

How Improvising Musicians “Play What They Hear”:
A Phenomenology of Sonorous Musical Imagination, Ideation, and
Intention in Action

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Statement of Originality

I certify that the intellectual content of this thesis is the product of my own work, and that all assistance received in preparing this thesis and all sources have been acknowledged. This thesis has not been submitted for any other degree or purpose.



Samuel Patrick Dobson

08/01/2026

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Abstract

When improvising musicians speak of “playing what they hear,” what is unfolding in that moment? This phrase, central to practitioners’ discourse, points to a phenomenon in which creative action is shaped by imagined sonorous ideas within the flow of performance. Yet as Daniel Schmicking (2019) notes, research into this domain faces a “technical problem”: a lack of ethnographic data and a fundamental uncertainty about the very phenomena under investigation. This thesis addresses these gaps through in-depth phenomenological interviews with nine expert improvising double bassists to develop a phenomenology of what I term *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA).

Contrary to dominant views in musicology, pedagogy, and cognitive psychology that frame SMIIIA as an internal process culminating in outward expression, my data suggests that SMIIIA emerges from a complex interplay of agency and receptivity *between* human and non-human factors. Much like a potter working with clay, the improvisers in my study *accomplish* SMIIIA through world-involving and world-disclosing, public and collaborative processes, enacted with and through bodies, instruments, and musical materials. Drawing primarily on insights from Maurice Merleau-Ponty, Martin Heidegger, Enactivism, and Lambros Malafouris’ *Material Engagement Theory*, I here interpret “playing what you hear” as a non-anthropocentric, movement-based form of material engagement—a “dance” of material agency that Malafouris (2014) terms *Creative Thinging*. Ultimately, my study reveals SMIIIA not as a *within* property, but, rather, as a *between* property, arising from a situated, dialogical attunement between musician and world.

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Abbreviations

| | |
|---------------|---|
| MBW | The Mind → Body → World Model of Improvisational Process |
| MET | Material Engagement Theory |
| PSM | Participatory Sense-Making |
| SMIIIA | Sonorous Musical Imagination, Ideation, and Intention in Action |
| ST | Simulation Theory of Mind |
| ToM | Theory of Mind |
| TT | Theory Theory of Mind |
| VPH | Volitional Pre-Hearing |

Feather: [A]s a musician you know certain things I don't understand about what you are doing. [...] It's very hard to explain, very hard to analyze. Can *you* put it into words? [...] There must be some limitations otherwise it would be arbitrary; you could just play any notes that you like.

Dolphy: Well, that's the idea. You *can* play every note that you like. Of course, you only can play what you can hear.

Leonard Feather and Eric Dolphy, 1964

Cheap But Good Advice for Playing Music in a Group:

- (1) Only play what you hear.
- (2) If you don't hear anything, don't play anything...

Chick Corea , 1985

In playing improvised music it's a matter of what the ear is telling me to play and that my job, my discipline in that, is to be able to play what I'm hearing in my head. [...] [T]o get the correspondence of what you're hearing and what's coming out of your instrument [...]. That's about the best you can hope, that you can play what you're hearing.

Barre Phillips, 2004

I realised that I too had valued improvisational ideas born of the auditory mode as being inherently more musical [...]. Although I cannot attribute this attitude to any one text or occasion, I suspect that it was a product of the broader musical community in which I worked and studied, wherein it would be colloquially expressed as something along the lines of "only play what you hear."

James McLean, 2018, p. 50

The world is inseparable from the subject, but from a subject who is nothing but a project of the world; and the subject is inseparable from the world, but from a world that it itself projects.

Maurice Merleau-Ponty, *Phenomenology of Perception*, p. 454

[W]e are the world that thinks itself [...], the world is at the heart of our flesh. [...]
There is reciprocal insertion and intertwining of one into the other.

Merleau-Ponty, *The Visible and the Invisible*, pp. 136-138

1. Playing What You Hear

When musicians speak of “playing what they hear” in improvisational performance, what is actually unfolding in that moment? This deceptively simple phrase, so often invoked by practitioners, implies a phenomenon whereby creative decision-making is guided by sonorous musical ideas and intentions as imagined by the performer within the flow of improvisation. This thesis seeks to understand the nature of this phenomenon, examining the various ways in which imagination and expression intertwine in the experience of expert improvising musicians in action.

Researchers in musicology, music education, and cognitive psychology have developed a wide range of terms to designate this phenomenon. For example, some scholars characterise it as a kind of “inner hearing” experienced with the “mind’s ear” or “inner ear.”¹ Others have coined specific neologisms, such as Edward Casey’s notion of “audialization,” or music educator Edwin Gordon’s concept of “audiation.”² Practitioners themselves speak of mental “pre-hearing,” a concept formalised in cognitive psychology by Peter Keller as “anticipatory auditory imagery.”³ Typically, this range of experiences is situated under the

¹ Marie Agnew, "The Auditory Imagery of Great Composers," *Psychological Monographs* 31, no. 1 (1922): 280; Alfred Pike, "A Phenomenology of Jazz," *Journal of Jazz Studies* 2, no. 1 (1974): 88; Kate Covington, "The Mind's Ear: I Hear Music and No One Is Performing," *College music symposium* 45 (2005): 25; Simon Emmerson, "Playing the Inner Ear: Performing the Imagination," in *Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Martin Knakkegaard, and Mads Walther-Hansen, Oxford Handbooks (Oxford University Press, 2019); Freya Bailes, "Empirical Musical Imagery beyond the “Mind’s Ear”," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019).

² Edward S. Casey, *Imagining: A Phenomenological Study*, 2nd ed., Studies in Continental thought, (Bloomington: Indiana University Press, 2000), 28; Edwin Gordon, *Learning Sequences in Music: Skill, Content, and Patterns* (Chicago, IL: G.I.A. Publications, 1989); Edwin E. Gordon, *Preparatory Audiation, Audiation, and Music Learning Theory: A Handbook of a Comprehensive Music Learning Sequence* (Chicago, IL: GIA Publications, 2001).

³ Jerry Coker, *Patterns for jazz*, 3rd. ed. (Lebanon, Ind: Studio Publications/Recordings, 1970), 1; Jeff Pressing, "Cognitive Processes in Improvisation," *Advances in Psychology* 19 (1984): 356; David Sudnow, *Ways of the Hand: A Rewritten Account* (Cambridge, Mass: MIT Press, 2001), 62; Wendy Hargreaves, "Generating Ideas in Jazz Improvisation: Where Theory Meets Practice," *International journal of music education* 30, no. 4 (2012): 61, <https://doi.org/10.1177/0255761412459164>; Joshua A. Bergamin, "Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation," *Phenomenology and the Cognitive Sciences* (2024): 13, <https://doi.org/10.1007/s11097-024-09974-x>. For “anticipatory auditory imagery” see: Peter E. Keller, "Mental Imagery in Music Performance: Underlying Mechanisms and Potential Benefits," *Annals of the New York Academy of Sciences* 1252, no. 1 (2012), <https://doi.org/10.1111/j.1749-6632.2011.06439.x>.

broader rubric of “musical imagery,” which Bailes defines as “the conscious awareness of an endogenous, internal representation of music,” and which also includes phenomena such as “ear worms,” musical hallucinations, notational audiation, and mental practice undertaken in the absence of one’s instrument.⁴

However, despite considerable interdisciplinary interest in this phenomenon, Daniel Schmicking observes that research in this area faces a “technical problem.”⁵ Specifically, he notes a lack of ethnographic data and a fundamental uncertainty about the very phenomena under investigation, arguing that, when it comes to “audialization in joint performance,” scholars “are still in the process of identifying the phenomena we intend to study.”⁶ As Keith Phillips further observes, there remain a number of open questions “regarding the precise role of audiation in improvisation,” including:

What is musicians’ experience of musical imagery as they improvise? Is auditory imagery cognitively prior to action or post hoc? How accurate is auditory imagery?

What proportion of musical output involves audiation and how sensitive is this to context?⁷

⁴ Freya Bailes, “Musical Imagery and the Temporality of Consciousness,” in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019), 271. For an excellent overview of the range of phenomenon grouped under musical imagery, see: Timothy L. Hubbard, “Some Anticipatory, Kinesthetic, and Dynamic Aspects of Auditory Imagery,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019). For further discussion of musical imagery, see: Rolf Inge Godøy and Harald Jørgensen, *Musical Imagery*, Studies on New Music Research, (Exton, Pa: Swets & Zeitlinger Publishers, 2001); Terry Clark, Aaron Williamon, and Aleksandar Aksentijevic, “Musical Imagery and Imagination: The Function, Measurement, and Application of Imagery Skills for Performance,” in *Musical Imaginations: Multidisciplinary Perspectives on Creativity, Performance, and Perception*, ed. David J. Hargreaves, Dorothy E. Miell, and Raymond A. R. MacDonald (Oxford: Oxford University Press, 2012).

⁵ Daniel A. Schmicking, “Auditory Imagination: A Phenomenological Perspective,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019), 96.

⁶ Schmicking, “Auditory Imagination,” 96-97.

⁷ Keith Phillips, “Are We Really Hearing in Our Heads What We Think We’re Hearing? The Role of Audiation in Musical Improvisation.” (The 9th International Conference of Students of Systematic Musicology: Proceedings (SysMus16), Jyväskylä: Department of Music, University of Jyväskylä and Finnish Centre for Interdisciplinary Music Research, 10 June 2016.).

In this thesis I begin to address some of the questions at the heart of this “technical problem” by drawing on in-depth ethnographic interviews with nine expert improvising double bassists to develop a phenomenology of what I term *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA).⁸ SMIIIA is intended as an umbrella term for, as one participant in this study puts it, “however your idea gets to you and then how you get it out.”⁹

As this thesis will demonstrate, “playing what you hear” is a far more complex and multifaceted phenomenon than that suggested by the familiar depiction of mental pre-hearing with “the mind’s ear,” or the translation of ideas from mind to body to world. Such familiar accounts often imply—explicitly or implicitly—a linear process by which something inner is translated outward into the world, or, as Sheets-Johnstone puts it, “a thought in one’s head exists prior to its corporeal expression.”¹⁰ An example of this stance can be found in Wendy Hargreaves’ linear schematisation of the “advanced” improviser’s process of SMIIIA, presented as a one-way flow: “audiation-generated idea in relative pitch → motor schema devised → motor programme executed → musical output produced.”¹¹ A similar view is expressed by music educator C. Michael Palmer when he claims that “[t]he physical capability of realizing what is heard or felt internally is the improviser’s primary goal.”¹² In

⁸ Here, “sonorous” refers specifically to those aspects of musical imagination, ideation, and intention that pertain to an experience of sound.

⁹ While I acknowledge that Schmicking may wish to resist such a broad reading of SMIIIA—arguing that, from the vantage of “static phenomenology,” conflating “audialization” with “artistic imagination” is phenomenologically “unwarranted”—my contention is that to begin with a narrowly circumscribed conception of “audialization” is to constrain in advance the very phenomenon we are seeking to understand (Schmicking, “Auditory Imagination,” 94; 96).

¹⁰ Maxine Sheets-Johnstone, *Primacy of Movement: Expanded Second Edition* (Amsterdam: John Benjamins Publishing Company, 2011), 428.

¹¹ Hargreaves, “Generating Ideas in Jazz Improvisation,” 361.

¹² C. Michael Palmer, “Instrumental Jazz Improvisation Development: Characteristics of Novice, Intermediate, and Advanced Improvisers,” *Journal of research in music education* 64, no. 3 (2016): 362, <https://doi.org/10.1177/0022429416664897>.

what follows, I will refer to this specific conceptualisation of SMIIIA as the *Mind → Body → World Account of Improvisational Process* (MBW).

While a growing tide of musical scholarship now challenges the linear representational underpinnings of MBW—advocating instead for enactive, distributed, and situated approaches (discussed in the second half of this chapter)—the logic of MBW nonetheless continues to pervade and shape much discourse on improvisational process in music. As a practitioner raised in communities and educational systems in which this representational view of artistic process was often reinforced, I now realise that I too had, at various times, subscribed to some version of MBW. It was only through conducting my own practice-based research, in which I re-examined the relationship between ideation and instrumental technique in my own practice, that I began to question this paradigm.¹³

This earlier project had been motivated by the simple observation that my ideational processes appeared to change as my technical capacities developed: my capacities for certain instrumental techniques did not merely *express* the ideas in my head, they appeared to *inform* them, suggesting a possible inversion of the traditional model. Yet, no matter how deeply I reflected on my practice at that time, I could not meaningfully or intelligibly separate ideas from expression. It was not until after completing this project that I realised I was still operating within a fundamentally dualist framework—that is, even though I recognised that my body could *influence* my ideas, my ideas remained *in my head*. Ideation and expression remained conceptually and ontologically distinct. Acknowledging this persistent presupposition in my own thinking—and hypothesising that it may be the root of my struggles to articulate the phenomenology of my own practice—motivated my desire to

¹³ Samuel Dobson, "The Role of Instrumental Technique in Creative Process: Applying the 'Canadian School of Double Bass' to Jazz Performance" (Masters Thesis, The University of Sydney, 2021). See also: Samuel Dobson, "Reconsidering the Role of Instrumental Technique in Creative Process: The 'Canadian School of Double Bass' Applied to Jazz Performance," *Context (Parkville, Vic.)*, no. 47 (2021).

explore the lived experience of other improvising double bassists. The present thesis offers the findings from this inquiry.

However, even at the outset of the current project, I now see that my thinking remained trapped in yet another false dichotomy. One of my initial hypotheses, for example, was that if SMIIIA did not exist in the traditional MBW sense, it might simply be a retroactive construction by the practitioner—a byproduct of what Evan Thompson terms “casual reflection”—such that a deep dive into expert practice would reveal a kind of empty or mindless Dreyfusian skillful/absorbed coping.¹⁴ Put another way, I hypothesised that if the creative process did not resemble MBW, then there would simply be no alternative phenomenon to examine. Indeed, early analyses of several participant transcripts seemed to support this view. However, as these perspectives diversified, and as I repeatedly returned to the phenomenon itself, it became clear that this line of thinking was an oversimplification. I now contend that SMIIIA is indeed a positive phenomenon that can neither be reduced to mere retroactive construction on the part of the practitioner, nor subsumed under MBW. What I did not anticipate at the outset was that truly understanding what practitioners mean by “playing what they hear” would require re-thinking many foundational distinctions in Western ontology and epistemology—such as those between subject and object, subject and world, mind and body, and inner and outer.

By drawing primarily on the work of Maurice Merleau-Ponty and Martin Heidegger, enactivist perspectives (especially the work of Shaun Gallagher), and Lambros Malafouris’ Material Engagement Theory (MET), my analysis ultimately led to what now seems to me a

¹⁴ Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, Mass: Belknap Press of Harvard University Press, 2010), 278; Hubert L. Dreyfus, *Skillful Coping: Essays on the Phenomenology of Everyday Perception and Action*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2014).

very simple realisation: *SMIIIA is not a “within” property; it is a “between” property.*¹⁵

Rather than beginning in the head of the practitioner and ending in the world, SMIIIA emerges from a complex interplay of agency and receptivity between human and non-human factors. Much like a potter working with clay at the wheel, improvising musicians *accomplish* SMIIIA through world-involving and world-disclosing, public and collaborative processes, enacted *with* and *through* bodies, instruments, and musical materials.¹⁶ This analysis reveals “playing what you hear” as a radically enactive and exploratory process of material engagement—a “dance” of material agency which Malafouris terms “Creative Thinging.”¹⁷ My data suggests that SMIIIA arises from a situated, dialogical attunement or resonance between musician and world, manifesting not in the head of the practitioner but, rather—to invoke Merleau-Ponty’s poetic expression—within “the flesh of the world.”¹⁸

My thesis is structured as follows: after a brief overview of the chapters to follow, the remainder of this introductory chapter lays the groundwork for how SMIIIA has historically been framed, with particular focus on MBW-style approaches that have motivated the revised phenomenology developed here. Following this, I explore what I term the “E-Turn” in music research—a broad shift rooted in embodied, enactive, extended, embedded, ecological, distributed, and phenomenological frameworks. These perspectives challenge representational, in-the-head models of musical cognition, fundamentally reshaping the field in the twenty-first century and providing the foundation for my approach in this project.

¹⁵ This formulation has been appropriated from Malafouris’ conceptualisation of cognition more generally. See: Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, 1 ed., The MIT Press, (Cambridge, Massachusetts: The MIT Press, 2013), 85.

¹⁶ This is intended as a development of Merleau-Ponty’s insight into linguistic expression: “For the speaker, then, speech does not translate a ready-made thought; rather, speech *accomplishes* thought.” Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 183. The notion of enacting creative cognition “with and through” bodies and materials is adapted from Lambros Malafouris, “Creative Thinging: The Feeling of and for Clay,” *Pragmatics & Cognition* 22, no. 1 (2014).

¹⁷ Malafouris, *How Things Shape the Mind*, 220; Malafouris, “Creative Thinging.”

¹⁸ Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Alphonso Lingis, ed. Claude Lefort (Evanston: Northwestern University Press, 1968), 144.

Chapter 2 details my study's methodological framework, structured around Simon Høffding's *phenomenological interview*: a two-tiered, iterative process cycling between semi-structured qualitative interviews and data analysis, guided by four "phenomenological commitments."¹⁹ This chapter explains these commitments before systematically outlining the research process: from participant recruitment, to interview structure, and finally to data analysis. Here too I discuss motivations and precedents for three methodological innovations: interviews conducted with the instrument *at hand*; in situ post-performance reflections; and review and discussion of recently recorded performance footage, as well as brief reflections on the scope and limitations of this "radically situated" approach.²⁰

Chapter 3 surveys the diverse range of participants' attitudes toward "playing what you hear," and related concepts linked to SMIIA, ranging from traditional MBW stances to more sceptical and/or cynical perspectives. While these pre-formed personal theories are invaluable for contextualising each practitioner's later accounts, they are here *bracketed* in the phenomenological sense—not dismissed, but temporarily set aside—to allow the analysis to foreground concrete descriptions of lived experience. As subsequent chapters reveal, these initial theories often differ markedly from the more nuanced descriptive accounts that emerge across the interviews.

My phenomenological analysis of SMIIA commences in Chapter 4, beginning with those participant accounts most indicative of MBW. I here focus on what I term *Volitional Pre-Hearing* (VPH)—the intentional, usually melody-based imagining of musical ideas experienced prior to the act of playing. My analysis shows that the most vivid experiences of VPH almost always coincide with an experience of the *inner voice* and/or *imagined playing*,

¹⁹ Simon Høffding, *A Phenomenology of Musical Absorption*, New Directions in Philosophy and Cognitive Science, (Cham: Springer International Publishing AG, 2018), 13-43.

²⁰ Ludger Van Dijk and Erik Rietveld, "Situated imagination," *Phenomenology and the cognitive sciences* (2020), <https://doi.org/10.1007/s11097-020-09701-2>.

both interpreted here as modes of *imagined movement*. By drawing on phenomenological and enactivist theories of imagination as “embodied doing,” I argue that VPH is best interpreted not as a purely “in the head” process, but as a fundamentally movement-based form of *embodied action*.²¹ Moreover, by examining the contexts in which these experiences emerge, this chapter reveals VPH to be a limit-case phenomenon and observes a marked qualitative shift that occurs once participants become immersed in the flow of performance.

In Chapter 5 I examine this qualitative shift by analysing my participant’s experience of SMIIIA “when the hands get involved” in the flow of real-time improvised performance. Beginning with an exploration of “pre-hearing” sceptics in the study, these insights reveal that, for these participants, SMIIIA is grounded in the motor-intentional manipulation of sonorous musical materials in the world—an insight that ultimately extends to the broader cohort. By conceptualising sounds as materials, the chapter interprets a broad array of participant descriptions as exemplifying what Malafouris calls “material agency,” whereby SMIIIA emerges as a non-anthropocentric, collaborative process co-created by the specific agential pulls of the musical materials themselves.²² Thus, SMIIIA “when the hand’s get involved” is revealed as an essentially exploratory process in which musical ideas and intentions are *discovered* through playing, rather than simply translated from mind to world. This perspective offers an alternative explanatory lens for understanding *Involuntary Pre-Hearing*, the searching quality often described as constituting SMIIIA, as well as the experience of *Self-Surprise*.

Although the evolving account of SMIIIA might initially suggest a mindless, automatic or reflex-like responsiveness to environmental stimuli, the analysis in Chapter 6 demonstrates that such a reading is an oversimplification. Here, my participants repeatedly

²¹ Shaun Gallagher, *Enactivist Interventions: Rethinking the Mind*, First edition. ed. (Oxford: Oxford University Press, 2017), 194.

²² Malafouris, *How Things Shape the Mind*, 119-49.

report deploying a spectrum of deliberate reflective techniques that actively shape their attunement to musical materials, modulating what I here term *SMIIIA-Resonance*. Drawing on Christensen, Sutton, and McIlwain's meshed approach to cognition, my findings reveal that reflective thinking is intricately entangled with pre-reflective, embodied action.²³ Further, following Gallagher and Varga's "enhanced mesh" approach, *affect*—broadly conceived—is situated at the intersection of the vertical (top down/bottom up) and horizontal (environmental, sociocultural, and material) axes of the meshed architecture, providing the dimension through which external resources are integrated into SMIIIA.²⁴ Supported by these theoretical frameworks, SMIIIA is cast as an emergent, relational phenomenon spanning mind, body, and world—a phenomenon grounded in a fundamentally *affective* resonance between situated bodies and musical sounds.

These insights into how affect mediates the relationship between bodies and external resources set the stage for Chapter 7, which explores the significance of the musical instrument in SMIIIA. Rather than accepting the ontological understanding of musical instruments as transparent "expressive tools" whose materiality withdraws from experience in expert performance, I here reinterpret them through Heidegger's concept of *Things Thinking*.²⁵ This interpretive lens positions instruments as entities with the capacity to gather temporary worlds—disclosing a "clearing" in which imaginative musical possibilities are revealed. Drawing on Malafouris' notion of *Creative Thinging*, the chapter argues that musical instruments are active co-collaborators in SMIIIA.²⁶ The analysis again reveals that

²³ Wayne Christensen, John Sutton, and Doris J. F. McIlwain, "Cognition in Skilled Action: Meshed Control and the Varieties of Skill Experience," *Mind & language* 31, no. 1 (2016), <https://doi.org/10.1111/mila.12094>.

²⁴ Shaun Gallagher and Somogy Varga, "Meshed Architecture of Performance as a Model of Situated Cognition," *Frontiers in psychology* 11 (2020), <https://doi.org/10.3389/fpsyg.2020.02140>.

²⁵ Martin Heidegger, "The Thing," in *Poetry, Language, Thought* (New York, NY: Harper & Row, 2013).

²⁶ Malafouris, "Creative Thinging."

SMIIIA is not located solely in the human practitioner, but emerges from the fundamentally collaborative interplay between performer, musical materials, and instrument.

Penultimately, Chapter 8 builds on this collaborative understanding by exploring the interpersonal dimensions of SMIIIA. Drawing on phenomenological critiques of *Theory of Mind* and enactivist accounts of *Participatory Sense-Making*, this chapter illuminates how musical imagination and intention arise through collaborative, intersubjective interaction. This chapter demonstrates that SMIIIA is not solely an individual capacity, but is constituted within the dynamic relational space shared by multiple agents—including fellow musicians, audiences, and even absent others. Musical possibilities are thus collectively imagined and enacted, revealing SMIIIA as a distributed phenomenon arising through shared affective attunement, resonance, and creative negotiation within musical communities.

The thesis concludes, in Chapter 9, with a summary of findings, and a series of suggestions for future research. Ultimately, I argue that conceptualising SMIIIA solely in narrow MBW terms tends to obfuscate or overlook many of its key constitutive elements. Instead, my analysis reveals that SMIIIA is, in fact, a movement-based, enactive, exploratory, world-involving, and world-disclosing collaborative process of Creative Thinging. That is, SMIIIA is not a *within* property; it is a *between* property.

To get things going, the rest of this introductory chapter will review the ways in which SMIIIA has been theorised.

The Mind → Body → World Account of Improvisational Process (MBW)

MBW has emerged from certain interpretations of how practitioners describe their own improvisational process (the practitioner quotes featured at the opening of this thesis may serve as a useful compass for getting situated). While such descriptions are often ambiguous, they are frequently interpreted—by educators, musicologists, and cognitive

psychologists—as suggesting a top-down linear account of musical creativity, literally translating pre-formed phenomenal mental representations of musical sound from mind to body to world. A notable example of this interpretation appears in an early jazz pedagogy text by Coker et al., which states:

The jazz improviser pre-hears in his mind the next musical event, then has the added task of playing it cleanly and with feeling. This is the process of jazz improvisation.²⁷

Although this is clearly an oversimplification, it reveals many structural features of MBW. First, it presumes that musical events are pre-formed and “pre-heard” in the mind (i.e., in the head) of the practitioner. The process then involves the “added task” of translating these mental events from mind to body to world. While this account might merely be intended as heuristic advice for beginners, it is often taken up and interpreted literally. In fields such as cognitive psychology and music education, such descriptions are frequently understood as reflecting how the improvisational process—at least in jazz—actually functions.

Advancing this line of thought, Alfred Pike—in one of the earliest phenomenological accounts of jazz improvisation—similarly frames the improvisational process in what I interpret as MBW-style terms.²⁸ According to Pike, an improviser’s “ideas” manifest for the practitioner as “tonal imagery,” an essentially interior, representational process that requires “projection” into the world via the voice or instrument—“the fundamental creative process in jazz improvisation.”²⁹ He contends:

The jazz soloist creates his music by a dynamic process of inner “hearing,” an ongoing tonal imagery that is set forth in a jazz style. This type of inner thinking is closely related to *kinethesis* or the perception of internal movement. Although the

²⁷ Coker, *Patterns for jazz*, 1.

²⁸ Pike, “A Phenomenology of Jazz.”

²⁹ Pike, “A Phenomenology of Jazz,” 88-89.

tonal imagery of the improviser is internal, it is sometimes conditioned by external musical factors—as in group improvisation when he is influenced by what other musicians are playing.³⁰

Pike treats these “inner” mental images as influenced by, but fundamentally distinct from, bodily movement and other environmental factors. While I interpret this account as standing in tension with insights from classical phenomenological thinkers such as Merleau-Ponty, Pike’s work offers a phenomenological basis for the MBW story, framing the practitioner’s experience as one of translating pre-formed mental representations into movement and, ultimately, sound.

A contrasting phenomenological perspective from this period is found in David Sudnow’s *Ways of the Hand*, in which he provides detailed descriptions of his journey learning jazz piano.³¹ A close reading of Sudnow’s phenomenology of skill acquisition also offers rich accounts of his emerging “pre-hearing” abilities—accounts that fundamentally challenge the structure of MBW.³² Consider, for instance, this recollection from early in his learning process:

I specifically recall playing one day and finding, as I set out into a next course of notes after a liftoff had occurred, that I’d expressly aimed for the sounds of these next particular notes, that their sounds seemed to creep up into my fingers, that the depression of the keys realized a specific sound I’d gone there to make.³³

Sudnow later characterises experiences of this sort as “pre-hearing.” However, as we can see, this is less a matter of translating pre-formed mental images into movement, but, rather, as an

³⁰ Pike, “A Phenomenology of Jazz,” 88.

³¹ The following quotes have been taken from Sudnow’s revised 2001 version of the text.

³² Sudnow, *Ways of the Hand*, 62.

³³ Sudnow, *Ways of the Hand*, 40.

experience deeply intertwined with his embodied engagement with melody and instrument.³⁴ Significantly, Sudnow attributes this “pre-hearing” ability not to his head, but his *hand*. He speaks of “a hand that had its bearings” which “could pre-hear on the way down”—that is, in the act of reaching for the next sound: “putting [the hand] down there, knowing what ‘there’ would sound like.”³⁵ This evolving “melodic intentionality” suggest a complex intertwining of mind, movement, and engagement with melody and instrument, variously described as “singing with the fingers,” a “manual-vocallic unity,” a “meshing of voice and fingers,” or “a synchrony of [...] vocal and digital intentions,” such that “voice and fingers seek the selfsame and thus known sounding spots.”³⁶ While these phrases primarily refer to the fingers, Sudnow is clear that he is indicating a fundamentally “different way of moving”—a transformation in his bodily being—concluding: “I sing with my fingers, so to speak, and only so to speak, for there’s a new being, *my body*, and it is this being (here too, so to speak) that sings.”³⁷

Despite adopting the language of “pre-hearing”—which, as interpreted by Coker et al. and Pike, suggests the mental pre-formation of sonorous mental representations—this is not the case for Sudnow, as he clarifies: “When I say I know what an upcoming note will sound like, I mean that I’m moving along a course that will provide for that note’s sound.”³⁸ In fact, Sudnow maintains that pre-hearing, construed as explicit pre-imagining of future events, actually inhibits the experience he is trying to describe. He elaborates,

³⁴ Sudnow, *Ways of the Hand*, 62.

