (WARP n.d.). In the walking practice described here, the dialogical nature could be seen to sit somewhere between a flaneur and a dérive. Together we strolled, allowing that rhythm to inform our speech as we crossed through the city, detached, while also allowing ourselves to drift and be a more active explorer.

Making a line often has interruptions and dynamic disturbances. I noticed I could, for the most part, control the speed. When I slowed down or stopped, so did the student. It was my neighborhood, and I was the mentor. Leading also allowed him to think and be guided while he spoke. Mentoring then was a form of intellectual and physical guidance with listening and leading the body. However, other things controlled our rhythm: people were passing by, the texture on the ground changed, and traffic lights interrupted tempos. Space on the horizon drew our attention, and we gravitated toward it. Silences were not awkward or even silent but filled with movement and atmospheric noises. We had moments of pausing, a natural stop in a clearing, or arriving somewhere. Specific reasons led us to pause while we spoke face to face before walking again. The pace of the walk, a casual, leisurely informal stroll, also sets a tone, a melody for the things said. The body's rhythm places a different weight on what is said. When asking personal questions or about difficulties in the rehearsal process or when giving suggestions and not wanting to come across as directorial, the pace of the walk creates an easiness. This connected feeling allows the words exchanged to be trustful and open. There was also less pressure to speak immediately, as I was not being observed. In moments of silence, the body carries forward, and effort is made; distance is achieved with the body, allowing space for the mind to prepare a response. Silence is a line (as presented in the section Traces of Silence). A line is made by walking, a line is made of speech sounds, and a line is made of concepts and questioning. When the mentoring process is viewed as different forms of drawn lines, a dialogical process can be seen in the entanglement of imagined, perceived, and bodily created lines.

From CMT, we know that image schemas are created through repetitive interactions in our environment. Making paths ourselves as we learn to walk, look for our parents, or travel between cities in a car, creates the image schema in our mind of PATH or SOURCE-PATH-GOAL. These image schemas as imagined lines are present when I discuss artistic development with the student. *How is the piece going? What is the choreographic aim of this work?* My intention is also present as an image schema, as: *How can I help the student along his way?* By walking while speaking, we resist the static sitting at a table thinking. We keep the body present in conversations about concepts, making the same experiential pathways that shape the language we use. FUTURE IS FORWARD and PROGRESS IS FORWARD are primary metaphors from CMT that can be found in the language used in the mentoring process and also in the experience of walking. The student is literally led forward, which can metaphorically as a surrogate bring their thinking forward or even allow the twists and turns of the walk to feel familiar, as the artistic process also unfolds this way. Saying the artistic process twists, turns, and unfolds assumes embedded imagined lines. By walking, we bring lines from the imagined domain into the traced domain in this activity.

On one walk, we passed two men selling homemade origami figures. I stopped, and I asked them to tell me what they know about lines and folds from their practice. A mix of their responses:

- Many lines make a curve.
- Folding, usually seen as masculine, can be feminine by making curves.
- You don't have to have a narrative; the technique alone can be relied on.
- You use the whole body to fold when using big pieces of paper.
- I'm not so interested in individual lines, but the flow and space and shape the final product makes.
- You don't have to use math. You can feel it.
- I'm not so much into folds, but interested in the paper—the material.
- Nothing is added or subtracted.

In this interaction, two strangers' responses affected the conversation with the student. After leaving them, the student and I reviewed the different things they said to remember it later, as we did not walk with pen and paper. The above statements were written down from memory when I returned home. The impact of the walk resulted in unplanned discussions and input from people who would not have been at a private meeting taking place in an office. We were able to receive two peoples' opinions about the same topic, which gave us different viewpoints on origami, and used that as information for our own topic of lines and folds. Overall, letting the city influence our walk while guiding the student forward brought texture, metaphorical progress, and qualitatively different dynamics to a stationary talk.

Walking *with*

Lines create a way to think and a way to see connections. As I walk through the park, I can bring my attention to the trace I am making. I make a straight line down a path, or I can slightly curve around puddles. I can bring my focus to the shapes my limbs make. I look over my shoulder and see a sculpture of two steel beams intersecting. From another view, the beams overlap, becoming a single line. My extended line through space changes the steel beam's configuration. Quickly I forgot the trace I was making through the park, and the sculptureness of the sculpture became more prominent than the analysis of its linear aspects. My other senses take over.

In the case of walking, the environment you walk in is present and becomes a whole-body experience. Kenneth R. Olwig states:

> the landscape is shaped in large measure through doing, and apprehended through the use of two eyes. Nowhere is this mode of apprehension more evident that in the practice of walking. The walker experiences the material depth of the proximate environment through binocular vision and through the effect of motion parallax created by the blurring of near objects in contrast to those further away. The touched, smelled and heard proximate material world is thereby woven into the walker's sensory field, leading him or her to experience the landscape as a topological realm of contiguous places. (Olwig 2016, 84)

When a writer uses the term 'woven', as seen above, to describe how his senses can be functioning in contiguous places, it is not an accidental word choice. Weaving is used for the kind of 'tightness' we have in mind with woven material when we refer to experiences as *seamlessly blended*. They must be, to some degree, linear in nature for our understanding of woven to make sense. Historically, text, a seamlessly composition of words, came from the Latin *texere*; "to weave, to join, fit together". The weaving of words was seen as the weaving of textiles and textures. Visual lines in space, lines of sounds, and even smell can be felt as a line as it either runs through the air or creates a shaped feeling, bringing these different senses into a woven experience of Embodied Lines.

Experiencing a landscape is not to see it but to move in it. Moreover, to be with the landscape in the withness sense, we need strategies for engaging. Whether traces of a bird flying, an edge of an artificial structure, a continuous sound of water flowing, or a path of smashed grass from people crossing a park, different lines reach out, and simultaneously, we extend toward them. Rebecca Conroy also uses the term *withness* and to be *with* the environment in the practice of walking. She states:

> What this means is that *with* does not simply indicate that a walker is walking-with a dog, with a sunset, or with another walker. Rather, with is a milieu; an active set of relations that are composed of dimensions and vibrations that materialize a moment of space-time. Withness emphasizes complicated relations and entanglements with humans, non-humans, land, and an ethics of situatedness, solidarity and resistance. Walking-with is a deliberate strategy of unlearning, unsettling and queering how walking methods are framed and used in the social sciences and the arts. (Conroy n.d.).

Conroy points out that the "flâneur is a problematic walking trope in that he is conditioned by autonomy, ability, Whiteness and masculinity, and as such he can walk anywhere, detached from the immediate surroundings" (n.d.). While agreeing with Conroy's points about accessibility, the focus of my walking and drawing practice is not aimed mainly at the walk. My attention in my walk starts out as an extended line through space compared to the flâneur's approach of getting to know a city, letting imagination move you, and the psychogeography that is documented in the "drift". I do not seek accessibility and am aware when I enter into other neighbor's terrains. In my focus, my feet touch the ground, point to surface, in the same way my finger touches my face, or a pen touches the paper. The act of walking informs other line practices. "The 'walk' of the brush or pen over a surface generates the line. The action of inscribing a line has the potential to be so deeply ingrained that it can inform our thinking across many disciplines and practices (Lucas 2008, 169). For example, walking as a point touching the earth can be seen in the same way that I trace a line that describes the inner felt feelings of emotion. Feet describe a line moving on the ground, the point of contact of one's finger on their skin, and the pen on paper drawing affective feelings can be seen in a contiguous manner. The next practice moves the felt lines of emotion from silence to a proposed auditory exploration.

Emotions as Felt Lines: Felt Lines as Music

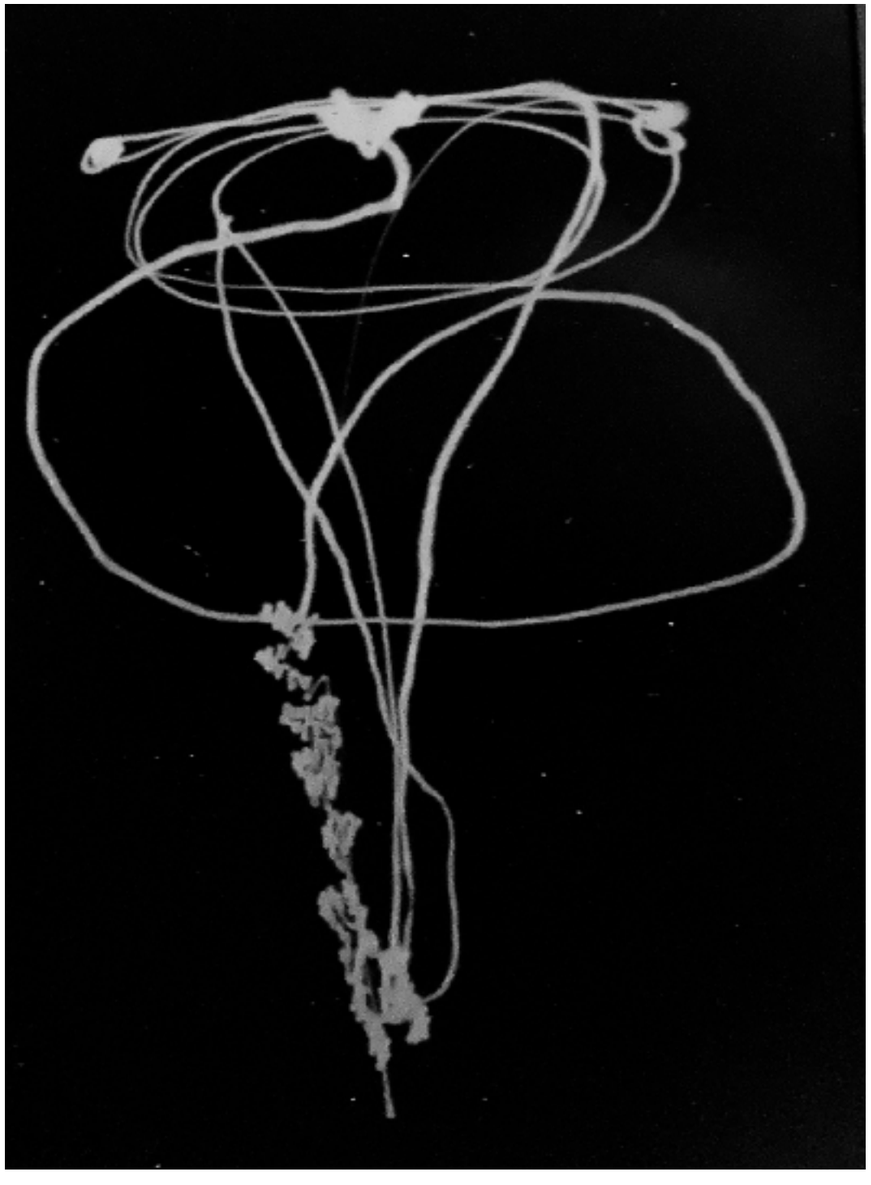
A felt line in this context is understood in the sense of emotion. Emotions can be perceived as dynamic activities with their contours of energy and qualities. During a time of heartache, I sat for a few minutes feeling the inner movements and qualities of the emotion I was feeling and then captured those dynamics as a short line drawing. The process of this drawing is also not reflective. However, it is an activity that negotiates what is being felt between the inner feeling and the outer expression, as both take place in the present moment with the same body. I sat down six times over a week for this practice, and I did not always know what I was feeling before the drawing. After sitting with the feeling and having drawn the line, I could then name more clearly the felt emotion. To continue the practice of *Body as Translator*, where the lines can be translated to a different domain, these line drawings are proposed as a musical score to be played by a musician on any instrument. The drawings then allow the silent felt line inside me to become an auditory musical line played by someone else.

Instructions:
Musician uses the cards as a score to play. The title of each card is unknown to the musician.

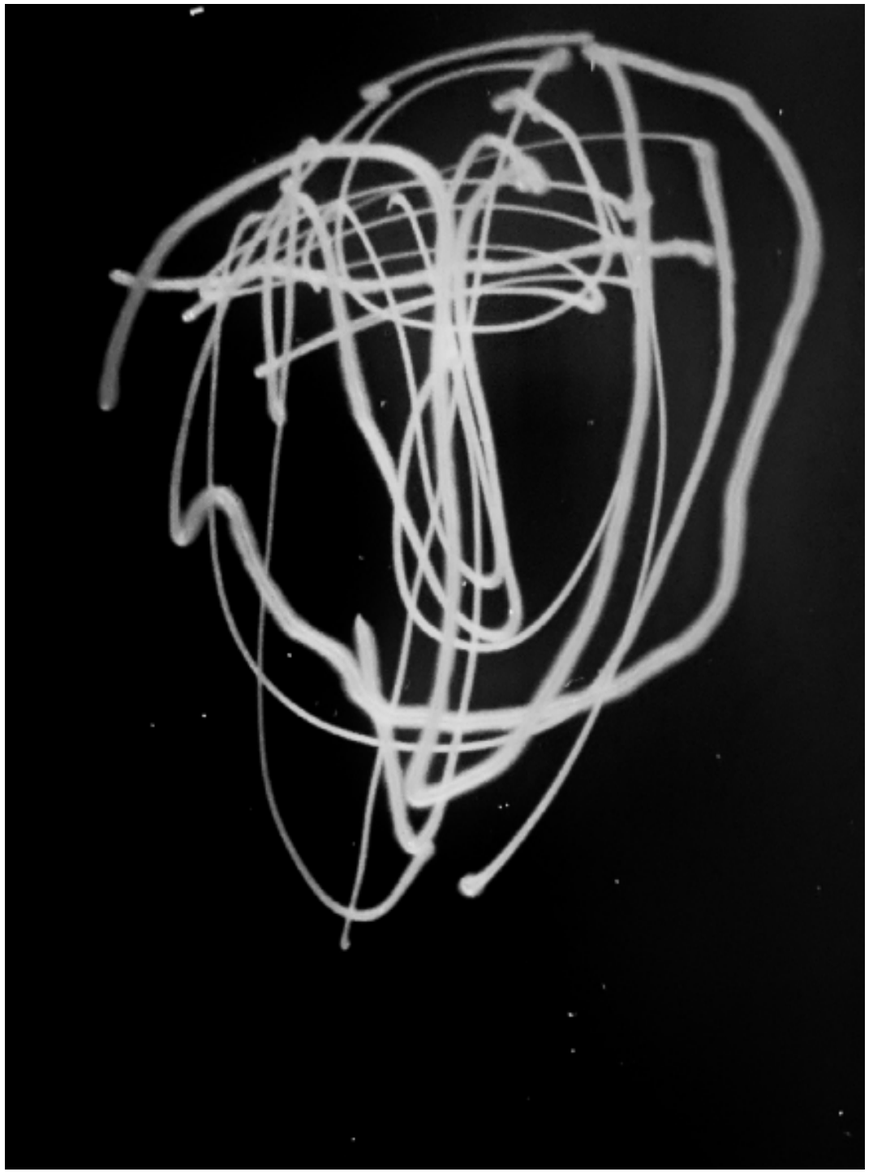
Line drawings of sensing the energetic dynamic shape around my heart.