³⁵ Sudnow, *Ways of the Hand*, 51; 55; 51.

³⁶ Sudnow, *Ways of the Hand*, 43; 71; 62; 71; 60.

³⁷ Sudnow, *Ways of the Hand*, 63; 130.

³⁸ Sudnow, *Ways of the Hand*, 64.

there was no need to find a path, to imagine one up ahead, [or] get ready in advance [...]. Indeed, conceiving particular places up ahead seriously undermined the singing [with my fingers] I sought to sustain.³⁹

In his mature practice, Sudnow reports “a new way for intentions to be formed,” involving “a more refined synchrony and bidirectionality of linkage” between “my head’s reach for sounds’ places and my fingers’ reach for singable ones.”⁴⁰ Ultimately he concludes that, with regard to pre-hearing, “I never project sung sounds independently of how the hand finds itself situated.”⁴¹

In Sudnow’s work, then, we find alternative phenomenological evidence that challenges the structure of MBW. He describes how sonorous ideas and intentions are imagined and enacted simultaneously—with voice and hand—through the embodied practice of what he calls “melodying.”⁴² Yet despite Sudnow’s rich phenomenological descriptions, many prominent accounts of improvisational process continue to adhere to the linear representational logic of MBW.⁴³

A key example of this can be found in Jeff Pressing’s “Improvisation: Methods and Models,” a landmark text in the cognitive modelling of improvisation whose core ideas continue to influence the field.⁴⁴ Drawing on an impressive array of sources—including Coker et al. (which he describes as being “[i]mportant [from both] pedagogic and analytic perspectives”) and Pike (“an important introspective analysis of the experience of

³⁹ Sudnow, *Ways of the Hand*, 84.

⁴⁰ Sudnow, *Ways of the Hand*, 85.

⁴¹ Sudnow, *Ways of the Hand*, 68.

⁴² Sudnow, *Ways of the Hand*, 56. Sudnow’s account—like much discourse centred specifically on jazz improvisation—is markedly note-, pitch-, and melody-centric. As my data will show, this focus may be an unduly narrow constraint when examining the broader range of factors at play in improvised music, even within standard tonal jazz.

⁴³ For example, Hargreaves interprets Sudnow’s descriptions as evidence *in favour* of Coker et al.’s descriptions above. See: Hargreaves, “Generating Ideas in Jazz Improvisation,” 361.

⁴⁴ Jeff Pressing, “Improvisation: Methods and Models,” in *Generative Processes in Music* (Oxford: Oxford University Press, 2001). On Pressing’s enduring influence, see: Freya Bailes and Roger T. Dean, “Cognitive Processes in Musical Improvisation,” *Oxford Handbooks* (Oxford University Press, 2016).

improvisation”)—Pressing conceptualises improvisation as a sequence of moment-to-moment decisions about note choices structured within what he terms “event clusters.”⁴⁵ Each event cluster is generated in the head of the improviser based on their prior musical actions, long-term memory, immediate objectives, and guiding referents. He further distinguishes two fundamental methods for generating musical material: *associative*—extending and elaborating prior ideas to maintain continuity—and *interrupt* (breaking with established material to foster novelty and change).⁴⁶

At the heart of Pressing’s framework is a “three-component information-processing model” of cognition—comprising sensory input, cognitive processing, and motor output—in which the development of improvisational skill relies on the mental storage and retrieval of various musical objects, features, and processes.⁴⁷ Pressing explains that this information-processing model provides “the starting point for nearly all existing theories [of motor control and skilled performance]” of this time.⁴⁸ Within this framework, each improvisational event exists in two forms: the “intended” and the “actual,” and the inclusion of sensory feedback in the information-processing model enables ongoing comparison between these two forms.⁴⁹ Decision-making is here framed as a “generate-and-test” procedure—whereby the improviser mentally formulates several possible musical continuations and selects among them. Given

⁴⁵ Pressing, “Improvisation,” 141; 145; 153. It is worth noting that Pressing also references Sudnow, however not with regards to his insights on pre-hearing or the phenomenology of improvisational process (as with Pike). Rather, he simply cites *Ways of the Hand* as “a basic ethnomethodological description of learning to play jazz on the piano” (Pressing, “Improvisation,” 145.).

⁴⁶ Pressing, “Improvisation,” 155.

⁴⁷ Pressing, “Improvisation,” 166.

⁴⁸ Pressing, “Improvisation,” 130-32. Varela et al., observe the enduring influence of this model, noting “[t]he standard information-processing description [is] still found in textbooks and popular accounts.” Francisco J. Varela, Evan Thompson, and Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience*, Revised edition. ed. (Cambridge, Massachusetts: The MIT Press, 2016), 94.

⁴⁹ Pressing, “Improvisation,” 154.

the constraints of real-time processing, Pressing notes that “the number of solution paths compared at any one step is probably very strongly limited, perhaps two or three.”⁵⁰

Pressing’s account thus offers a classic representational model of music cognition—one in which improvisational decision-making is conceived as computations first occurring in the mind/brain before being transmitted to the body and instrument, with outputs continually compared against internal intentions for accuracy and veridicality. This said, his model was ahead of its time in several respects, incorporating notions of heterarchical organisation, as well as acknowledging the influence of affective and bodily factors. Nonetheless, Pressing’s account provides a clear early cognitive-psychological foundation for MBW, remaining a touchstone for both supporters and critics of such models in the field.

In the field of ethnomusicology, Paul Berliner’s *Thinking in Jazz* remains one of the most comprehensive ethnographic investigations into the many factors underpinning jazz improvisation.⁵¹ On close reading, however, it also demonstrates the pervasive influence of MBW within this field. To be clear, I do not regard Berliner’s account as reducible to the MBW framework; however, I do wish to draw attention to specific aspects of his work which I interpret as exhibiting features suggestive of the logic of MBW.⁵² My purpose here is merely to underscore the extent to which MBW-oriented thinking is embedded in the conceptual frameworks prevalent both in ethnomusicological discourse and within the jazz community Berliner documents. In such contexts, analogical formulations (for example: the mind is *like* a storehouse) readily transition into homological claims (the mind *is* a storehouse), with significant implications for how these ethnographic findings are interpreted and applied.

⁵⁰ Pressing, "Improvisation," 150-51. N.B. that Pressing frames this particular point only as a very speculative assertion.

⁵¹ Paul F. Berliner, *Thinking in Jazz: The Infinite Art of Improvisation*, Chicago studies in ethnomusicology, (Chicago: University of Chicago Press, 1994).

⁵² Berliner, *Thinking in Jazz*, 180.

For example, a running theme in Berliner's account is the concept that practitioners develop and draw upon a mental "storehouse of knowledge"—a reified inner repository where jazz musicians accumulate "jazz tunes, progressions, vocabulary patterns, and myriad features of style."⁵³ This storehouse is conceptualised as the locus from which improvisers retrieve, combine, and generate musical ideas in real time.⁵⁴ As a result of this framing, Berliner describes the ideation process as follows:

Once thoroughly absorbed into a storehouse, new patterns take their place beside the multitude of other set patterns—the precise shapes from which musical thoughts are fashioned. There, within the artist's imagination, they lead a rich existence, continuously transformed in relation to other vocabulary patterns.⁵⁵

Here, imagination and ideation are conceptualised as processes that are internally constructed from pre-formed vocabulary patterns, which have been absorbed and stored within the performer's mental storehouse. These patterns are then selectively retrieved and prepared *before* expression. Berliner's discussion of the "paramount" role of "aural musical representations" in expert creative process—again formed from resources in their mental storehouse—further suggests an MBW orientation.⁵⁶ He notes:

⁵³ Berliner, *Thinking in Jazz*, 146. As Malafouris explains, this representational view of the mind as storehouse also has precedents in the cognitive sciences more generally, writing: "The image of mind that gradually emerged [in the cognitive sciences] could be seen metaphorically as a bucket filled with knowledge and information. Cognitive processing happens in the head somewhere between perception and action. [...] That is to say, mind was viewed as a storehouse of passive internal representational structures and procedures—a 'filing cabinet' capable of receiving and manipulating internally the sensory information received from the 'outside' world" (Malafouris, *How Things Shape the Mind*, 26.).

⁵⁴ Berliner frames learning music theory, for instance, as a process in which a student "assimilat[es] their newly acquired knowledge into their storehouses and [mental] maps" yielding "a repertory divisible into discrete rhythmic models [...] [and] discrete tonal models" (Berliner, *Thinking in Jazz*, 179; 158.).

⁵⁵ Berliner, *Thinking in Jazz*, 227.

⁵⁶ Berliner, *Thinking in Jazz*, 93.

Increasingly, [improvisers] strive to apply their materials “musically.” For many, this means stressing aural conceptualization over other forms of music representation when interpreting and negotiating the constructive elements in their store.⁵⁷

Berliner continues by citing performers whose “goal is to improve his ear so that he can ‘hear millions of different intervals’ in his imagination ‘before he plays them,’” again suggesting a process involving stored mental representations, manipulated internally prior to execution.⁵⁸ Such an account echoes the logic found in Coker, Pike, and Pressing, wherein improvisation proceeds via generate-and-test cycles within a framework of mental representations and knowledge stores.

However, it is important to stress that Berliner also provides a wealth of data challenging this linear, representational stance. He writes, for example, of a “body and mind so tightly joined as to be fully absorbed into the performance’s immediate progress,” where “the ideas that soloists realize during performances depend as much on the body’s own actions as on the body’s synchronous response to the mind.”⁵⁹ Or, again:

Under the soloist’s extraordinary powers of concentration, the singing and visualizing aspects of the mind attain a perfect unity of conception with the body. The artist becomes intensely focused on thoughts in the language of jazz, and as they come—one upon the other—they are articulated as instantly as conceived. No lead time separates conception from expression, and the gap between intention and realization disappears.⁶⁰

Put simply, although Berliner frequently conceptualises his participants’ experiences of SMIII within the logic of MBW—invoking in-the-head mental repositories housing

⁵⁷ Berliner, *Thinking in Jazz*, 180.

⁵⁸ Berliner, *Thinking in Jazz*, 180.

⁵⁹ Berliner, *Thinking in Jazz*, 189; 190.

⁶⁰ Berliner, *Thinking in Jazz*, 217.

representations of musical ideas, manipulated internally before expression—many of his descriptions (such as those cited directly above) suggest a process comprised of less sharply demarcated stages, in which ideation, movement, perception, and imagination blend together.

Again: I am not suggesting that Berliner's account is reducible to MBW. Rather, my consideration of his text here has two key aspects: first, to demonstrate the pervasiveness of MBW logic in interpreting practitioner reports, revealing how deeply embedded this approach remains within both scholarly and practitioner discourse in improvised music—and the implications this carries for our formal conceptualisations of improvisational process; and second, to show how close attention to Berliner's descriptions often reveals an experiential reality that is more complex, dynamic, and embodied than the logic of MBW would suggest. However, it is frequently the logic of MBW that dominates, especially within the realms of cognitive psychology and music education.

For example, Philip Nicholas Johnson-Laird's "How Jazz Musicians Improvise" stands as an influential work in the MBW lineage, offering a "computational theory of creativity" (based on what he terms the NONCE definition of creativity) in which jazz improvisation is conceptualised as the application of learned, rule-based, algorithmic processes for generating novel, melodic musical material.⁶¹ This approach contrasts with Pressing's emphasis on event clusters—stored musical groupings retrieved from memory—by instead proposing that improvisers operate through the internalisation and application of generative rules and constraints, akin to a Chomskyan generative grammar.⁶² According to Johnson-Laird, expert improvisers combine these rules with knowledge of harmonic

⁶¹ P. N. Johnson-Laird, "How Jazz Musicians Improvise," *Music perception* 19, no. 3 (2002): 418, <https://doi.org/10.1525/mp.2002.19.3.415>. According to "the NONCE definition of creativity: creativity is Novel for the individual, Optionally novel for society, Nondeterministic, dependent on Criteria or constraints, and based on Existing elements." Johnson-Laird, "How Jazz Musicians Improvise," 419-20.

⁶² Johnson-Laird, "How Jazz Musicians Improvise," 422. For a related approach, see: Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music*, ed. Joan Bresnan, Lila Gleitman, and Samuel Jay Keyser, MIT Press Series on Cognitive Theory and Mental Representation, (Cambridge, Mass: MIT Press, 1983).

structures, stylistic conventions, and real-time feedback to produce original phrases. His model thus provides an influential account of the ideational and intentional aspects of SMIIA which foregrounds top-down cognitive mechanisms by which improvisers formulate and select musical ideas.⁶³

Developing these insights, in “Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians” Martin Norgaard adopts carefully designed methods with which to investigate the cognitive strategies of expert improvisers in the flow of performance, ultimately proposing a synthesis of Pressing’s and Johnson-Laird’s models.⁶⁴ Drawing on interviews with musicians—who reflect on transcriptions and recordings of their just-completed solo improvisations with a backing track—Norgaard finds that performers deploy a hybrid set of strategies: at times, improvisation is guided by algorithmic rule-application and theoretical procedures (as in Johnson-Laird), while at other times it relies on associative extension and the flexible use of stored musical schemas and vocabulary (per Pressing’s event-cluster model).⁶⁵ His data indicate that improvisers employ a range of techniques, including drawing on pre-learned harmonic and melodic material, engaging in sketch planning and evaluative monitoring, and navigating a dynamic interplay of conscious and unconscious processes throughout performance.⁶⁶

Commendable strengths of Norgaard’s approach include its direct engagement with the lived experience of improvisers and its attention to methodological issues overlooked in earlier accounts, such as those of Berliner and Monson.⁶⁷ However, as Norgaard himself acknowledges, his research model intentionally “eliminated” interactional dynamics and

⁶³ Johnson-Laird, "How Jazz Musicians Improvise," 422.

⁶⁴ Martin Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians," *Journal of Research in Music Education* 59, no. 2 (2011), <https://doi.org/10.1177/0022429411405669>.

⁶⁵ Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians," 121-22.

⁶⁶ Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians," 116-21.

⁶⁷ Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians," 111-12.

ecological factors from consideration, focusing instead on aspects of musical performance that can be represented in music notation.⁶⁸ Rooney has criticised this methodological focus—an issue he also finds in the work of Pressing and Johnson-Laird—as leading to an overly intellectualist, all “in-the-head” understanding of improvisational process.⁶⁹ So while Norgaard’s work makes a number of significant contributions to our understanding of improvisational process, it is clear that phenomenological data encompassing interactional and ecological dynamics would serve as a valuable complement, enriching and expanding his account by bringing to light dimensions of improvisation that extend beyond the scope of note-level analysis. Such integration would not only address the limitations identified by Rooney, but could also open the door to a more holistic account—one that may move beyond MBW-oriented conclusions.

To conclude this subsection, I will now turn to perhaps the most precise and systematic current cognitive-psychological model of SMIIIA: Peter Keller’s “Mental Imagery in Music Performance: Underlying Mechanisms and Potential Benefits.” While, in the absence of specific phenomenological/ethnographic data on SMIIIA—that is, in light of Schmicking “technical problem”—Keller’s model ultimately defaults to the logic of MBW, it does offer a rigorous—and a valuable—methodological commitment to integrating experiential and sub-personal mechanisms.

Consistent with a growing consensus in the literature, Keller understands this phenomenon in terms of “musical imagery,” described as a “multimodal process” involving

⁶⁸ Norgaard, “Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians,” 123.

⁶⁹ Miles Rooney, “The Ecological Dynamics of Trumpet Improvisation,” *Cognitive Processing* 25, no. 1 (2024): 163.

auditory features of musical sounds, and/or visual, proprioceptive, kinesthetic, and tactile properties of music-related movements, that are not (or not yet) necessarily present in the physical world.⁷⁰

At the heart of Keller's model lies what he refers to as *anticipatory auditory imagery*: the experience of mentally pre-hearing or simulating the "ideal sound" a performer intends to produce.⁷¹ Keller describes anticipatory auditory imagery as "prominent in the phenomenology of performing musicians" and hypothesises that it supports both the planning and execution of musical movement.⁷² To substantiate this claim, Keller references performer anecdotes, pedagogical texts, and "self-help books" including *The Inner Game of Music*, which asserts

[w]hen you can hold the sound and pitch of the music clearly in your head [...] performing it accurately becomes easier. Your body has a sense of its goal.⁷³

Here, "goal" appears to be interpreted by Keller as a pre-formed mental representation of "ideal sound."⁷⁴ These constructs, according to Keller, can arise either via top-down processes, where "the performer deliberately (and possibly effortfully) generates mental images of action goals," or automatically from bottom-up processing, whereby "expectancies based on perceptual input automatically trigger mental images."⁷⁵

Keller's account distinguishes two representational levels: first, the *experiential* level—the conscious "pre-hearing" of the ideal sound to be produced; second, the

⁷⁰ Peter E. Keller, "Joint Action in Music Performance," in *Enacting Intersubjectivity: A Cognitive and Social Perspective on the Study of Interactions*, ed. F. Morganti, A. Carassa, and G. Riva (Amsterdam: IOS Press, 2008), 206. See also, See also Clark, Williamon, and Aksentijevic, "Musical Imagery and Imagination," 352; Bailes, "Empirical Musical Imagery beyond the "Mind's Ear"," 459.

⁷¹ Keller, "Mental Imagery in Music Performance," 207.

⁷² Keller, "Mental Imagery in Music Performance," 206; 209.

⁷³ Barry Green and W. Timothy Gallwey, *The Inner Game of Music* (Garden City, N.Y: Anchor Press/Doubleday, 1986): 75, quoted in Keller, "Mental Imagery in Music Performance," 208.

⁷⁴ Keller, "Mental Imagery in Music Performance," 207.

⁷⁵ Keller, "Mental Imagery in Music Performance," 207.

subpersonal cognitive level comprised of “forward” and “inverse” internal models, which precede execution and causally underlie the experiential level.⁷⁶ Keller suggests that this picture of subpersonal, predictive internal models is consistent with the so-called “predictive coding,” or predictive processing, model of the brain.⁷⁷

Ultimately, Keller summarises his picture of SMIIA as follows:

Action simulation during music performance entails running internal models that trigger auditory and motor images of one’s own upcoming actions. Thus, anticipatory imagery facilitates the planning and execution of musical actions. This type of imagery is a top–down controlled process to the extent that the performance goal—a representation of the ideal sound—is kept active in working memory.⁷⁸

Moreover, Keller argues these internal models are essential not only for individual performance but also for ensemble coordination: internal models not only predict one’s own

⁷⁶ Keller, "Mental Imagery in Music Performance," 209. On these inner models, Keller writes: “*Forward models* represent the causal relationship between motor commands and sensory experiences related to their effects on the body and environment. *Inverse models* represent transformations from desired action outcomes (sounds, in the case of music) to the motor commands that give rise to these outcomes. Forward and inverse models increase the efficiency of motor control by running slightly ahead of action execution, thereby allowing movement errors to be anticipated and corrected in advance” (Keller, "Mental Imagery in Music Performance.").

⁷⁷ Keller, "Mental Imagery in Music Performance," 209. Predictive processing is a prominent account in contemporary neuroscience which, in simple terms, frames the brain as a “prediction machine” (Andy Clark, "Radical Predictive Processing," *The Southern Journal of Philosophy* 53 (2015): 1.). As articulated by Clark, the theory comprises four main elements: (1) a generative model built from prior knowledge, (2) the capacity to predict incoming sensory data—often formulated in terms of *Bayesian statistical inference*, (3) the continuous detection of mismatches (*prediction errors*) between the model and actual sensory inputs, and (4) a system of *precision-weighting* that regulates the influence of predictions and errors on subsequent behaviour (for a concise overview, see: Andy Clark, *The Experience Machine: How Our Minds Predict and Shape Reality* (Great Britain: Penguin Random House, 2023), 217-28.).

Predictive processing has, however, been the subject of sustained criticism from phenomenologists and some enactivists. (see for example: Shaun Gallagher and Dan Zahavi, *The Phenomenological Mind*, Third ed. (Abingdon, Oxon; New York, NY: Routledge, 2021), 124-25; Shaun Gallagher, "Surprise! Why Enactivism and Predictive Processing are Parting Ways: The Case of Improvisation," *Possibility studies & society (Online)* 1, no. 3 (2023), <https://doi.org/10.1177/27538699221132691>.). Taking improvised music as an example, Gallagher argues that the exploratory, creative nature of improvisation runs counter to the central imperative of prediction-error minimisation: while predictive processing depicts cognition as tending toward the most statistically probable outcome, improvising musicians often seek novelty, unpredictability, and self-surprise. From this perspective, predictive processing appears ill-suited to account for improvisatory dynamics in which cultivating uncertainty is integral to the practice, a tension suggesting possible avenues for further study (Gallagher, "Why Enactivism and Predictive Processing are Parting Ways.").

⁷⁸ Keller, "Mental Imagery in Music Performance," 209.

future actions, but also the internal models of fellow performers—a topic I return to in Chapter 8.⁷⁹

A key strength of Keller's approach lies in the extent to which he seeks to ground hypothesised subpersonal "internal models" in the experiential testimonies of performers and composers.⁸⁰ Yet, as Schmicking's "technical problem" reminds us, there remains a notable lack of detailed phenomenological investigations and ethnographic data explicitly addressing this phenomenon. The open question, then, is that until this foundation is more firmly established, it remains unclear to what extent Keller's experiential claims can bear the explanatory weight assigned to them here, suggesting a particularly fruitful area for interdisciplinary collaboration—one where detailed phenomenological research could be "front-loaded" into cognitive psychological research models to mutual benefit.⁸¹

To be clear: this is not to single out Keller's work as lacking criticality. Rather, it is to highlight a recurrent issue in the wider literature, where researchers and musicians frequently treat experiences of "musical imagery" as self-evident or intuitively obvious and thus not requiring phenomenological analysis.⁸² Yet, as Thompson reminds us with respect to visual imagery, such assumptions risk obscuring essential phenomenological invariants, with implications for further research. As he observes in his critical discussion of the so-called

⁷⁹ Keller, "Mental Imagery in Music Performance," 209. See also, Keller, "Joint Action in Music Performance.," Clemens Wöllner, "Anticipated Sonic Actions and Sounds in Performance," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard (New York, NY: Oxford University Press, 2019).

⁸⁰ Keller, "Mental Imagery in Music Performance," 206.

⁸¹ Gallagher and Zahavi, *The Phenomenological Mind*, 43. This issue is brought into sharp relief if we consider recent phenomenological work by Schiavio and Høffding which finds no evidence to suggest that expert performers employ moment-to-moment "internal goals" during performance. These discrepancies suggest that the phenomenological anchoring of Keller's model remains open to question, emphasising the broader need for more nuanced phenomenological and ethnographic data and analysis on this topic (Andrea Schiavio and Simon Høffding, "Playing Together Without Communicating? A Pre-Reflective and Enactive Account of Joint Musical Performance," *Musicae scientiae* 19, no. 4 (2015), <https://doi.org/10.1177/1029864915593333>; Høffding, *A Phenomenology of Musical Absorption*, 225.).

⁸² For example, Zatorre and Halpern open their (otherwise excellent) brain-imaging studies into "musical imagery" by simply stating, "Most people *intuitively understand* what it means to 'hear a tune in your head,'" before delving into their discussion of neural substrates (*Neuron (Cambridge, Mass.)* 47, no. 1 (2005): 9, <https://doi.org/10.1016/j.neuron.2005.06.013>).

“mental imagery debates,” such a tendency represents a perennial issue in cognitive psychological and neuroscientific research, resulting in the widespread (and, in his view, mistaken) belief that

[t]he phenomenal character of visual experience, whether in perception or imagery, is intuitively obvious or evident to casual reflection; hence, there is no need for careful phenomenological analysis.⁸³

Indeed, as Thompson’s own Husserlian/enactivist account reveals, careful phenomenological inquiry can help to uncover key—and, at times, problematic—presuppositions about the nature of experience under investigation, informing how such experiences are understood and subsequently researched from psychological and neurological perspectives. A point reinforcing the urgent need, as I see it, to address Schmicking’s “technical problem” regarding SMIIIA.

Through this review of select texts, I have traced several features comprising the logic of MBW. This essentially intellectualist stance depicts SMIIIA as involving pre-formed, in-the-head representations of future musical events, which the performer must translate into movement—reinforcing a sharp divide between “inner” ideation and “outer” expression—a stance based largely on a particular reading of practitioner anecdotes. For clarity, my critique is not a rejection of the contributions made by any of the above-mentioned texts, nor am I suggesting that practitioner reports are false or misleading. Rather, my aim here has been to show how the logic of MBW has shaped conceptualisations of SMIIIA across decades and disciplines, influencing the ways in which practitioner accounts are interpreted. As the next section will demonstrate, however, the representational logic at the heart of MBW has faced

⁸³ Thompson, *Mind in Life*, 278.

robust criticism, giving rise to a range of alternative frameworks which may allow us to re-examine SMIIIA in a new light.

E-Turn Ahead

Since the turn of the twenty-first century, a plurality of perspectives in music scholarship has converged in rethinking musical experience and cognition through embodied, embedded, extended, enactive, and ecological lenses. Though varied in origin and emphasis, these frameworks share a dissatisfaction with “all-in-the-head” models of mind. Here, I refer to this paradigm shift as the “E-Turn.”

Schiavio and Høffding characterise one impetus for the E-turn as a corrective response to a broader commitment to representational models of the mind that, in their view, “has dominated the last 50 years of research in music psychology,” and which posits a hardline distinction between *inner* experience and the *external* world. They explain:

According to such a view—based on a dualistic separation between subjective, inner experience and objective, external world—musical experience can be described as mental representation resulting from the computation of sonic inputs. [...] However, using two different explanatory models to explain what happens on both sides of the skin (‘external’ behaviour versus processes ‘in the head’) [...] downplay[s] the embodied and ecologically embedded processes that allow [for] music performance, coordination, and understanding, creating an unnecessary separation between categories such as ‘inner’ and ‘outer.’⁸⁴

The plurality of approaches constituting the E-Turn reflects a network of related frameworks—some of which, it must be said, do not begin with “E!” Though diverse in

⁸⁴ Schiavio and Høffding, “Playing Together Without Communicating?,” 367.

origin and emphasis, these perspectives share an orientation toward reconceptualising mind, body, and world as elements of an inextricable whole. They include:

- *Embodied Cognition*: An umbrella term for theories holding that cognitive processes are inseparable from bodily structures, movement, and sensorimotor dynamics; variations include weak, functionalist, biological, and radical/enactivist embodied cognition.⁸⁵
- *Enactivism*: The view that cognition arises through active, situated sense-making in ongoing organism–environment interaction; major variants include autopoietic, sensorimotor, and radical enactivism.⁸⁶
- *Extended Cognition*: Argues that cognitive systems can reach beyond the boundaries of the individual, incorporating tools, instruments, and other external resources as *constitutive* elements of cognition; often subdivided into the following three “waves”: parity-motivated accounts, complementarity-motivated accounts, and more dynamical/distributed accounts.⁸⁷

⁸⁵ For a concise discussion of these variations, see: Gallagher, *Enactivist Interventions*, 26–47. For select examples of embodied cognition as applied to music, see: Marc Leman, *Embodied Music Cognition and Mediation Technology* (Cambridge, MA: Massachusetts Institute of Technology, 2007); Vijay Iyer, "Improvisation, Action Understanding, and Music Cognition with and without Bodies," in *The Oxford Handbook of Critical Improvisation Studies, Volume 1*, ed. George Lewis and Benjamin Piekut, Oxford Handbooks (Oxford University Press, 2014); Arnie Cox, *Music and Embodied Cognition: Listening, Moving, Feeling, and Thinking*, 1 ed., Musical Meaning and Interpretation, (Bloomington: Indiana University Press, 2016).