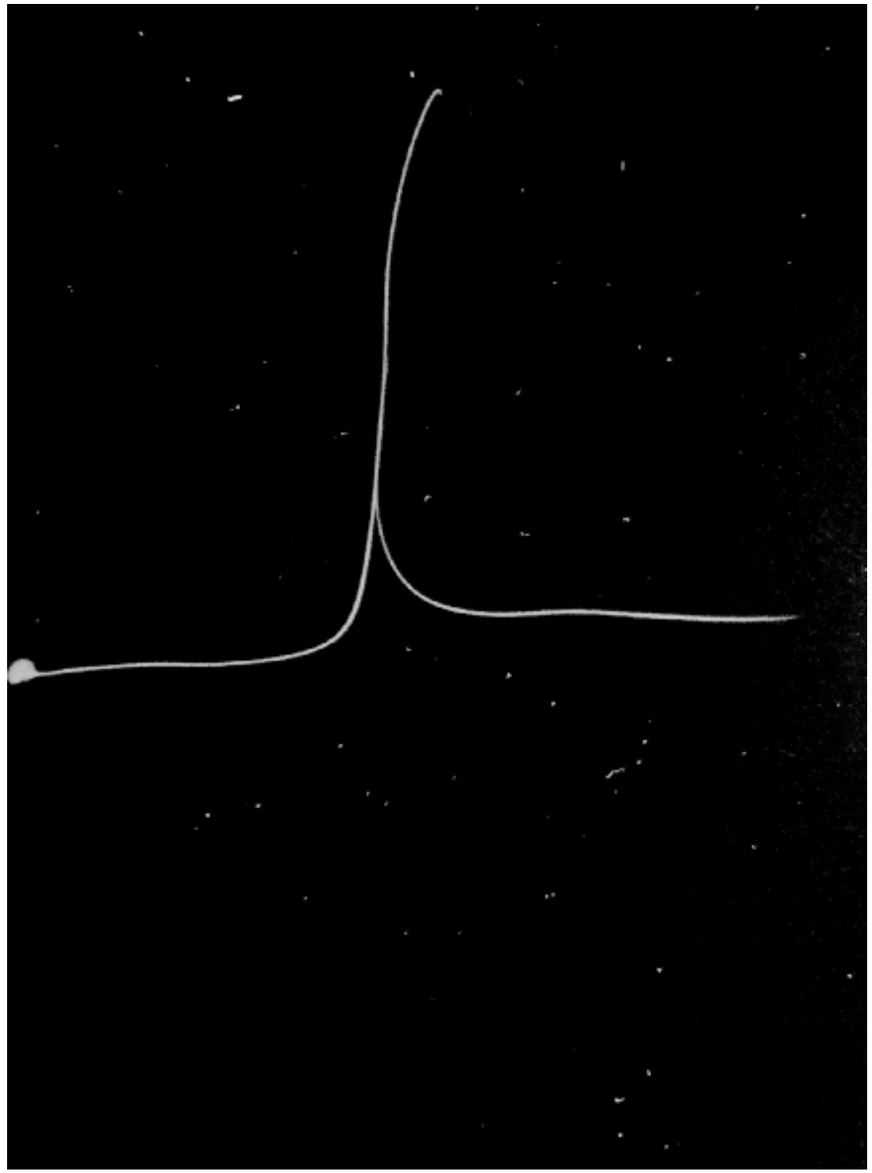
1. Fear
2. Hope
3. Attraction
4. Numb
5. Releasing
6. Rejection

Following pages: Fig. 131–136. Images were made with an eraseable magnetic tablet for drawing. The tablet was photograped each time and higher contrast was applied.













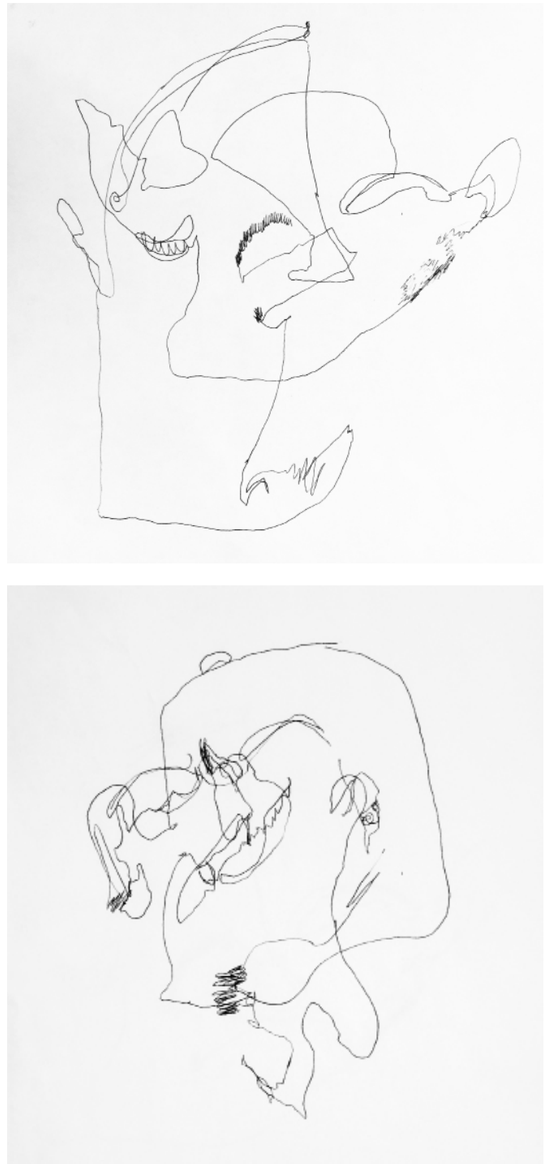
Self-Portraits

In the last practice, felt lines take on the form of tactile touch. Inspired by the artistic work of Kimbal Bumstead, I proposed to him that we discuss our practices as we are both interested in the act of line making. In one of his artistic practices, Bumstead sits two people in front of each other for an act of drawing. They each have a piece of paper in front of them, holding a piece of charcoal in one hand. Each of their other hands is placed on their partner's face while blindfolded. They are invited to draw the sensation of the other person's face in a piece called *Touch Portraits* (2022). Bumstead describes, "As I touched their face with one hand, I simultaneously drew with my other hand, and I translated what I felt using a variety of marks on paper. On a superficial level, these drawings mapped the physicality of the face, its contours and edges; hard bone became hard marks, and soft tissue soft sweeping gestures. But they also captured something deeper – the dynamic between us, the qualities of touch, and the intimacy of the moment" (2022). I decided to adapt this activity to my research and developed a practice of self-portraits. Following the same principles, I place a piece of paper in front of me, holding a pen with my dominant hand. Using my other hand, I place one finger on my face with my eyes closed. While my finger on my face explores the surface, moving freely but never lifting off the surface of the skin, the drawing hand simultaneously copies the actions also as one single line. The act of self-touch of one hand creates a self-portrait in the other hand (see figs. 137–140). In my practice, the speed of both hands is synchronized. When the touching finger adds different dimensions, like pressure, or feels different textures, the drawing hand adapts, using different techniques to turn the felt lines into visual metaphors. I have also done versions where I trace my own face for someone else to draw, and sometimes multiple people have drawn the same face trace where I can see multiple versions of people drawing a portrait of my finger on my face. In this version, though I am controlling where my finger goes, the result from additional people is still different as their synchronizing with my movement results in different perspectives (see Appendix 2020 and 2022).

There are connections here to the walking practice. The drawn line of the walk is not the actual map-line of the walk. Here, the line drawing of the face is obviously not the same as a sketch one would make of one's face. Compared to Bumstead's practice, where the drawers intend to capture features of the face or the physicality, in my practice I am simply capturing the pathway of the moving finger. The finger goes for a walk. The constraints of having to maintain one line, drawing with eyes closed, and the coordination involved between having the two hands do different things at once (that are also doing 'the same' thing in that they are tracing 'the same' line) manifest themselves in the form of the final product that only partially resembles the felt experience. Finger to face and foot to earth are both manifested into a line substantiating, motion, experience and tactility of different relationships.



Fig. 137–140. Self portraits from Face Tracing practice.



Memory Storage from Walking

Michael Leyton proposes that "shape is the means of reconstructing history" because "shape is the means by which past actions are stored" (2006a, 13). Besides the Asymmetry Principle and the other principles detailed in Leyton's analysis of how we can infer meaning and memory from architectural and visual art objects (discussed in 'Wagner and Asymmetry') he also makes a simple point in the everyday usage of lines and shapes. Any mark made on something gives us information about that object's past. He explains: "A scratch on a piece of furniture is a memory store, because we can extract from it information that, in the past, the surface had contact with a sharp moving object. A crack in a vase is a memory store because it informs us that, in the past, the vase underwent some impact; i.e., this information is retrievable from the crack" (2006a, 15).

Leyton is introduced here at the end of this section so we can look at the felt lines in yet another way. The final image below was made inadvertently but can be seen as a bridge between the three previously explored practices. While walking in Italy, a note-writing application accidentally opened on my phone while in my pocket without realizing it. As the phone moved around in my pocket, the phone's screen came into contact with my pocket that moved due to the dynamics of my walk. Due to the touch screen technology, no permanent mark was made on the phone, but instead, the lines were made from the points where my pocket, warm from my body heat, made contact with it (see fig. 141). Therefore, the lines mark my body's actual movement along the terrain of the Italian coastline. Compared to the analysis Leyton does to infer the meaning of paintings and the emotions they evoke, I would not go down the route of deciphering the meaning of this pocket drawing as there was no artistic intention involved in its creation. I find it more interesting to think of it as memory storage of the walk and the landscape—the withness between my body and the landscape via movement. My leg made linear patterns that were influenced by the linear designs of the pathways, rocks, and sand.

An example of a potter throwing clay is often given to depict how material, mind, and body influence each other (Brinck & Reddy 2020; Malafouris 2008). The materiality of the clay informs the potter's hand, and the potter's hand intends to shape the clay in the desired way. In walking the landscape, this interaction between body and phone is not reciprocal in the same way as with the clay. The land as a material informs my movement, and the movement is being traced unknowingly on the phone. The choices I make when navigating the land are mental acts enacted in moving body parts. The body, movement, and materials create a different type of material engagement scenario. The lines of the landscape are translated through my body into the lines made on the phone. As with all the practices in this research, the lines move from one domain via the body to another. In this instance, lines of landscape to digital markings. What is different in this accidental product is the loss of agency in the normal sense. The phone passively records the linear designs and traces of my body as I walk over the rocks and shrubs.

I appreciate this accident because it has less to do with technology and more about withness. As I do not find interest in motion capture because it reveals what the human eye cannot see or utilizes pre-made programs to turn video data via trackers into digital lines—these pocket lines do not exactly fulfill those criteria. The lines made with the phone are not necessarily revealing details the human eye could not see. It is a point of contact between the body and the object. It stays rendered as a two-dimensional picture that is not then placed onto a digital version of a human that recreates the action. In this way, the data is not residing on any interpretation or intention of someone else. The phone acts similarly to the technology of pen and paper. The line is a mark of movement, landscape, body, and material. If this same phone was put in my pocket again and I were to walk along the same path, the lines would presumably be different. It records a situated, temporary moment of these constitutive parts. Lines are a tool to show withness and reveal the memory stored at that moment. The felt lines seen in this drawing are from *walking as a felt line*, and the *felt tactile point of contact* between my body and screen, and even the *affective felt experience* of the Italian coastline affordances that moved me. This drawing captures the three forms of felt lines, and when viewed through the lens of Leyton's memory storage, holds this information in the asymmetry of the line.

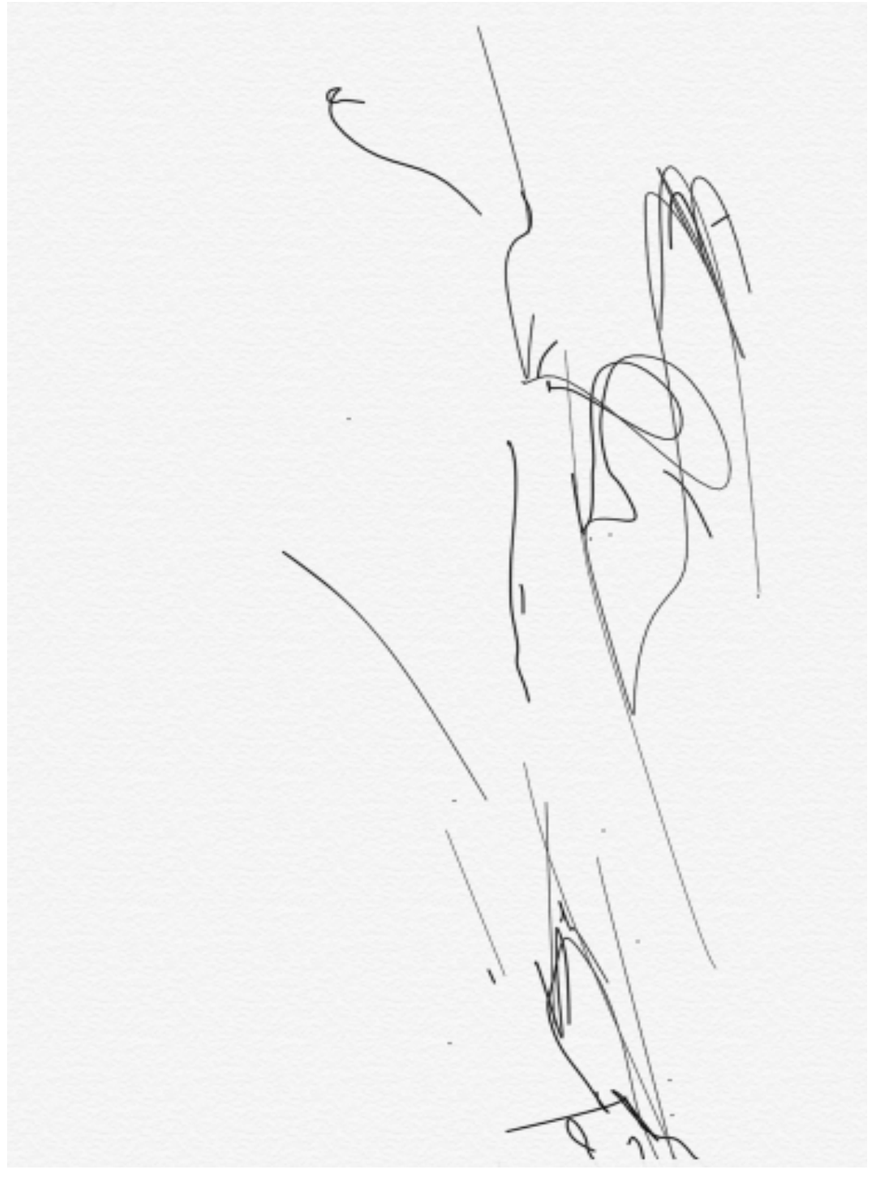
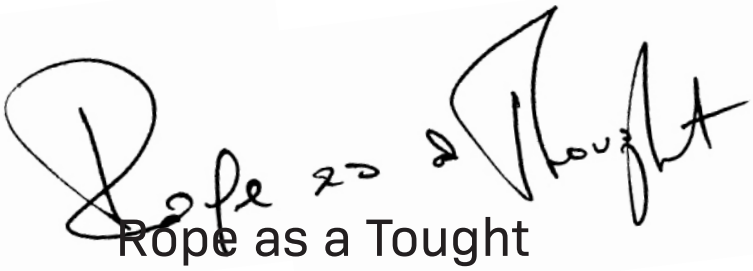


Fig. 141. Drawing made in pocket while walking in Monopoli, Italy along the coast, Sept. 2020.



Rope as a Tought

Lines take on a materiality when they play a role sculpting experience during activities like drawing or dancing. In the chapter 'The Materiality of Lines', lines were argued to take on a materiality when the body, movement and material combine to create lines. Lines can also be understood as actual materials that are linear. In the following practice, Conceptual Metaphor Theory (CMT), Material Engagement Theory (MET) and Affordance Theory are combined in a way that uses materials to generate new metaphors. The generation of new metaphors associated with material engagement is for the purpose of shaping meaning out of object interaction. This, in turn, creates a performance presence and a personal and deeper relationship between the performer and object.

The aim of this practice is to explore the certain entities, or concepts within ontological metaphors (defined below) by turning the immaterial concepts of Thought, Life, and Time into three-dimensional materials, so physical exploration of these concepts is possible. Ontological metaphors found in our language are created through the viewing of events, activities, emotions, or ideas as entities and substances derived from our physical experience in the world (Lakoff & Johnson 1980, 25). An example of an ontological metaphor would be LOVE IS A JOURNEY. This metaphor is built on the PATH image schema. Image schemas are basic structures of sensorimotor experience that we encounter repeatedly in our experience with the physical world (Johnson 2007, 136). Additionally, in this practice's use of CMT, primary metaphors are also present as they add more meaning to the metaphor or material. Primary metaphors are acquired unconsciously and automatically because of embodied experience (Lakoff & Johnson 1999, 56), for example, MORE IS UP, FORWARD IS FUTURE, IMPORTANT IS BIG, PSYCHOLOGICAL INTIMACY IS PHYSICAL CLOSENESS or TIME IS MOTION. As can be seen, spatial dimensions are present in primary metaphors and in image schemas like PATH or CONTAINER. I wanted to experiment with how these spatial dimensions could be physicalized on stage and with the body, by using the primary metaphors and image schemas in the logic of ontological metaphors. My starting question concerns whether creating a three-dimensional playground of objects and actions on stage, inspired by metaphors discussed in cognitive linguistics, provide a scaffolding for the performers and audience to generate individual meanings based on image schematic patterns.

Starting questions for this practice:[1]

- Can looking at cognitive science discoveries and theories in metaphor lead to a performance practice?
- Is it possible to trigger peoples' ways of thinking by using image schema logic?
- Can triggering the structure of image schemas to provoke an understanding be done without including a narrative?
- If the theory is true that concepts are body-based and learned through experience, does turning these concepts such as Thoughts, Love and Time into 3-D materials in practice reveal anything new about the concepts?
- What new insights about the chosen concepts can actual object manipulation lead to?

In my choreographic work *Moving Around X* (2014), two of the most common image schemas, CONTAINER and PATH, were explored as actual objects. Wooden boxes, bags, and tarps were used on stage as containers and a variety of materials were used that were linear, like ropes, dirt paths and light. In the following, I will focus on the PATH image schema and accordingly linear objects. Cienki provides a working definition of the PATH image schema as: "A path is a route for moving from a starting point to an end point. We can follow an existing path or make a path with our own movement" (2005, 431). This practice uses simple materials like ropes to stand in for the linearity of the PATH image schema that underpins some ontological metaphors, like LIFE IS A JOURNEY. By working with linear objects, the linearity of a pathway could be substituted onto the object, allowing the object

35 This paper was presented at the Metaphor Festival in Amsterdam in 2018 under the title *Touching Thoughts: Creatively materializing immaterial concepts*.

to stand in for the linearity of time, thoughts, life, or relationships.

The following is a list of starting elements for this practice and the instructions for the practice:

Cognitive Linguistic elements:
Ontological Metaphors
LOVE IS A JOURNEY, LIFE AS FIBER/FABRIC, THOUGHTS AS A STREAM, TIME IS A MOVING OBJECT
Image Schemas
PATH, SOURCE-PATH-GOAL

Outline of the practice:
Use linear materials or materials that can be shaped into lines to substitute PATH.
Ropes, dirt, plastic sheets, salt, sand, yarn, tape, chalk

Assign one of the concepts (Life, Love, Thoughts, Time) to a linear material.
Physically interact with the material & write down metaphors generated from the engagement that results when turning the materials into lines (e.g., using chalk to draw a line, pouring a stream of salt) and then bring the body into contact with the material (a line of sand disappears when blown, a line of tape tears or sticks when touched twice).

This method seeks to explicitly activate potential source domain features and qualities (linearity, knots, length, flexibility, tautness, an object with two ends) that can then be applied to different target domains (Life, a Relationship, Thoughts, Time). The practice is to write down a metaphorical sentence that comes from actual engagement. It is important to not just look at the object but engage physically with the material and write metaphors from actual engagement. Participants were told to start with the template "Concept is…" to write the metaphors. If you were using a black rope as Time, you could write: *Time is black*, *Time is thin*, *Time is raveled*. Through the physical engagement, participants are encouraged to notice what was actually happening and then write more complex sentences. For example, if someone held the rope bunched in their hands, they could write: *Time is not contained in my hands easily*, or *I can feel time between my fingers* as a more complex, original metaphor.

Once interacting with objects begins, Gibson's Affordance Theory must be considered again, which defines affordances as potential actions provided by the surrounding environment (1979, 127). When working with objects and materials, the affordance of the object has great influence over the person. The desire to tie knots in a rope or wind it in a loop to store it are actions people do almost immediately when given the object. A roll of tape affords the user to put the sticky side down onto something. A ball of yarn affords staying in its ball form or being released slowly to avoid getting tangled. In Rizzolatti and Sinigaglia's work, they look at the actual neural processing in relation to affordances of objects, noting that as soon as a single affordance of an object is perceived, the congruent motor act is triggered, meaning visual information is translated directly into motor acts, resulting in visuomotor neurons no longer coding the actual affordances but the actions (2008, 34–35). When we see objects, specific actions are firing in our brain that are related to the perceived affordances of the object. Through repeated experiences in the world, the sense of how to interact with the object is immediately present.

Atypical Affordances

In order to generate more options with the object and greater creativity in the metaphors, it is important to notice the typical affordances that are present and to then do atypical things through the engagement. This is what I call using atypical affordances. To atypically interact with an object, the person should do things that make no sense or have no function—in other words, doing things that you would not normally do when interacting with the object (see fig. 144). I describe my use of atypical affordances used in a previous choreographic work:

> Going against the typical affordance of an object helped to change our normal way of thinking, and allowed a greater understanding of the object's capabilities to emerge. By exploring these atypical affordances, like dragging a rope across the room instead of looping it to carry, or purposelessly holding a bag against a wall, we began to write new metaphors. For example, using a long rope and its linearity to substitute physicalized thought, we could create moments where the object afforded a typical interaction. Rope easily gets tangled. When rope is thought, then we have a familiar metaphoric text of 'thoughts are tangled.' However, as we sought to find atypical affordance behaviors between body and objects, like standing on a rope, we were able to write new metaphors like 'thoughts are under my toes.' The introduction of new physical relationships through practice allowed for the understanding of that concept to change and expand. (O'Connor 2017, 154)

Studies have shown (Turvey & Carello 2011) that dynamic touch (bodily touch like chewing, twisting and groping) of objects reveals affordances that are not understood only visually. When we work with the atypical affordances of an object, different vitality affects also become more salient. We may conventionally think of a twisting or taught rope during its normal usage, but if I try sticking the end of the rope in my ear, I may notice that the rope takes on *quivering* movement dynamics as it touches my ear hairs, or *flicking* dynamics as it is obviously unable to enter. If I use a box of salt as a material to generate a line by pouring it out as a stream or using it to draw a line on the ground, different vitality affects could be paired with those atypical affordances. In an action from one participant at the CoDarts/Fontys COMMA Choreography Masters program in 2021 who created a line by holding the box of salt upside down and letting it all pour out, the dynamic form of vitality of that line of salt could be *flowing*, and eventually a *decrescendo*. These are two kinetic forms of meaning not normally associated with salt. Most people would be more familiar with a *sprinkle* of salt in English, but in this action, a decrescendo of salt is witnessed. In the practice, the participant is using the material line to substantiate the concept of Life or Time. Therefore, the person is understanding Time as flowing, or Life as decrescendo-ing. A different dancer, who used the salt to draw a line on the ground, then danced over the line, causing the salt to be *blown* and the line to *fade*. The material that the line is made with influences the vitality affect possibilities. In this second example, the line of salt *faded away* due to the fact the line was made with a material that was light and very small. Depending on how the PATH image schema was created, and which material was used, different affordances and vitality affects become present that the participant must perceive in order to write the metaphor. The qualities of the material and the vitality affects of the material's performance directly relate to what is not only written but is understood about the chosen concept. In other words, the *texture* of the object resulted in new *text*.

By engaging with both the typical and atypical affordances of the material, not only conventional, but also novel, vague, or surreal metaphors could be written about the concepts. This practice did not only generate new metaphors, but some participants also wrote evaluative statements about the concept and general creative thinking about abstract domains. Over sixty participants have engaged with this practice since 2014, which has been taught to Bachelor's and Master's students from Dance, Choreography, Music, and Set Design departments in the Netherlands, Denmark, and Austria.

Some examples of Time metaphors from different participants using varied materials.

Time is around my hand	**Time is a connection**	**Time is tough**
Time is structured	**Time starts and ends**	**Time surrounds me**
Time hurts sometimes	**Time follows me**	**We can touch time**
We can move time	**We can bend time**	**We can balance on time**
Time isn't edible	**We can't fix time**	**We can't shape time**
We can loosen time up when we need it	**Time makes it difficult to move**	**Time manipulates the human body**

Through looking at my own lists of metaphors and those of participants, I found I could group these statements into three categories: familiar, surreal, and revealing metaphors. As the material for the concept is connected to the image schema of PATH, properties and logic of the image schema are what are used to make metaphors in our language to start with. As Time is sometimes viewed as something linear, a PATH image schema is invoked by the use of a linear object, like a rope, for investigation. A rope has two ends and the understanding of that is also projected onto the target domain of Time. It is familiar for us to think of time as beginning and ending in many contexts in westernized society. So, *Time starts and ends* appears as a familiar metaphor to me. Other Time metaphors in English list TIME AS MONEY or TIME AS A LIMITED RESOURCE (Lakoff & Johnson 1999, 161). Other cultures view Time as cyclical or spiral, which I still view as something constructed around a PATH schema as Time makes a path or one approaches Time, though not straight in one direction (ibid., 150). Though many constructs for Time exist, pairing an object to stand in for Time exposes or confronts embodied understandings that can open up other ways of thinking.

Surreal metaphors were ones that I felt were so abstract that they did not make any sense and they did not teach me anything new about the associated concept. The metaphor *We can be erotic with time* seems surreal as does *Love goes under my T-shirt*. Though these surreal metaphors did not teach me any new insights about the concept that could be applied in everyday circumstances, they are often very creative and lead to interesting performative tasks. The statements that I found that were not quite familiar but were not so absurd as the surreal statements, I labeled as revealing metaphors. I find *We can loosen time up when we need it* to be an example of a revealing metaphor.



Fig. 142. Rope as a Thought practice: Dancer Ryuji Yamaguchi. Still from film *Lines of Thought* (2017).

To loosen time feels more like a mental activity, or an allowance for behavior, which sits between aspects of time that I normally experience, like time being constrained, e.g. *We're tight on time*. Before this activity, I had not thought to loosen up time or use that term. The revealing metaphors can expose new perspectives on the concept. Another example of a revealing metaphor came from using rope for Thoughts. While using the rope, one of the biggest atypical affordances people want to do is to cut the rope. Though conceptually this is a perfect example, the problem was a financial one. We could cut yarn or floss, but it would be expensive to destroy the rope each time. With this restraint, this metaphor was written: *You can cut your thoughts but then you can't reattach them.* Though described inside this sentence is the logic that cut rope loses its purpose of being able to tie things together if it loses its length, the idea of cutting a thought stands out as revealing to me. We typically think of suppressing our thoughts, overthinking, or quieting a busy mind. Often the thoughts we want to free ourselves from are the ones we would not want to reattach later. In fact, it can be found that some mental techniques do use the term 'cut' as a step for controlling negative thoughts. Through this practice, people can find alternative words or ideas that give them new insights or perspectives about the concept. Each person would have to judge themselves if the metaphor was familiar, surreal or revealed anything new to them. As it is hard to actually cut a physical rope, I find a correlation as to why it might be hard to also cut our thoughts—they lose their length and purpose. However, as I can recognize the difference between the material and the concept, I can apply the act of cutting toward my thoughts for beneficial reasons, and not financial loss.

Though finding a new interaction with the concept can benefit our daily understanding, the practice generated these new metaphors so that the performer approached the material with a presence that was individually crafted and made sense to them. When you think of your thoughts in your hands, you hold and interact with that material differently than if it was only a rope. Dividing the metaphors into these categories presented the range of productivity of the creativity on a scale. Familiar metaphors make sense and confirm the use of the linear object for that concept but yields few new ways of thinking. Revealing metaphors provide new ways to think of the concept that allows for the engagement with the material to feel connected to the concept. Surreal metaphors take the creative product so far that it no longer makes sense for the mapping onto the abstract domain but could be considered for potential performative situations due to the increased ambiguity of the interaction with the object.

Fig. 143. Hang My Thoughts Out To Dry. From performance *Moving Around X* (2014). Photo: George Scheu.



Surreal & Visual Tactility

Though revealing metaphors teach us something about the concept, the surreal metaphors stimulate our visual and tactile senses. Esther Leslie, in her essay *Walter Benjamin: Traces of Craft* (1995), discusses Benjamin's interweaving of storytelling and manual craft processes. Though Leslie does not make any correlations to cognitive science studies, the theory she is highlighting from Benjamin compliments an embodied cognition standpoint, in that our ability to think and narrate is crafted from our dexterity. This is the foundation of embodied cognition—that our mental architecture is created through physical experience.

Leslie defines Benjamin's psychoanalysis of objects as surrealistically tinged (1995, 7). She reminds us that craft has an etymological origin in the German *Kraft*, meaning power and force, as in the type of power and magic involved in witchcraft (ibid.) It is through this thought process that craftsmanship and object creation find surrealistic connotations where materials and bodies interact through tactility. Leslie writes, "Craft as mode of activity translates into craft as a power, an obscure power, nestling in the imaginatively conceived object" (ibid.). Leslie draws our attention to Benjamin's value on the skills involved in hand and craftwork. Here we can find a similar relationship to my practice, where tactile materials and dexterity are used to generate textual meaning in a kind of surrealistic manner. Along these lines, with the power of texture over text, we find relevance in Benjamins words: "I have nothing to tell. Only to show" (1982, 1030 {O° 36}). The visual and tactile speak.