⁸⁶ For a seminal example of autopoietic enactivism, see: Varela, Thompson, and Rosch, *The Embodied Mind*. For sensorimotor enactivism, see: J. Kevin O'Regan and A. Noë, "A Sensorimotor Account of Vision and Visual Consciousness," *The Behavioral and Brain Sciences* 24, no. 5 (2001), <https://doi.org/10.1017/S0140525X01000115>. For radical enactivism, see: Daniel D. Hutto and Erik Myin, *Radicalizing Enactivism: Basic Minds Without Content* (Cambridge, Mass: MIT Press, 2013). For select examples of enactivism as applied to music, see: Dylan Van der Schyff, Andrea Schiavio, and David J. Elliott, *Musical Bodies, Musical Minds: Enactive Cognitive Science and the Meaning of Human Musicality*, The MIT Press, (Cambridge: The MIT Press, 2022); Susanne Ravn and Simon Høffding, "Improvisation and Thinking in Movement: An Enactivist Analysis of Agency in Artistic Practices," *Phenomenology and the Cognitive Sciences* 21, no. 3 (2022), <https://doi.org/10.1007/s11097-021-09756-9>; Miles David Sione Kolovai Rooney, "The Improvising Body: Exploring the Continuities from Biological Life to Musical Practice" (The University of Melbourne, 2024).

⁸⁷ For a discussion of these three “waves,” see: Kevin Ryan and Andrea Schiavio, "Extended Musicking, Extended Mind, Extended Agency. Notes on the Third Wave," *New ideas in psychology* 55 (2019), <https://doi.org/10.1016/j.newideapsych.2019.03.001>. For select examples of the extended mind as applied to music, see: Joel Krueger, "Affordances and the Musically Extended Mind," *Frontiers in psychology* 4 (2014), <https://doi.org/10.3389/fpsyg.2013.01003>; Joel Krueger, "Musical worlds and the extended mind," (2018);

- *Embedded/Situated Cognition*: Emphasises how cognition is fundamentally shaped by the physical, social, and cultural contexts in which it unfolds, foregrounding the organism's environmental situation (understood in the broadest sense).⁸⁸
- *4E Cognition*: An integrative umbrella combining the four "Es" above into a mutually reinforcing framework for understanding mind as embodied, embedded, enactive, and extended.⁸⁹
- *Distributed Cognition*: Frames cognition as a property of systems that encompass *multiple* agents and artefacts; cognition is conceived of as distributed across networks of people, tools, and environments, not just an *extension* of an individuated cognisor.⁹⁰
- *Ecological Approaches*: Draw from Gibson's ecological psychology to model perception–action as attunement to environmental "affordances," understanding cognition as an ongoing adaptation to available possibilities for action.⁹¹

Lawrence M. Zbikowski, "Cognitive Extension and Musical Consciousness," in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019).

⁸⁸ For select examples of situated/embedded cognition as applied to music, see: Vijay Iyer, "Embodied Mind, Situated Cognition, and Expressive Microtiming in African-American Music," *Music perception* 19, no. 3 (2002), <https://doi.org/10.1525/mp.2002.19.3.387>; Christoph Seibert, "Situated Approaches to Musical Experience," in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019).

⁸⁹ For select examples of 4E cognition as applied to music, see: Andrea Schiavio and Dylan Van der Schyff, "4E Music Pedagogy and the Principles of Self-Organization," *Behavioral sciences* 8, no. 8 (2018), <https://doi.org/10.3390/bs8080072>; Dylan van der Schyff et al., "Musical Creativity and the Embodied Mind: Exploring the Possibilities of 4E Cognition and Dynamical Systems Theory," *Music & science* 1 (2018), <https://doi.org/10.1177/2059204318792319>; Joel Krueger, "Music as Affective Scaffolding," in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019).

⁹⁰ For select examples of distributed cognition as applied to music, see: Eric F. Clarke and Mark Doffman, *Distributed Creativity: Collaboration and Improvisation in Contemporary Music*, 1 ed., vol. 2, Studies in Musical Performance as Creative Practice, (New York, NY: Oxford University Press, 2017); Laura Bishop, "Collaborative Musical Creativity: How Ensembles Coordinate Spontaneity," *Frontiers in psychology* 9 (2018), <https://doi.org/10.3389/fpsyg.2018.01285>; Andrew Geeves et al., "Between the Crowd and the Band: Performance Experience, Creative Practice, and Wellbeing for Professional Touring Musicians," *International Journal of Wellbeing* 10 (2020), <https://doi.org/https://doi.org/10.5502/ijw.v10i5.1509>.

⁹¹ James J. Gibson, *The Ecological Approach to Visual Perception*, Classic edition, ed., Psychology Press classic editions, (London: Routledge, 2015). For select examples of ecological approaches as applied to music, see: Eric F. Clarke, *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning*, 1 ed. (New York: Oxford University Press, 2005); Marc Duby, "Affordances in Real, Virtual, and Imaginary Musical Performance," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads

- Phenomenological Approaches: Employ first-person, descriptive analysis to clarify the lived, pre-reflective structures of experience; frequently drawing upon Merleau-Ponty's embodied interpretation of "being-in-the-world," and operating in dialogue with several of the approaches listed above—particularly enactivism.⁹²

While this network of interrelated frameworks is far from constituting a single school of thought, they are united by several key insights. As Malafouris notes,

the basic idea that unites all these new strands in moving the study of mind forward is that they [...] render problematic any research procedure that artificially divorces thought from embodied action-taking and thus from its surrounding environment. Taken together, these closely related but not necessarily unified or homogenous theoretical schemes collapse the conventional mind/brain tautology and mind-body dichotomy and challenge the "all in the head" view of human cognition.⁹³

Further, many of the approaches listed above call into question the three-stage information-processing model central to much MBW thinking, as well as the sharp demarcations such models imply between subject and world. As Anthony Chemero states in his "radically embodied" approach, "[i]t is only for convenience (and from habit) that we think of the organism and environment as separate; in fact, they are best thought of as forming just one nondecomposable system."⁹⁴

Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019); Rooney, "The Ecological Dynamics of Trumpet Improvisation."

⁹² Merleau-Ponty, *Phenomenology of Perception*. For select examples of phenomenological approaches as applied to music, see: Høffding, *A Phenomenology of Musical Absorption*; Lucia Angelino, "Motor Intentionality and the Intentionality of Improvisation: A Contribution to a Phenomenology of Musical Improvisation," *Continental philosophy review* 52, no. 2 (2019), <https://doi.org/10.1007/s11007-018-9452-x>; Simon Høffding and Torben Snekkestad, "Inner and Outer Ears: Enacting Agential Systems in Music Improvisation," in *Philosophy of Improvisation: Interdisciplinary Perspectives on Theory and Practice*, ed. Susanne Ravn, Simon Høffding, and James McGuirk (New York, NY: Routledge, 2021); Bergamin, "Habitually Breaking Habits."

⁹³ Malafouris, *How Things Shape the Mind*, 58-59.

⁹⁴ Anthony Chemero, *Radical Embodied Cognitive Science* (Cambridge, Massachusetts: MIT Press, 2009), 26.

These alternative frameworks have significant repercussions for how we study musical experience. For example, post-E-turn thinking may fundamentally reshape how practitioner reports and metaphors are interpreted, how experimental paradigms are designed, and how qualitative interviews are structured and lines of questioning formulated. As van der Schyff et al. put it:

This shift away from internalizing and rationalizing perspectives on human meaning making is not just a sort of theoretical exercise. It may help researchers implement new models and strategies that will shed light upon the embodied roots of music cognition. In qualitative research, for example, phenomenologically guided frameworks could [...] help the interviewer develop richer questions that point more directly to the core of the problems of musical experience, without assuming an initial dichotomy between inner subjectivity and an objective world. [...] In quantitative research, a shift away from information-processing accounts could also inspire the development of new experimental tools and designs to address the question of musical experience in new ways.⁹⁵

For my present purposes, I have elected to weave more detailed discussions of key conceptual E-turn frameworks—particularly ideas from Merleau-Ponty and enactivism (mentioned above), along with elements of Malafouris' *Material Engagement Theory* (discussed in Chapters 5 and 7)—into the body of this thesis as and when they are required for interpreting the emerging findings. This strategy allows each framework to illuminate specific moments in the data through an unfolding hermeneutic analysis. Nonetheless, before concluding this introductory section, I wish to examine three recent post-E-Turn perspectives that, in my view, offer substantial advances toward resolving the technical problem

⁹⁵ Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 88.

articulated by Schmicking, while at the same time further clarifying its unresolved status—thus setting the stage for the distinct contributions of my current project.

Effects of the E-Turn on contemporary discussions of musical imagination are especially evident in the diverse contributions to the two-volume *Oxford Handbook of Sound and Imagination*.⁹⁶ While several chapters exemplify this shift, I single out John M. Carvalho's "Music and Emergence" for more detailed discussion as it presents, in my view, one of the most radical departures from traditional MBW models.⁹⁷ Carvalho reconceives musical imagination in performance as an emergent property of skilful engagement with affordances, rather than as a process of translating musical ideas or intentions from mind to world. In doing so, his ecological/enactivist perspective unsettles conventional boundaries between action, perception, and imagination, offering a distinctive basis for rethinking the phenomenon of SMIII A.⁹⁸

Carvalho synthesises theoretical literature and third-person musicological observations to advance an affordance-based, ecological approach to musical experience, with particular emphasis on "listeners who are also performers."⁹⁹ His central aim is to articulate an "enactive ontology of music" that moves beyond MBW models, instead framing

⁹⁶ Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, *The Oxford Handbook of Sound and Imagination: Volume 1*, Oxford Handbooks, (New York, NY: Oxford University Press, 2019); Grimshaw-Aagaard, Walther-Hansen, and Knakkegaard, *The Oxford Handbook of Sound and Imagination: Volume 2*.

⁹⁷ John M. Carvalho, "Music and Emergence," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019).

⁹⁸ Other notable chapters in these handbooks engaging in post-E-Turn thinking, include: Bailes, "Empirical Musical Imagery beyond the "Mind's Ear"."; Justin Christensen, "Improvisation: An Ideal Display of Embodied Imagination," in *Oxford Handbook of Sound and Imagination: Volume 2*, ed. Mark Grimshaw-Aagaard, Martin Knakkegaard, and Mads Walther-Hansen, Oxford Handbooks (Oxford University Press, 2019); Jan Schacher, "Motor Imagery in Perception and Performance of Sound and Music," in *The Oxford Handbook of Sound and Imagination*, ed. Jan Schacher et al., Oxford Handbooks (New York, NY: Oxford University Press, 2019); Duby, "Affordances in Real, Virtual, and Imaginary Musical Performance."; Hubbard, "Some Anticipatory, Kinesthetic, and Dynamic Aspects of Auditory Imagery."

⁹⁹ Carvalho, "Music and Emergence," 77; 86.

the human mind as “fundamentally active and interactive, in the world and not in our heads.”¹⁰⁰

Within this framework, music is not considered an ideal object originating in a composer’s or performer’s mind, but is enacted through embodied, affective, and extended engagement with an “environment of sounds.”¹⁰¹ Here imagination is conceptualised as “inextricably caught up in perception, cognition, assertion, and action”; it is rather a fundamental aspect of practitioner’s ongoing attunement to affordances.¹⁰² Carvalho thereby rejects narrow conceptions of SMIII as “a mental activity heard, first, in the mind of the composer and performer, then, communicated to the listener.”¹⁰³ Yet, as I interpret it, Carvalho’s position also goes further than those merely appealing to the multi-modal nature of musical imagery. Instead, he stresses the fundamentally embodied and affective nature of imaginative engagement, explaining:

I conceive of this imagination as thoroughly embodied, as something felt about the fit of this or that skill, as a form of affective cognition on the order of how the body feels about attacking a snow-packed slope with a pair of skis or feels about the dish that can be made from what is afforded by the refrigerator. Given what is afforded by an environment of sound, the musician “imaginatively” feels the deployment of this or that skill will render the most musical results. She has an embodied and affective sense of what to do with this environment.¹⁰⁴

Thus, musical imagination is here framed as an emergent property of a dynamic, embodied, and situated ecology of perception, affect, anticipation, and action: “the imagination figures

¹⁰⁰ Carvalho, “Music and Emergence,” 77.

¹⁰¹ Carvalho, “Music and Emergence,” 77.

¹⁰² Carvalho, “Music and Emergence,” 91.

¹⁰³ Carvalho, “Music and Emergence,” 92.

¹⁰⁴ Carvalho, “Music and Emergence,” 91.

as an affective valence of the always embodied engagement of the mind in an environment of sound.”¹⁰⁵

Carvalho’s account stands among other recent enactivist, radically situated, and/or materially engaged theories of imagination, marking a significant advance in theorising musical imagination by radically unsettling the MBW accounts of SMIIIA.¹⁰⁶ Yet, as his work remains at the level of conceptual synthesis, theoretical reframing, and musicological analysis rather than contributing original phenomenological-ethnographic data, it thus leaves Schmicking’s “technical problem” essentially unresolved.

However, two recent phenomenological studies that make substantial strides toward addressing these gaps are Simon Høffding and Torben Snekkestad’s “Inner and Outer Ears: Enacting Agential Systems in Music Improvisation” and Joshua Bergamin’s “Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation.”¹⁰⁷ Both works mark major advances in the phenomenological analysis of improvised musical performance, each developing sophisticated models informed by post-E-Turn theoretical frameworks and grounded in rich ethnographic data. Crucially, both studies recognise SMIIIA-like phenomena as central to the distributed cognitive ecology of improvisation, although each frames these experiences in subtly different ways.

¹⁰⁵ Carvalho, “Music and Emergence,” 78.

¹⁰⁶ For example, see: Evan Thompson, “Look Again: Phenomenology and Mental Imagery,” *Phenomenology and the Cognitive Sciences* 6, no. 1-2 (2007), <https://doi.org/10.1007/s11097-006-9031-1>; Daniel D. Hutto, “Overly Enactive Imagination? Radically Re-Imagining Imagining,” *The Southern journal of philosophy* 53, no. S1 (2015), <https://doi.org/10.1111/sjp.12122>; Gallagher, *Enactivist Interventions*, 187-204; Ludger van Dijk and Erik Rietveld, “Situated imagination,” *Phenomenology and the cognitive sciences* (2020), <https://doi.org/10.1007/s11097-020-09701-2>; Maria Danae Koukouti and Lambros Malafouris, “Material Imagination: An Anthropological Perspective,” in *The Cambridge Handbook of the Imagination*, ed. Anna Abraham (Cambridge University Press, 2020); Shaun Gallagher and Zuzanna Rucińska, “Prospecting Performance: Rehearsal and the Nature of Imagination,” *Synthese (Dordrecht)* 199, no. 1/2 (2021), <https://doi.org/10.1007/s11229-020-02989-2>; Zuzanna Rucińska and Shaun Gallagher, “Making Imagination Even More Embodied: Imagination, Constraint and Epistemic Relevance,” *Synthese (Dordrecht)* 199, no. 3-4 (2021), <https://doi.org/10.1007/s11229-021-03156-x>.

¹⁰⁷ Høffding and Snekkestad, “Inner and Outer Ears.”; Bergamin, “Habitually Breaking Habits.”

Building on ecological, 4E, and distributed cognition frameworks, Høffding and Snekkestad collaborate as philosopher and practitioner to provide a richly detailed, phenomenological account of improvised musical performance. They identify thirteen techniques constituting Snekkestad's improvisational practice, each functioning as an "agential pole" within a dynamic, distributed system of creative action, organised into three categories: "technical abilities," "perceptual techniques," and "mental and meta techniques."¹⁰⁸ Within this network, "Snekkestad fluctuates between assuming and relinquishing control to these poles, which then, considered as elements in his distributed musical system, come to co-constitute the performance."¹⁰⁹

Of particular interest for the current project is their discussion of the mental technique referred to as "retention/protection."¹¹⁰ Here, Snekkestad describes a conscious capacity to "lean backward or forward in the musical narrative," intentionally modulating his engagement with the unfolding musical situation.¹¹¹ Snekkestad describes such experiences as follows:

The best moments of improvisation I have, is when I can hear (for myself) the next five seconds. I can hear some things for myself and reach for some things and it just emerges so naturally [...]. The short stretches are a result of being able to see, hear the music (for yourself) ... you are not making a choice, but it is somehow written in advance in short stretches.¹¹²

¹⁰⁸ Høffding and Snekkestad, "Inner and Outer Ears," 162; 167; 162.

¹⁰⁹ Høffding and Snekkestad, "Inner and Outer Ears," 162.

¹¹⁰ Høffding and Snekkestad, "Inner and Outer Ears," 176. The authors also discuss "imagination/visualization" as a further technique. However, these examples typically invoke non-musical imagery (e.g., childhood memories of diving in the ocean), which then inform certain approaches to playing (Høffding and Snekkestad, "Inner and Outer Ears," 175-76.). I will return to the relation between such imagery and sonorous imagination in Chapter 6.

¹¹¹ Høffding and Snekkestad, "Inner and Outer Ears," 177.

¹¹² Høffding and Snekkestad, "Inner and Outer Ears," 176.

While retention and protention are technical Husserlian terms, the authors are careful to highlight that it is unclear “to what extent Snekkestad’s use of retention and protention is equivalent to Husserl’s.”¹¹³ For example, Snekkestad’s experience is framed as “a deliberate orientation toward music and playing [...] in a way that is connected to his own agential initiative, which is not the case for Husserl.”¹¹⁴ In Husserl’s original framework, retention and protention designate pre-reflective temporal structures of consciousness—that is, operations of *passive synthesis*. For Snekkestad, by contrast, they are reconceived as actionable strategies for shaping an improvised musical narrative in real time, exemplifying an egoic act of *active synthesis*.¹¹⁵ That Snekkestad’s technique is framed as deliberate and controlled is further reinforced by the placement of retention/protention towards the centre of the author’s schematisation of *Snekkestad’s performative system*, which, as they explain, indicates that this technique is more “under his direct control” as compared to those techniques situated towards the periphery of the schema.¹¹⁶

Contrast this with Bergamin’s account. In a closely related project, Bergamin explores the apparent paradox between habit and spontaneous novel creation at the heart of improvised musical practice. Adopting Høffding’s mixed ethnographic and phenomenological methods, Bergamin delves into the lived experience of a large pool of improvising musicians engaged in large ensemble free improvisation to develop “a phenomenology of musical improvisation.”¹¹⁷

¹¹³ Høffding and Snekkestad, "Inner and Outer Ears," 180.

¹¹⁴ Høffding and Snekkestad, "Inner and Outer Ears," 180.

¹¹⁵ I follow Høffding’s own understanding of these terms, where “active” synthesis designates “cognitive processes such as reflecting, predicting, attending, judging or choosing,” and “passive” synthesis is understood as a “diaphanous layer” preceding such processes—as the basic “fit” between subject and world, on the basis of which active synthesis can emerge. For example, compare the emergence of an idea born of actively attending to and problem-solving some issue (active synthesis) versus an idea that seemingly emerges unbidden and “out of the blue” (passive synthesis) (Høffding, *A Phenomenology of Musical Absorption*, 179.).

¹¹⁶ Høffding and Snekkestad, "Inner and Outer Ears," 166-67.

¹¹⁷ Bergamin, "Habitually Breaking Habits," 6-18.

Situating his analysis within post-E-turn frameworks, Bergamin conceptualises improvised musical performance as a paradigmatic case of *participatory sense-making* (discussed in Chapter 8), where the improviser forms part of a dynamic system, operating within a complex network of “provisos”—the often tacit socio-cultural, material, and normative constraints and affordances that both shape and delimit a musician’s creative decision-making.¹¹⁸ His analysis reveals that improvisers employ a variety of techniques (e.g., self-monitoring, and split attention), suggesting that practitioners are capable of fluidly toggling between highly focused technical control and holistic situational awareness.¹¹⁹

Bergamin further identifies “two phenomenologically-distinct cognitive modes that nevertheless interact during the act of improvising music” between which practitioners “step in and out”: (1) object-focused “thinking,” experienced as “a state-of-awareness that feels a step removed from action,” and (2) immediate, pre-reflective reacting to *impulses*—often manifesting as, in Bergamin’s terms, the *pre-hearing* of musical ideas or phrases.¹²⁰ He explains:

intuitive ‘*reacting*’ [...] retains a phenomenological contrast to [...] object-focused ‘*thinking*.’ A key difference between the two modes lies in a sense of distance from the ‘thought-object,’ and the sense of ‘ownership’ of the agent’s interactions with it. Deliberative thoughts appear to come *from* the thinking subject, and to be applied *to* their object; there is something of a ‘gap’ between the thought and any associated action. Pre-reflective ‘*reacting*,’ by contrast, is more immediate. Ideas—or what free improvisors frequently call *impulses*—are not ‘thought up’ by the performer, but feel

¹¹⁸ Bergamin, “Habitually Breaking Habits,” 4-6.

¹¹⁹ Bergamin, “Habitually Breaking Habits,” 14-15.

¹²⁰ Bergamin, “Habitually Breaking Habits,” 14; 12; 13; 12; 14.

like they ‘come to’ them, often experienced as a ‘pre-’ or ‘inside’ hearing of a possible sound or musical phrase.¹²¹

Based on this description, “pre-hearing” appears to manifest for the improviser as an unbidden impulse (passive synthesis)—standing in contrast to consciously directed, object-focused cognition (active synthesis, in which Snekkestad’s “protention” is framed).

While I do not regard this tension as irreconcilable, it is evident that these studies, despite their otherwise excellent contributions, leave unresolved certain questions surrounding SMIIIA. As neither project aims or claims to take this specific aspect of the improvisational process—i.e., the lived structure and significance of SMIIIA—as its central focus, this observation is not intended as criticism. Rather, it simply highlights the need for ethnographic data on these specific experiences as well as for a sustained, focused examination of this phenomenon: a phenomenology of SMIIIA. While I do not claim to have resolved every issue posed above, the present thesis is designed to address this gap and to advance our understanding of the experiential structures of SMIIIA in improvised musical performance.

* * *

This extended introductory section has traced the lineage from traditional, linear-representational MBW accounts of SMIIIA to phenomenologically sensitive, post-E-turn frameworks. Yet, as recent studies indicate, even sophisticated mixed-method and ethnographic-phenomenological projects—while acknowledging the centrality of SMIIIA-like phenomena—have not undertaken a sustained, systematic analysis of its experiential structures, thus leaving the “technical problem” identified by Schmicking essentially unresolved. It is precisely in this gap that the present thesis is situated. In the next chapter, I

¹²¹ Bergamin, “Habitually Breaking Habits,” 13.

outline my methods for addressing this issue: a distinctive blend of ethnographic approaches centred around Høffding's phenomenological interview exploring the lived experience of nine expert improvising double bassists, with the goal of understanding how improvising musicians "play what they hear."

2. To The Things Themselves

The present thesis aims to develop a phenomenology of *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA) by examining the lived experience of nine expert improvising double bassists. In this chapter, I lay out my approach to pursuing this goal. I begin with a brief introduction to phenomenology, followed by a discussion of the *phenomenological commitments* that orient my project. I then outline the selection criteria and participant recruitment process before describing my procedures for data collection and analysis. My research design is modelled on Simon Høffding's *Phenomenological Interview*: a two-tiered process that iteratively cycles between semi-structured qualitative interviews and data analysis.¹ I discuss the structure of my *tier-one* interviews, highlighting the motivations and academic precedents underlying three innovative methodological additions to Høffding's original approach—interviews conducted with the instrument “at hand,” *in situ* post-performance reflections, and review and discussion of recently recorded performance footage. I then explain my “tier-two” data analysis process before concluding with brief remarks on the scope and limitations of this approach.

Phenomenology

Phenomenology is a philosophical research tradition initiated by mathematician and philosopher Edmund Husserl at the turn of the twentieth century, and subsequently developed by figures such as Martin Heidegger, Jean-Paul Sartre, Maurice Merleau-Ponty, Hubert Dreyfus, Maxine Sheets-Johnstone, Don Ihde, Shaun Gallagher, Dan Zahavi, Judith Butler, Evan Thompson, and Simon Høffding, among others.² This approach takes as its point of

¹ Simon Høffding, *A Phenomenology of Musical Absorption*, *New Directions in Philosophy and Cognitive Science*, (Cham: Springer International Publishing AG, 2018), 13-43. See also: Simon Høffding and Kristian Martiny, "Framing a Phenomenological Interview: What, Why and How," *Phenomenology and the Cognitive Sciences* 15, no. 4 (2015), <https://doi.org/10.1007/s11097-015-9433-z>.

² For an in-depth discussion of major figures in classical phenomenology, see: Dermot Moran, *Introduction to Phenomenology* (London: Routledge, 2000).

departure the description of the nature and structure of first-person experience *as* it is experienced. This is what Husserl meant by his now famous call to “go back to the ‘things themselves,’” underscoring a commitment on the part of the researcher to investigate phenomena precisely as they are given to consciousness, setting aside theoretical presuppositions.³

While phenomenology is often portrayed as heterogeneous in both its methods and areas of focus, there are a number of attitudes that unify this approach.⁴ Phenomenologists all share the conviction that the proper starting point for any philosophical or scientific inquiry into the nature of mind, meaning, truth, and reality is the systematic analysis of the ways in which the world *manifests* or *appears* (or, in phenomenological parlance, is *constituted*) in lived experience.⁵ As Zahavi explains, from the phenomenological perspective

[t]he world is not something that simply exists. The world appears, and the structure of this appearance is conditioned and made possible by subjectivity.⁶

From this stance, the world is not conceived as a collection of independent objects “out there,” standing over and against an “inner” subjectivity, but is instead understood as being relationally constituted within a *phenomenal field*: the world is, for us, always the *world-as-experienced*.⁷

³ Edmund Husserl, *Logical Investigations*, vol. 1, International Library of Philosophy, (London: Routledge, 2001), 168.

⁴ Dan Zahavi, *Phenomenology: The Basics* (Boca Raton, FL: Routledge, 2018), 2.

⁵ Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, Mass: Belknap Press of Harvard University Press, 2010), 15.

⁶ Dan Zahavi, *Husserl's Phenomenology*, ed. Miek Bal and Hent De Vries, Cultural Memory in the Present, (Stanford, California: Stanford University Press, 2003), 52.

⁷ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 52-65.

A central preoccupation of phenomenology is therefore the study of *intentionality*: the idea that consciousness is always a consciousness *of*, or *about*, something.⁸ The phenomenological doctrine of intentionality involves not only the recognition that, in Gallagher and Zahavi's words, "conscious life [...] always involves reference to the *world*," but also the claim that the world itself—whether apprehended within philosophical, scientific, or everyday perspectives—is always relative to subjectivity.⁹ This is not to suggest that phenomenologists take the world to be illusory or a mere construct of mind, nor that they attempt to *reduce* objectivity to subjectivity. Rather, this stance is better understood as an attempt to dissolve this rigid distinction by acknowledging, to borrow from Merleau-Ponty, the *intertwining* of subjectivity and world.¹⁰ Indeed, Zahavi notes that "phenomenology is only interested in consciousness insofar as it is the field or dimension where the world appears."¹¹

In essence, phenomenology rejects the possibility of a "view from nowhere," and insists that philosophical and scientific theorising must take as its starting point the specific structures of our situated perspective—what Heidegger describes as our *being-in-the-world*.¹² Through methodological techniques including, but not limited to, *bracketing* (or *epoché*: the suspension of theoretical and metaphysical presuppositions that constitute what Husserl termed *the natural attitude*), *phenomenological reductions* (the systematic description of the bracketed phenomenon as constituted in specific modalities of experience), and *eidetic variations/reductions* (the imaginative or hypothetical alterations of phenomena performed to

⁸ That is, perception is always a perception *of* something; remembering a memory *of* something; imagination an imagining *of* something etcetera. Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: First Book* (The Hague: Martinus Nijhoff Publishers, 1983), §84.

⁹ Shaun Gallagher and Dan Zahavi, *The Phenomenological Mind*, Third ed. (Abingdon, Oxon; New York, NY: Routledge, 2021), 8.

¹⁰ Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Alphonso Lingis, ed. Claude Lefort (Evanston: Northwestern University Press, 1968), 138.

¹¹ Zahavi, *Husserl's Phenomenology*, 52.

¹² Taylor Carmen, "Foreword," in *Phenomenology of Perception* (Abingdon, Oxon: Routledge, 2012), xi; Martin Heidegger, *Being and Time* (Broadway, New York: Harper & Row, 1962), 68.

clarify their invariant features), phenomenologists maintain that it is possible to describe the invariant structures and conditions of possibility of experience.¹³ This includes the diverse *passive* and *active*, *reflective* and *pre-reflective*, *transitive* and *intransitive*, *embodied*, and *situated* ways in which we are directed toward the world, and the reciprocal ways in which the world constitutes itself in these relations (what phenomenologists refer to as the *correlational structure of intentionality*).¹⁴ In this sense, phenomenology is best understood, as Zahavi concludes, as the study of “the way in which objects show themselves—how objects appear or manifest themselves—and on the conditions of possibility for this appearance.”¹⁵

It must be stressed that the stakes of phenomenological analysis extend beyond mere philosophising or description for description’s sake. Phenomenological observations, as Sean Kelly notes, can also stand in a “data to model” relationship with experimental paradigms in third-person approaches that seek naturalistic accounts of mind.¹⁶ That is, rigorous phenomenological accounts provide first-person experiential data that can shape, constrain, and refine models in cognitive psychology and neuroscience which, in turn, can feed back into and further refine phenomenological accounts.¹⁷ As Gallagher and Zahavi explain,

[if] we pursue a detailed phenomenological analysis, exploring the precise intentional, embodied, temporal, and phenomenal aspects of experience, then we will end up with a description of just what it is that the psychologists and neuroscientists are trying to

¹³ Husserl, *Ideas I*, §31-32; §27; §33. See also: Gallagher and Zahavi, *The Phenomenological Mind*, 21-30.