Kristoffer Noheden writes that Czech filmmaker Svankmejer found that touch has some capacity to afford objective knowledge, but, more importantly, in the right context, it can also activate the imagination in ways that trigger analogical associations that diverge from habitual stimulus of purely visual sensations (2013, 8). Here we can turn back to neuroscience and look at visual tactile neurons that are considered an important component in empathy, in the way that seeing is like feeling (see Gallese 2003, 174; MacGillivray 2009). The heightened activation of visual and tactile senses through materials is where neuroscience, Benjamin and surrealism find common ground. The generation of new metaphors is highly connected to abstraction and surrealism, also because the meaning generated between shared qualities of two objects is not commonly known or agreed upon yet. The vagueness slides between senses. "We have a metaphor which is acknowledged as being more than nonsense, but which lacks the precision of conventional reference or of a univocal shared quality" (Anderson 1984, 461). This could be labeled as a 'metaphor interpretation pressure', a pressure for the one doing the research, as well as for an audience or outsider trying to interpret a meaning. Creative metaphors lack precision, as they only reference themselves and therefore must be vague (ibid., 462). In the context of performance, vague situations have strength through the tension between the ambiguous interpretations.

Engaging with the objects with these new metaphors in mind I believe creates a performative tension while an exact narrative is absent. My intent is to create temporary relationships between object, performer, and audience that resonate through the visual-tactile qualities presented—thus inviting the observer to understand the felt meaning of a moment on a sensorimotor level.



Fig. 144. Rope as a Thought practice: Dancer Jasmyn Fyffe. Still from film *Lines of Thought* (2017).

Material Surrogacy

Viewing concepts as materials is not just an artistic endeavor; cognitive science branches of linguistics, cognitive archeology, and extended mind are deeply researching these same proposals. My interest in using materials to explore abstract concepts came from the physical and spatial aspects described by CMT. Though the theory is that our understanding of them came from physical experience that is cross-domain mapped to our conceptual domain, the need to recreate these concepts in a physical form is that they are simply not material objects. However, approaching the domains as not so distinctly different is where material culture studies and cognition have found a meeting point.

Peter Gärdenfors claims that "Concept learning is closely tied to the notion of similarity, which has turned out to be problematic for the symbolic and associationistic approaches" for the cognitive modeling of representations (2004, 1). He argues that some aspects of cognitive phenomena do not have proper modeling tools, one reason being because, "Abstract entities have no location in space or time, so their underlying domains are different from those of physical objects" (ibid., 135). Therefore, Gärdenfors has introduced geometrical structures to create his theory of conceptual spaces for concept formation (ibid., 2). In this approach, we can come to a point where a rope is as much a thought as a thought is (O'Connor 2017, 156). In the frame of a conceptual space, Gärdenfors proposes that "there is no principal ontological difference between concepts and objects—objects are just very narrow concepts" (ibid., 135). Dr. Richard Allen, a theatre maker specializing in objects, references anthropologist and material culture expert Daniel Miller's claim that objects should not be considered simply as material artifacts or symbols that signify dramatic meaning, but that they act as a trigger that 'makes possible the immaterial existence of thought and emotion' (Allen 2013, 124). Malafouris sites philosopher and cognitive scientist Andy Clark's term of *surrogate material structures* as "any kind of real-world structure, artifact, or material assemblage that is used to stand in for, or take the place of, some aspect of some target situation, thereby allowing human reason to reach out to that which is absent, distant or otherwise unavailable' (Malafouris 2013, 104). Here, MET blends objects with a metaphoric surrogacy, making possible a way to understand nontangible things. Utilizing cognitive science studies in my practice to explore immaterial things like Time, Life, and Thought through metaphor by enacting them as tangible objects appears congruent with Clark's supposition. More specifically, linear materials make this material surrogacy quite salient as lines are made through movement and pathways, which are basic building blocks of our experience. Linear materials are not just linear but denote movement and thus different vitality affects. Also as described, linear materials are not equal, but each affords different ways to interact with it, and as such, create different means of making sense.

Fig. 145. Rope as a Thought practice. Different participants in the CoDarts/Fontys COMMA Choreography Masters program experiment with linear materials to create text and movement, Rotterdam, NL September 2021.



On the following page is the metaphor text that one participant, Tamar Porcelijn wrote from this practice. She chose the concept of Love and chose a black rope to substitute the PATH image schema. In the text that follows, you can see Porcelijn's development with the material, the changing affordances, and the different vitality affects that get incorporated. Sometimes Porcelijn uses 'a' or 'it' instead of always using the noun love. Though we know she is talking about love in those situations, I notice I think of the black rope when 'it' is used instead of directing my attention to the proposed concept. For Porcelijn's performance, she simply threw the tied rope into the space (seen in top right of fig. 145) and recited the text. For some people, the object engagement and metaphor writing create a deeper sense of the concept, which through material surrogacy is brought forth into the present moment and the performer engages with the material with a different understanding, sense and care. For others, as in Porcelijn's case, the text is chosen as the product and the performance is an act of speaking.

Writing from Tamar Porcelijn. [typed directly from her notebook]

Love looks neatly tied up in the beginning.
Love looks like it could become wider, bigger, longer.
It could get tangled up into a big mess.

I could get totally caught up in love. Tangled up in it. Tied to it.

Love looks strong but fluid.

Love is black or gray, depending in which light you see it.
Love looks like a dead squid.

Love could strangle me. Or I could strangle someone with love.

How far can love extend?

It unfolds slowly, in jumps and stops and drops.
It gets stuck along the way.
I drop it to the floor.

I try to create a neat line but it keeps getting tangled up.

Love hangs off me like a sticky glue. I shake it off, but it's begging me to play with it some more.
"I have so much more to offer" it says.

It lays there like a sleeping snake.

I organize it into a neat line. It's not as neat as I hoped.
There isn't enough space, so I make a circle.

I stand in a pool of love.
I can change its shape; narrow, wide,
a strange country on a map.
A path to follow.
A tightrope that always leads back to the beginning.
Walking forwards, backwards. I don't have to see where I'm going, because I can feel where it leads me. And I know it will always lead into a new beginning.
Of something similar, but different because time and space are different each time.

It's a safe space.
I want to invite someone in.
But then the space of love may be too small. Too tight.
Too close.

Love moves all around us. Ties us up.
We get entangled in this big mess of love.
We are bound together by love. It feels safe and also suffocating.

If I am left alone with love, it may strangle me?

I can't move, love has entangled me. I am alone. I can't find the beginning or the end.

But I can step away from it. Can I? The more I fight love, the more stuck I get. I am tied into a big knot of messy love. When I relax, love relaxes. And I can get away. Out of it.

I crumple love up into a tight ball and throw it far away.

But now I feel naked, alone. Love is still there. Just further away.
Love is looking at me from a distance. I know it's still there. I will go to you my love.

Looking at it quietly, it seems comprehensible.
Compact. Organised but complex.
Love looks like a brain.

I start to move love again, touch it.
It invites me to untangle it.
Love seems manageable. I organise love into tidy loops around my neck.
I wear love like a necklace.
Feels good.
It's tight around my neck but it's not strangling me. Yet.

To be on the safe side I will take love off my neck.

OMG. Can't get it off!! Gets tighter!! HELP!!

What was it again? I've been here before.
Oh yes. Relax. And then love will loosen its grip.

It's off my neck but now it's a big mess. this bunch of love. I loosen the knots, gently.

I want to make it organised again. To get an overview.

I will roll it up and tie it together, nice and neat.
And look at it for a while.

The line that stood out the most for me in her text was *Love looks like a dead squid*. The rope has afforded it be wound and stored in a way that makes it look like a dead squid. When the linearity of the rope is then paired with the concept of Love (which in some ontological metaphors is considered a linear process), we found a creative metaphor through the material's affordances creating a surreal statement about love looking like a dead squid. This example shows the need for metaphoric interpretation pressure to solve the ambiguity that is a result of the situated meaning-making from that artist and those watching.

Coiling the Rope

CMT can be used to create a sense of meaning and understanding in performance. McConachie notes that the field of cognitive science starts to recognize that the performing arts "as a phenomenon offers a rich body of evidence with which to rest and elaborate their theories" (2006, xiv). Brain imaging data is correlation data that tells the researcher when the brain becomes active due to certain tasks, but it does not give information about how important that function is for the actor (Rizzolatti & Sinigaglia 2008, 143). As seen in this practice, objects and concepts are chosen by the artist and metaphors are written that have meaning for them that then moves the performance of that engagement. "Most of the time we do not need language, nor even elaborate conceptual schemes to grasp the felt meaning of our current situation as it is unfolding, moment to moment" (Johnson 2007, 61). Once the metaphors are written and a deliberate sense-making has been established between the performer and the material, the qualities of the object and the engagement can bring a felt meaning that no longer needs explanation or a narrative.

This practice shows that new insights about the associated concept can form through object manipulation. The basic qualities of the objects lead to a type of sense-making that is free from explicit narrative yet can evoke familiar understanding and ideas through the shared conceptual logic of physical materials and image schemas. In addition to this research being used as a creative practice to create choreography and generate material for the audience to grasp a felt sense, this method could be applied in contexts such as creative writing, therapeutic settings, team building/soft skill training, or in the teaching of cognitive linguistic concepts of embodied meaning. This type of practice can also provide openings in the creative process that gestures toward the next step to be taken, either in material, movement or textual forms. These openings can be found in the form of ambiguity or metaphor interpretation pressure. Likewise, it is activities like this that find intersections between artistic and academic fields and processes.

Lines are often used metaphorically in language and other symbolic systems to represent various kinds of movement, connection, or boundary-making. These metaphorical uses of lines can help to shape our perceptions and experiences of the world, as well as interactions with others. The physical properties of lines and other materials can also contribute to a sense of entanglement. The way that ropes or other material lines can wrap around or connect with other objects can create complex, intertwined patterns of movement and interaction, both in the physical world and in our culture and symbolic systems.

Following page: Fig 146–147. Self portraits from Face Tracing practice.





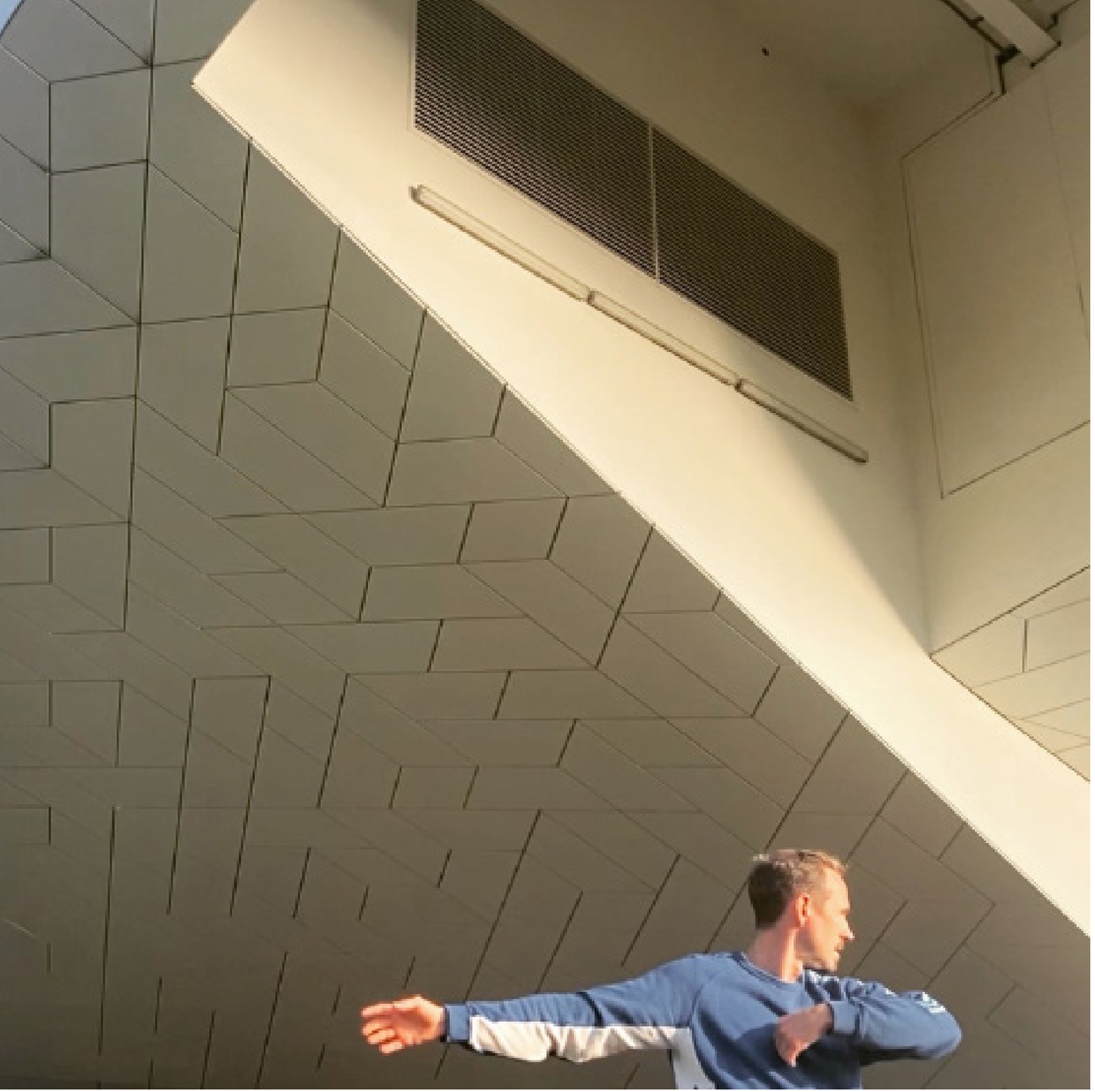




Fig. 148–149. Dialogical dance practice. Stills from film: Gustavo Ciríaco, Amsterdam 2021.

Dialogical Practices for Imagined Lines

Listening, Interference (non)Straight

Lines are problematic. Some initially think of only straight lines. Others want to distinguish between a line, an edge or a trace. When it comes to imagined lines, the difficulty is intensified as it appears there is nothing to look at. This does not mean imaginary lines, as *imagined lines* are not not-there; they can appear as fictive motion, remembered motion, cognitive mappings or spatial relations in the mind's eye. The 'imagined' of imagined lines refers to their location and, as described, imagined lines can have multiple variations, even when not visible. Imagined lines can entail not just imagining how a body can move or shapes our mental architecture, but they also appear in how our language about language captures it as something physical (e.g., reciting *lines* of poetry). Imagined lines have to be constructed through the body. In this chapter, imagined lines produce an entanglement of concepts where parts but not wholes line up. The entanglement of imagined lines and the different modes they present themselves, provides the body a material to be in the present with—and opportunity to sense witness as a dialogical practice. John Shotter says that as humans, our nature is indeterminate and unfinished; "what is of importance to us exists not *only in relation to* what else is around it and us but also in our sense that there is always a *something more* beyond it" (2015, 232). Imagined lines create the opportunity to sense this unfinished movement that continues between bodies and words.

Drawn from two video and audio creations, the proposal here explores forms of imagined lines and the embodied aspects relating to their construction. In the two works presented here, the video *Unfinished dialogical responses* (2021) and the audio *Entangled Thoughts/Entangled Texts* (2021), I look at the imagined lines embedded in the practices of listening, interference and (non)straight and explore ways their movements become entangled. The writing here responds to the two works and questions how these practices relate to each other through an organizing principle of imagined lines.

A body is inseparable from the shapes and traces that it simultaneously creates. We are used to correlating a body in motion with imagined lines when we see a bird swoop through the sky and map the path of its flight. In dance, the body is the material of motion. These shapes and traces can also be called linear designs and linear patterns[1]. Linear designs are perceivable as the sculptural aspects of the body, but linear patterns are imagined. Maxine Sheets-Johnstone describes linear patterns as the traces of gestures or pathways the body makes in space while moving. Linear patterns therefore bring forth an imagined line. Imagined lines appear in the interplay between thoughts and body, visually placed *out there* or mentally imagined *within*. When connecting two points in space, the lines we visually imagine are what Tim Ingold would call ghost lines (2007, 47). However, the imagined lines that are made through movement and do not necessarily connect anything visual in our environment are felt in our body and in the embodied language we use. Ingold admits the taxonomy of lines cannot match the lines that seem "to wiggle free of any classification" despite living in a world of profound linearity (ibid., 50). The problem with imagined lines it that without the ability to see them, they possibly resist coming to an agreement between people. There are however ways we can espouse the materiality of an imagined line through metaphors, embodied language, and features of the body. The following essay uses imagined lines as a tool to link bodily processes with concepts of listening, interference and (non)straight, by looking at the embodied language of stretching, straight and spatial proximity.

36 In this chapter, I substitute linear pattern sometimes for the term linear trace to bring attention to the aspect of movement involved with this term.

A Reading Practice: The initial set up

Two texts by John Shotter were used in this practice: James, Dewey, and Mead: on what must come before all our inquiries and Wittgenstein and his Philosophy of First-Time Events. Four participants were asked to read one text and another four were asked to read the second text. The participants

were put in pairs so that one person in each pair had read a different article. The four pairs were asked to speak *through* the texts, while engaging in a thirty-minute dialogue, knowing that they had each read a different text. The term through[2] was used so that participants did not feel they had to speak *about* the texts, which is at the core of Shotter's argument. For Shotter, withness is the opposite of aboutness, as withness cannot be repeatable, for time, space and circumstances are always changing. The conversations happened immediately after reading the texts so the thoughts of Shotter were fresh in the readers' minds. Allowing little time between the reading and the speaking also intended to limit the amount of reflective thoughts that come when someone has a longer time to digest a text, and instead aimed to create a responsive situation. As the essays focus on 'what comes before all inquiries' and 'first-time events', the participants were given an opportunity to embody the situatedness that Shotter brings to the reader's attention.

The practice allowed for two different texts, in this case by the same author, to meet through the enacted meeting of two bodies. The conversations were video recorded on Zoom. Each person also audio recorded their side of the conversation. A group video and audio were fabricated out of these dialogues. Explanations of the editing processes and works are incorporated into this writing.

37 Sweetser proposes that thinking *through* something means you have come to a conclusion while thinking something *over* means to still be in a process (1992, 716). She explains these linguistic positions come from the physical act of having walked through a place and therefore one is not in that place anymore. However, in line with that same logic that physical acts influence mental linguistic meanings, *through* does not only mean one has reached the other side, but also that one has been touched by what one has experienced. For example, going over a country by an airplane is not as experiential as going through it by car. It is this sense that I am using through, and not the sense that one has come to any conclusions, but in fact is still in the process of experiencing.

Stretching

intendō, *present infinitive* **intendere**, *perfect active* **intendī**, *supine* **intentum**[3]

Borrowing the Latin *intendō*, defined as "to point out" or "be directed toward," the French language has etymologically developed the word in different ways. One usage evolved towards the verb *entendre*: "to hear" and "to understand." Another derivation can be found in the verb *tendre*, "to reach or stretch." We can find the latter term developed in ballet terminology, *tendu*: "tight or outstretched." In ballet, a tendu is the physical act of stretching the foot out. This action is mirrored in the Latin etymology, where "to hear"—*entendre* in French—is also to stretch, to aim, to direct. In this example, we see the developments in the French language correlate stretching the body and the act of hearing. Both acts utilize imagined lines, but slightly differently. The imagined line that comes from the body moving is a remembered trace by a viewer or a felt line from within by the dancer. With hearing and understanding, in other words a type of listening[4], the pointing out or stretching is fictive motion or a mental spatial relation.

38 Wikitionary, s.v. "intendō," accessed May, 2021, https://en.wiktionary.org/wiki/intendo

A person reaching for something with their hand or the foot of a dancer stretching out on the ground both make a linear design with their body. They also draw a linear pattern or trace in space, which as explained is imagined. It is these imagined lines and the actions of the body that allow us to find meaning within the imagined lines of verbal language. Sheets-Johnstone points out that our human ability is to "think analogically along the lines of our bodies and, in turn, to think in movement" (2009b, 294); this is how our kinetic corporeal experience brought meaning to our verbal language. The act of listening and the act of extending the body both create imagined lines because they both are movements that are *directed towards* something.

39 A distinction to note is that *entendre* in modern French usage means to passively hear and *écouter* means to actively listen. However, as seen in the etymological developments, entendre originally means to point or direct outwards, which is not passive but in fact is active. Therefore, under this viewpoint entendre can also resemble the act of listening, if listening is considered the active form of hearing and placing attention.

I propose to compare the physical logic of the lines of the body to propose a conceptual logic for the imagined lines of listening. In a tendu, the dancer's foot draws a linear trace on the ground as it extends the leg forward, flexing in the hip—a fold in the hip joint. Within the realm of the human body, to draw a line is to also make a fold, literally, as a dual action.

Instruction 1:
Reach your arm in one direction and notice a fold also materializes in different areas as a co-action depending on which direction your arm reaches.

If we use the same causal relationship to the subject of listening, then the reaching out of listening is to trace an imagined line and also to make a fold. The imagined line cast in listening could be focus, or the desire to comprehend. The act of listening reaches out to sound qualities and reaches out to content. In the case of listening, does the fold happen the same as it does with the hip?

Gilles Deleuze points out that different materials fold differently (1992, 34). Why does the hip fold? It is a response, an entanglement with the design of the leg. In drawing a trace on the ground, a linear pattern with the foot, the linear design of the leg is changed in the hip socket as the head of the femur rotates backward. The leg moves from under the dancer, where it stands on itself securely, to stretching out. It creates a fold—causing a need to restabilize. The adjusted linear design of the body is a response to the linear trace. The dancer does not think to crease or fold in the hip socket. The dancer thinks to stretch out from the toes at the distal end. The fold and the backward action in the joint are a response in time. Distal and proximal points move in relation.

The material of the trace and the design are the same—the body. To question where the fold is made in listening, first, we must look at the materiality of listening as Deleuze has pointed out. In listening, the trace from reaching out is our ear's capacity to receive sound and our mind to understand the meaning. Accordingly, we are looking for a change in the linear design, or in other words the fold, as its response. The fold could be the inter-mingling of lines of thought that arrives milliseconds after the cast listening—it is the return, backward and down. The fold as a response in listening is the 'knowing how to go forward', the withness to use Shotter's term. We often think of listening as only this backward motion, as the 'that which comes to me.' However, knowing that the first step of listening is to 'tendu,' to stretch out, the backward action that creates the fold is the second part, when we use the function of the corporeal ballet tendu as *a line to think along*.

I argue that the linear trace in listening is to hear and attend to the sounds, and the fold is to bring those sounds into an *understanding-with*. Additionally, a fold consequently makes a type of container. The cast line is not just something with an edge anymore, but by returning and making a fold it now has the capacity to contain. Informed by the body, listening as a *reaching out* creates not only an imagined line but also an imagined fold.

Editing Practice Part 1: Responsive Listening as Dialogical Interference

Listening and understanding. Reaching out and folding. Thinking of listening as a possible imagined line developed from the video *Unfinished dialogical responses*. This video work was built from the recordings of duet conversations that were part of the reading practice. The collection of the four dialogues were then combined into one. In each video conversation, the video was removed where a person is the main speaker. The remaining parts that were left were when the Zoom recording function switches from the speaker to reveal the listener. Often the switch is due to the listener having made a sound, verbal or environmental, but not always. Sometimes the listener would make a sound and the camera would not switch, and sometimes the camera would switch to the listener for reasons unknown. The camera captures the non-speaker listening. When the listener would begin to speak or make a noise and then continue speaking this was not considered as listening, but as taking over the speaker role and therefore this film was not selected. If the listener said a few words but that comment did not interrupt the initial speaker and consequently the camera switched back to filming the initial speaker as their voice controlled the Zoom camera, then those verbal utterances were considered part of the listening and used in the composite.

Listening became the focus of this video due to the relational dynamics implemented by the technology alongside the practice's prompt to be responsive. The authentic, relationally responsive expressions capture your attention in their sincerity. As the speakers were listening to someone, their facial expressions are not acted, but reveal in them what the other person is saying as they attend to

the line of thought their partner is expressing.

By omitting the speaker, what is captured are bodies contained in folded listening. In other words, they are responding from inside the dialogical withness Shotter describes. Though imagined lines may not at first come to mind when viewing the video, they are being cast by the listener. The listener's capacity to attend is directed out towards the other, and the conceptual linear fold produces visible responses in their bodily movements. We see them contained in the speakers' words—caught in the two-step imagined fold.

Unfinished dialogical responses
[click to watch the video now]



Fig. 150

Dialogical Interference

The bodily motions one makes while listening as a response to a speaker dialogically interfere, often without words. Inhabiting the situatedness of our words and the bodily expressions of another is what Mikhail Bakhtin termed dialogical. Further explaining the dialogic, Richard Sennett says: "Though no shared agreements may be reached, through the process of exchange people may become more aware of their own views and expand their understanding of another" (2012, 19). Bad listeners don't attend "to those small phrases, facial gestures or silences which open up a discussion" (ibid., 20). Dialogical listening, therefore, is not only the act of attending to those very components of utterances and gestures, but is the understanding that those components are responsive entanglements amidst imagined lines. A good listener becomes entangled in the imagined lines and folds of exchange. Sennett affirms that empathy is part of dialogical conversations. Sometimes the meaning or understanding is not in the content of the words but also in the felt sense of the tone of voice, the sound—not just the musical note, but the way it is played. Shotter indicates that Wittgenstein called on us to pay attention to:

> tones of voice, bodily movements and gestures, facial expressions, eye directions and so on – and thus place our everyday utterances back into the circumstances of our everyday lives then, rather than bewildering us, the detailed relations between particularities within the complexity can arouse quite specific responses in us. (Shotter 2007, 4)

Through shifts of body weight, bones moving backward and rotating in sockets, a *tendu* shares its dialogical agreements and exchanges with its corporeal self. Linear designs and linear patterns of the moving body share

these dialogical agreements. In listening, the exchanges happen with imagined lines found in the arguments the person is laying out—the intermingling of different lines of thought. In the case of this practice, I am interested in exposing the lines found in the author's thoughts, lines of thought from the speakers, and one's own inner thoughts that come from the lines and folds of listening. In the same way physical objects move toward targets leaving imagined lines behind (a train carrying people or a ball aiming for a goal), ideas and concepts could be looked at with the same imagined traces. Sweetser proposes:

> When speaker and hearer understand each other, they are thus in a (partially) shared mental state, which is metaphorically mapped onto a shared location. When they continue to understand each other through a shifting sequence of mental states, they metaphorically travel from location to location together, remaining co-located throughout the shared journey (1992, 716–717).

Do you follow me?

Your train of thought may go in different directions than mine.

Before you reach any conclusions, let's keep going.

To be present in the dialogical, what Shotter describes as withness, is to let a type of interference incite responses. Interference is something getting in the way of a path or trajectory. A movement between lines. Interference happens also when affect attunement volleys between people allowing for openings in the dialogue. Ammaniti and Ferrari state: "Facial mirroring illustrates that there are interactions organized by ongoing regulations and experiences of mutually attuned interactions, which are fundamental to the developing sense of the 'we'" (2013, 4). The "spontaneous, relationally responsive, living, bodily activity" Shotter describes is a realm for activity between people that "only has the character it has in relation to yours, that is, in relation to your response to it" (2007, 3). Taking these notions into consideration, it is possible to look at interference as a response from being within the words of another, contained in the folds of listening.

In the video, interference is seen as the natural dialogic relationship between speaker and listener. This interference is what Zoom captures and materializes when deciding where to make a cut in the recording. The decisions in the editing process of creating the video were determined by the cuts Zoom makes while two people speak. Interference is a cut in the through-line of the technology. Therefore, I would like us to see that interference is a response from being within the words of another, contained in the folds of listening. In the video, interference is synonymous to responsive dialogical listening.

In the second work, the audio *Entangled Thoughts/ Entangled Texts*, interference is not a result of *being within the folds of listening* but becomes a compositional practice—a method for cutting the dialogues afterwards. However, by fragmenting and interfering with the conversations in the editing process, both works bend content in an attempt to expose imagined lines. Bending an imagined line requires us to first look at the starting point—a straight line. This next section takes us on a non-straight detour to look at the linear aspect of straight in our language for the purpose of finding advantages in non-straight thinking.

Interference as Not Straight

Implicit in the traces that are made when reaching out to listen or made with a bodily limb is the characteristic of *straightness*. The words used in the definition of *entendre* and *tendu* noted earlier – *pointing, tight and outstretched* – evoke a straight quality. According to Conceptual Metaphor Theory, the way we use *straight* and *not straight* as concepts in our society comes from our body and physical interactions in our environment. Alan Cienki outlines how the image schema of STRAIGHT is developed in our language through bodily actions. An image schema

is a structural understanding the mind uses to make meaning that is developed from repeated behaviors in our environment (Lakoff 1987, 459–461, Johnson 1987, 19–21). In his essay "STRAIGHT: An image schema and its metaphorical extensions," (1998) Cienki provides evidence how visual and perceptual experiences of straight extend into abstract language domains.

reg- *'to move in a straight line' Latin regere, 'to rule, govern', German Reich, 'empire', Recht 'law'*[5]

40 Online Etymology Dictionary, "reg", accessed June, 2021, https://www.etymonline.com/word/*reg-

Compared to *intendō*, where a straight line is implicit and concealed, in the Latin *reg* we see an overt etymological link to a straight line and through the linguistic developments relating to those straight lines—rule(r), govern, law. Straight can mean to put something in order (Cienki 1998, 110) and logical thought is straight (122). "The qualities of straightness, control, being up, strong, and firm, therefore commonly group together in our experience given how our bodies function, with a contrasting grouping being bent/curved, lack of control, down, weak, and soft" (ibid., 111). A few examples of primary metaphors that are structured from the STRAIGHT image schema are:

UNCOMPLICATED ACTION IS MOTION ALONG A STRAIGHT PATH (ibid., 123)
LOGICAL THOUGHT IS STRAIGHT (ibid., 122)
TO SPEAK IN A MAXIMALLY INFORMATIIVE WAY IS TO TRANSFER WORDS ALONG A STRAIGHT PATH (ibid., 116)
UNINTERRUPTED SEQUENCE IS STRAIGHT (ibid. ,119).