¹⁴ For a concise overview of these terms, see: Thompson, *Mind in Life*, 16-36.

¹⁵ Zahavi, *Husserl’s Phenomenology*, 55.

¹⁶ Sean D. Kelly, “Grasping at Straws: Motor Intentionality and the Cognitive Science of Skilled Behavior,” in *Heidegger, Coping, and Cognitive Science: Essays in Honor of Hubert L. Dreyfus*, ed. Mark A. Wrathall and Jeff Malpas (Cambridge, Mass: MIT Press, 2000), 165.

¹⁷ For more on this, see discussion of “front-loaded phenomenology” in Gallagher and Zahavi, *The Phenomenological Mind*, 43-45.

explain when they appeal to neural processes, information processing, or dynamical models.¹⁸

Phenomenologists argue that their analyses yield far more detailed, rigorous, and methodologically reliable data than what is available through “casual reflection,” or folk-psychological assumptions formed in the natural attitude, thereby supplying a robust basis on which naturalistic accounts of mind can be developed.¹⁹ This is all to say that phenomenological and third-person quantitative approaches are best understood as mutually-enriching, complementary frameworks. The challenge—and opportunity—is to find ways to productively integrate these approaches, whereby phenomenology’s disciplined attention to experience can inform, clarify, and be tested against cognitive scientific models, and vice versa, fostering a multidimensional understanding of mind and world.

In step with this thinking, phenomenological research in recent decades has increasingly expanded beyond its classical focus on *first-person* description toward mixed-method approaches, integrating *second-person* qualitative and *third-person* quantitative approaches.²⁰ This is an evolving field, and a detailed overview of the discussions surrounding mixed-method approaches to “applied” or “experimental” phenomenology lies beyond the scope of this chapter.²¹ Here, I simply wish to introduce one specific approach that has emerged from this trend and that I adopt in this project: Simon Høffding’s Phenomenological Interview.

¹⁸ Gallagher and Zahavi, *The Phenomenological Mind*, 10.

¹⁹ Thompson, *Mind in Life*, 278; Gallagher and Zahavi, *The Phenomenological Mind*, 10..

²⁰ See for example the neurophenomenology, as introduced by Francisco Varela, which stands as an exemplar of such mixed-method approaches in consciousness studies (Francisco J Varela, "Neurophenomenology: A Methodological Remedy for the Hard Problem," *Journal of consciousness studies* 3, no. 4 (1996)).

²¹ For an overview, see: Gallagher and Zahavi, *The Phenomenological Mind*, 30-48.

Phenomenological Commitments

In *A Phenomenology of Musical Absorption* Simon Høffding sought to explore a key issue at the heart of expertise research: namely the nature, structure, and varieties of absorption as experienced by experts, taking classical musicians as a case study.²² Høffding notes that, as an amateur musician, he lacked first-person access to the experience of the expert, and that this limitation required an alternative stance from which to develop his phenomenological account.²³ A review of existing approaches revealed that, while many disciplines employed concepts from phenomenology to inform approaches to qualitative interviews and/or self-report techniques for their own discipline-specific ends, these methods were often less effective when applied to specifically phenomenological purposes.²⁴ This led Høffding to the development of the phenomenological interview and his immersive study of the Danish String Quartet.

Høffding emphasises that what renders his process “phenomenological” is not the interview format itself—which otherwise follows established best practices for conducting ethnographic research—but rather the distinctive philosophical commitments that orient, structure, and constrain both the conduct of the interviews and the analysis of their results.²⁵ Before detailing my own adaptation and application of Høffding’s two-tiered process, it is necessary to first clarify these commitments, which he articulates as follows:

1. Go to the things themselves.
2. Subjectivity has irreducible and invariant structures.
3. Subjectivity is irreducible to objectivity.

²² Høffding, *A Phenomenology of Musical Absorption*.

²³ Høffding, *A Phenomenology of Musical Absorption*, 13-14.

²⁴ Høffding, *A Phenomenology of Musical Absorption*, 14-15.

²⁵ Høffding, *A Phenomenology of Musical Absorption*, 15.

4. Experience is embodied, embedded, and enactive.²⁶

These four closely-linked methodological commitments form the explicit conceptual underpinnings of PI. While the meaning of these four points may already be apparent from our brief discussion of phenomenology above, they warrant some explanation here.²⁷

As noted above, the call to *go to the things themselves* expresses a commitment from the researcher to broaching and analysing a phenomenon *as* phenomenon—that is, always as based on descriptive accounts of first-person experience. This requires the researcher to *bracket* (i.e., identify and set aside) “preestablished theories, explanations, and beliefs” about the phenomenon in question, instead focusing on eliciting and thematising *descriptive* accounts as they emerge in the interviews.²⁸

Importantly, the goal is not simply to produce an inventory of idiosyncratic, “here and now” experiences. Rather, the aim is to disclose and articulate *invariant structures* that manifest across descriptions and iterations.²⁹ In the PI, this is achieved through cycles of interpretation, clarificatory follow-up interviews, and systematic analysis for “phenomenological consistency”—where “internal” phenomenological consistency refers to the ability to make sense of the maximum amount of data, and “external” phenomenological consistency reflects the degree to which findings align with or challenge established theories.³⁰ This movement between concrete descriptions (tier one) and the analysis of their underlying structural features in search of invariants (tier two) exemplifies the second commitment: that *subjectivity has irreducible and invariant structures*.

²⁶ Høffding, *A Phenomenology of Musical Absorption*, 18.

²⁷ For a more detailed discussion and defence of these commitments, see Høffding, *A Phenomenology of Musical Absorption*, 18-27.

²⁸ Høffding, *A Phenomenology of Musical Absorption*, 19.

²⁹ Høffding, *A Phenomenology of Musical Absorption*, 19.

³⁰ Høffding, *A Phenomenology of Musical Absorption*, 26-27.

The third commitment—*subjectivity is irreducible to objectivity*—holds that lived experience cannot be treated as a kind of “object” in the ordinary sense of the word.³¹ Within *objective* research, the truth of a statement such as “the apple is red” can be checked by its correspondence to the object under description—if the description corresponds with the measurable features of the object (if the apple is indeed red), then the description is said to be “true.” If applied to subjective experience, this logic would require the researcher to seek some fixed and observable independent fact of experience—such as an internal brain state—to verify whether a person’s description indeed corresponds to the experience in question. However, as Høffding observes,

an experience is not an object one can retroactively return to in a straightforward manner. It has no fixed diachronic stability, no Archimedean point of reference and is not hidden inside the head to be dug up by memory.³²

For Høffding, then, experiences are not static objects that can be made available for external observation in the manner of apples, electrons, or galaxies.³³ Instead, they are dynamic, temporal, and multi-layered outlooks on the world, always constituted and continually reshaped by context and specific modes of intentionality (e.g., as perceived, as remembered, as imagined etc). The researcher, then, sets aside scepticism as to whether reflection and description constitute a distortion or falsification of some “original” data. Rather, following Zahavi, these reports are interpreted as alternative perspectives on, or as an “opening up” of, pre-reflective experience.³⁴ Thus, in the phenomenological interview, the validity of subjective reports arises from their clarity, richness, and ability to disclose structures of

³¹ Høffding, *A Phenomenology of Musical Absorption*, 22.

³² Høffding, *A Phenomenology of Musical Absorption*, 22.

³³ Høffding, *A Phenomenology of Musical Absorption*, 22.

³⁴ Høffding, *A Phenomenology of Musical Absorption*, 23.

meaning, and must be understood on their own terms—not as a proxy for some other physical object or process.

The fourth commitment holds that *experience is essentially embodied, embedded, and enactive*. This means that both the methods and analyses of the phenomenological interview take embodiment, interaction, and context seriously; that is, as constitutive elements of subjective experience.³⁵ This has practical consequences for the role and attitude of the researcher: interviews are designed to explore the full breadth of experience as it unfolds in lived practice.³⁶ Further, the interviewer approaches the encounter not as a neutral observer, but as an interactive participant, and understands that the knowledge which emerges in the interview is co-generated through *second-person* reciprocal engagement, wherein both interviewer and interviewee bring their embodied histories, perspectives, and affective resonances to the conversation. Moreover, knowledge generation is not limited to discursive, verbal accounts; tacit, embodied knowledge—expressed through body language, facial expressions, tone, and gesture—is actively attended to.³⁷ In this way, the interviewer's own embodied, second-person sensitivity becomes a crucial tool for understanding the fundamentally embodied, embedded, and enactive account being co-generated in the interviews.

These four phenomenological commitments inform the structure of the phenomenological interview, shaping the researcher's approach to interviews, data analysis, the iterative process of integrating findings into subsequent interviews, and ultimately the development of a phenomenological theory. They are, in essence, what makes the

³⁵ Høffding, *A Phenomenology of Musical Absorption*, 31.

³⁶ This is to say that omitting bodily, interactive, or ecological factors from one's analysis would constitute a distortion of experience under investigation.

³⁷ Høffding, *A Phenomenology of Musical Absorption*, 16-18.

phenomenological interview “phenomenological.” With these foundations established, I now turn to the specific methodological procedures of my study.

Participants

This study focuses on the experience of nine expert improvising double bassists based in Sydney and Melbourne. This narrow focus, known as *purposive sampling*, involves the deliberate selection of a small group based on pre-defined characteristics aiming for “depth” of description as opposed to “breadth” of sample size.³⁸ Following Montero, “expert” here refers to practitioners with at least ten years of intensive and deliberate engagement in improvised double bass performance, with an ongoing commitment to artistic development.³⁹ “Improvising” is here used in Krueger and Salice’s sense of “expert improvisation”: activities, usually artistic, in which improvisation is explicitly understood as a “proximate goal” of the practice.⁴⁰ Accordingly, participants were selected whose professional practice unambiguously and self-consciously takes improvisation as a proximate goal, principally in jazz (broadly construed) as well as less idiomatic, experimental, or avant-garde forms of improvised music. Where possible, priority was given to artists with diverse playing experience, and the final pool included musicians with expertise spanning various forms of rock and roll, indie-folk, electronic music, blues, soul, and Korean Pansori music.

The decision to focus on the double bass is guided by both practical and methodological considerations. Limiting the study to a specific instrument aligns with “situated” approaches, facilitating the examination of a cohort with broadly comparable

³⁸ Steve Campbell et al., “Purposive Sampling: Complex or Simple? Research Case Examples,” *Journal of research in Nursing* 25, no. 8 (2020): 655.

³⁹ Barbara Gail Montero, *Thought in Action: Expertise and the Conscious Mind* (Oxford: Oxford University Press, 2016), 64.

⁴⁰ Joel Krueger and Alessandro Salice, “Towards a Wide Approach to Improvisation,” in *Philosophy of Improvisation*, ed. Susanne Ravn, Simon Høffding, and James McGuirk (New York, NY: Routledge, 2021), 50.

interactions with tools, technologies, and performance environments.⁴¹ Additionally, as a professional improvising double bassist with over twenty years' experience and a longstanding member of this musical community, I occupy an "insider" (or "emic") position.⁴² While this status is not without its own methodological challenges, it nonetheless grants privileged access to nuanced technical knowledge, subtleties of practice, and tacit cultural norms which may be less accessible to "outsiders." Insider status can further enhance rapport, trust, and openness in interviews, enabling the collection of data rooted in shared language, cultural context, and experiential reference points. Nevertheless, consistent with the phenomenological commitments outlined above, all care was taken throughout the interviews and analysis to bracket preconceptions—avoiding the assumption that my personal experiences necessarily reflect those of participants—and to maintain a focus on rich, detailed phenomenological description.⁴³ As such, my own experience is largely omitted from discussions in this thesis.

Recruitment was conducted by sending a standardised invitation email to fifteen double bassists (seven female, eight male) meeting the above criteria. This email outlined the project aims and described the interview process, encouraging candidates to share their experiences of generating and expressing musical ideas in the flow of collective improvised performance, including, but not limited to, their experience of audiation, aural imagery,

⁴¹ Ludger Van Dijk and Erik Rietveld, "Situated imagination," *Phenomenology and the cognitive sciences* (2020), <https://doi.org/10.1007/s11097-020-09701-2>.

⁴² Clifford Geertz, "'From the Native's Point of View': On the Nature of Anthropological Understanding," *Bulletin of the american academy of arts and sciences* (1974); Anthony Naaeke et al., "Insider and Outsider Perspective in Ethnographic Research," *Proceedings of the New York State Communication Association* 2010, no. 1 (2011): 152.

⁴³ While one of Høffding's motivations for developing phenomenological interview could be understood as a way to conduct phenomenology from the "etic" position, others have applied it from emic perspectives (e.g., Joshua A. Bergamin, "Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation," *Phenomenology and the Cognitive Sciences* (2024), <https://doi.org/10.1007/s11097-024-09974-x>.) as well as blended emic/etic perspectives (e.g., Simon Høffding and Torben Snekkestad, "Inner and Outer Ears: Enacting Agential Systems in Music Improvisation," in *Philosophy of Improvisation: Interdisciplinary Perspectives on Theory and Practice*, ed. Susanne Ravn, Simon Høffding, and James McGuirk (New York, NY: Routledge, 2021).)

imagined sounds, and/or inner hearing. Each invitation packet included a *Participant Information Statement*, *Interview Guide* (with example questions and topics for the first interview as well as *Post-Performance Reflections*), and a *Participant Consent Form*. Only those who returned completed consent forms were included in the final sample. All study protocols were approved by *University of Sydney Human Research Ethics Committee* (HREC), and procedures conformed to national guidelines for research ethics and participant protection.⁴⁴

This process yielded nine participants (two female, seven male), aged 25 to 66 years (mean = 46.44), with 21 to 60 years of experience playing music (mean = 39.55) and 10 to 51 years' experience performing on the double bass specifically (mean = 30.11). Eight had attained at least tertiary-level music education, and three reported possessing perfect or absolute pitch. Participants' identities have been anonymised by assigning single-letter identifiers and omitting all personally identifying details, including any names, ensembles, venues, and events mentioned in interview transcripts.⁴⁵ Single-letter identifiers were chosen because, throughout the thesis, the narrative sometimes explores the experiences of particular participants in depth before connecting these insights to the larger cohort, as well as cross-referencing or comparing specific participants to clarify a phenomenon. For this reason, it was necessary to have an internal means of correlating perspectives within the group. However, in especially personal or sensitive cases, even the letter identifier is omitted to protect participant privacy in the unlikely case that identification could occur by inference.

⁴⁴ HREC Project identifier 2022/HE000571.

⁴⁵ While Høffding typically identifies his participants, anonymising participants in this manner is common practice in qualitative music research. For example, see Andrea Schiavio et al., "By Myself but Not Alone: Agency, Creativity and Extended Musical Historicity," *Journal of the Royal Musical Association* 147, no. 2 (2022), <https://doi.org/10.1017/rma.2022.22>; Bergamin, "Habitually Breaking Habits."

Tier-One Interviews

The first tier of the phenomenological interview conforms to standard ethnographic interview protocols—a well-established technique for investigating musical experience and improvisational processes in music specifically.⁴⁶ My approach is modelled closely on Høffding's work with the Danish String Quartet, but also draws inspirations from previous studies, including Berliner's broader focus on musical life and practice, Monson's emphasis on interactional dynamics among musicians, and Norgaard's technique of limiting participants' reflections to recently filmed improvisations.⁴⁷

Each participant took part in two semi-structured interviews averaging 95 minutes (ranging from 65 to 135 minutes), resulting in a total of 29 hours of interview data. Before each session, participants were emailed a list of prospective questions but were informed the interviews would be conversation-like and ultimately shaped by their responses.⁴⁸ No formal training or priming in phenomenology was provided; participants were simply reminded to focus on describing their own experiences rather than ideals of best practice or theory, and were encouraged to use metaphors, analogies, or invented terms as needed. Following Høffding's recommendations, open questions inviting detailed reflection were favoured over "closed" yes/no queries.⁴⁹ Wherever possible, I adopted each participant's idiosyncratic terminology and periodically reflected my interpretation of their descriptions for collaborative clarification.⁵⁰ Interviews were conducted at locations chosen by participants

⁴⁶ See for example Derek Bailey, *Improvisation: Its Nature and Practice in Music* (New York: Da Capo Press, 1993); Berliner, *Thinking in Jazz*; Ingrid Monson, *Saying Something: Jazz Improvisation and Interaction*, Chicago Studies in Ethnomusicology, (Chicago: The University of Chicago Press, 2009); Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians."; Bertrand Denzler and Jean-Luc Guionnet, *The Practice of Musical Improvisation* (London: Bloomsbury Publishing Plc, 2020); Høffding and Snekkestad, "Inner and Outer Ears."; Bergamin, "Habitually Breaking Habits."

⁴⁷ Berliner, *Thinking in Jazz*; Monson, *Saying Something: Jazz Improvisation and Interaction*; Norgaard, "Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians."

⁴⁸ Høffding, *A Phenomenology of Musical Absorption*, 36.

⁴⁹ Høffding, *A Phenomenology of Musical Absorption*, 36.

⁵⁰ Høffding, *A Phenomenology of Musical Absorption*, 18.

and filmed with a Zoom Q8 Handy Video Recorder, as well as the built-in camera and microphone of an iPhone 13 for backup.

The first-round interviews cast a wide net for insights and was divided into three coarse-grained stages.⁵¹ The initial stage explored each participant's early relationship with music, their journey to becoming a double bassist and professional improviser, how their relationship with their practice had evolved over time, and identifying specific cultural and educational values which may shape their musical outlook. This provided essential context for understanding each participant's attitudes and language around improvisational process. The next stage focused on their present-day practice, with questions exploring the nature of their current experience when engaged in collective improvised performance, including: the emergence of ideas, patterns of attention, perceptual experiences, conscious thoughts, as well as the various ways they encounter their instrument, their co-players, the audience, the musical sounds they are creating, and their own body. In these first two sections, I did not ask directly about SMIIIA *per se*; instead, participants were simply encouraged to describe any aspects of their creative process in improvised musical performance that they considered significant in their own terms.⁵²

In some instances, participants introduced terms or concepts I interpreted as being associated with SMIIIA—such as “audiation,” “hearing sounds in my head,” “music in your head,” “inner hearing,” or “pre-hearing.” When this occurred, I honed my focus on these phenomena, adopting their language choices, encouraging further description. Conversely, if a participant had not mentioned anything obviously related to SMIIIA after approximately 45 minutes, I would broach the topic directly by introducing the familiar phrase “playing what you hear”—a cliché chosen for its common usage. I first asked whether they were familiar

⁵¹ This first round of interviews was conducted between 13th November 2022 and 25th April 2023.

⁵² Höfding, *A Phenomenology of Musical Absorption*, 36.

with this phrase, of which all answered a confident yes. I then asked them to set their own experience to one side and describe what they understood this phrase to mean in their own words—"what experience do you think people are referring to when they speak of 'playing what they hear?'" Following this, I then asked them to describe how, if at all, their definition of this phrase applied to their own creative practice, yielding a variety of responses. This approach avoided front-loading specific concepts and allowed for distinctive, sometimes non-traditional accounts of SMIIA to surface, including the possibility that no such experience occurred.

While I take the structure of this first interview to be largely consistent with Høffding's approach, I here introduced one methodological innovation: participants had their instrument "at hand" during the interview.⁵³ In line with the fourth phenomenological commitment of PI, this innovation was added to foreground embodied and enactive dimensions of their practice which may otherwise evade language. While only six of the nine participants chose to take up their instrument during the interview, this addition proved invaluable in several ways. In some instances, when a participant felt unsure about the specific details of some pre-reflective aspect of their playing, they could use the instrument to experiment and clarify their experience, occasionally offering real-time verbal descriptions while playing (known as "think-alouds").⁵⁴ At other times, participants would use their instrument to practically demonstrate specific aspects of their practice that might otherwise be difficult to express verbally. In two cases, participants gave solo improvised performances (each approximately three minutes), which then became a focal point for subsequent

⁵³ Inspiration and precedents for this innovation come from: Michael Kimmel, Dayana Hristova, and Kerstin Kussmaul, "Sources of Embodied Creativity: Interactivity and Ideation in Contact Improvisation," *Behavioral sciences* 8, no. 6 (2018), <https://doi.org/10.3390/bs8060052>; and Dobson, "Reconsidering the Role of Instrumental Technique in Creative Process."

⁵⁴ Jeffrey A. Greene et al., "Capturing and Modeling Self-Regulated Learning Using Think-Aloud Protocols," in *Handbook of Self-Regulation of Learning and Performance*, ed. Patricia Alexander, Dale Schunk and Jeffrey Greene (Abingdon: Routledge, 2018).

discussion. Although these recordings are not included in the thesis, the inclusion of the instrument in the interview process provided exceptionally rich data that significantly informed my understanding of specific facets of each musician's experience.

Before turning to the structure of the second interview, it is important to note a key difference between Høffding's project and my own. In his study, Høffding travelled with the Danish String Quartet on tour, gaining invaluable insights from informal reflections immediately following performances or while "chatting at the pub"—yielding some of his study's most valuable observations.⁵⁵ Further, touring situates both researcher and participants close to the experiences under investigation, providing direct access and shared points of reference for discussion—an ideal opportunity to go to the things themselves. However, since my participants do not perform together or tour as an ensemble, such immersion was impractical. To address this constraint, I implemented the following methodological innovations.

Between the first and second interviews, I attended and filmed a live performance of collective improvisation chosen by each participant.⁵⁶ Immediately following the performance, I invited the participant to offer brief post-performance reflections, sharing their general impressions and noting any significant moments or events.⁵⁷ These interactions ranged from brief reflections of a few words to more in-depth discussions, and sometimes—if initiated by participants—included conversations before the concert, during set breaks, or

⁵⁵ Høffding, *A Phenomenology of Musical Absorption*, 34.

⁵⁶ Prior to attendance, all participating musicians and event organisers completed HREC-approved consent forms. Precedents for filming experts while engaged in public performance can be found in: Sara Kim Hjortborg, "Sing's Trap: Staging Low-Commitment Strategizing in Muay Thai," in *Collaborative Embodied Performance: Ecologies of Skill*, ed. Kath Bicknell and John Sutton (London: Methuen Drama, 2022). Each performance was filmed two mounted cameras: one focused on the participant and their instrument, the other on the entire ensemble.

⁵⁷ This approach is adapted from Dobson, "Reconsidering the Role of Instrumental Technique in Creative Process."

“backstage moments,” occasionally involving other musicians.⁵⁸ This addition aimed to integrate Høffding’s informal post-concert conversations, giving performers the opportunity to comment on their immediate experiences *in situ*. These reflections were invaluable for contextualising each participant’s perceptions of the performance and, in several cases, served as useful prompts for the second round of interviews.

The second interview was scheduled as soon as conveniently possible after the performance (typically within one to seven days) and took as its primary focus the specific details of the event.⁵⁹ In the short time frame between the performance and the interview, I watched and rewatched the footage as many times as possible, making a detailed list of observations and possible questions. After inviting the participant to reflect on various aspects of the recent performance, we would then watch and discuss selected segments of concert footage together in a process known as “stimulated recall,” where I would encourage them to provide a commentated review, pausing to ask questions about specific moments in the performance.⁶⁰ The footage was viewed using QuickTime Player on my laptop. In addition to filming participants, I used the screen recording function to capture precisely what the participants were watching, along with their spoken commentary and any cursor movements used to indicate specific details.⁶¹ Together we typically reviewed 10 to 25 minutes of footage in detail, in one instance covering an entire 45-minute concert. When only select segments of footage were watched, this was determined either by the participant—if,

⁵⁸ Andrew Geeves et al., “Between the Crowd and the Band: Performance Experience, Creative Practice, and Wellbeing for Professional Touring Musicians,” *International Journal of Wellbeing* 10 (2020), 12 <https://doi.org/https://doi.org/10.5502/ijw.v10i5.1509>.

⁵⁹ Norgaard, “Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians.” The first concert was recorded on 21st October 2023, and the final interview conducted on 26th March 2024.

⁶⁰ John Lyle, “Stimulated Recall: A Report on its use in Naturalistic Research,” *British educational research journal* 29, no. 6 (2003), <https://doi.org/10.1080/0141192032000137349>; Hjortborg, “Sing’s Trap.” For other projects utilising this style of commentated review, see: Norgaard, “Descriptions of Improvisational Thinking by Artist-Level Jazz Musicians.”; Dobson, “Reconsidering the Role of Instrumental Technique in Creative Process.”

⁶¹ Dobson, “Reconsidering the Role of Instrumental Technique in Creative Process,” 49.

during their post-performance reflection, they identified a particular song or moment as especially useful for discussion—or by me, based on those segments where I had the greatest number of observations and questions. This approach enabled performers to reconnect with the act being described and enriched the interview with vivid, event-specific insights. The second interview also allowed me to clarify any points of confusion or ambiguity from the first round, and enabled participants to contribute further observations relevant to our discussions.

Tier-Two Data Analysis

In the phenomenological interview, Høffding describes the (tier one) interview and (tier two) data analysis processes as distinct yet deeply interdependent stages, existing in what he calls “epistemic continuity.”⁶² Rather than proceeding in a strictly linear fashion, these tiers are dynamic and dialectical—each one iteratively “feeds” into the other, with theoretical insights and emerging categories from data analysis informing further interviews, and the details of participants’ unfolding descriptions challenging and reshaping the evolving analytic framework.⁶³ According to Høffding, this iterative process continues until “one has reached a certain point of consistency or saturation such that one can understand all (or most of) the descriptions in the light of the conceptual framework developed.”⁶⁴ In practice, this means that data analysis is not a single event but unfolds over time, continually interspersed with the evolving interview process itself. This approach reflects the conviction that genuine understanding of experience must remain open, recursive, and responsive—neither fixating on rigid theory nor reducing lived accounts to static data, but seeking a dynamic mutual refinement of conceptual framework and experiential description.

⁶² Høffding, *A Phenomenology of Musical Absorption*, 21.

⁶³ Høffding, *A Phenomenology of Musical Absorption*, 21.

⁶⁴ Høffding, *A Phenomenology of Musical Absorption*, 21.

Following each interview, I personally transcribed the entire encounter using a standard verbatim approach.⁶⁵ This method retains repeated words, grammatical errors, and meaningful speech fillers such as “like” and “you know.” Non-verbal fillers such as “um,” “ah,” and interviewer listening responses are omitted unless they are central to the context or meaning. After completing the initial transcription, I relistened to the recordings while reviewing the text to ensure accuracy and to make necessary adjustments.

In the transcript, ellipses (“...”) indicate pauses in speech, while em-dashes (“—”) signal instances where participants abruptly cut off or altered their phrasing mid-sentence. Anonymised personal details and my own interpretive glosses are enclosed in square brackets. Descriptions of bodily movements are also included in the transcript using square brackets and bold font (e.g., “[**claps hands**]”). Throughout the thesis, omitted sections of text are marked with a square-bracketed ellipsis (“[...]”).

Whenever possible, I have chosen to quote participants at length rather than to paraphrase their insights with isolated quoted words or phrases. This approach is motivated by the recognition that the meaning of participant contributions often emerges through the unfolding process of thinking aloud, not only from isolable terms or phrases.

Occasionally, it is ambiguous whether the terms “hear” or “hearing” refer to the *perception* or *imagination* of sounds—a distinction that becomes increasingly difficult as the analysis progresses. However, where contextual cues make it unambiguous that participants are discussing imagined sounds, I denote these instances using scare quotes (“hear,” “hearing”).