Cienki gives us examples of how the STRAIGHT image schema leads to everyday language expressions and conceptual understandings. We view straight as uncomplicated as in *He went straight home* or *She gave a straightforward answer.* We see complicated action as not straight, as in *They're talking in circles.* Straight is correct: *Let me set the record straight*. Wrong is therefore not straight. We also view logical and intelligent thought as going along a straight path. And people who speak in ways that sound illogical or insane, are said to have warped, bent, or contorted thoughts. These concepts are understood conceptually because of our understanding of them physically. Let us look at the physical actions of being not straight. For some things to make a change, a bending is required. For example, when the direction of a tree growing straight up is blocked, it bends. We see this logic appear in non-material realms; a plot *twist*, a *turn* of events, or when saying something is dishonest is to *bend* the truth. As an UNINTERRUPTED SEQUENCE IS STRAIGHT (ibid., 119), a linear comprehension is normally associated with speaking and understanding. As we are accustomed to linear comprehension, interference can be a practice that forces the listener to come to terms with their anticipated imagined trajectory of logical thought.

41 In quantum physics, interference and diffraction are related. Richard Feynman has stated: "no one has ever been able to define the difference between interference and diffraction satisfactorily. It is just a question of usage, and there is no specific, important physical difference between them" (Feynman et al., 1964).

However, in regard to the audio *Entangled Thoughts/ Entangled Texts*, I have made a correlation to change and "bending the truth" as all the spoken words are taken out of context, and I have fabricated a group conversation. As an UNINTERRUPTED SEQUENCE IS STRAIGHT (ibid., 119), the act of cutting and rearranging the dialogues in the audio track plays with the linear comprehension normally associated with speaking and understanding. The audio sequences and thus the speakers' logical thoughts are interrupted and changed which result in fake dialogues. The sentences become complicated, illogical, and bent in an attempt to resist straightness. Interfering with the dialogues becomes the practice that forces the listener to come to terms with their anticipated imagined trajectory of logical thought. The bending of dialogues complicates the imagined path of comprehension and resists the straightness of maximally informative thoughts.

42 Karen Barad (2010) uses diffraction as a metaphor for a methodology when reading and writing. Barad explains this proposal in the essay *Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come.*

Complicated, illogical, and bent conversations are an attempt to resist straightness. Interference forces the listener to understand diffractively[6]—meaning to let words and images be in two places at the same time—entangled, cut, re-worked and threaded through one another[7]. Words can exist in the context they were originally spoken in and in a context they are now placed. I could say that interference during dialogues makes straight things not straight. Straight is examined here to show how the straight line is strongly constructed in our language and thinking, even implicitly when hidden inside listening, understanding and the way we follow someone's words, like this

very writing. However, we can listen or think in non-straight ways. That is not the binary opposite of straight but results in diffractive openings of possible differences. Cienki writes that there is one way to be straight and many ways to be not straight (ibid., 142). The multiplicities of not straight are what I am associating to diffraction. Donna Haraway describes, "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" (1992, 300). In this way, diffraction is seen as the result of many differences made through interference. Through embodied language and image schemas, we can find common ground between Cienki's not-straight and Haraway's nuanced idea of interference and diffraction in that they both produce multiplicities of possible differences.

An Editing Practice Part 2: Listening for the (non)straight

In *Entangled Thoughts/Entangled Texts*, eight audio recordings of one-sided dialogues were cut and rearranged together in an editing program. The aim was to interrupt the sequences so that thoughts were not maximally informative, uncomplicated nor logical. To make sure all speech is taken out of context throughout the entire track, the original conversation partners' words never follow each other. Instead, reasons to determine which audio fragment would come next were key phrases and specific words that repeated, a causal relationship like question and answer, or when a speaker started with conjunctions like 'and' or 'but' that could be used as transitions. Another tactic that was used was to sense the imagined lines stemming from the mental imagery evoked through a speakers' words. The subjects of the sentences were different, but the movement and imagery that came to my mind while I listened had similar imagined shapes or trajectories within another sentence. These then were arranged in a sequence, so the imagined lines that were pictured and felt were what brought the statements into proximity. Therefore, there are two ways imagined lines were deployed as a method for practicing interference: sensing the lines in the speaker's use of imagery, and the cutting of straight linear comprehension between the speakers.

Instruction 2:
Feel the imagined lines from the mental imagery evoked in the following utterances from five different speakers:

individual pullings on a center
different forces working at the same time
from a root center that is interconnected
a thinning out… a piece of elastic being pulled from different directions
in terms of perspective, where you're standing, where your feet are entangled

Imagined lines in speech

Imagined lines are not only found in the etymology of words or metaphorical image schemas, but as seen above, can appear in the mental imagery that a speaker is creating. During one of the conversations in *Entangled Thoughts/ Entangled Texts,* one speaker questions the difference between *perspective* and *orientation*, saying;

Perspective is the act of looking at, and orientation is the act of looking towards… Perspective is a separation that bridges a gap through viewing. Orientation is more like— already linking the thing. Like there is a suction between the two; there is already a way there, you don't have to bridge anything.

In listening to this speaker's words, I see imagined lines enacted from the prepositions that each have different qualities. The word 'at' as a line, to the speaker's understanding, functions as a bridge and, at its definition, creates distance. The distance is felt like how a bridge operates on the premise of two points needing connection. If these

points were actually visible, for Ingold, they would create a ghost line. Since the images stay mentally constructed through language, they are instead imagined lines from fictive motion and spatial relation in the mind's eye. As the speaker describes 'towards,' the self is situated and therefore is already linked. They use the term suction as if there is perhaps some mutuality. The imagined line that is conjured is a path already felt, known, and agreed upon. Though the speaker is describing the act of looking in both phrases, the sense of the whole body appears important within the 'orientating-towards' explanation. Their use of 'suction' and 'way there' does not describe vision but is of the body.

Instruction 3:
Imagine a drawing showing the lines conjured for 'at' and 'towards'. Using pen and paper, actually draw these imagined lines into physical forms through the traces of your hand.

'At' and 'towards' become different types of imagined lines. Qualities of these imagined lines drawn from 'at' and 'towards' become associated with the concept they're linked to; at-perspective, towards-orientation. Accordingly, we could say *perspective* is a longer, sharper, thinner line with an intention as those are qualities associated with the *line of at*. *Orientation* is softer, easier, and known because the *line of towards* has proximity. While listening to the speaker compare the concepts, imagined lines felt in my body and visualized in my mind allow me to understand their proposition. Sheets-Johnstone has called this the imaginative consciousness of movement (2007) whereby movement's imagined linear qualities are how we come to understand metaphoric concepts. My own felt response makes me think perspective is visual and orientation is of the body. Looking from a perspective, we focus and our eyesight is narrower; vision is formed by light. Light as a line also has properties; we might say longer, sharper, and thinner, with already preconceived 'intents' or rules[8]. With orientation, I think of my body and I know that my skin senses do not go as far as my sight. My skin is more proximally stimulated, soft and familiar than that which is only seen in the distance. Through this comparison, I can make associations between 'at' with sight and 'towards' with the body. Through experience, I can proclaim that the lines light creates belong to my vision, and the lines my body makes belong to movement. The conceptual and metaphoric understandings of linear quality are attributed to having a body and experience with moving it (Sheets-Johnstone, 2007, 120). Therefore, I suggest when 'perspective at' or 'orientated towards' are spoken, different imagined lines are evoked based on properties of light and motion, or vision and body. Cienki comes to a similar acknowledgment through linguistic metaphor: Truth is seen as light. Truth is also straight. Our perception that light travels in a straight path is why we find coherence between truth, straight and light (1998, 121). When a concept is associated with certain physical properties, those properties become mapped onto the concept. These prepositions take on linear qualities depending on the usage and concepts they are linked to: *an at line* associated with light is thin and straight, and *a toward line* associated with the body is bent, thicker and shorter. As stated by Sheets-Johnstone in the beginning of this essay, it is a fundamental human ability to think along the lines of the body when thinking metaphorically. Using the body and its senses is the very point between body and language Sheets-Johnstone claims we do metaphorically and analogically to create meaning. Metaphors based on lines are ubiquitous in our language.

43 Considering intents and rules for lines of light, we could pull from different sources. Firstly, light as a force in physics travels in a straight line. Secondly, in drawing, the invention of linear perspective brings all the lines in a picture to the same horizon focal point from the viewer's vision. Additionally, in language we say someone has a piercing glare, exemplified by cartoon characters where beams of light stretch out of a superhero's eyes.

Allowing Conceptual Metaphor Theory to support these claims, we can look at Michele Emanatian's research (1997) on the INVOLVEMENT-PROXIMITY metaphor. Emanatian points out that the emotional realm is metaphorically closer to an idea or a person than the intellectual realm (1997, 143). The observation claims that the outputs in our language show that *to be too close to something* means to have emotional reactions and *to look at something in a detached way* fosters intellectual objectivity. This analysis, as well, places the body and its emotions in a closer proximity to an idea than vision and its corresponding intellect. When we combine this to another primary metaphor, the INTELLECTUAL-CONVERSATIONAL JOURNEY metaphor[9], where sharing language and ideas requires a journey through space, we can hypothesis the length of these hidden imagined lines.

44 Like all primary metaphors, the Intellectual-Conversational Journey metaphor and the Involvement-Proximity metaphor are not absolute, relevant in every form of speech or restrict contradictory examples. The multiplicity and contradictory nature of primary metaphors shows the many ways the nuanced body through experience finds outputs in language.

For example, orientating with your body *towards* an idea creates a shorter path of proximity, and having a perspective *at* an idea requires a longer cast line as the space is more distal. It is through explaining the architecture

Fig. 151

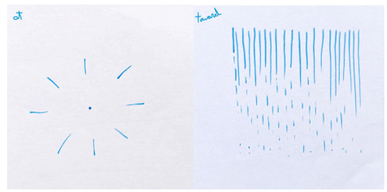


Fig. 152

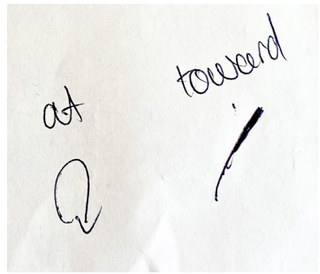
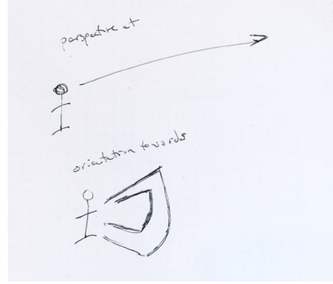


Fig. 153



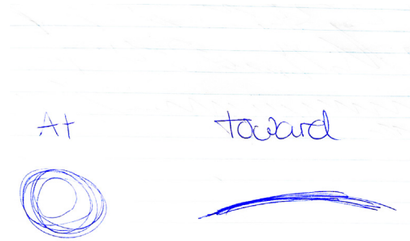


Fig. 154

Fig. 151–154. Participants of an online lecture about lines were asked to privately draw 'at' and 'towards' as a line. Fig. 153 is drawn by author. In these drawings, 'toward' can be seen as motion over an area. 'At' can be seen as a specifc loction of vision. Under this idea, the author's own depiction references a singular point with a distance. If one thinks of a bow and arrow—a logic for an imagined thrown line— the other drawings capture the movement and bullseye aspects when abstracting 'at' into a linear concept.

of their thoughts that we can sense these understandings of proximity and the effort they require. In turn, it is through this analysis that we bring the body into the equation and can point out that the speaker's body is present in constructing imagined lines and in their definition more than they realize.

In the following audio, the imagined through-lines of speakers' words, the responses demarking lines of listening and the felt imagined lines of metaphoric language become entangled for the listener. Interference, by means of cutting dialogues apart and rejoining them in different configurations, creates a diffractive listening experience. Where diffractive is often used in a Baradian metaphoric way, I invite the listener to notice the tangents, cuts and bent train of thoughts that put the spoken ideas into entanglements. Whereas in the video, we see the people listening, in the audio, listening now presents itself as a practice for the audience. When hearing the audio, the listener is confronted with the imagined traces they think the conversation is going. The conversation as an intellectual journey goes off the beaten path. When the speakers provide responses that semi-relate, the listener must bend what they are comprehending. Their own expectations now become additional interference, where their train of thought actively gets entangled with the cuts in the editing process. The listener's involvement jumps between proximal and distance locations of knowing, perhaps allowing for new thoughts due to the non-straight imagined lines of discourse.

Entangled Thoughts/Entangled Texts

[click to listen to the audio here]

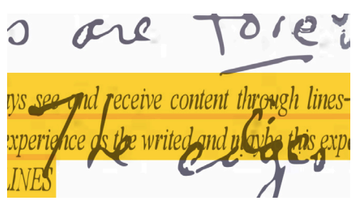


Fig. 155

Relationally responsive, dialogically structured understandings

Imagined lines have their very presence in this work of writing. The felt entanglements of the Shotter's lines of thoughts, metaphoric language, the parallel lines of etymological development, the hidden image schemas that bend concepts—they resist when tried to be drawn into a straight linear argument. Lines easily become entangled. Sometimes linearity means controlled, understandable, and in order, and other times lines are curved, unfinished, and bent. The lines spoken about here are sometimes straight when perceived but become non-straight when imagined and vice versa. Imagined lines find tension in dialogical thoughts. The visual lines I imagine when I think of interference oppose the cohesive linear aspect argumentation intends to weave. My thoughts burst out in different directions as imagined traces, but the words typed here strut across the document evenly spaced and horizontally stuck. Caught between the words that leave traces in my mind and the words that make it onto this page is my body.

This sentence has a perceived straight linear form—different from sentences spoken or heard.

Imagined lines come from traced lines we once made with our body. Etymologically, we could understand listening as a type of straightness, but perhaps it benefits us to think of it as an imagined line that is bent and folded. In the same way the linear trace of an outstretched foot or arm appears to be straight, but is also made by the arching of bone joints, folding and unfolding tissues and muscles in distal areas, an imagined line made of dialogical listening is also bent and folded. To respond with interference, the body must stay flexible, less rigid and able to change.

These works propose using interference as a strategy to bring distant and multimodal lines into proximity whereby new effects through entangled reading, listening, and speaking are produced. "Entanglements are not unities. They do not erase differences; on the contrary, entanglings entail differentiatings, differentiatings entail entanglings. One move – cutting together-apart" (Barad 2014, 176). In this way, the audio and video works in Barad's notion of cutting together/apart. Where the video subtracts the dialogues, creating conversations without words, the audio disrupts and entangles the dialogues resulting in words taken out of context. Interference can be seen at different stages of the practice, and within the editing process. In the reading practice, providing dialogue partners with different articles subjects the conversations to interruptions and entangled thoughts. Using the choices of Zoom to subtract the speaker's main thoughts brings absence into focus— yet upon closer analysis, it discreetly shows the speakers' words caught by the listener. In both projects, bringing all eight speakers together fabricates a group conversation that did not happen. The participants are cut into proximity—together their words and images highlight responsive differences.