Once the initial round of interviews was completed and transcribed, the first “formal” phase of analysis began. I place “formal” in scare quotes here because, in an important sense,

⁶⁵ Höffding, *A Phenomenology of Musical Absorption*, 40.

the interpretative process has already commenced and remains ongoing: it begins in the very act of interviewing, continues through personal notes taken during and between interviews, as well as throughout the transcription process. My approach here closely followed Høffding's process, which emphasises careful, iterative parsing of transcripts and segmenting key passages into thematic categories that emerge organically from the material, as guided by the four phenomenological commitments above.⁶⁶

Distinct from Høffding's process, my analysis incorporated the qualitative coding software NVivo for increased ease of data organisation and management.⁶⁷ Quotations were initially assigned to a broad range of *child nodes*, each capturing a specific theme or nuance in the participants' accounts. These child nodes were then grouped under broader *parent nodes* to reflect higher-level categories and relationships and single quotation could be coded in multiple categories. As with Høffding's approach, an additional category was maintained for particularly significant insights that did not readily align with any specific code or category.⁶⁸

After this initial coding round, each category was systematically reviewed in isolation. Misplaced quotations were relocated or removed, and categories were reorganised or relabelled to better correspond with the evolving structure of the data. The transcripts were then re-analysed using this revised coding framework, facilitating the detection of further nuanced patterns and meanings, followed by a subsequent round of category refinement. Throughout this process, the development and robustness of preliminary themes were continually tested and sharpened by presenting seminar papers, inviting feedback at each stage. The writing of these papers—and the critical input from colleagues—played an

⁶⁶ Høffding, *A Phenomenology of Musical Absorption*, 40-41.

⁶⁷ For best practices in the organisation and management of qualitative data using NVivo, see Lyn Richards, *Handling Qualitative Data: A Practical Guide*, 2nd ed. (London: SAGE, 2009).

⁶⁸ Høffding, *A Phenomenology of Musical Absorption*, 41.

essential role in clarifying, refining, and deepening my understanding of the data, as well as highlighting areas in need of further exploration or clarification.

The post-performance reflections and second-round of interviews were also transcribed in their entirety and analysed using the same systematic, iterative approach described above. With both rounds of analysis complete, the resulting categories were compared and integrated, yielding a consolidated set of categories that formed the analytic scaffold for the thesis: *Attitudes* (participants' initial orientations towards SMIIIA), *Audiation* (various descriptions of imagined sounds), *Cognition* (accounts of conscious thought, or the lack thereof), *The Voice* (the role of voice in SMIIIA), *The Body* (the role of movement and embodiment in SMIIIA), *Affect* (the relationships between emotions/bodily affects and SMIIIA), *The Other* (intersubjective dimensions of SMIIIA), *The Instrument* (the role of the instrument in SMIIIA), *The Situation* (descriptions of how various aspects of the physical, social, cultural situation affect SMIIIA).

To progress from coding to analysis, all relevant quotations were exported into individually titled word documents corresponding to these core categories, from which the main chapters of the thesis were developed. In practice, the analysis did not terminate here; throughout subsequent writing, drafting, and a total of nine seminar papers, the process remained dynamic and iterative, with continual refinement of themes in response to ongoing insights and feedback

Ultimately, drawing on Høffding's principle of "phenomenological consistency" (discussed above), my process reached a level of analytic saturation, providing a robust basis for my subsequent phenomenology of SMIIIA.⁶⁹ Nevertheless, it must be stressed that my account present only *a* phenomenology of SMIIIA, not *the* phenomenology of SMIIIA. While

⁶⁹ Høffding, *A Phenomenology of Musical Absorption*, 26-27.

I believe that my work makes significant advances, it remains provisional—a stage in an evolving enquiry always open to further refinement and revision.

Further, it must be stressed that the scope of this undertaking is necessarily defined by its “radically situated” nature, whereby the embodied, embedded, and enactive particulars of the case study are of constitutive significance.⁷⁰ As Van Dijk and Rietveld note:

As a philosophy of the particular, radically situated approaches should not contend in a general characterization of imagination. The details of our engagement matter in each particular case.⁷¹

Consequently, unlike approaches that subsume an array of situated experiences—from ear worms to musical hallucinations to notational audiation—under a unified label such as “musical imagery,” this approach suggests that contextual specificity is paramount. The generalisability of findings is therefore fundamentally constrained by the specific context at hand. While I do consider many of my findings to have certain generalisable characteristics, it must be stressed that any attempt to extend these results must exercise careful attention to the unique qualities of each situated case and proceed with sensitivity to their particulars.

With my methodological approach now clarified, the following chapter turns to the first round of findings from this inquiry, specifically an identification of participants’ initial attitudes toward the phenomenon of SMIII A. Although these attitudes are ultimately bracketed in the preceding analysis, they provide essential context for understanding the diversity of rich descriptions found in the chapters that follow.

⁷⁰ Van Dijk and Rietveld, "Situating imagination."

⁷¹ Van Dijk and Rietveld, "Situating imagination," 457.

3. Participant Attitudes

While participants in this study all meet the selection criteria of expert improvising double bassists, each came to the interview with distinctive and varied preconceptions about the nature of the improvisational process. As these attitudes fundamentally shape the ways participants described their own creative practice, it is essential to identify and clarify these stances at the outset. As will become evident in the following chapters, in many cases the detailed descriptions participants later provided did not always align with their initial theories. For this reason, these attitudes are ultimately *bracketed* in favour of concrete experiential descriptions. This approach is not intended to undermine the veridicality of these reports. Rather, it demonstrates a methodological commitment to distinguishing beliefs and theories from concrete descriptions of lived experience.

Many of the participants' initial interpretations of the phrase "playing what you hear" varied widely. Some, like B, conceptualised the phenomenon in terms suggestive of the *Mind* → *Body* → *World account of improvisational process* (MBW), and believed that this was an accurate portrayal of their creative process at its best:

B: ["Playing what you hear"] means being able to play, you know, to put on your instrument the melodies that you hear in your head. You know, the music in your head, you're able to translate it onto an instrument. [...] Well, transmit whatever you can hear in your head—melody—to your instrument immediately, basically.

B's account, then, reflects a generally positive and accepting stance towards the phrase "playing what you hear," interpreted as an experience of mental pre-hearing, and taken to accurately reflect the nature of their personal experience.

However, others expressed a more sceptical sentiment. Some agreed that "playing what you hear" is indeed best understood as an act of mental pre-hearing but felt this process

was ideally to be avoided. For them, “pre-hearing” was interpreted as a kind of intentionally constructed pre-conception, and such explicit predictive processes were believed to compromise the performer’s ability to be “driven by the moment”—a quality highly valued by all participants. For example:

C: Ah, I’ve never thought much about “pre-hearing” stuff really. [...] I mean, you can pre-hear everything, but that’s kind of presumptuous in a sense because it also comes under the heading of pre-conceptions. [...] [And] as I’ve got older, I realise that the *best* music, and the *best* that you play, is where you can leave any kind of pre-conception behind. And so, you get onto the stage with no agenda musically. And I mean in a micro-sense. [...] So, for me, when I’m playing now [...] I’ve started to actually play how I really felt I wanted to play. Not all the time. It’s very allusive, as you know. But there were more moments, or longer periods of time, when I felt that I was actually free to just express myself. But they certainly weren’t pre-empting anything. Any pre-conceptions or any kind of agenda. They were driven by the moment. And that’s a really good place to be.

Consistent with such a sceptical understanding, other participants interpreted “playing what you hear” not only as a “pre-conception” *qua* prediction but also in the sense of being explicitly pre-prepared. Under this interpretation, the process was understood as lacking the spontaneity and/or nuanced context sensitivity so desired by all participants. For example:

J: I think that [“playing what you hear”] comes down to that pre-hearing thing. [...] So, for example when you’re hearing the harmonic structure of a 2-5-1 chord sequence and then, because we all went to jazz school, you “hear” certain lines that will work through that and there are options, there’s more than one variation. And so, you’re “pre-hearing” what will work, and then you play it. So, “playing what you hear.” But I’m much more interested in playing what I don’t hear.

Here, “playing what you hear” is framed in familiar MBW terms, involving pre-learned phrases or licks. Yet, as the final phrase indicates, J regarded this not as best practice but, like C, as a problematic technique to be avoided. This stance was shared by M:

M: I’m not “playing what I hear” when I’m playing how I really want to play.

Because I feel like the things that I know that I “hear” are things that I know what I’m doing. And if I want to be really spontaneous, I actually don’t know what they sound like.

These examples reflect a cross-section of participants whose understanding of “playing what you hear” essentially conforms to a traditional MBW account of mental pre-hearing, although this phenomenon is valued in quite different ways. For B, such an experience reflects their ideal practice; however, for C, J, and M, the same experience indicates a problematic lack of spontaneity and/or being “driven by the moment.”

Another attitude altogether was found among those participants who expressed cynicism towards the phrase “playing what you hear” and its implications. Some voiced concerns that common-sense mental pre-hearing accounts may simply be a misinterpretation or problematic construct:

H: The trap is thinking [...] “You just got to hear it man before you play it.” [...] The message can be interpreted as your whole solo comes to you as this clear musical thing inside your head before you play it and that’s... I don’t think that’s possible. But, for somebody like me who was worried about that stuff early on, that’s what I thought people were doing. So, you know, I’m not sure it’s that cut and dry.

In distinction to the sceptical stances above, H here calls into question whether mental pre-hearing is an accurate way to understand the phenomenon in question, suggesting that such an interpretation may form an unhelpful “trap” ideally to be avoided.

Similarly, others considered formulations such as “pre-hearing” or “playing what you hear” to be specious verbal glosses: unsuccessful attempts to describe a fundamentally different phenomenon. For example:

T: I think language connected to music is really hard. And I think articulating what you do as an improviser specifically is really difficult. And I feel like that phrase [i.e., “playing what you hear”] is probably a poor attempt to describe something. But something that’s really hard. Like, how do you say—? I would almost say, “I play what I imagine,” to that, you know? And then I accept the outcome of that attempt and work with what’s on the table, you know? Work with what’s in reality. It’s like, going, “I’m having a thought. If I say it, then I’ll be able to judge it.” [...] So, “I play what I hear.” Yeah, I mean, it doesn’t strike me as a particularly deep statement worthy of a profound investigation.

For T, the language of “playing what you hear” is merely a “poor attempt” to describe the improvisational process, preferring the language of “playing what I imagine.”¹

Yet, even if these participants are justified in their cynicism, such accounts also suggest that there remains a positive phenomenon in need of explanation. For example, as participants transitioned from theorising to description, they would often highlight a qualitative difference between detached acts of imagination and examples “when the hands get involved” (E)—that is, involving the instrument and performance. Consider the following account:

L: You’re sort of asking me to... break down the process involved of “hearing” a sound in one’s head. And that’s really hard to [do], you know? But also tantalising

¹ While this distinction might seem trivial, one can already appreciate how these differing stances deeply influence not only the choice of language employed by participants throughout the interviews, but even the fundamental nature of the phenomenon that participants consider to be under investigation.

and, you know, quite exciting. That's really hard to... to analyse. Like, for instance, on the most basic level, if I just sit here now [**sings four notes**] I think that's basically the four strings of the bass. I think that first note that I hit was G. So, if we're talking pure pitch, I do think I have a sense just sitting in my head [even though] I don't have perfect pitch. I think when there's no other sound around me, I can "hear." [...] And yet, when there's a lot of chaos going on around me, I can't really "hear" pitch very well at all. You know, I can't. [...] And, and if someone said, "Are you 'hearing' a lot of ideas in your head right now?" I'd go, well, no. There's so much coming in from all sides that that's kind of... that's kind of obliterated whatever I might be "hearing" in my head.

L's description here appears to suggest a fundamental distinction between detachedly imagining pitches in a quiet room versus their experience when immersed in the "chaos" of collective improvised performance.

Similarly, other participants describe a qualitative difference between the experience of "just playing" and performance experiences involving some version of SMIIIA. For example:

E: The pleasure of actually playing, rather than just audiating, is that [...] it somehow offloads the cognitive task of like *trying* to audiate [...] some kind of imaginary sound in your head, and it just *is* a sound. And... I don't know, it's just more pleasurable to hear it... in real life. [...] But... This is weird, but it's like, I think there's a difference between... *just* playing [...], and then, like, consciously quote unquote "singing in your head." [...] I think there's a difference between those two things. [...] It's funny, but the best way I can think to describe it is that... it's like the sound of my bass is a bit... *augmented*. [...] I think maybe the best way I can describe it is it's just like an extra layer. [...] And it is still—It is the sound of the bass. But I'm—It's like I'm

consciously adding this ingredient to it. Like, it's not always there [...]. But when it's there, it also makes playing a lot more enjoyable. [...] It's really hard to [...] describe it other than... it feels like... I'm singing at the same time as playing. But I'm not using my voice.

While there are many ways such a description could be interpreted, with multiple possible readings leading to MBW, closely examining key details and missing contextual information from these initial descriptions can lead to an alternative reading. For example, despite the language of an “*extra* layer,” E clarifies that this phenomenon is not experienced as an “extra” phantom sound source, sounding in in a separate imaginary realm (“No, I don't think it is two separate things”). Rather, these acts are experienced as enmeshed with the music itself, forming a unity with the sound of the bass and the unfolding musical situation.

A similar sentiment is expressed by H, who compares their experience of audiation in the flow of improvised performance with that of practicing audiation exercises:

H: In a musical setting it's a bit more... it might be part of the line. [...] So, like, it might just be the next note that just sort of pops into my head in a certain way and that—It's not like I'm hearing, “Boom” [**sings a note like a bass**] like [a separate] sound because that would get in the way of the notes I'm on. It just sort of... it's happening in real time. At the same time, I should say. [...] It's like, I'm going to get to that note, and I do know what it's going to sound like when I play it. It's sort of more like that.

As the following chapters reveal, while much of the *language* associated with SMIII A often suggests a narrow MBW-style process whereby phenomenal mental representations of sound are “translated” (B) into musical action (i.e., mental pre-hearing), this commonsense definition—widely adopted in the literature—is almost certainly a fallacious

oversimplification. This is significant because, as mentioned in the previous chapter (p. 16), such analogical short-hands can readily solidify into stronger homological claims, with important implications for how these reports are interpreted and applied in educational, musicological, neurological, and cognitive psychological domains. Thus, the stakes of this oversimplification are not merely terminological; it may also fundamentally influence our interdisciplinary understanding of musical cognition and improvisational processes at large. Yet, as these preliminary reports also reveal, there remains a positive phenomenon in need of description, with even the most sceptical participants suggesting that their improvisational process involves experiences of SMIIIA, broadly construed.

We must therefore adopt a *wide* reading of SMIIIA, where the language of “playing what you hear” or “mental pre-hearing” is employed by practitioners as a verbal generalisation intended to describe however the next sonorous musical idea “gets to you.” As H continues:

H: I think that [i.e., “playing what you hear”] means something different to everyone. [...] And I’ve thought about what that means for years and years and years. [...] Reading *Downbeat Magazine* from when I was in [school], you know? “You just got to ‘hear’ it, man!” It’s like, well, what does that actually mean? You know? It’s freaking me out. I’m not “hearing” anything. So, I guess however your next idea kind of comes to you is probably one’s version of “hearing” it. [...] There could be many versions of how people do it. I think for me it’s a combination of, I think I “hear”—I *hear? Perceive?* A rhythmic idea first. Sometimes it’s like it’s not always very clear what the next note is. Sometimes that does come to me, like, very clearly. ... So, however you “hear”—I guess however your idea gets to you and then how you get it out is everyone’s version of “hearing.”

In the remainder of this thesis, I unpack the various modes in which SMIIIA are “given” to improvising double bassists in the act of performance, exploring some of the invariant structures and conditions of possibility constituting these phenomena. As the preceding quotes suggest, capturing the nature of this experience will be far more complex than a narrow focus on phenomenal mental representations of sound. By repeatedly examining the experience of improvising musicians as they press into possibilities at the creative frontier, I here sketch out a phenomenology of SMIIIA.

4. Volitional Pre-Hearing (VPH)

In this chapter, I examine those participant reports most indicative of what I have termed the *Mind* → *Body* → *World* (MBW) account of *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIA), namely, *Volitional Pre-Hearing* (VPH). While only reported by a subset of participants, these examples characterise an intentional process of forming sonorous musical ideas prior to performance on the instrument—a phenomenon reportedly “pre-heard” “in the head” of the performer. Exemplifying this phenomenon, S notes:

S: I just hear a sound in my head, and the sound in my head would be, you know, ten seconds forward of that moment where I’m playing that sound in that context. [...] I can hear in my head how, you know, an imaginary combination of, like, “It’ll sound like this with the saxophone.” [...] I guess, yeah, what drives it the most is, I can imagine sound that comes and then trying my best to create or realise that imagined sound very quickly afterwards.

In what follows, I parse a cross-section of such descriptions, teasing out key phenomenological and contextual details. Through this process, a well-established conclusion emerges: the most pronounced examples of VPH are typically coupled with an experience of the *inner voice* and/or *imagined playing* of the instrument, both fundamentally types of *imagined movement*. Taking up Maurice Merleau-Ponty’s insight that “speech accomplishes thought” and building on Gallagher’s enactivist account of imagination as “embodied doing,” I propose that these examples are best understood as forms of *embodied action*, rather than experiences of sonorous mental representations heard in “the mind’s ear.”¹ I also observe that

¹ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 183; Shaun Gallagher, *Enactivist Interventions: Rethinking the Mind*, First edition. ed. (Oxford: Oxford University Press, 2017), 187-212.

the clearest experiences of VPH occur predominantly during moments of explicit preparation, planning and deliberation, typically when practitioners are not actually playing. Without downplaying the importance of these experiences, I suggest that they represent a narrow and limit-case manifestation of SMIIIA, a point underscored by the qualitative shift participants describe “when the hands get involved” in real-time improvisation: the focus of my next chapter. Although many of the ideas presented in this chapter have already been widely recognised, I restate and reframe them here as foundational steps toward the more radical rethinking of SMIIIA developed in the remainder of my thesis.

Sing! Sing! Sing!

Of the subset of participants who reported VPH, it was unanimously agreed that there is something uniquely salient about the “audiation” of pitch which makes it an especially vivid experience.² On H’s interpretation, the notion of “audiation” is essentially a pitch-centric phenomenon, as they explain: “audiation and stuff, it’s all focused on *pitch* and getting *pitch*, and ‘hearing’ *notes*, right?” Echoing this interpretation, E notes a particularly vivid capacity to audiate pitches with what is described as a “one-to one” relationship with pitches produced with the instrument—an experience here contrasted with more contingent textural playing techniques:

E: I strongly think, in my experience, the experience of audiating pitches is unique compared to... compared to anything else that doesn’t fit into a harmonic rubric, [for example] purely movement-led playing [...] [With pitches] it’s more of like a one-to-one relationship of audiation and performance. Whereas, with textures... it’s less so.

² In the current chapter, VPH and “audiation” will be used interchangeably. While I acknowledge that this choice goes beyond Edwin Gordon’s original notion of “audiation”—simply, “the ability to hear and to understand music for which the sound is not physically present or may never have been physically present”—this decision is based on my participant’s use of the term and is here preserved for consistency with their quotes (Edwin E. Gordon, *Preparatory Audiation, Audiation, and Music Learning Theory: A Handbook of a Comprehensive Music Learning Sequence* (Chicago, IL: GIA Publications, 2001), 3.).

The vividness of *pitch-based audiation* was commonly reported amongst those who made the strongest VPH claims. Despite this consistency, there was considerable variation regarding the timbral qualities of these imagined “pitches.” Some, like S, describe their VPH as “bass specific”—“pretty much identical to what it will sound like when I do it on the bass”—suggesting that pitch-based audiation manifests for some practitioners replete with a realistic range of what Nina Kraus terms “sound ingredients.”³

However, this was not always the case. Another subset of participants described their pitch-based audiation in less “realistic” terms, suggesting an experience involving more abstract audibilia. For example, when asked to elaborate on the specific qualities of their VPH, E describes a kind of timbre-less “pitch set”:

E: It doesn't even feel like it has a timbre yet. It's like a pitch set. So, it's like, pre-voiced. So, it's like words written. But they're not written. But—It's like data which tells you what the sound is but it's not the sound yet.

Similarly, H describes pitch-based audiation as a “dull sounding” and vaguely-articulated humming or vibration:

H: It's just a long sound. Almost like a sinewave or something. It's not even the bass. Although it might have that feeling of the vibration in it. But it's definitely not a human voice. [...] It's just... [**pauses as if listening**] It's not—It doesn't have a front of the note or an end of the note. It's just kind of ringing. It's a bit dull. Dull sounding

Despite this variety in timbral quality, participants most frequently reported experiencing pitch-based audiation in conjunction with rhythm—what can be described as *melodic audiation*, which, like purely pitch-based audiation, can align with greater or lesser fidelity to the contours of melodies produced on the bass. For example, B describes VPH as,

³ Nina Kraus, *Of Sound Mind: How our brain Constructs a Meaningful Sonic World* (MIT Press, 2021).

essentially, an ability to “transmit whatever you can hear in your head—*melody*—to your instrument” (emphasis added), likening the process to recollecting melodies and “translating” them onto his instrument:

B: I say to people [...] “Okay, can you play, like, *Twinkle Twinkle Little Star*?” [...] Like, [snaps fingers] as soon as you say that they’re “hearing” *Twinkle Twinkle Little Star* in their head, aren’t they? They’re starting to sing it in their head. [...] To me that’s it. That’s “hearing” it and being able to go bang onto your instrument. [...] I reckon jazz is really like that in a lot of ways. [...] If you’re an improviser and you think you can “play what you hear,” then you’d better be able to play what you can hear, which is any melody.

Given the melody-centric nature of these experiences, it should be unsurprising, then, that participants tended to associate them with more melody-based forms of improvisation: for example, with standard tonal jazz. As M notes:

M: In a jazz setting, say, if I’m doing [*jazz club X*], I think I’m playing what I “hear” because I’m attempting to play in a style. [...] I suppose because what I “hear”—What I “hear” is melodic, right? [...] So, I feel like if I’m playing in a melodic way where mostly I am interested in melody—so, maybe note pitch and rhythm—if that’s what I’m thinking about, then I have an ability to really “hear” that... in terms of singing it to myself in my head. Actually, I often sing it out loud. [...] I’ll talk about this in terms of, like, “singing” something.

M’s description here speaks to another common characteristic of melodic audiation: its experienced *sing-ability*. This vocal dimension is significant because it reveals how melodic audiation is typically intertwined with the musician’s embodied familiarity with vocalisation. The melodic contours that emerge in the performer’s imagination are not abstract

representations of pitch a rhythm, but *singable* phrases that typically feel natural to the voice, suggesting that, for many, melodic audiation tends to be fundamentally a sung phenomenon (although other forms, discussed below, are also possible).

To illustrate this point, M contrasts an experience of melodic audiation with that of a non-melodic, textural playing technique:

M: I just so often spend my time on the double bass when I'm improvising with people doing, like, a circular bow motion to go in between the bridge sound and back up the string sound. And it's beautifully—It's textured and it's rhythmic and it's all those things. But I couldn't *sing* it to you... I couldn't. I couldn't, like, *sing* the sound to you. I have a notion of what it sounds like. But there's so many variables in the sound depending on the pressure and... But [**referring to the footage**] I could sing you the bassline I'm playing there.

While only a sub-set of participants reported explicitly vocalising while playing, all participants who reported melodic audiation at some point described these experiences as “linked to an internal voice” (E)—hereafter, *inner voice*—variously described as: “the voice that we ‘hear’ in our head” (L), “singing it in my head” (S), “feel[ing] like I’m singing” (B), and, in one case, even as potentially constrained “within the range of what you can sing” (H).⁴

This connection between the voice—whether “outer” or “inner”—and melodic audiation is a commonly observed relation in the context of jazz improvisation. Recall, for example, our discussion of Sudnow (pp. 12-14), in which he describes “pre-hearing” as a

⁴ The term “inner voice” is drawn directly from participants’ own descriptions of their experience. Its use here does not imply that such a voice is literally located ‘inside’ them, nor does it subscribe to any strict inner–outer dichotomy. For discussion, see Daniel A. Schmicking, “Auditory Imagination: A Phenomenological Perspective,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019), 92-94.

“manual-vocallic unity” or “a meshing of voice and fingers.”⁵ Similarly, in a subsection of *Thinking in Jazz* titled “The Singing Mind,” Berliner observes:

Experts use the metaphor of singing to elucidate their own experiences with this mode of conception [i.e., pre-hearing]. According to Lee Konitz, “Improvising is a singing, whistling phenomenon when it’s really happening.” [...] Mutt Carey elaborates, “When I’m improvising, I’m singing in my mind. I sing what I feel and then try to reproduce it on the horn.” [...] [E]arly New Orleans musicians cautioned, “If you can’t sing it, you can’t play it” [suggesting] [i]t may be possible to perform phrases on an instrument mechanically [...] without pre-hearing the sounds for which they stand, but singing requires that artists [...] grasp ideas firmly in their imaginations.⁶

The claim, therefore, that some of the most vividly reported forms of VPH—namely, pitches and/or rhythms which can bear an isomorphic relationship to the melodic and/or rhythmic contours produced by the instrument—are often experienced as linked with the voice should be uncontroversial. However, before I explore the implications of this well-documented observation any further, there are additional varieties of VPH that we must first explore.

Imagined Playing

Another common way in which my participants reported VPH was through imaginative engagement with their instrument (hereafter *imagined playing*). In these cases, participants describe how “imagining the physical act” of performing certain playing techniques can “put the sound into their head” (H), although there is mounting ambiguity as to whether “hearing” is in fact the best characterisation of such experiences.

⁵ David Sudnow, *Ways of the Hand: A Rewritten Account* (Cambridge, Mass: MIT Press, 2001), 62.

⁶ Paul F. Berliner, *Thinking in Jazz: The Infinite Art of Improvisation*, Chicago studies in ethnomusicology, (Chicago: University of Chicago Press, 1994), 180-181.

For example, H, reflecting on an alternative experience of pitch-based audiation, observes:

H: I'm definitely getting a *feeling* of what that note might be. [...] There might be physically imagining that. Or trying to recollect that... that feeling, that vibration, as well as "hearing"—*hearing?*—a sound [...]. And imagining that physical act puts the sound into [your] head. Because it's all—It's related.

H here describes a multimodal experience of imagined playing, whereby VPH emerges from "physically imagining" the act of playing certain pitches. As this quote suggests, this experience offers an alternative way in which the participants can VPH pitches and melodies without necessarily involving the inner voice.

E provides a further example showing how melodic audiation can emerge through a complex interplay of visual, tactile, and proprioceptive modalities which can unfold in the absence of an "internal voice." E explains:

E: I guess I'm not sure if that's the internal voice or not. [...] Like, I "hear" that note and I'm, like, that's E, B, G [**mimes playing these notes on an invisible bass**]. [...] E flat is like that [**mimes playing**], it's like the open D for a second [**mimes taking fingers off string**] and then like that [**closes fingers**]. So, that's in terms of the pitch. [...] What would you call it? Tactile? It's spatial. [...] A spatial which is inherently visual. But not eye visual. Like, *movement* visual.

For E, such instances of VPH are tightly linked to the spatial and physical geography of the double bass fingerboard, even when only imaginatively playing, resulting in an experience of simultaneously "seeing," "feeling," and "hearing" notes on the bass. This description highlights how VPH is experienced as a multimodal phenomenon—inseparable from a tactile, kinaesthetic, visual, and spatial sense of the instrument. Here, VPH is not just

“hearing in the head,” but is enacted through a felt sense of movement and location on the bass, described as “movement visual.”

Beyond illustrating an alternative technique for audiating melodies, imagined playing also affords the VPH of musical sounds associated with more complex, textural playing techniques. M explains:

M: Where I’m focusing on other things rather than melody and rhythm, so where I’m focusing on things like texture, [...] it’s more of a feeling in the body. I know what it feels like to do it. [...] Through practice, I know what it sounds like. [...] I’m “hearing” a memory of what it sounded like in practice. ... So, it’s a construct. It’s a cognitive construct of what I’ve heard when I’ve been doing it before. [...] [But] it’s not [like] a memory of another instrument or a memory of someone else doing something. It’s very much like a construct of deeply embodied sound. [...] Like I’m “hearing” what I have practiced before.

M’s account highlights how imagined playing—which manifests as a bodily feeling rather than as an abstract mental sound—enables the VPH of sounds associated with more contingent, textural playing techniques. This description demonstrates the complex entanglement between VPH and what Sheets-Johnstone terms “kinesthetic memory.”⁷ Musical “sounds” that arise in VPH are not mere mental representations, but embodied experiences deeply rooted in the performer’s history of physically engaging with their instrument.

Despite M’s initial description of “a cognitive construct of what I’ve heard when I’ve been doing it before,” such memory does not appear to be the simple recall of “discrete

⁷ Maxine Sheets-Johnstone, “Kinesthetic Memory: Further Critical Reflections and Constructive Analyses,” in *Body Memory, Metaphor and Movement*, ed. Sabine Koch et al. (John Benjamins Publishing Company, 2012).

patterns” stored in the performer’s mental “repertory storehouses,” as Berliner has framed it.⁸ Rather than repeating pre-formed routines—a phenomenon M refers to below using the term “habit”—this form of memory is experienced as a flexible and adaptive “way of moving”; a “deeply embodied” action unfolding as if for the first time:

M: Okay, so “habit” is, like, I play the same thing that I might’ve done yesterday in my practice. Whereas I feel like now I work on things [...] to try and get as flexible with that as possible so that it sort of doesn’t matter what my other hand’s doing. And in that way, I can improvise with it in the moment. [...] It’s flexible for the moment. [...] It’s a way of moving and... Yeah, it’s like a—I feel like I’m just working on body skills. [...] So, then I feel like I’ve got quite a lot of flexibility with it [...] because I *practice* the flexibility of it.

M here notes that while the recall of “habits”—narrowly construed—might involve simply repeating actions from previous practice sessions, the kind of “memory” being referred to in the previous quote involves a particular context sensitivity. This flexibility is not accidental but intentionally cultivated: M describes deliberately practicing in such a way that “remembering” certain techniques in improvisation is less a matter of mere repetition and more, as Jan Schacher puts it, “the kinesthetic memory and physical experience of the perceptual consequences of similar earlier actions.”⁹ This is all to caution against misunderstanding M’s description as referring to the rote recall of static sets of motor routines.

Such a kinaesthetic memory results in a more coarse-grained sense of, in E’s words, “knowing the effect”—a kind of embodied knowing still described as an experience of VPH.

⁸ Berliner, *Thinking in Jazz*, 102.

⁹ Jan Schacher, “Motor Imagery in Perception and Performance of Sound and Music,” in *The Oxford Handbook of Sound and Imagination*, ed. Jan Schacher et al., Oxford Handbooks (New York, NY: Oxford University Press, 2019), 65.

Such experiences appear to be less a matter of pre-forming precise mental representations of sounds, and rather a broader affective anticipation of the sensory and sonic outcomes of particular playing techniques:

E: I think actually with these techniques I am still... I am still audiating in the sense [...] of quote, unquote “knowing the effect,” [which] is also maybe the same kind of way of saying audiating. In the sense that I *know*... [But] it’s hard, because in a jazz context, if I audiate a line, then it comes out very close to what I’m imagining. But if I audiate, like, a tremolo sound, or like the pulse like the finger tapping [**drums fingertips on forearm**], it’s [...] going to be much further away from like a one-to-one relationship of what I’m audiating and what comes out. Because there’s... just more *contingency* in the physical execution of [**wiggles fingers**] [...] than, like, a specific melody. But I [still] think that’s an imaginative process.

E’s account highlights the complexity of VPH in contexts where certain playing techniques introduce higher degrees of contingency. While simple melodic audiation may yield a close correspondence between VPH and performed sound, more textural or gestural techniques depend on a more coarse-grained embodied sense of “knowing the effect.” In these cases, VPH involves anticipating the character or impact of the sound rather than pre-forming its precise details, demonstrating how the imagined playing of contingency-laced textural techniques can lead to an experience of VPH.

Imagined Movement

Here, it is important to observe a connection between imagined playing and melodic audiation as sung with the inner voice. Just as imagined playing is grounded in a history of real-world musical engagement—“from study and listening to music and practicing scales and arpeggios and patterns and playing through etudes and transcribing and everything that

we do as musicians” (B)—so too is the inner voice fundamentally shaped by the performer’s past embodied engagement with music. As L explains, far from being some innate or fixed expressive power, the inner voice is experienced as being fundamentally shaped by past engagements with singing, playing, listening to, and constructing melodies:

L: I think that the [inner] voice is very much a consequence of the things that we’ve been working on. [...] So, somewhere along the line, I think maybe just dealing with the nuts and bolts of playing the bass, there were enough interesting challenges confronting me that I had to find solutions to in the heat of the moment and then some of those solutions seemed to work, that, I guess, some kind of identity was forming. [...] The more I work on melody, think about melody, compose melodies, sing melodies, learn tunes, I find the more melody is rattling around in my head.

Yet L also notes that this was not always the case. In fact, in their early development as a musician, the absence of an inner musical voice became a genuine source of concern. L recalls wondering: “Is there something wrong with me? I don’t really ‘hear’ any music [...] in terms of imagining where the music can go.” This worry eventually led L to seek advice from a teacher:

L: I remember in an improv class [...] I said [to the teacher], “What do you do if you actually don’t ‘hear’ anything in your head?” [laughs] And [my teacher] was a bit flummoxed by that. He was like, “I always ‘hear’ something in my head.” And maybe I, in the conversation, then said, “Or, what do you play if there’s nothing that you *want* to play?” [...] It was a genuine question at the time. Like, I still hadn’t quite got my head around how to access what it was that I *wanted* to play in a given moment and, if anything, I felt that if I dug into myself to find out what I wanted to play, I wasn’t actually finding a whole lot there because it hadn’t been awakened yet.

While L's teacher could not give a straight-forward answer—indeed, they did not seem to fully comprehend the question—L later experienced that “somewhere along the line, I think just the magic of making music, the penny dropped, and I found that that no longer became an issue.” This progression—from a conspicuous absence of an inner voice, through a period of struggle and questioning, and finally to its gradual “awakening” through “the magic of making music”—illustrates how, for L, the inner voice emerges through a gradual process that phenomenologists term *sedimentation*.¹⁰ Sedimentation refers to the gradual formation of a style of comportment shaped through embodied and affective histories of movement within meaningful domains of practice.¹¹ In musical contexts, this is not only shaped by one's interactions with material environmental affordances, but also with what Bergamin terms “provisos” of a particular musical practice (see p. 36) that both enable and delimit a musical “*praxis*” understood as “a holistic, lived sense-making that is expressive of its practitioners' ‘form-of-life.’”¹² This suggests that, as musicians repeatedly encounter musical situations—practicing, composing, singing, listening—they gradually sediment a musical sensibility that is, as L's account reveals, experienced as singable with the inner voice. In this way, the inner voice, like imagined playing, is not separate from bodily experience but is formed through a performer's embodied history of engaging with the affordances and provisos of musical praxis.

It is important to also recognise that, according to my participants, the inner voice and imagined playing are not mutually exclusive and often overlap in complex ways. As M clarifies: “I think that both things are happening in parallel.” That is, melodic audiation as

¹⁰ See for example: Merleau-Ponty, *Phenomenology of Perception*, 131; 143.

¹¹ Shaun Gallagher, “Habit, Sedimentation and Institutions,” *Cogent arts & humanities* 12, no. 1 (2025), <https://doi.org/10.1080/23311983.2025.2480879>; Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 69; 157-58.

¹² Joshua A. Bergamin, “Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation,” *Phenomenology and the Cognitive Sciences* (2024), 4-6; 2, <https://doi.org/10.1007/s11097-024-09974-x>.

sung with the inner voice—with its clear match between the imagined and performed sound—and the more complex or textural gestures of imagined playing can operate simultaneously as intertwined aspects of musical thought.

In fact, while my discussion thus far might imply a clear distinction between the inner voice and imagined playing, I suggest that both can be understood as manifestations of a more fundamental phenomenon, namely: imagined movement. In what follows, I use imagined movement as an umbrella term encompassing the various movement-based ways participants engage with musical possibilities in VPH—whether involving the inner voice, simulated instrumental action, or other forms of imagined kinaesthetic musical engagement.

None of these observations should be surprising. That VPH is multimodal, engaging auditory, motor, visual, and kinaesthetic processes, grounded in a sedimented history of hands-on practical experience, is a now widely recognised and well-documented observation in the literature on musical imagery.¹³ For example, Schacher notes:

The body accumulates knowledge about movements, dynamics and forces and, in the case of traditional musical instruments, links it to the perception, the adaptation, and the control of the desired sound-qualities, thus dealing with *movement-sound conjunctions* rather than movement and sound separately. This embodied knowledge encompasses the full range of the body's motion and audition control.¹⁴

Schacher's "movement-sound conjunctions" appear to closely parallel what the enactivist paradigm of cognition terms "sensorimotor contingencies": the law-like dependencies

¹³ As noted for example in Bailes, Carvalho, Duby, Hubbard, Wöllner, and Schacher's individual contributions to Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, *The Oxford Handbook of Sound and Imagination: Volume 1 & 2*, Oxford Handbooks, (New York, NY: Oxford University Press, 2019). See also: Arnie Cox, *Music and Embodied Cognition: Listening, Moving, Feeling, and Thinking*, 1 ed., Musical Meaning and Interpretation, (Bloomington: Indiana University Press, 2016) and Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*.

¹⁴ Schacher, "Motor Imagery in Perception and Performance of Sound and Music," 65.

between action and sensation that give rise to particular perceptual experiences.¹⁵ For my participants, this means that the perception, memory, and/or imagination of sounds in improvised performance are tightly coupled with an embodied familiarity with producing those sounds. Bailes similarly identifies “[e]mbodied, real-world experience” as an “important pre-requisite” for the “ability to simulate music in imagination.” Such experiences, she explains, may involve “many thousands of hours of individual practice on a musical instrument,” or simply “our experience of being sung to as infants.”¹⁶ These examples represent just a small sample of a much broader scholarly consensus and illustrate that the preliminary insights from my data—that VPH is intimately linked with *imagined movement*, itself grounded in a sedimented history of embodied musical experience—are neither new nor novel.

However, there remains some ambiguity as to precisely how the notion of imagined movements should be understood. One interpretation situates imagined movements within a representational framework.¹⁷ On this reading, VPH may be understood as a kind of “reasoning about absent, nonexistent, or counterfactual states of affairs”—that is, “thoughts about the potential outcomes of imagined actions”—making it an exemplar of what Andy Clark terms a “representation-hungry problem.”¹⁸ In these terms, musical imagery may likewise be understood as a multimodal process, incorporating visual, kinaesthetic, and affective information; however the imagined movements constituting VPH would here be

¹⁵ J. Kevin O'Regan and A. Noë, "A Sensorimotor Account of Vision and Visual Consciousness," *The Behavioral and Brain Sciences* 24, no. 5 (2001), <https://doi.org/10.1017/S0140525X01000115>.

¹⁶ Bailes, "Empirical Musical Imagery beyond the “Mind’s Ear”," 448.

¹⁷ See, for example, Jeff Pressing, "Improvisation: Methods and Models," in *Generative Processes in Music* (Oxford: Oxford University Press, 2001); Peter E. Keller, "Mental Imagery in Music Performance: Underlying Mechanisms and Potential Benefits," *Annals of the New York Academy of Sciences* 1252, no. 1 (2012), <https://doi.org/10.1111/j.1749-6632.2011.06439.x>; Clemens Wöllner, "Anticipated Sonic Actions and Sounds in Performance," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard (New York, NY: Oxford University Press, 2019).

¹⁸ Andy Clark, *Being There: Putting Brain, Body, and World Together Again* (London, England: The MIT Press, 1997), 167.

understood as grounded in mental representations of the body. As Gallagher explains, even within embodied frameworks, these “body-formatted (neural) representations”—also known as *B-Formats*—are understood as simulated *in the brain* rather than enacted *by the body* itself.¹⁹

However, I take my participants’ descriptions as suggestive of a stronger claim: that VPH is a fundamentally *movement-based* phenomenon. This enactivist interpretation, developed further in the second half of this chapter, goes beyond representational accounts by proposing that the movements of the body itself—whether overt or inhibited—play a constitutive role in VPH. On this view, imagined movement in improvised musical performance is not merely a mental simulation or neural representation of action, but the enactment of real, embodied processes.²⁰ These processes are embodied not only because they are shaped by a performer’s sedimented history of physical engagement, but also—as the examples below will demonstrate—because they often manifest kinetically in a variety of subtle ways, revealing a deep entanglement of perception, movement, memory, and imagination.

Before turning to the participant accounts that support this robustly embodied hypothesis, I will first outline some of the key theoretical insights that underpin this interpretation. Drawing on Merleau-Ponty’s claim that “speech accomplishes thought”—a

¹⁹ Gallagher, *Enactivist Interventions*, 28-29.

²⁰ Gallagher, *Enactivist Interventions*, 40. Indeed, this is in part why the term “imagined movement” is preferred here to “motor imagery.” Following Duby, this terminological shift can help to foreground the non-representational, embodied nature of imagined movement. He writes: “To resolve the apparent category mistake implicit in terms such as “motor imagery” and “auditory imagery,” one might consider the thought experiment of inverting such terms so reframe “motor imagery” simply as imagined movement, and by corollary auditory imagery as imagined sound. Far from mere verbal sleight of hand, this exercise restores two perspectives: first, that imagining movement may not require intermediary representations to be re-implemented in action, and second that the disciplinary procedure of considering perceptual systems in isolation of necessity overlooks their multimodal integration in complex organisms.” Marc Duby, “Affordances in Real, Virtual, and Imaginary Musical Performance,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019).

theme Maxine Sheets-Johnstone develops in her account of “thinking in movement”—and Gallagher’s enactivist account of imagination as a kind of “embodied doing,” I develop a framework for understanding imagined movements as *embodied actions*, enacted with and through the body, setting the stage for the subsequent arguments developed in this thesis.²¹

“Accomplishing” Thought

Merleau-Ponty, in his seminal work *Phenomenology of Perception*, offers an influential account of the essentially embodied nature of our being-in-the-world. While I will return to several key concepts from his work throughout this thesis, I focus here on his chapter “The Body as Expression, and Speech,” and particularly on his now famous claim that “speech *accomplishes* thought” (emphasis added).²² Although much of Merleau-Ponty’s discussion in this chapter centres on linguistic expression, he extends the scope of his analysis to gesture more generally, including emotions and the “aesthetic expressions” of painting, acting, and musical performance.²³ This breadth suggests that his focus is less on language *per se*, and more on the fundamental way that the body “actualizes or accomplishes” thought in movement.²⁴ Thus, while many of the examples cited below refer specifically to acts of linguistic expression, they can be generalised to build an account of the gestures and movements of artistic thinking in improvised musical performance and, as I will argue, lead us to an alternative understanding of VPH.²⁵

Merleau-Ponty’s position emerges from his criticism of traditional psychological explanations of speech. He rejects reductive accounts treating language as a pure “motor

²¹ Merleau-Ponty, *Phenomenology of Perception*, 183; Maxine Sheets-Johnstone, *Primacy of Movement: Expanded Second Edition* (Amsterdam: John Benjamins Publishing Company, 2011), 419-49; Gallagher, *Enactivist Interventions*, 193.

²² Merleau-Ponty, *Phenomenology of Perception*, 183.

²³ Merleau-Ponty, *Phenomenology of Perception*, 188-92.

²⁴ Merleau-Ponty, *Phenomenology of Perception*, 188.

²⁵ Exemplifying this generalisability, see: Shaun Gallagher, *How the Body Shapes the Mind* (Oxford: Clarendon, 2005), 121; Sheets-Johnstone, *Primacy of Movement*, 427-28; Shaun Gallagher, *Performance/Art: The Venetian Lectures* (Mimesis, 2021), 27.

phenomenon,” comprised of external physical chains of causality—implying, in his poetic terms, that “[m]an can speak in the way an electric lamp can become incandescent.”²⁶ He likewise rejects views that interpret speech as an “intellectual operation” which translates pre-formed thoughts from the mind into the world, such that the word becomes “an empty envelope” carrying pre-formed meanings, making language merely “an external accompaniment of thought.”²⁷ Instead, he argues that thoughts, their meanings, and their expressive manifestations are intertwined in the world. Contrary to theories that separate meaning from their specific manifestation in linguistic acts, Merleau-Ponty insists that speech acts possess an inherent “gestural sense,” arising not from pre-formed mental contents, but from the immanent signification of the expressive act itself.²⁸

He sets out from an analysis of how meaning emerges in language. Rather than words serving as arbitrary labels for pre-formed meanings, he argues that signification is generated through the gestural act of speaking words which themselves are inherently meaningful, thus transcending the shared presuppositions of the empiricist and intellectualist accounts of language “through the simple observation that *the word has a sense*.”²⁹ As he notes:

the sense of words must ultimately be induced by the words themselves, or more precisely their conceptual signification must be formed by drawing from a *gestural signification*, which itself is immanent in speech.³⁰

²⁶ Merleau-Ponty, *Phenomenology of Perception*, 200; 180.

²⁷ Merleau-Ponty, *Phenomenology of Perception*, 200; 182.

²⁸ Merleau-Ponty, *Phenomenology of Perception*, 193.

²⁹ Merleau-Ponty, *Phenomenology of Perception*, 182. It should be noted that Merleau-Ponty makes a distinction “between a *speaking speech* and a *spoken speech*” (p. 202), where the former designates “spontaneous,” “authentic” (p. 180), “improvised” (p. 185), or “originary speech” (p. 530) that “formulates for the first time” (p. 530), while the latter refers to “banal” or “secondary expression”—“speech about speech that makes up the usual basis of empirical language” (p. 530). While these two forms of speech are iteratively related, he claims that “[o]nly the first [i.e., speaking speech] is identical with thought” (530).

³⁰ Merleau-Ponty, *Phenomenology of Perception*, 184.

On this account, meaning, thoughts, and/or intentions are not mental representations that get “translated” into physical signs or movements.³¹ Instead, expressive movements participate in an embodied sense-making; the meaning of a speech act is, in Merleau-Ponty’s terms, “spread across the gesture itself.”³² To reiterate the central thesis here: “For the speaker, then, speech does not translate a ready-made thought; rather, speech accomplishes thought.”³³ The gesture does not point to a hidden thought; it *enacts* thought.

This embodied account of expression has further implications for how we understand the ways others perceive and interpret meaning in communicative exchanges (a topic I return to in Chapter 8). According to Merleau-Ponty, when we encounter another person’s speech act, we do not first observe a physical movement and then attempt to infer its hidden significance. Rather, “the person listening receives the thought from the speech itself,” an insight he generalises to non-linguistic gestures.³⁴ Thus, to understand the meaning of a gesture is something fundamentally achieved with and through the listener’s body, as with perception more generally. He explains:

I understand the other person through my body, just as I perceive “things” through my body. The sense of the gesture thus “understood” is not behind the gesture, it merges with the structure of the world that the gesture sketches out and that I take up for myself.³⁵

³¹ Merleau-Ponty, *Phenomenology of Perception*, 183.

³² Merleau-Ponty, *Phenomenology of Perception*, 192.

³³ Merleau-Ponty, *Phenomenology of Perception*, 183.

³⁴ Merleau-Ponty, *Phenomenology of Perception*, 184. For example, Merleau-Ponty includes here a discussion of emotional gestures. Taking anger as an example, he famously notes: “I do not perceive the anger or the threat as a psychological fact hidden behind the gesture, I read the anger in the gesture. The gesture does not make me think of anger, it is the anger itself” (Merleau-Ponty, *Phenomenology of Perception*, 190). Merleau-Ponty is here challenging psychological accounts that demarcate emotions—traditionally conceived as something inner and in need of expression—from their bodily manifestations. Rather, emotion exists *in* and *as* the gestural expression itself—a topic I return to in Chapter 6.

³⁵ Merleau-Ponty, *Phenomenology of Perception*, 192.

Merleau-Ponty here suggests that embodied expression creates a shared world of meaning that we apprehend through what he terms *motor intentionality*: the body's basic and intrinsic capacity to respond directly, skilfully, and adaptively to the "solicitations" of the world.³⁶ For Merleau-Ponty, *motor intentionality* is our primary mode of being directed toward the world—an "original intentionality"—lived through what he terms the *body schema*.³⁷ According to Merleau-Ponty, motor intentionality does not require mental representations or explicit aims; instead, it manifests as an "open system" of possibilities that constitute the experiential texture of one's current situation.³⁸ Through motor intentionality, the body schema responds to the "distant attraction" of solicitations, an attraction experienced as a kind of bodily tension, a normative pull that draws the agent toward what he terms "optimum equilibrium" or "maximum of visibility," often translated as "optimal grip."³⁹ And it is through this motor intentionality that, as Merleau-Ponty puts it above, "I understand the other person *through my body*" (emphasis added).⁴⁰ Such understanding is not therefore a matter of psychological inference but, rather, of direct embodied engagement with the inherently meaningful gesture itself as it unfolds "in the sensible world."⁴¹

It is worth noting, as Merleau-Ponty does, that such direct perception is always situated: our ability to grasp the meaning of a gesture depends on social, cultural, and

³⁶ Merleau-Ponty, *Phenomenology of Perception*, 112-14.

³⁷ Merleau-Ponty, *Phenomenology of Perception*, 139; 00-05. Gallagher has been instrumental in disentangling historical confusion surrounding the term body schema, which he clarifies as: "a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring." He further notes, "The body schema [...] involves certain motor capacities, abilities, and habits that both enable and constrain movement and the maintenance of posture. It continues to operate, and in many cases operates best, when the intentional object of perception is something other than one's own body" (Gallagher, *How the Body Shapes the Mind*, 24.).

³⁸ Merleau-Ponty, *Phenomenology of Perception*, 142.

³⁹ Merleau-Ponty, *Phenomenology of Perception*, 109; 140; 109; 316. For examples of the translation "optimal grip" in secondary literature see: Hubert L. Dreyfus, "Merleau-Ponty and Recent Cognitive Science (2004)," in *Skillful Coping*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2014), 243; Jelle Bruineberg and Erik Rietveld, "Self-Organization, Free Energy Minimization, and Optimal Grip on a Field of Affordances," *Frontiers in human neuroscience* 8 (2014): 1-14, <https://doi.org/10.3389/fnhum.2014.00599>.

⁴⁰ Merleau-Ponty, *Phenomenology of Perception*, 192.

⁴¹ Merleau-Ponty, *Phenomenology of Perception*, 187.

biological context as well as our sedimented histories. For example, we do not “understand” the sexual gesture of a praying mantis, nor do all humans express emotions in fixed or universal ways.⁴² Nevertheless, this does not diminish the essential claim that the sense of gestures is not somehow hidden “behind” their embodied manifestation.⁴³

On this reading, the enaction of the expressive gesture itself becomes an integral and constitutive element of the thinking process, actively bringing thought into being for the thinker. As Merleau-Ponty explains: “man transcends himself through his body and his speech [...] *toward his own thought*” (emphasis added).⁴⁴ Thinking and the expression of thought are thus intertwined in a densely co-constitutive relation, whereby “it is through expression that thought becomes our own.”⁴⁵ He continues,

speech is not the “sign” of thought, if by this we understand a phenomenon that announces another as smoke announces fire. Speech and thought would only admit of this external relation if they were both thematically given; in fact, they are enveloped in each other; sense is caught in speech, and speech is the external existence of sense. We can no more admit, as is ordinarily done, that speech is a simple means of solidifying thought, or again, that it is the envelope or the clothing of thought.⁴⁶

Thought and expression are not therefor two stages in a chain of events, the latter expressing or “solidifying” the former. Rather, Merleau-Ponty posits that it is through the movements of expressive acts that the thought is constituted for the thinker.

⁴² Merleau-Ponty, *Phenomenology of Perception*, 190-95.

⁴³ Merleau-Ponty, *Phenomenology of Perception*, 192.

⁴⁴ Merleau-Ponty, *Phenomenology of Perception*, 200.

⁴⁵ Merleau-Ponty, *Phenomenology of Perception*, 183.

⁴⁶ Merleau-Ponty, *Phenomenology of Perception*, 187.

Significantly, Merleau-Ponty is insistent that he takes these insights to be equally foundational for various forms of “aesthetic expression,” including those involved in musical performance. For example, he notes:

[t]he musical signification of the sonata is inseparable from the sounds that carry it. [...] During the performance, the sounds are not merely the “signs” of the sonata; rather the sonata is there through them and it descends into them. The signification absorbs the signs. [...] Aesthetic expression confers an existence in itself upon what it expresses. [...] [T]he expressive operation actualizes or accomplishes the signification and is not merely a matter of translating it.⁴⁷

Here, Merleau-Ponty directly underscores the applicability of his account of gesture to the movements of musical performance, providing clear precedents for its extension beyond the realms of language and emotion, highlighting the relevance of these claims for the analysis at hand.

Merleau-Ponty thus offers an alternative conception of the relationship between thoughts and expression, where thoughts and the gestures traditionally conceived of as *expressing* those thoughts are smeared together.⁴⁸ Rather than thought preceding expression, or running parallel to it in the background, there is “*a thought in the speech* of which intellectualism is wholly unaware.”⁴⁹ Merleau-Ponty’s insights reveal a deep intertwining of movement and ideation, inviting us to conceptualise expression not as the translation of “a ready-made thought,” but as an enactive process in which thoughts come into being in the world with and through embodied action.⁵⁰

⁴⁷ Merleau-Ponty, *Phenomenology of Perception*, 188.

⁴⁸ In fact, despite his constant use of the term “expression,” I interpret these insights as calling the very notion of expression—from the Latin *ex* (out of, from within) and *pressio* (pressing, pushing), literally *to press out from within*—into question. Rather than ex-pressing ideas or thoughts with a gesture, one *enacts* (literally, to make into action) an idea or thought *with* and *through* gesture itself.

⁴⁹ Merleau-Ponty, *Phenomenology of Perception*, 185.

⁵⁰ Merleau-Ponty, *Phenomenology of Perception*, 183.

This perspective is powerfully developed in Maxine Sheets-Johnstone's account of "thinking in movement," emerging from her phenomenology of improvised dance.⁵¹ Sheets-Johnstone argues that to separate thinking from moving is to fundamentally misunderstand the nature of thought itself, especially in the context of improvisational performance. As she writes:

[t]o assume that thinking is something only a mind does, and doing or moving are something only a body does is, in effect, to deny the possibility of thinking in movement. If thinking is furthermore assumed to be always separate from its expression—a thought in one's head always existing prior to its corporeal expression—then thinking must necessarily be transcribed—or, given a strictly linguistic conception of thinking, transliterated—into movement.⁵²

Sheets-Johnstone's central claim is that movement is not merely a vehicle for expressing pre-formed thoughts, but is itself constitutive of thinking. This challenges traditional dualistic distinctions between mind and body by arguing that thinking and moving are a unified process. Explicitly drawing on Merleau-Ponty's concept that "speech accomplishes thought"—hereafter generalised to *movement accomplishes thought*—Sheets-Johnstone critiques the idea that thoughts exist fully formed in the mind before being expressed through movement. Instead, she emphasises that movement is the very medium through which thought emerges.

Further developing these insights, Gallagher proposes an enactivist approach to imagination, framing it as a kind of "embodied doing."⁵³ In other words, imagining is not simply the manipulation of mental representations, but rather is a kind of "imagining

⁵¹ Sheets-Johnstone, *Primacy of Movement*, 419-49.

⁵² Sheets-Johnstone, *Primacy of Movement*, 428.

⁵³ Gallagher, *Enactivist Interventions*, 194.

action.”⁵⁴ Thus construed, imagination is understood as an affordance-based phenomenon, a fact which can be seen most clearly in pretence or playacting. Drawing on the work of Gilbert Ryle as well as research by Zuzana Rucińska on pretend play in children, Gallagher argues that imagination is enacted through movement-based engagement with the environment. On this account, pretending to be a bear emerges through moving like a bear; pretending a banana is a phone emerges through picking up the banana and putting it to your ear.

Gallagher explains,

[i]n none of this does [the child] have some kind of sensory imagery in his head.

Rather, the imagining just is the playacting. It’s literally enacting something in bodily movement that may include the use of props.

In such cases, imagination is not something that happens first in the head; it’s rather something that involves embodied action. One does not need to generate ideas in one’s head about these possibilities if one can ‘see’ them in the process of interacting with objects and others [emphasis in original].⁵⁵

Moreover, even when overt movement does not occur, Gallagher suggests that this may involve an active inhibition of movement—understood itself as a mode of bodily engagement. Drawing on Ryle’s example of imagining a melody, Gallagher explains: “we do what we would do if we were going to hum the tune, but simply stop short of actual humming.”⁵⁶

This perspective provides a powerful lens for re-interpreting my participants’ experiences. When they describe the imagined movements of VPH—whether involving the inner voice or imagined playing—these are not pre-formed internal thoughts requiring

⁵⁴ Gallagher, *Enactivist Interventions*, 191.

⁵⁵ Gallagher, *Enactivist Interventions*, 193.