Withness is dialogical, dialogical is interference, interference is diffraction, diffraction is not straight, not straight is bent, bent is folding, folding is listening, listening is bodily, bodily is withness.

This entanglement of imagined lines is what this writing brings into proximity. Imagined lines move in ways that are hard to pin down. These artworks and writing do not attempt to solve the behavior of imagined lines, but to bring to light their often-unnoticed presence and the corporeal movement their invisibility orchestrates. In summary, what has been thought through and taken from these works is as follows: Imagined lines allow us to embody the proposals from Shotter and by becoming aware of their presence allow the possibility of withness. In order to achieve withness, we cannot keep going in straight directions. When listening is seen as an imagined line, it is an active intermingling and intertwining element. It has in its construct a fold—a bend. It is a bodily orientating *towards* and not an intellectual straight line *at*. It appears as a line of silence but is seen in the relationally responsive bodily actions of the listener. Dialogical is the product of interfered, folded and non-straight listening. Lines of thoughts are not reflected back on the listener but are diffracted lines from the entanglement of past thoughts, present readings, speakers' utterances, and the traces of listener's tendu-ing.

embodied lines

Embodied Lines allow us to coordinate ourselves with our environment and those around us. For Shotter, he proposes that "we need to create ways of verbally articulating our experience of 'moving around' within a still vague and bewildering situation in our attempts at determining its nature that arouse in the others around us anticipations as to a set of possible next steps that make it possible for others to coordinate their behavior with ours" (2016a, 77). Here he asks that we make a verbal articulation, but if we look at communication as the articulation of moving bodies, we can also find ways of coordinating behavior to move with the anticipations of others. The 'ways' that I have suggested we use to execute this are looking at Embodied Lines as an organizing principle for bringing together ways of reading the environment and responding with the body in that environment.

Embodiment is important, but even more so when it is acknowledged as a relationally responsive form. For Shotter, it is what allows us to carry on at all: "Without our embodied, acutely discriminative sense of our relations to our surroundings, spontaneously at work in orientating us before we open our mouths to speak, we would be quite unable to conduct any of our everyday affairs with those around us" (2016a, 77).

Informed by and speaking about Wittgenstein, Shotter notes, "It is how people react and respond, practically and bodily, both to each other and their circumstances in practice, that is of importance to him, how they 'go on' with each other. Thus, what some 'inner thing' is for us, our sense of 'it,' can only be discovered from a study, not of how we talk in reflecting upon it, but of how 'it' necessarily 'shapes' those of our everyday communicative activities in which it is involved in practice" (1996, 390). In the film *Unfinished dialogical responses* (2020), the shape of the listener's 'inner thing' is made visible in attending to the other. Words are erased, leaving traces of silence. Shotter says: "What is crucial in these dialogical processes is the gap, the pause, the space, the moment when one speaking person, one expressive agency, pauses sufficiently in their activity to orient themselves toward being responsive both to another's resultant responsive expressions toward them, and to other influences in the circumstances of their talk" (2012b, 2). Here Shotter speaks of a gap, where I spoke of interference, and uses the term *pauses* where I spoke of listening. He speaks of talking and I focus on the movements.

Talking *is* making a line of argumentation, and as explored in the previous chapters, listening, walking, and touching are also ways to make lines that are imagined, traced, or perceived. The plethora of available lines allows us to embody them when we have ways of understanding and making sense with them. Lines are not static but always in flow. Shotter states, "we need to see ourselves as being internally related to still-in-process, flowing 'worlds' of intermingling activities, which, in flowing through us, influence us as much, if not more, than we can influence them" (2016a, 72). When I describe the space around me, the space is influencing me because describing is a way of perceiving. I am searching for lines and noticing what comes into my perception. By using the different theories from Gibson or Stern to give me clues on how to read the space around me, I can allow the readings to give me data and then influence what or how I see. I embody the lines to give myself intermingling access to different processes I am related to.

The desire to categorize lines into ones perceived, imagined, and traced is to be able to see the distinctions and feel a sense of wholeness, but in so doing, it becomes clear that they keep their *still developing* nature in that they resist staying in categories when embodied. Like other ambiguous things, lines, a transient phenomenon, still cannot resist being categorized in my research. The three domains I list for Embodied Lines make evident that "we feel we can 'tame' the always, 'wild', 'unbounded', 'unfinished', 'incomplete', and 'still developing' existence of temporal events, by placing temporary boundaries around them, boundaries that allow temporal things and events to have, momentarily, for practical purposes, a unique, classifiable, i.e., nameable, wholeness to them" (Shotter 2016b, 43).

What often seem like defined differences are not permanently fixed. In the words of Barad, there are no boundaries, only boundary-making practices (2007, 93). Shotter, noting the same observation as Barad, agrees that we are the ones that make borders, through our actions and thoughts (2016b, 69). Our actions will bring the desire to name things in the process of making sense of them. Finally, the three domains of imagined, perceived and traced lines can fall into one general category of Embodied Lines in order to merge their unfinishedness with the momentarily nameable.

Lines are embodied because we have made physical traces with our bodies, thoughts, and with materials uniting us with our experiences. When lines give us insight into our intra-action realities as a form of withness, lines have a response-ability, and thus can be approached ethically. Barad states: "Ethics is not a geometrical calculation: 'others' are never very far from 'us'; 'they' and 'we' are co-constituted and entangled through the very cuts 'we' help to enact. Intra-actions cut 'things' together and apart" (2007, 179). Barad continues that these cuts are always made from the inside and are also never permanent. A cut is an imagined and perceivable line. The act of embodying lines in the *Body as Translator* practice describes momentary divisions in the relational moment they are made.

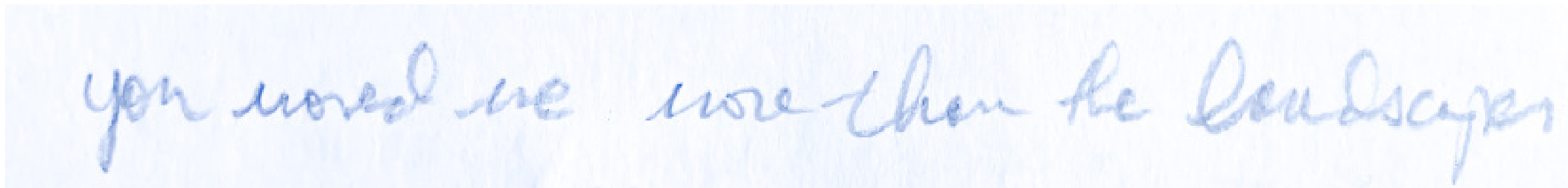
The practices described in this research intend to bring to light knowledge and ways we operate that might be easily available but not always obvious. A highly important proposition is highlighted here by Shotter (2016b, 107–108), which he outlines as a dilemma; he states:

> That (1) without a distinctive name for the precise kind of 'gap' or 'emptiness' we are experiencing in our current circumstances, we can easily assume that no such 'entities' can be at work in shaping our activities — we thus come to overlook observable phenomena whose occurrence becomes obvious to us all with a little training in how to pay attention to them — but (2) without a distinctive name for them, we have a tendency to

> assume that our expressions do "have a sense that remains identical through the changing occasions of their use"(Garfinkel 1967, 40), when in fact they do not.

When dancers work together, it is about the sense that something about our movement fingerprint or signature is consistent, when in fact, we are constantly moved by those around us. However, as Shotter states, without a name, we get lost in being able to acknowledge what is changing and therefore think it is the 'me' or 'I' that stays and thus is unchangeable. What I have called Embodied Lines, I propose, is one possibility that names what Shotter articulates as often missing because it is already in plain view. Therefore, the naming of the lines fills this type of gap, where we feel a disconnect between mind, body, and environment or another.

> Our turn to a focus on the dialogical is, as we have already seen, a turn away from the isolated ideas, actions, and the spoken and written sentences of individuals that are only externally related to the circumstances of their utterance, and a turn toward events occurring within the *meetings* between ourselves and the others and otherness around us, events *internally* related to our meetings. (Shotter 2006, 594)


you moved me more than the landscape

Previous page: Fig. 156.

Conclusions

> As professionals, we have mostly ignored our embodied embeddedness in this living flow of spontaneous but complex responsive activity. (Shotter 1996, 386)

Using the logic of a line to think along with, the question comes to me if a line has a beginning and/or an end? Ingold notes when you make a line, the action started before and continues after the line, claiming that the line goes on and on through our movements. I agree with this claim as it relates to traced lines. A perceived line, like and edge, usually bends around a corner continuing as well. The imagined lines behind a moving object or in our mind's eye also continue as they too are attached to movement.

With the notion expressed earlier in this thesis, that my practice could be looked at as if there is only one line constantly changing forms and domains, it can be understood that lines therefore do not have beginnings or endings. Not only can the line continue, but through viewing the body as a translator, the same line can move between forms, people, and domains. A building's edge becomes a linear response with the body's limbs and that trace is drawn by the dancer themselves afterwards, documenting their felt sense of movement.

In the research presented here, I highlight how drawing lines of felt experience can match in ways to the drawn lines of those watching from the outside. Drawn lines can reach into other's inner world. We can see similar approaches in French educator Fernand Deligny's use of drawing lines when working with autistic children in 1967, a project known as Wander Lines (*lignes d'erre)*. He interpreted the maps he made as data between subjects and their environment (Miguel 2015, 190). Interdisciplinary researcher Marlon Miguel writes about Deligny, "We cannot fix affect, but rather follow (map) the movement it provokes" (ibid., 191). In this way, Deligny is said to be mapping someone's affects. In a durational performance I watched called *The Emotional Season* at Der Betrieb in Vienna in November 2022, I similarly mapped affect by drawing the traces I saw of the dancers. In one performance they were working on embodying the emotions greed (see fig.157) and jealousy (see fig. 158).

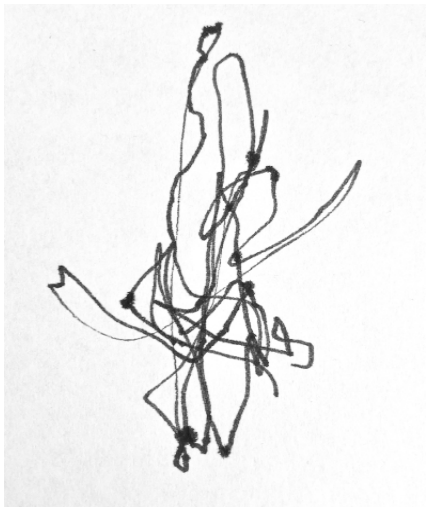


Fig. 157. Greed.

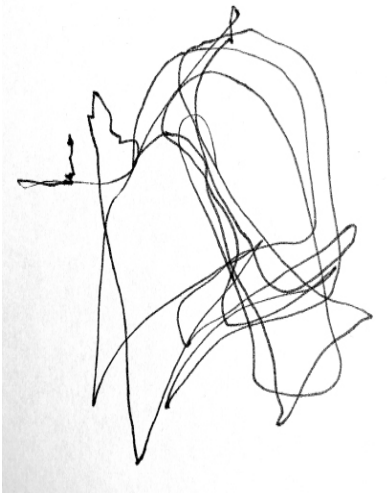


Fig. 158. Jealousy.

If Deligny was "in search of a mode of being that allowed [autistic children] to exist even if that meant changing our own mode" (Deligny 2015, 79), then we could, for example, take Ingold's proposal to view description not as verbal composition but as practices of line making (Ingold 2010, 309). This research supports the notion that it is possible to follow along the lines of Deligny, and take Ingold seriously, thus leading to descriptive practices that entangle, writing, drawing and dancing as products. In other words, a graphic, descriptive entanglement of non-straight practices of language and movement. This has potential for developing different ways of archiving.

My research and artistic work also clearly have psychotherapeutic potential. Participants using materials to work with Time or Love can find embodied understandings for abstract concepts. Additionally, team-building and soft skills development could benefit from looking at Time and Thoughts as lines that reveal the subjectivity and similarity between participants. Neuroscientist from Stanford, Andrew Huberman also advocates for eye health and improving vision (2021) by doing exercises of smooth visual tracking, like the Drawing Linescapes practice I presented. In addition, in psychology, by studying the ways in which people's spatial perceptions are shaped by their bodily experiences, psychologists can gain insights into the ways in which our minds and bodies are interconnected. Besides dance, I have been able to use this research within my bodywork practice. For example, when I was working with a client in a bodywork session, I understood their idea of 'focusing' meant something forward because of a gesture they made while speaking. Their bodily lines showed the imagined lines embedded in their idea of focus.

When we consider the concept of lines, we often think of them as a clear and distinct boundary between things. However, the reality is more complex. The concept of Embodied Lines can have implications for our understanding of sexual orientation, gender identity and expression. By recognizing that lines are not fixed, we can begin to embrace a more fluid understanding of gender that is inclusive of LGBTQ+ and non-binary individuals. LGBTQ+ and non-binary identities challenge traditional ideas about lines and boundaries, both physical and conceptual. As discussed in the paradigm of Origami Thinking, separations are not immediately visible, but are essential to the structure of the final form. Similarly, the lines and separations that define our identities and experiences may not be immediately visible to others but are an essential part of who we are.

While the concept Embodied Lines emphasizes the ways in which physical and imagined lines are intertwined in our perceptions and experiences, it is important to note that in the realm of quantum physics, there is no clear boundary between physical objects on a subatomic level. As physicist Richard Feynman has argued, "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. 1964). Instead, we see the interconnectedness of all things, where particles are both distinct and entangled with one another. This suggests that while lines may be a useful tool for understanding and navigating our world, they are ultimately a product of our perceptual and conceptual frameworks and may not correspond to any underlying reality. Quantum physics also proposes that the act of observation can fundamentally alter the properties of a physical system, such as the position or momentum of a subatomic particle. This idea challenges the traditional view of the observer as a passive observer of the world and raises questions about the nature of subjective experience and the relationship between mind and matter. The link between quantum physics and Embodied Lines, as explored earlier through Barad's insights, reveals that both fields of study invite us to question our assumptions about the nature of reality, and to explore the complex relationships between perception, experience and physical systems. By exploring the concept of Embodied Lines in light of these insights from quantum physics, we can gain a deeper appreciation for the complex, entangled nature of the world around us, and the role that our perceptions play in shaping it.

Taken together, all these ideas suggest that the concept of lines is far more complex and multifaceted than we might initially think. Whether talking about movement, gender identity, quantum physics, or origami, lines and boundaries are always in flux, shaped by our embodied experiences, cultural context and perception.