⁵⁶ Gallagher, *Enactivist Interventions*, 193.

translation into action. Rather, these experiences are continuous with expressive gestures, through which musical thought emerges as embodied action. On this interpretation, VPH does not involve representations of movement and sound, but is rather an embodied accomplishment, enacted with and through the body. As the remaining participant accounts in this chapter reveal, the boundary between real and imagined movements is far less clear-cut than representational approaches presuppose, fundamentally blurring the lines between action, perception, memory, and imagination in VPH.

Subvocalisation

Returning to the example of the inner voice, an extensive body of research suggests that experiences of the inner voice are typically accompanied by measurable behavioural outputs in the vocal apparatus—subtle movements of the lips, throat, tongue, vocal cords, larynx, jaw, and/or respiratory system—collectively known as *subvocalisation*.⁵⁷ Several scholars in auditory imagery research have drawn strong connections between certain forms of auditory imagery, the inner voice, and subvocalisation, providing a robust evidence-based foundation for interpreting the inner voice as a movement-based phenomenon (i.e., as embodied action).⁵⁸

While the movements of subvocalisation are often pre-reflective—that is, constitutive of the experience without necessarily entering conscious awareness—some participants in my

⁵⁷ For example: J. David Smith, Margaret Wilson, and Daniel Reisberg, "The Role of Subvocalization in Auditory Imagery," *Neuropsychologia* 33, no. 11 (1995), [https://doi.org/10.1016/0028-3932\(95\)00074-D](https://doi.org/10.1016/0028-3932(95)00074-D); André Aleman et al., "The Functional Neuroanatomy of Metrical Stress Evaluation of Perceived and Imagined Spoken Words," *Cerebral cortex (New York, N.Y. 1991)* 15, no. 2 (2005), <https://doi.org/10.1093/cercor/bhh124>; Camila Bruder and Clemens Wöllner, "Subvocalization in Singers: Laryngoscopy and Surface EMG Effects when Imagining and Listening to Song and Text," *Psychology of music* 49, no. 3 (2021), <https://doi.org/10.1177/0305735619883681>; Emma B. Greenspon et al., "Subvocalization During Preparatory and Non-preparatory Auditory Imagery," *Auditory perception & cognition* 6, no. 1-2 (2023), <https://doi.org/10.1080/25742442.2022.2163582>.

⁵⁸ For a measured discussion of evidence for and against this claim, see: Timothy L. Hubbard, "Some Anticipatory, Kinesthetic, and Dynamic Aspects of Auditory Imagery," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019); Timothy L. Hubbard, "Auditory Imagery: Empirical Findings," *Psychological bulletin* 136, no. 2 (2010), <https://doi.org/10.1037/a0018436>.

study demonstrated remarkable sensitivity to these kinaesthetic sensations. For example, after describing a particular instance of VPH observed in recently recorded performance footage as “singing,” M was asked to elaborate on the specifics of how this experience manifests, particularly given the absence of observable mouth movements. They explain:

M: I think I *am* vocalising it. Like, I might not be using my lips [**gestures to mouth**]. But I’m definitely... actually [**raises chin and runs finger up and down throat**]. You know, it’s getting to my mouth [**points to sealed lips**]. It’s doing vocal [**gestures to throat**]. Yeah. Yeah, so it’s like... Yeah, it’s definitely, like, not *just* thought. It’s just I’m not articulating anything with my mouth.

Here, M describes the inner voice constituting VPH as “not *just* thought” but as involving a palpable kinaesthetic awareness of muscular activations in the vocal apparatus. This experience differs from singing aloud—a practice M also reports—as it involves actively suppressing explicit articulation with the mouth. This nuance echoes Gallagher’s insight that imagining a tune involves doing “what we would do if we were going to hum the tune, but simply stop short of actual humming,” highlighting how, for M, the inner voice is experienced as grounded in movement.⁵⁹

Further support for the constitutive role of subvocalisation in the inner voice and VPH emerges from E’s account of “pure ‘hearing’” while composing. While M was consciously aware of kinaesthetic aspects of subvocalisation as they occurred, E’s description of “pure ‘hearing’” was initially reported as relatively disembodied. Yet, upon careful reflection and further description, E recognised that these experiences were in fact pre-reflectively entwined with bodily movements. Consider, first, E’s initial portrayal of this experience:

⁵⁹ Gallagher, *Enactivist Interventions*, 193.

E: I think all my composing has only worked if I sit down and improvise it, record it, and transcribe it [...], or the opposite. When I'm only imagining it. Like, I remember I wrote a piece for my band [...] I remember going home and being really excited and just writing. Just scribbling. I was just "hearing" a song. [...] I didn't really overthink the choices. [...] But that was an example of just purely "hearing." [...] [T]hat was a case of just pure—The machine's just running hot, and it just comes out.

E here sets this experience in distinction from the act of playing: a kind of disembodied "pure" imagining, when "the machine's just running hot." However, on further reflection, E later clarifies this experience with additional details:

E: Actually, I should probably clarify. I'm just remembering, when I was talking about composing that piece [...] I was definitely humming. So, I think the voice [...] puts a property on whatever that is. Whatever that, kind of, melody generating thing is. It can just be filtered through your own voice.

E's reflection here suggests that what initially appeared as a purely mental process was, in fact, constituted by subtle, embodied action—humming. This humming, though perhaps unnoticed at first, is not merely an accompaniment but an integral aspect of E's VPH. What might seem like "pure 'hearing'" is, for E, here described as constituted by bodily movement.⁶⁰

⁶⁰ I take these insights as consistent with Jonathan De Souza's account of Beethoven's imaginative and compositional process as mediated by movement—even in Beethoven's case, where interactions with instruments persisted despite his deafness. De Souza concludes: "Beethoven's imagination, which might have been understood as an instance of purest interiority, instead shows how interiority and exteriority are irreducibly entangled" (Jonathan De Souza, *Music at Hand: Instruments, Bodies, and Cognition*, Oxford Studies in Music Theory, (Oxford: Oxford University Press, 2017), 27.). I discuss the role of the instrument in SMIIIA in Chapter 7.

Imagining Action

This embodied interpretation of the inner voice invites a re-examination of imagined playing, where “imagining that physical act” of playing can generate a “feeling of the vibration” and “put that note in [your] head” (H). While this description might seem to imply that imagined playing is a purely mental simulation, the following example suggest that these experiences, like those of the inner voice, are similarly grounded in movement.

During a concert H momentarily stopped playing mid-improvisation; however, their hands continued to hover over the strings, drifting up and down the fingerboard, as if searching with the hand. When reviewing this footage together, I asked H to recall and describe what was happening in this moment:

H: I think I’m keeping my hand moving to kind of keep the feeling of flowing. [...] I guess, I’m just trying to keep the [**closes eyes and moves arms in a similar fashion**]. I obviously felt... I might have stopped playing for a split second and gone, “That sounds beautiful, I’ll just leave that going.” But then it’s like, okay [**closes eyes and mimes playing the bass**], I’m just going to try and keep the idea of, like, playing along in my mind and find just a part of that to morph back in, you know? Find something. I think that’s why I’m doing that. [...] [**closes eyes and mimes moving hands around on an invisible bass**] [...] Yeah, I’m just trying to keep [moving]. [...] And then I just grab [a note]. “Okay, I’m here.” [...] I’m just trying to keep the feeling [**moves arms around like a jellyfish**], that flow of that music happening so that when I do choose to come back in, I’m kind of still in that zone. So, it’s more of a physical... physical kind of way of [**moves arms**] staying [...] in a similar space to the people who are currently playing.

Here, we see how H's imagined playing is not confined to mental representation but is enacted through overt gestures—the hands and arms continuing to move as if still playing.⁶¹ These gestures are not simply byproducts of thought; rather, they are constitutive elements of an imaginative engagement with the unfolding music, helping to sustain musical flow and remain attuned to the ensemble. This example highlights how the boundaries between real and imagined movement in VPH are far more tightly enmeshed than they might first appear.

This embodied interpretation of VPH also offers an alternative lens for understanding another pervasive phenomenon observed throughout my interviews. When asked to reflect on or recall past experiences of playing, all nine participants at some stage employed explicit bass-playing movements when attempting to recall or imagine specific examples during interviews. While these movements could, of course, also serve performative, communicative, and/or demonstrative functions—helping participants convey their experiences to me—my theoretical framework suggests an additional interpretation: that these gestures also may be constitutive elements of the participants' imaginative and memorial processes themselves.

Consider H's comments directly above when asked to recall the meaning of certain movements in a particular moment of improvisation. Rather than remembering the experience purely “in their head,” H physically recreates the movements observed in the footage, using movement as a scaffold to get “back in the moment,” so to speak. Through the lens of embodied imagination being pursued here, these movements are not simply illustrative; they appear integral to the processes of recollection and imagination. While I do not claim these movements serve *exclusively* as scaffolds for memory—they undoubtedly can and do serve

⁶¹ Sudnow observes a similar experience, observing how “[t]he improvisatory jazz piano hand [...] may hover over such spots [...], tasting possibilities here and there” (Sudnow, *Ways of the Hand*, 102.).

communicative functions as well—this reframing invites us to consider how imagination and memory may involve movements of the body.

Just as experimental evidence has supported the claim that the inner voice is grounded in embodied action, a substantial body of research likewise indicates not only that imagined movements are fundamentally movement-based, but also that movement actively scaffolds imagination. Numerous electromyography (EMG) studies have observed subliminal neuromuscular activity producing measurable mechanical outputs in muscles during imagined movements.⁶² Additionally, Goldin-Meadow, working with data from children's problem-solving and communicative tasks, demonstrates how pre-reflective movements and non-communicative gestures can serve as scaffolds for cognition.⁶³ These movements free cognitive resources for other tasks, improving problem-solving, verbal recall, and even contributing to the formation of "new thoughts."⁶⁴ Further complimenting this perspective, experiments involving mental rotation tasks—conducted both with and without accompanying hand movements—suggests that sensorimotor activity not only affords and constrains perception, but also shapes imagination.⁶⁵ On the basis of these experimental findings, Thompson concludes "that one's bodily motion strongly constrains the

⁶² For example, A. Guillot et al., "Muscular Responses During Motor Imagery as a Function of Muscle Contraction Types," *International journal of psychophysiology* 66, no. 1 (2007), <https://doi.org/10.1016/j.ijpsycho.2007.05.009>; C. Silva et al., "Mental Imagery in Sport: EMG Pattern Analysis," *Journal of Sports Science & Medicine* 8 (2009); Maamer Slimani et al., "Effects of Mental Imagery on Muscular Strength in Healthy and Patient Participants: A Systematic Review," *Journal of sports science & medicine* 15, no. 3 (2016); Manuela Kobelt, Brigitte Wirth, and Corina Schuster-Amft, "Muscle Activation During Grasping With and Without Motor Imagery in Healthy Volunteers and Patients After Stroke or With Parkinson's Disease," *Frontiers in Psychology* 9 (2018), <https://doi.org/10.3389/fpsyg.2018.00597>; Jörn Munzert and Britta Krüger, "Task-Specificity of Muscular Responses During Motor Imagery: Peripheral Physiological Effects and the Legacy of Edmund Jacobson," *Frontiers in psychology* 9 (2018), <https://doi.org/10.3389/fpsyg.2018.01869>.

⁶³ Susan Goldin-Meadow, "The Role of Gesture in Communication and Thinking," *Trends in cognitive sciences* 3, no. 11 (1999).

⁶⁴ Goldin-Meadow, "The Role of Gesture in Communication and Thinking," 427.

⁶⁵ For discussion see Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, Mass: Belknap Press of Harvard University Press, 2010), 295-96.

visualizations one can perform” and that “motor mechanisms drive at least some types of mental imagery even when one is not moving.”⁶⁶

Due to the often pre-reflective nature of these movements, reflection was occasionally insufficient for recalling the embodied specifics of these experiences, and this was where viewing recently recorded performance footage proved especially helpful. Using this footage, I could prompt participant to reflect on moments when movements of the mouth, face, head, or body were particularly apparent, occasionally stimulating the recall of further details. However, participants brought a range of attitudes towards these movements—attitudes that often influenced their willingness to attribute these actions to their creative process. For example, when observing the emergence of particular head, mouth, and bodily movements in recently recorded performance footage, E explains:

E: Yeah, yeah, this is full pitch, inner voice, audiation mode. And I think those—
Those physical head and mouth things are just... an inexplicable by-product of fully giving over to that zone.

While E had no explicit memory of such movements—again, speaking to their often pre-reflective nature—he felt confident in attributing them to VPH; to “fully giving over” to the “inner voice, audiation mode.”

However, not everyone was so ready to make this connection. For instance, at a performance I observed one participant, L, visibly moving their head and lips in synchrony with the melodic contours of their bass playing. From an outsider’s perspective, it appeared as though their mouth was explicitly participating in the melodies being produced with their instrument. However, when asked if these movements indicated any experience of vocalisation or subvocalisation, L actively resisted this interpretation, even describing such

⁶⁶ Thompson, *Mind in Life*, 296.

extraneous movements of the mouth and head as a problematic habit that they were consciously attempting to suppress:

L: Yeah, that's opened up a can of worms there. [...] The first thing is that... I overall try to not be doing things like that because I think they sap energy from the fingers, which is where everything should be focused, you know? Well, the parts of the body that are playing the instrument. I think it's a pretty tenuous argument to say that my mouth is really having much say in the sound that's coming out. So, I've actually noticed that I'm tending to do a lot of weird kind of movements with my mouth and I'm trying to bring that under control because I don't think it's necessarily very... fruitful... productive is the word I want, in terms of generating the music and I'd rather not be doing that... [But] you know, I'm not hard and fast about it.

This tendency to resist connecting overt gestural movements with cognitive processes is, as Thompson notes, a common stance—one that might seem to challenge the embodied account of musical imagination being advanced here.⁶⁷ Yet a close reading of L's own remarks in fact reveals a sensitivity to precisely those very movements being dismissed as extraneous. For instance, L's description of "the weird kind of movements with my mouth" and his reference to effortfully "*trying* to bring [these movements] under control" indicate a kinaesthetic awareness of the gestures in question, despite scepticism about their contributions to performance. All of this said, as Gallagher notes, the stakes here are less about whether one is explicitly aware of gestural movement, and more "about the cognitive effects gesture might have even if we have no conscious access to them."⁶⁸ Consistent with the Merleau-Pontian/enactivist perspective being pursued here, bodily movements can still be understood

⁶⁷ Thompson, *Mind in Life*, 295.

⁶⁸ Gallagher, *How the Body Shapes the Mind*, 121.

as retaining cognitive relevance regardless of whether they enter conscious awareness or remain pre-reflective.

To be clear, these examples are not meant to suggest that *all* such movements necessarily indicate VPH. Some overt movements or facial contortions may simply reflect other affective responses to playing the bass, not explicit vocalisation or subvocalisation *per se*. For example, J—who, like E, was quite willing to attribute certain mouth contortions to explicit vocalisation and/or subvocalisation—also hypothesised that specific “mouth movements” observed in the footage may result from the technical challenges of particular playing techniques. Similarly, T—who, unlike any of the participants discussed in this chapter, consistently reported never experiencing VPH as vocalisation or subvocalisation—suggested that their mouth movements were affective responses to physical effort and/or emotion. For example, when asked if certain observable mouth movements reflected any vocal or subvocal participation, T emphatically stated:

T: No. No, no, no. Absolutely not. [...] [**Shakes head**] But it is... It's hard. I play a really hard bass. And to play like that is physically hard and I think it's, like, the face that I pull when I run. [...] Like, it's more about effort. And storytelling also. I find myself entering emotional states very quickly and moving through them. So, there's probably degrees of emotion. It's also the story for me connected to the sound. [...] It's all of those things, yeah. Because it's also just being as alive as possible. It's all on, you know?

In these cases, facial movements reflected technical difficulty, physical effort, and/or emotional resonance with the sounds being created, rather than vocalisation or subvocalisation *per se*. However, this does not diminish the central claim illustrated by previous participant accounts: VPH typically emerges as a manifestation of imagined

movement, which itself is an embodied action—even in cases where movements are consciously and effortfully inhibited.

While further implications of these ideas will be developed in the next chapter, for now I assert—based on my participants’ accounts, Merleau-Ponty’s claim that *movement accomplishes thought*, and Gallagher’s enactivist account of imagination as embodied activity—that VPH is best understood as an essentially embodied phenomenon, grounded in movement rather than in disembodied mental representations. While these claims may be consistent with the view that musical imagery contains additional informational content related to movement, I take my data as pointing to a different conclusion. Rather than suggesting that mental sounds include mental representations of movement, my analysis suggests that VPH emerges from kinaesthetic processes enacted with and through the body itself.

VPH: What’s the Situation?

Before concluding this preliminary discussion of VPH, one final aspect requires consideration: the specific contexts in which these experiences most frequently arose for my participants. Examining these circumstances reveals that participants experience a marked qualitative shift between VPH and the experience of SMIIA in the flow of improvised performance. This suggests that, while VPH is a significant technique within the cognitive ecology of creative improvisational thinking, it is a limit-case phenomenon. That is, VPH is not what improvisers have in mind when they describe “playing what you hear”/“playing what you imagine” in the flow of improvised performance.

The sub-section of participants represented in this chapter have described VPH as something distinct from and preceding the act of performance—a process which, in B’s terms, requires some act of “translation” or “transmission.” Clemens Wöllner, drawing on

Keller, has suggested that such “anticipatory auditory imagery” is a fundamental component of musical performance:

In the performance of music, auditory imagery is a *key element* for anticipating and shaping actions. Musicians access images of the sound before they actually play the music. In doing so, they *constantly* activate representations of the sounds in working memory [...] In other words, musicians *typically* plan their action by assessing higher-order representations of the music and, at the same time, by incorporating the auditory feedback of the sounds they produce [emphasis added].⁶⁹

Wöllner’s account suggests that these experiences—“run[ning] a short time before action execution”—represent a relatively constant and fundamental aspect of musical performance as it unfolds.⁷⁰ On the surface, several comments in this chapter appear to support this view. For instance, if we recall S’s remarks from this chapter’s introduction:

S: I just hear a sound in my head, and the sound in my head would be, you know, ten seconds forward of that moment where I’m playing that sound in that context. [...] I can hear in my head how, you know, an imaginary combination of, like, “It’ll sound like this with the saxophone.” [...] I guess, yeah, *what drives it the most* is, I can imagine sound that comes and then trying my best to create or realise that imagined sound very quickly afterwards [emphasis added].

S here describes a clear temporal distinction between imagined sounds and their subsequent performance, even suggesting that it is this process that drives their creative decision-making the most. At first glance, this could be read as evidence for a model in which VPH continually precedes and guides S’s musical action. However, as S further elaborates on *when* these moments arose in performance, a different picture begins to emerge: the experience of

⁶⁹ Wöllner, "Anticipated Sonic Actions and Sounds in Performance," 44.

⁷⁰ Wöllner, "Anticipated Sonic Actions and Sounds in Performance," 45.

separation is not constant but arises only under specific circumstances. Specifically, the description above pertains to situations where S is not actively playing, but is instead consciously deliberating how to enter an already unfolding musical context. For example:

S: So, say, [the saxophonist] and [the drummer] start playing something, and they're doing a duo moment, and I haven't entered yet. And I'm thinking, like, "Okay, what do I have to say right now?" So, I guess I'll stand there for a bit and really listen to what's going on. And I'll, kind of grasp, something at some point that's really interesting and then of myself playing, you know, within this interesting moment that's just happened. [...] Whatever it is, I'll imagine, like, what does this sound, you know, mean in context of this?

This example reveals something important about S's experience of VPH: it is not something which constantly occurs just prior to action. Rather, for S, it appears to be most prominent during what Sutton et al. refer to as "offline strategic rehearsal"—moments when she is not yet playing, but standing back, listening, and consciously deliberating on how to enter the musical context.⁷¹

Another key detail emerges when S describes an instance of VPH recalled from specific performance footage: although these experiences can indeed occur prior to playing, they are themselves experienced as unfolding in real time:

S: With my eyes closed there I was just really making sure that I could hear the bassline in my head before I played it, and just not rush the entry. [...] I think the way that I would hear it before I play it is very much just singing it in my head. [...] Those subvocalisations are very much—They're quite simple. They're just a way of

⁷¹ John Sutton et al., "Applying Intelligence to the Reflexes: Embodied Skills and Habits between Dreyfus and Descartes," *JBSP. Journal of the British Society for Phenomenology* 42, no. 1 (2011): 93, <https://doi.org/10.1080/00071773.2011.11006732>.

grounding myself in the placement those notes. *So, they are where I would play them.* [...] I think timing is interesting to acknowledge there. [...] So, they would probably just be maybe two bars of subvocalisation in that point that is not even potentially visible but I'm just hearing them in my head [emphasis added].

Such VPH, then, is less like a mental projection or representation of future events, and more akin to an embodied private performance unfolding *in the present moment*: “where I would play them.” Rather than constructing detailed plans in advance, S's subvocalisations serve as a way of becoming situated in the ongoing musical context, grounding their entry through covert, embodied rehearsal.

It must be noted that *not physically playing*, as in S's example, is not a necessary precondition for such experiences. Others describe similar phenomena *while playing*. In some cases, VPH can be enacted during what participants describe as “holding patterns”—gestures that can unfold without conscious monitoring, enabled by what Bergamin terms “split attention.”⁷² Such moments allow musicians to imaginatively engage with alternative playing options while playing. As L explains:

L: I particularly think about this in [this trio] when we might establish something, and my mind is racing thinking [...] “Will I continue with this, or will I change something?” And then, quite often, whatever decisions I was concluding, suddenly one of the other lads will change something and it's like, “Ok, well, everything's changed now.” Even if it was only subtle, [...] it's like, “OK, time for a complete reassessment now,” because what I was basing my potential change on is no longer existing. [...] The moment that we've identified [as] a moment is no longer the

⁷² Bergamin, “Habitually Breaking Habits,” 15-17.

moment that it was. And everything is up for reassessment all the time. [...] It's like trying to step on a wet mango seed. It's constantly slipping away.

L here describes a capacity for imagining alternative possibilities *while* playing—perhaps in much the same way other participants displayed a capacity to speak while playing in interviews. However, as with S, these experiences seem less like representations of some future event and more like processes that unfold dynamically in the present. Rather than mapping out a fixed plan in advance, L's VPH remains responsive and adaptive to evolving musical context, continually recalibrating as circumstances shifts—suggesting that, for L, while VPH is in some way *separate* to the act of playing, it remains an embodied negotiation with the current moment. This is, of course, consistent with everything discussed so far in this chapter: as previous sections have shown, VPH is best understood as a form of real-time embodied action, often functioning as a kind of covert private rehearsal.

No Third Thing

However, despite this consistency, all participants who described such experiences also reported a distinct qualitative transformation in SMIII A when they transitioned from VPH to real-time improvisation with the bass. Specifically, the experience of imagined sounds created by imagined movements, dissolves and shifts to the sound produced *with* the instrument. When describing this qualitative shift, S explains:

S: It feels like... it definitely shifts onto the bass in that moment. So, the subvocalisation is only a brief period of time, I guess, *before* the sound enters. And then it turns more to breath. [...] So, it's almost like that subvocalisation becomes like a... a breath to lead into the note on the bass. So, it's like breath [**leans back in chair**] and then play [**rocks forward, leading with hand**]. Breath [**repeats rocking motion**]. [...] I'm definitely not at that point thinking about vocals or anything, but it

is in the breath, I think. It's this kind of like an embodied movement that goes beyond "hearing" it in that first instance as a vocal sound. More going, okay.... Like, this is a full-body movement now. [...] It's kind of like [**closes eyes, breathes in then out deeply, slumping shoulders down**] the breath kind of... bringing my shoulders down [and] relaxing into the instrument.

S here describes how, during covert acts of rehearsal, her breath leads into the subvocalisations underpinning VPH. However, at the point where S transitions from this subvocal rehearsal to actually playing the bass, there is a fundamental shift. Breath remains a central factor; yet rather than leading into the movements of subvocalisation—from which the "imagined" sounds of VPH emerge—the breath becomes, as S puts it, "a breath to lead into *the note on the bass*" (emphasis added).

This qualitative shift was consistently reported across all participants who described experiences of VPH. Here, for example, H describes how the experiences of "audiation" reported above were in fact relating to instances of intentionally imagining a sound when *not* playing, and similarly notes how this experience changes in the flow of real-time improvisational engagement with the instrument:

SD: [W]hen you do have an experience of pre-hearing while performing, because you've alluded to the fact that you can have that experience while you're playing—?

H: Yup. [...] Oh sorry. When I'm doing it here, sitting? Yes. [...] But in a musical setting it's a bit more... it might be part of the line. [...] So, like, it might just be the next note that just sort of pops into my head in a certain way and that—It's not like I'm hearing, "Boom" [**sings a note like a bass**] like [a separate] sound because that would get in the way of the notes I'm on. It just sort of... it's happening in real time.

At the same time, I should say. [...] It's like, I'm going to get to that note, and I *do* know what it's going to sound like when I play it. It's sort of more like that.

Like S, in performance, H's "imagined sounds" are described as transforming from the imagined sounds of VPH to become "part of the line" itself, occurring "in real time, at the same time" as the sounds being produced with the instrument.

Similarly, E observes how their most vivid experiences of VPH are qualitatively distinct from their experience once they begin to play. Like S and H, the "imagined sounds" of E's VPH are clearest when not playing and are experienced as replaced by the sounds produced through direct engagement with the instrument during improvised performance:

E: Before we were chatting and I was like, "I can 'hear' stuff," I think then it's more likely to map onto an instrument timbre. But, in the act of playing there's enough [sound being produced]. Like, the sound is being [produced through the instrument]. It's an impulse to, like, play a G [**Plays a G on the bass**] and then you hear the G [from the bass], and then that's the connection. So, there isn't, like, an extra third thing needed [i.e., VPH]. There's, like, the impulse and then you *get* the sound [**plays bass**] [through the bass] or through the voice.

E's account again illustrates the qualitative distinction between experiences of VPH and the act of producing real sounds with the instrument. While VPH constitutes a significant facet of E's creative process, it emerges primarily in specific moments of preparation or deliberation. For E and other participants discussed in this chapter, VPH represents only a narrow aspect of what practitioners mean by "playing what they hear" in improvised musical performance. Rather, as E explains, within the flow of improvisation "there isn't an extra third thing needed"—neither VPH nor any other mental intermediary stands between the "impulse" to

play and the resulting sound. Consequently, a fuller understanding of SMIIIA requires close examination of the structural distinctions underlying this qualitative shift.

* * *

This chapter has explored VPH—the phenomenon I take traditional MBW accounts to be referencing when discussing SMIIIA. Participant testimonies indicated that the most vivid experiences of VPH were anchored in the *inner voice* and/or *imagined playing*—both forms of *imagined movement*. Drawing on Merleau-Ponty’s insight that movement accomplishes thought and Gallagher’s enactivist account of imagination as “embodied doing,” I have argued that these imagined movements are not mere mental representations but forms of *embodied action*.⁷³ This capacity stems from and is shaped by the performer’s history of engagement with music-producing movements—involving explicit or inhibited, overt or covert, conscious or pre-reflective bodily activity—revealing VPH as a fundamentally *movement-based* phenomenon.

Moreover, my participants describe VPH less as a matter of constructing representations of future events, but rather as an experience unfolding in real time, embedded in the present musical situation. Typically, these experiences arise when performers are not actively playing and are instead planning or deliberating alternative musical actions, helping to situate the performer musically and prepare for action. However, as participants move into direct, hands-on engagement with the instrument, a qualitative shift occurs: VPH is absorbed into a direct engagement with the sounds being produced by the instrument.

Taken together, these findings suggest that VPH—while a meaningful part of several participants’ creative process—is only a narrow, limit-case phenomenon and does not fully capture the experience practitioners refer to when describing “playing what they hear” in the

⁷³ Merleau-Ponty, *Phenomenology of Perception*, 183; Gallagher, *Enactivist Interventions*, 193.

flow of improvised musical performance. To clarify SMIIIA, then, it will be necessary to develop an understanding of this qualitative shift that occurs “when the hands get involved,” to which I now turn.

5. When the Hands Get Involved

In the previous chapter, I examined the experience of *Volitional Pre-Hearing* (VPH) as reported by the expert improvising double bassists in my study, arguing that it is this phenomenon that *Mind* → *Body* → *World* (MBW) accounts of improvisation take as foundational when explaining how improvising musicians “play what they hear.” However, my phenomenological data suggested that VPH—a fundamentally movement-based phenomenon rooted in the body’s sensorimotor capacities—represents only a limit-case manifestation of *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA), experienced by only a subset of participants, typically in instances of explicit planning and deliberation. Tellingly, each of these participants describe a marked qualitative shift “when the hands get involved” (E) with real-time improvised performance.¹ In this chapter, I aim to clarify some of the features underpinning this qualitative shift.