As my work is artistic practice, however, the real-world application already exists in that the work has led the teaching of university courses, and new dance practices that have created dance films and fostered thought and understanding for dancers improvising. Lines have been a tool to teach dance students about cognition, psychology and metaphor and in turn provided them with tools for allowing the perception of their environment to move them. Artist Lucy Cotter reminds us of the value in this type of thinking: "Artists assert their freedom to engage with other subjects of interest at will and entirely in their own manner. Often touching on several fields through the associative logic of artistic thinking, and in an experimental manner that ignores disciplinary conventions, artists create areas of thinking that lie outside of formal categorization" (Cotter 2019, 13).

Theoretical Ph.D.s in Dance Studies are more established than practice-based ones, if not still the only tertiary ([post-]graduate) option for dance scholarship in many countries. In countries with a longer history of practice-based research in dance, sometimes the thesis is minimal, or more radically, a written component is not even required, as the new knowledge is considered disseminated in the artistic products and artifacts. The written components and theoretical insights of this thesis seek to highlight the theoretical depth that can come from practice, while still insisting that the ultimate knowledge resides in the embodied acts of doing and is visible within the scores and artistic outputs. Within the context of dance improvisation and choreography, the focus is shifting from conventional considerations of aesthetics or spatial formations of dancers on stage. Instead, there is a growing interest in dance as a sense-making practice (see Hermans 2022) or as situated acts, attuning to agencies within specific environments (see Guttman 2020). My research looks at both of these aspects through the principle of lines.

It is tempting to have wanted to follow quantitative research protocols and implement control groups for example. The question arises, would that entail working with non-dancers, or allowing dancers to embody the space without the notion of lines to see if they dance differently? In the end, artistic research is different than the application of quantitative methods and it was to my benefit to allow the artistic mode to move the research and resist the pressure of quantitative analysis. Shotter notes that practitioners have a different aim than making "reliable and repeatable results that can be made accessible in some published form so that they can be both publically criticized and tested" (2012a, 6). Nonetheless, I am sure different insights would be found had there been some sort of control group, but as the work is mainly dependent on professional dancers with training, the financial aspect of a self-financed project made this not feasible. Additionally, the pandemic moved some of the research and interaction with dancers to online, which of course is not as embodied. Yet as Ingold proclaims to *follow the materials*, in so doing, new artifacts and thoughts on lines came out of the pandemic predicament, namely the thoughts and works presented in the chapter 'Dialogical Practices for Imagined Lines'.

I found that the strength in the pseudo quantitative route I did utilize was not helpful for finding specific results, but those elements (doing experiments multiple times, interviewing, numbering and comparing) were helpful for the witness that it created. The conversations and the different experiments showed how the dancers learn meaning quickly and see difference. Each practice informed the others. As Shotter is quoted at the start of this conclusion, embodied responsive activity is often forgotten as knowledge and this work has intended to show the depth and rigor that can come from resisting traditional reflective and reproducible knowledge. Each chapter has shown different ways that lines can espouse withness knowledge, that is situated and unique.

It can be noted that my own summary of the theories used and what I valued was disseminated to the dancers, which of course limits interpretation. I allowed dancers to feel free to move in the task as they felt was solving the creative problem, but as I am a dancer in my own work, my involvement may have created a certain style. However, in Berlin while doing a short artistic project where two dancers learned the dialogical practice in one afternoon, their own style emerged that fulfilled the criteria of investigation and was understood by them without my demonstration (see Appendix 2022). Lines provided the dancers a way for their unique signature to materialize, as they were brought into an environment dependent and actor independent *foam* practice.

Lines perhaps at first feel male if we think of them as straight, due to correlations between power and unidirec-

tional force often associated with a male embodied experience (McGraw n.d.). However, within the research here they are not looked at for straightness, nor associated with math or science. Instead, they are movement, they are curved—they are openings and becomings. They are ambiguous, animate and full of emotion and situational meaning. They are personal. I am aware of the male authors and their theories that this research is grounded in as they were providing evidence about the line. Their presence, I could argue, can be seen as feminine when we associate them with movement and the body against male thinking/mind paradigms. Lines also resist and hide identity politics. Lines for me have always had an opportunity to be genderless, ageless, and ability-less.

However, I have interest to see where my work on Embodied Lines as a concept can be used to investigate new ways to describe crip and queer studies,[1] in other words *non-straight* practices. To change how we observe, think, and write, we have to see the metaphorical logic and image schemas that select our words and build our mental images. For example, the German phrase, *Alles im Lot?* expresses that to be 'ok' is to be upright and straight; to be a vertical line (a plumb line). There is an imagined line in the metaphoric saying which has an effect on queer and disabled identities and politics. This poses the question, can different metaphors shape culture that could benefit queer and disabled discourse? Can dancer and choreographer Nijinsky's piece *L'après-midi d'un faune* (1912) be seen not for its aesthetically different angles in contrast to ballet, but for its non-straight lines that connected to the queer dancer who performed them? Auguste Rodin defended Nijinsky, whose sculptures like *The Shade* (1880), also show a twisted body, originally made without a hand—a lens for disability aesthetics. I see that a new stage of my research could be to find linear connections between queer individuals and the experiences of disability.

45 The terms crip and queer, originally terms of oppression, have been reclaimed by members of both communities, and have intersected in "crip theory" where disability studies blur with sexuality/ gender studies. See *Crip Theory*, McRuer (2006).

New Knowledge

Kinetic motions are ontologically the way one manifests as a being in the world. If these motions produce lines, lines then become constitutive markings of our being. Lines are not residues but the very things that make us *us*. Our traces, our thoughts, our writings, our signatures. It makes sense why lines are a topic, a method, and a product at the same time. My intention is also not to provide an ontological theory but to point, gesture to the observation of lines as a topic in order for communication—for going forward—for openings. I do not want this to understate motion. It is not about searching for a basic building block, as I agree with Sheets-Johnstone, that animacy functions as a core human trait. If I am thinking in movement, I am thinking in lines. It could be argued that this present research is not abstract at all, but fundamental to our experience as humans. As Sheets-Johnstone states, it is our human nature to think along the lines of our body. What appears abstract is because the lines are so embedded in our language, in our metaphoric way of thinking. Each chapter has presented theoretical insights and artistic artifacts of embodied knowledge. Lines and signatures have been proposed as a way to think of these once-off unique moments bringing awareness to withness knowledge.

Below is a list of new knowledge that this research claims to have produced or advanced:

- Advancing improvisation dance practice. New ways of moving and thinking for dancers.
- Incorporation of new cognitive theories into dance.
- Using the body as a place to unite cognitive theories under the construct of lines.
- Using artistic research as the mode to do so.
- Adding new types of lines to the field of Linealogy.
- Exemplifying 'withness' practices (as a result of previous points).
- Expanding on Leyton's idea that if lines in space are memory storage, then sound lines, thought lines, bodily traces can also be memory storage.
- Proposing *Body as Translator* as a practice.
- Image of 'origami' or 'human body as origami' as a paradigm to illustrate the delineating of practices creates lines that are folded creating concepts, things to be with, which is in contrast to schemas like Deleuze's rhizome.
- Similarities between Affordance Theory, Material Engagement Theory and Leyton's Asymmetry Theory.

- I am extending the notion of dance through Linealogy by thinking of writing or drawing like dancing, Overall, the similarities between the movement of eye scanning the landscape, listening and movement of lines that stem from actions.
- The term Embodied Lines
- The metaphoricity potential of lines.
- Lines as a materiality of experience.
- The dialogical dance practice as an example of ecological and enactive perception (foam).

My research on Embodied Lines offers a novel perspective on the ways in which meaning is created and communicated through movement, art and language and how our perception of lines can reveal deeper truths about ourselves and our relationship with the world around us. Through the research of lines, we discover that lines are not just a simple visual element in art, but lines offer a platform for dialogue between the animate and inanimate. Embodied Lines highlights the fact that mislabeling a line is not inherently problematic because their nature is to move between domains grounded in corporeal experience. This can even create a type of metaphor interpretation pressure as they offer a means to imbue objects with meaning. In addition, lines offer the opportunity to explore the relationship between the body and the physical world as an expression of agency. By categorizing lines into three domains of imagined, bodily, and perceived, we can analyze the ways in which the body interacts with lines, and how these interactions can be reworked to generate new ideas and provide a means to alter boundaries and find ambiguous areas where distinctions are less clear. This research does not zoom in, to find new details about lines like Ingold did, differentiating between the properties of threads and traces. Instead, I have presented the breadth of lines, going against the normal academic tradition of narrowing the focus of attention. In so doing, I have discovered that when we pan back, a line can slide out of its imagined form as fictive motion and become a gesture of the hand, that is then read as a musical score, which is turned into a drawing by a listener and that drawing is put to movement by a dancer. Exhibiting a responsive and metaphoric capacity, the ability to embody lines is something I possess when I see the world around me in lines and myself as a line maker.

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Appendix

Appendix with documentation of videos, audio, images and drawings organized by years is found on Research Catalogue: **Click for the Embodied Lines Appendix.**

Under the Main Appendix page in CONTENTS is also the pages for the films
Lines of Experience, Linear Engagement, Between Foam and Origami, the Occluding Edge, Unfinished dialogical responses, and the audio *Entangled Thoughts/Entangled Texts.*

Notes

Parts of chapters that were previously published:

Making Sense of Lines

O'Connor, M. 2023. Lines of experience: Towards a Research Method. In *Dance Data, Cognition, and Multimodal Communication,* edited by C. Fernandes, V. Evola and C. Ribeiro, 363–372. London: Routledge. https://doi.org/10.4324/9781003106401-28

Two paragraphs originally published in this work were incorporated into this chapter.

Wagner and Asymmetry

Cienki, A., and M. O'Connor. 2022. Researching Embodied Metaphor Production Through Improvisational Dance Practice. In *Dynamism in Metaphor and Beyond*, edited by H. Colston, T. Matlock and G. Steen, 63–76. Amsterdam: John Benjamins.

Three sections indicated in the chapter were originally published in the above work. The sections re-used describe the invented practices from my research, the development of the research question and practice, the initial descriptions of the practice written by me, with supplied observations from the study, and I outlined the initial theoretical observation that matches the movement practice to CMT and sound symbolism.

The Materiality of Lines

O'Connor, M., and A. Cienki. 2022. Materiality of Lines: The Kinaesthetics of Bodily Movement Uniting Dance and Prehistoric Cave Art. In *Frontiers in Communication* 7. https://doi.org/10.3389/fpsyg.2016.00481

This chapter was written for the special edition of *Frontiers: Movement, Embodiment, Kinesemiotics: Interdisciplinary Approaches to Movement-Based Communication*, knowing it would be a full chapter in this thesis. I contributed to the conception, design, and implementation of the research practices described and wrote the first draft of the manuscript. I developed the conceptual ideas of applying MET to dance, the proposal of 'signature' over sign, and the proposals that the materiality of lines constitutes experience, is ambiguous, and relates to withness.

Dialogical Practices for Imagined Lines

O'Connor, M. 2023. Dialogical Practices for Imagined Lines: Listening, interference and (non) straight. Performance Philosophy 8 no. 1: 62–74. https://doi.org/10.21476/PP.2022.72358.

A slightly shorter version of this chapter was published in the [MARGINS] section in a hybrid issue of Performance Philosophy 8(1) and ECHO #5.

Summary

Embodied Lines: Creating withness through perceived, bodily, and imagined lines

Three major components of our experience are our mind, our body, and our environment. This practice-based research investigates a new way of looking at these three categories through dance and movement practices in order to find a common language between them. The study of lines offers that link. Our body creates lines. It creates lines when moving by leaving temporary traces, as when we dance or swing our limbs. Our mind creates lines when we imagine events along a timeline or when delineating conceptual borders, like between nature and nurture. Our body also visually and sensually perceives lines in our environment, organizing the world around us in straight and organic lines. Through our body, lines become a fundamental part of our experience. In this research, lines are the topic, the research method, and the data. This in itself is a complex and hypnotizing landscape to ponder. Besides contributing to the new field of Linealogy, this research is carving out its own territory by defining the term Embodied Lines as a specific way to approach the topic of lines. Each chapter presents theoretical insights combined with artistic artifacts of embodied knowledge. Main theories approached around the topic of lines include: Conceptual Metaphor Theory (Lakoff & Johnson), Affordance Theory (Gibson), Asymmetry Principle (Leyton), Material Engagement Theory (Malafouris), Linear Design and Linear Pattern (Sheets-Johnstone), and Vitality Affects (Stern). In turn, lines are proposed as a way to think of and create situated moments that bring awareness to *withness* knowledge, a term proposed by John Shotter.



Fig. 159. Michela Filzi. Film still: Jubal Battisti.

Instructions: With the hand that is not holding the pen, use a finger to trace along the features of your face. Simultaneously with the other hand, draw on the following page the same trace: eyes closed, one line, a self-portrait.

fig. 160. Drawing of Face Tracing practice from reader



Michael O'Connor seamlessly blends practice and theory in his choreography and teaching. With an MA from DAS Choreography at the Amsterdam University of the Arts and a BFA in Modern Dance from the University of Utah, Michael has routinely opened doors at the university level for dance as artistic research. At the intersection of cognitive science and movement, his artistic work aims to recreate and articulate fundamental elements of human perception as performative tools. He has presented his research on the intersection of neuroscience and dance at conferences in Germany, Portugal, UK, Lithuania, and the Netherlands. He was a THIRD research fellow at DAS Graduate School from 2018-2022.

His solo premiere work *a waiting dog dies* earned him Vienna's 'dancer to watch' in BalletTanz Magazine 2008 yearbook edition. Additional works like, *You are the Subject of my Seeing*, *A General Theory of Love*, *TERTIARY*, *Moving Around X*, and *Moving Around X: the x of y*, have been presented at prestigious venues such as TanzQuartier Wien (TQW), ImpulsTanz, WUK, BRUT, Burgenland Tanztage, DansMakers, as well as various off-spaces. In 2014, *TERTIARY* was nominated for the Prix d'Jardin in the 8:Tension series at the ImpulsTanz Festival. He also performed an adaptation of Deborah Hay's *NEWS* at ImpulsTanz in 2011 as his drag persona Jai Jai Sincere. His video works have been shown at the Venice Biennale, the Detroit Dance City Film Festival, Rundgang at UDK in Berlin, and the Moving Body Festival in Bulgaria. He has received a variety of residencies and scholarships from institutions like OMI in Ghent, New York and The Place in London. Michael was a long-time company member with Cie. Willi Dorner from 2003-2010 performing in a variety of stage works and setting the renowned piece *Bodies in Urban Spaces* in over 30 cities.

Michael is a feedback facilitator for the Fieldwork method and has taught creative practice and contemporary technique as guest faculty in the Netherlands at SNDO, Fontys Dance Academic, and the MA Choreography COMMA program; Arizona State University, SEAD in Salzburg, Danish School of Performing Arts, HZT in Berlin, and University of Music and Performing Arts Frankfurt. He has also taught at Henny Jurriens Foundation in Amsterdam; Marameo, Tanz im August, and DOCK 11 in Berlin, Dance Umbrella in London, Philly Live Arts, and workshops on love and metaphor at ImpulsTanz in Vienna. Michael has also worked with choreographers David Zambrano, Georg Blaschke, Alain Buffard, Paul Wenninger, Barbara Kraus, and others.