Exemplifying this distinction, E reflects:

E: This thing in my head [i.e., VPH] [...] doesn’t track to a lot of music I make. [...] [Often,] it’s like listening *within* the tones to the beating of the overtones and stuff like that. That’s the opposite of having this thing in your head. [...] I think it’s when the hands get involved then you’ve got... The hands kind of change everything.

E here distinguishes between VPH (“this thing in my head”) and experiences once “the hands get involved”—what I will hereafter refer to simply as SMIIIA. As noted in the previous chapter, E claims that in the act of playing there is no “extra third thing needed”—i.e., the imagined sounds of VPH—because “you *get* the sound” from the instrument itself. How are we to make sense of this distinction?

¹ I realise this phrase is somewhat misleading, since our previous chapter showed VPH is itself continuous with performance and, as a movement-based phenomenon, already involves “the hands.” Nonetheless, “when the hands get involved” is intended as pragmatic mnemonic to aid in this fine-grained discussion.

It might be tempting to here invoke what Daniel Hutto refers to as “the treacherous and ill-understood online/offline distinction,” whereby, in Bailes’ terms *online* “relates to our processing of the real-world, external environment” and *offline* describes “the simulation of our online cognitions, decoupled from current real-world operations.”² However, the findings of my previous chapter complicate this binary. For example, while VPH can, and often does occur “prior to performance,” and sometimes resembles mental rehearsal, my participants’ descriptions suggest that these are simply more enactive, situated, and affordance-relative (or so-called “online”) activities. In this way, VPH is best understood as continuous with, rather than categorically distinct from, hands-on improvised performance.

Another way to frame this shift is by attending to the nature of the sounds to which the practitioner is directed. For example, the “sounds” experienced in VPH are, as Husserl would put it, “irreal,” “neutralized,” or “quasi-perceptual”: they are unambiguously experienced as inaudible to others and lack the *specific* material resistances of real sound, resulting in a heightened, though not absolute, sense of unilateral control on the part of the practitioner.³ By contrast, in the flow of real-time performance, as E notes, the sounds produced are “resonant” and “activating space”—“real” in the phenomenological sense. While this distinction may seem obvious, E’s observation that there is no “extra third thing” mediating intentions and the real sounds created by the instrument in improvised performance is revealing. E is not projecting pre-imagined sounds onto the instrument, but rather

² Daniel D. Hutto, “Overly Enactive Imagination? Radically Re-Imagining Imagination,” *The Southern journal of philosophy* 53, no. S1 (2015), <https://doi.org/10.1111/sjp.12122>; Freya Bailes, “Empirical Musical Imagery beyond the “Mind’s Ear”,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019).

³ Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: First Book* (The Hague: Martinus Nijhoff Publishers, 1983). For a concise overview of these terms specifically in the context of sound and imagination see: Daniel A. Schmicking, “Auditory Imagination: A Phenomenological Perspective,” in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019), 86-89.

“listening *within* the tones” and shaping sonorous musical materials in real time, framing SMIIIA as a direct, hands-on manipulation of sounds in the world.

At stake in this qualitative shift, then, may not simply be a matter of a discrete, binary opposition of *offline* and *online* cognition, but rather the specific dynamics of material engagement involved. Drawing on Lambros Malafouris’ *Material Engagement Theory* (MET), I suggest that musical sounds are to the improviser what clay is to the potter: both are materials with which the practitioner actively engages and collaborates. The agency and intentionality of the musician, like that of the potter, are not fixed or innate properties of a human acting upon “inert matter”; rather, they emerge through a dynamic “dance” with the evolving affordances and constraints of the material itself: with what Knappett and Malafouris call *Material Agency*.⁴ In performance, the improviser’s SMIIIA is simultaneously shaping and being shaped by the sonorous materials as they emerge in the world, a process through which practitioners *discover* their own musical ideas and intentions. This is the process improvising musicians are referring to when they report “playing what they hear” in improvised performance.

To be clear, this is not to suggest that the examples of VPH in the previous chapter are not also materially engaged. For my participants, even imagined movements are embodied sensorimotor processes engaging with sound: a kind of “thinking and feeling with, through, and about” movement and materials, rather than a pure aboutness.⁵ VPH, too, is a manifestation of material agency, made possible through our past experience of hands-on engagement with real sonorous materials in the world.⁶ However, as my participant

⁴ Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, 1 ed., The MIT Press, (Cambridge, Massachusetts: The MIT Press, 2013), 149; 220; 119-149; Carl Knappett and Lambros Malafouris, *Material Agency: Towards a Non-Anthropocentric Approach*, 1st 2008. ed. (Berlin: Springer, 2008).

⁵ Lambros Malafouris, "Creative Thinging: The Feeling of and for Clay," *Pragmatics & Cognition* 22, no. 1 (2014), 140.

⁶ Malafouris, *How Things Shape the Mind*, 173-77.

descriptions reveal, the dynamics of agency and patiency between practitioner and materials become more conspicuously tilted away from the practitioner when they begin to work with real sound, constituting the “qualitative shift” described by my participants.

In this chapter, I focus specifically on the continuous reciprocal causal relationship between the performer’s movements and the musical sounds they produce, setting aside for now the roles of explicit thought, affect, the instrument, and intersubjectivity, which will be explored in subsequent chapters. With these boundaries in place, let us explore what it is like for my participants to “play what they hear” when the hands get involved in the flow of improvised performance.

My Body Knows More About Playing the Bass than I Do

As established in the previous chapter, only a subset of participants attributed some aspect of their creative practice to VPH. Here, I begin with those participants whose perspectives were absent from the previous chapter, focusing on their descriptions of SMIIIA in the absence of VPH.

T, for example, who expressed scepticism toward the notion of “playing what you hear” (understood as VPH), instead frames their creative process as one of “playing what I imagine.” For T, this involves a hands-on “working with what’s on the table,” a process resonant with Merleau-Ponty’s insight that “it is through expression that thought becomes our own” (see p. 88).⁷ T elaborates:

T: I feel like that phrase [“playing what you hear”] is probably a poor attempt to describe something. But something that’s really hard. Like, how do you say...? I would almost say, “I play what I imagine,” to that, you know? And then I accept the

⁷ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 183.

outcome of that attempt and work with what's on the table, you know? Work with what's in reality. It's like, going, "I'm having a thought. If I say it, then I'll be able to judge it."

T suggests that the phrase "playing what you hear" is merely a fallacious verbal gloss which fails to capture the nature of their improvisational process, instead suggesting that the notion of "play[ing] what I imagine" and "accepting the outcome of that attempt" better reflects their experience of SMIII. T's comments therefore invite a closer look then at what is meant here by "playing what I imagine," especially as distinct from the more narrowly defined VPH.

T recalls an early improvisational experience which is particularly illuminating:

T: We were playing, I think, a blues [**sings a bluesy phrase**], and it's like "Okay, everyone gets a solo." [...] And I started improvising. [...] I was making music based on what I could attribute to decision making [**sings an example**]. You know, being *present* in "I'll take this on a journey and come back." [...] [But] there was absolutely no, like... I can say that, because it's still true.

SD: Can you just actually put that into words? There was no what?

T: Oh yeah, sorry. There was no preconceived idea of, "I want this to happen," as in, for my own [musical] line. But I would be in the space of my body somehow going, "Here," and then listening, and then going, "Here." So, very impulsive. But not impulsive like [**makes careless noises with mouth**], but just impulsive as in *present*... Yeah, I mean, now it's different of course because I can make decisions about, "I want to go here." But, in that space [of improvising in the moment] I'm just *listening*.

Here, T describes an early improvisational experience as a direct, motor intentional engagement with musical materials—an in-the-moment responsiveness guided by their

body's interaction with the sounds being produced rather than by explicitly pre-imagined ideas or intentions. While T notes that their current practice can and often does involve more conscious decision-making, this style of unmediated responsiveness—described as “just listening”—remains foundational, observing “it's still true.”

As with our previous discussions of the *imagined movements* of VPH, T's mature capacity for such SMIIIA in improvised performance is grounded in years of hands-on experience:

T: I'm coming to this with, you know, twenty-three years of playing and probably, like, twenty thousand concerts of purely improvised music under my belt. [...] Of just improvising and the fucking billions of scenarios that throws in your path. [...] And that experience sits in my body, and I get to listen, and I can draw on it. [...] So, regardless of whether you know what you're going to do or not, you've primed yourself to be able to listen. [...] You're going with your body ready [...] and having your spirit and your ears and your heart ready to be able to take in the moment. [...] It's just your being at this space where you are, like, physically [prepared] and nothing is going to stop your capacity to make those kinds of [responsive musical] shifts.

As T here makes clear, this practical accumulation of experience is not felt as something explicitly stored in memory, but rather as something that “sits in my body”—a clear example of phenomenological *sedimentation* (discussed pp. 78-80). This bodily sedimentation underpins T's unmediated capacity to “take in and respond” to the evolving musical situation.

The ways this embodied “priming”—as T calls it—manifests in SMIIIA finds vivid expression in T's reflection on a recent experience improvising with a close friend:

T: We've played a lot now. But, even from the first time we played, it was like I can trust that, if I throw something down, he's going to do something. I don't know what he's going to do, but I'm going to be responding [**clicks finger**]. [...] My body knows more about playing the bass than I do, you know? And my... for whatever... [**laughs**] human cultural scenario I've experienced, I'm at my most able to connect to the potential of the universe when I'm not thinking. When I'm in *responsive* mode. When I'm taken by sound. [...] That's where I make the most profound [music and] have the most profound experiences as a musician. [...] When I'm separated from myself and I'm in the action of it through need, something profound for myself, experientially and energetically, is happening.

T is foregrounding the enactive, materially-engaged nature of their SMIII, describing it as a feeling of being “taken by sound,” noting that, in this trustful space, “my body knows more about playing the bass than I do.”⁸ This is experienced both as a heightened sense of agency (“I'm at my most able to connect”) and, perhaps paradoxically, of surrender (feeling “separated from myself”), a simultaneous sense of being in control and being led (i.e., “taken by sound”).

These experiences lead T to a complex understanding of the causal origins of musical ideas in improvisation. For example, when asked about whether they felt like the “author” of their own musical outputs, T explains:

T: It's not even an important question. I don't even—No, not an *unimportant* question. [But] it's not of importance within the framework of making this music. [...] This is an experiential thing that's not about [that]. [...] I mean, it's not an object to go, “*I made this.*”

⁸ T frames these experiences as emerging “when I'm not thinking.” However, the precise nature of what counts as “thinking” in this context is a nuanced issue, a topic I return to in the next chapter.

Rather than proposing a unilateral imposition of form onto inert materials, T's account of SMIIIA foregrounds a complex, circular causality—what Andy Clark refers to as “continuous reciprocal causation”—between the improviser's movements and the sounds being created.⁹ In this dynamic, both movement and sound continuously and reciprocally shape one another: the improviser's actions influence the unfolding musical sounds, while the emergent sounds simultaneously guide and constrain further actions.

Illustrating this point explicitly, T, while commentating on recently recorded performance footage, observes of a fellow performer:

T: [The pianist] didn't want to play stuff that ends up breaking his hands or making him bleed all over the keys, but he's doing it. Because he's now started something and, the ramifications are, he *has* to keep doing it because it's making so much sense for what's happening, and it's where the music is asking him to be, not, “I want to make this sound. [...] Now I don't want to make this sound.”

T does not appear to be suggesting a dissolution of the improviser's agency, but rather points to a transformation in agency, equally constituted by “where the *music* is asking him to be” (emphasis added). I interpret these descriptions as, in sum, clarifying what T means by “playing what I imagine” and “work[ing] with what's on the table”—that is, as an account of SMIIIA in the absence of VPH, which involves the direct manipulation of sounds in the world which are themselves exerting an agential force over the improviser.

A similar perspective emerges in C's account, although with a different emphasis. C is similarly sceptical of VPH, interpreted as a “pre-conception” that can “obliterate” one's capacity for “being in the moment.” Unlike T—whose practice largely revolves around experimental forms of free improvisation—C is a self-described “chord changes nut,”

⁹ Andy Clark, *Being There: Putting Brain, Body, and World Together Again* (London, England: The MIT Press, 1997), 163-66.

specialising in standard tonal jazz. At one point in our interviews, C mentioned a tendency to “hear” the release points” of harmonic tension. When asked to clarify the qualities of this implied “pre-hearing,” however, C was careful to draw a distinction:

C: Ah, I see what you’re saying. [...] I wouldn’t say that I *pre*-hear the release. But I think I always have an expectation that it will come at some point. And so, I’m ready for it. [...] Yeah so, really, I don’t *pre*-hear it, but I have an expectation of it. Or an understanding of the fact of what it is actually. [...] I don’t *pre*— I mean, I suppose— Ah, I’ve never thought much about pre-hearing stuff really. It’s more of an expectation.

When harmonic tensions are established in the surrounding music, C experiences a preparedness for resolution. This “expectation” is not so much an act of explicit prediction—there is no specific pre-formed auditory image—but rather a kind of protentional readiness: a sensitivity or attunement to the normative pull of Western harmonic progressions. C continues:

C: [**Sits down at the piano**] This is the great, great, bloody miracle of western harmony. And it’s very simple. All it is, it’s just this [**plays two notes implying a harmonic tension followed by two notes implying a harmonic resolution**]. Tension and release. That’s all it is [**laughs**]. [...] I just, I mean, I sort of hear them and go, “Oh [**as if in pain**]! Aah [**as if relaxed**]. Oh! Aah.” [...] But that’s kind of, I guess, how I’ve always naturally heard it. [...] I love how they [i.e., chord changes] sort of step in and out [...], hearing those movements. [...] *They take you for these incredible rides* [emphasis added].

C later clarifies that “expectation” is perhaps a misleading term here, noting “I think that you are *aware* of what you are playing is maybe a better way of describing it.” Thus, C’s

awareness appears to be less an example of VPH than a sensitivity or attunement to the unfolding of musical materials. Particularly illuminating here is the manner in which C describes this as experience of being taken on an “incredible ride” by the sound of the chords themselves, implying, like T, a sense of being led by the flow of musical sounds.

Significantly, C extends this passive protentional *awareness* of the normative flow of western harmony to the sounds emerging in their own improvised line, something C demonstrates with a practical example:

C: I could play, for example, I don't know [**plays fast bebop-style melodies on the bass while singing in unison**]. So, what's coming first? Is it *me* [i.e., what I'm singing] or is it *it* [i.e., the notes I'm playing on the instrument]? I don't know. They're happening at the same time. [...] I guess... I sort of pose that thing about [is it] pre-hearing, or not. [...] [It's more that] I *know* where the notes are on the bass *as* I sing them. I suppose I don't know whether the bass is driving it, or the singing is driving it. [...] I don't know how... I mean, they sort of seemed to be tied together.

In this example, C describes a simultaneity of their protentional *awareness* of the unfolding sounds and the very actions through which these sounds are coming into being: they are, in C's words, “tied together,” such that it is difficult to tease out an individuated causal origin. For C, SMIIIA involves an awareness and responsiveness to the normative pull of the line as it is being created, later observing that “the musical line does dictate a direction.”

This point is perhaps made most clearly when reflecting on footage from a recent performance. C, following a year off playing due to a shoulder reconstruction, can no longer play in every region of the bass without experiencing pain. As a result, there are certain registers (specifically the lower end of the fingerboard) and movements (specifically descending vertical lines) that cannot be performed without inducing pain, and which require

a preparatory raising of the elbow. Watching footage of an unaccompanied solo, I asked C about these elbow movements:

C: I think that [a lot] has changed for me by virtue of the injury in my shoulder. [...] My ideas have changed [...]. Descending lines, from the top of the bass down, [...] I actually physically can't do that [anymore]. I just can't. [...] Although if there are times when the line takes me down, then I try to prepare myself physically to do it [by raising my elbow]. But, at the end of the day, it's almost impossible to physically prepare yourself to be in pain [laughs]. It just is. [...] [But] I don't go, "Oh gee, I really, really should not play this line because it's going to take me down to the low F." Like, that's something that would never occur to me, [...]. Because, you know, the line is kind of... they just have this... they just have a *momentum*. They have a melodic momentum that you have to, I think, embrace and go with even if you do go somewhere that's a little uncomfortable or unknown or whatever.

In a previous interview, C noted that the stylistic constraints of accompanying another soloist sometimes required playing in painful regions of the bass: the nature of the soloist called for this or that precise action. Yet, in this unaccompanied solo context, such constraints were no longer obviously imposed. As C notes elsewhere "when you are soloing, you're free to do what you like." Nevertheless, the description above reveals that in this seemingly constraint-free context, C still performs the "impossible" task of playing in these painful regions, driven by the "momentum" of the line itself: "the *line* takes me down."

C's reflections foreground the complex entanglement of thought, action, and sounds in improvised musical performance. Rather than executing pre-imagined ideas, C describes SMIIIA as a process of simultaneously moving, listening, and attuning to the unfolding materials of the music. In this way, the improviser's sense of agency and intentionality is experienced as distributed between the "momentum" of the musical line and the movements

which are producing those sounds, such that the materials can, at times, override even the performer's conscious intentions or physical comfort.

Further developing these insights, J offers perhaps the single most detailed account of SMIIIA in the absence of VPH, highlighting what it is like to imagine musical ideas and intentions with and through bodily gestures as they engage with sonorous musical materials. While J was less sceptical of the concept of “playing what you hear” interpreted as VPH— noting “I sometime will *try* and pre-hear my next few notes when I'm playing, particularly if I'm playing in a supportive role”—J indicated that this was neither typical nor their preferred approach: “I'm much more interested in playing what I don't hear.” When asked to describe this experience, J offered the following description, quoted at length:

J: It's... I don't... I, sort of, *feel* it. It's a very weird experience. It's not actually “hearing.” It's almost like some sort of... body comfort thing. [...] Say, you're doing a solo and you haven't worked out what you're going to play. It's not a pre-arranged solo. You're not playing something that you've worked out and you've written down and learnt and then you're going to play that. Or even playing somebody else's transcription, which we sometimes do [...]. But if you're playing a solo and it's entirely—you don't know what you're doing. Sorry, you *know* what you're doing, but you don't know what you're going to play *next*. And that sense of knowing that you're shaping something, and it's actually working out, it's like, it's a state of energy. And each note is a little energetic bomb that's going off and vibrating in the ether. [...] So, when you play a bad note, for example, it jars because it's not vibrating sympathetically to what's there. [...] And so, you have a feeling. And once you've set that sequence up, and it's all falling in the right place, you can actually continue. [...] And you don't know what the notes are because you haven't played them yet. And you haven't—It's *like* you're pre-hearing it, but it's also a whole of body experience.

It's not just a hearing it, and then playing [those] notes. Not like your singing the notes as they come out. [...] It's actually more involved than that. It's like a whole of body experience. And it's like you're tapped into something that's so much bigger than you are, and all you're doing is jumping on something and your physical presence on this earth is at bay, and you're staying out of it long enough for whatever it is that you're channelling to come through. [...] I firmly believe that anybody [...] who's not pre-worked out what they're going to play, has had that experience. [...] It's not ... It's not as simple as a brain and a physical thing. It's actually—It's like it's a whole of body experience and it's really based in some sort of energetic, kind of, vibration-ary thing.

J's account aligns closely with the account of SMIIIA in the absence of VPH reported by T and C: there is, for J, no explicit pre-arrangement or prediction, but a bodily “knowing” that unfolds in real time, wherein SMIIIA is both shaping and shaped by sound-producing movements and the very sounds themselves as they are being produced. For J “bad notes” are not mistakes because they deviate from a pre-imagined plan, but rather are experienced as disruptions of the energetic flow of the sonorous materials. J's sense of agency is described here not as individually possessed but as enacted in an ongoing interplay of movement and sound, distributed and continually renegotiated as the musical situation unfolds.

Taken together, the accounts of T, C, and J point to an experience of SMIIIA in the absence of VPH—one described as “shaping something” in the world with and through movement, rather than translating something “inner” from mind to body to world. Unifying these accounts—despite differences in language, genre, or initial conceptual orientation—is an invariant structure in which musical imagination, intention, and agency are enacted and discovered in real time, continually shaped by the reciprocal interplay of body and sound. Further, this phenomenon is not unique to these three participants; revisiting those discussed

in the previous chapter shows that the “qualitative shift” they describe is in fact a transition from VPH toward an experience of SMIIIA continually shaping and shaped by real-time collaboration with musical materials.

The Steps You Take When Walking

All of the participants in the previous chapter who had reported experiences of VPH also noted a significant qualitative shift once “the hands get involved.” Rather than signalling an absence of SMIIIA, I interpret these accounts as describing a shift to a more fundamental imaginative process—one that provides the condition of possibility for other modes of musical imagining, wherein musical ideas and intentions are discovered through the interplay of movement and sound in the world.

S, for example, noted in the previous chapter that VPH is experienced only occasionally, typically during explicit planning, preparation, and movement-based/subvocal imaginative rehearsal. However, following the qualitative shift reported “when the hands get involved,” S describes SMIIIA using the term “gesture.” Rather than translating VPH onto the instrument, *gesture* is a direct and intuitive way of responding to the unfolding moment with and through movement—a usage that appears to be entirely consistent with Merleau-Ponty’s account of gesture discussed in the previous chapter (pp. 84-89). S explains:

S: I think the imagined sound is only in some contexts. [...] Sometimes it’ll just be as simple as, you know, listening to an intuition, like, following an intuition. [...]

They’re moments where it’ll just happen as, like, an energy flow, or like an embodied kind of sense of [**snaps finger**] [...] which is much more in the moment. [...] So, you’ll change what you’re doing to an unexpected sound that you haven’t pre-imagined. It’s more, like, this idea of like embodied kind of energy flow. [...] Like, a *gesture*. I guess *gesture* is another word I like, which is, like, the gesture itself can be

like [...] I'm going to switch to this different sound, and no one knows what that means yet, me included [...]. That's where it is sound driven, right? Where it's like, I don't always know what's going to come. [...] Maybe gesture is a good word to kind of bring all those elements [i.e., VPH and real-time improvisation] together. [...] So, I think that [i.e., gesture] is all the culmination of those decisions coming together.

For S, *gesture* synthesises the experience of VPH with the enaction of ideas in performance, enfolding planning, prediction, imagination, and action into a unified sense of “intuition”—the qualitative shift from VPH to SMIIIA. There is a sense of discovery involved in this gestural approach—“no one knows what [the sound] means yet, me included”—which are experienced as essentially “driven” by the sound itself. S's account foregrounds how SMIIIA, once “the hands get involved,” is not a matter of translating VPH onto the bass, but of a real-time attunement to the emergent possibilities of sound and movement in the world. This description aligns closely with the experiences of T, C, and J, where—through *gesture*—musical ideas and intentions are imagined through the hands-on manipulations of sounds in the world.

M offers a parallel but distinct account, instead situating their experience under the rubric of “focus.” For M, *focus* signifies an immediate and flexible bodily coordination with the musical situation, resulting in a heightened sense of agency that blurs the boundaries between perception, imagination, and action. M explains:

M: I really have agency when I'm *focused* and I'm really listening [...] and responding with my body. [...] Where I feel like I'm really listening, and I have agency, and I have this flexibility. [...] Focus comes for me... comes in where I'm not... *thinking* actively about, “what am I going to play?” [...] I stop thinking about like, “I'll play a sixth now,” instead I have an almost like an embodied response to sounds with skills that I've developed, rather than a cognitive approach [...],

examining my skill set in my brain and going, “What will I do in response to that right now?” [...] In those moments of focus I feel like I’m more... It’s *developing perception* or something. This idea of perceiving [...] something and really respond[ing] to something. [...] It’s this immediacy through good body coordination where I feel like I can... *focus* on what’s happening and respond. [...] It’s almost more immediate because you’ve got this sort of much more flexible body coordination thing happening.

“Focus” is characterised for M by an “immediate” adaptability to the unfolding musical context. SMIIIA here emerges through the interplay of deeply sedimented embodied skills and sound, experienced as arising spontaneously rather than through conscious selection—echoing T’s observation that “my body knows more about playing the bass than I do.” M’s account illuminates how, during periods of *focus*, SMIIIA is entangled with direct perception and movement: an “immediate” “perceiving” and “really responding” with and through sound, described as qualitatively distinct from previous descriptions of VPH.

B, reflecting on the qualitative shift that occurs in the flow of improvised performance, notes how SMIIIA is experienced as both imagined and enacted *by their hands* as they interact with and follow “where *the melody* wants to go” (emphasis added):

B: The other thing is that it’s in your hands as well. [...] [You] just let your hands play. Your hands know what to do. [...] Because, yeah, am I “hearing” it? Like, what am I “*hearing*”? What do you mean? It’s not like I just heard that siren, is it? [...] But it’s... Our hands know what to do a lot of the time. [It’s] in our hands a lot of the time. [...] But I feel like I *do* hear it as well. Like if I’m—I can hear where it’s meant to go. [...] That’s the note I need to play. That’s the next note. Or the next few notes. Or that’s where this melody’s going, you know? Usually, there’s like a, a sort of a line of where the melody wants to go, I think. [Laughs] I’ve never described this.

Here, B's account of SMIIIA blurs the distinction between imagined and enacted sound, emphasising how musical ideas are discovered via the hand's motor intentional engagement with sound. This echoes C's observation that singing and playing happen together, with no clear priority to the pull of the musical line or to the movements producing it. Rather than simply "translating" VPH onto the bass, B here describes SMIIIA as a process of following and discovering "where the melody wants to go."

This dynamic becomes even clearer when, while reviewing recently recorded performance footage, I asked B to recall a moment where I observed a distinct transformation in their style of moving. B explains:

B: It's like I'm being moved. You know, I reckon it's more—I think it's more like that. *I'm* not even doing it. I know this is a bit out there, but it's like, I'm being kind of moved, you know like, *by* the music. It's moving me. [...] You know, like I'm in some kind of... wave or something. [...] I think it's this whole concept of... when the conditions are right, and when 'Lady Muse' comes to visit [**laughs**], or whatever, it's like you're not even... *You're* not doing it. [...] It's like you're almost an observer. [...] To me, that's kind of the ultimate. You know, when it feels like that. When it feels like I'm... I'm not making any decisions here. I'm just... I'm being played. [...] I'm an instrument as well. [...] That's how it feels to me. Like it's not—It's nothing that *I'm* doing.

B's reflections highlight SMIIIA as a feeling of "being moved" "*by* the music," likening the experience to being submerged in a wave. There is a strong sense that B is becoming the "patient" within an agency-patency dyad ("it's nothing that *I'm* doing"), experienced as becoming an instrument played by the music itself.¹⁰ This observation resonates with the

¹⁰ The notion of patency and agency will be discussed in more detail below.

“sound-driven”/“taken by sound” experiences described by S and T respectively, and illustrates a process of imagining with and through a hand whose movements are “being led” by the sounds themselves.

E—whose descriptions of this “qualitative shift” have already been touched upon above and in the previous chapter—here searches for an analogy to describe SMIII A once the “hands get involved,” likening it to the steps one takes while walking:

E: I guess maybe it feels a bit more like ... the steps you’re taking when you’re walking. Like, you’re aware that you’re moving and then that just kind of has to happen, but you’re not focusing on that. But it has to happen. Like, maybe that’s an analogy. Like, I’m [playing] to get into that sound space so that, again, I’m actually hearing sound and not *just* imagining it. But I’m maybe not focusing on it [i.e., movement] as a separate thing to the audiation process. It’s just a part of [...] the flow of the whole process.

E’s analogy emphasises how, in improvisation, imagination and action unfold as a single process—the movements “just have to happen.” For E, SMIII A is experienced as a seamless integration of movement, thought, and sound, akin to the steps taken while walking. This analogy highlights the dynamic and formative role of movement and musical materials in this process, where each metaphorical step both shapes and is shaped by the musical terrain encountered in performance.

L offers a related metaphor to describe their experience of SMIII A once the “chaos” of collective improvised performance begins, likening their navigation of the sounds being created as like climbing a cliff face. Notably, L’s account also implicates music theory into the cognitive ecology of SMIII A—a topic I return to in the next chapter:

L: You say, you know, in a more general sense, you say, “Well, I think we’re playing a tonic of C. And so, I would think, a G would be the sort of dominant. And here, let’s play G. Yes, that sounds right.” You know, it’s really like just climbing a mountain and pulling yourself up onto a ledge and going, “Okay, now where to?” And then pulling yourself up on another ledge and going, “Okay, now where to?”

L’s description here of harmonic theory, sound, and movement—“let’s play G, yes, that sounds right”—aligns closely with T’s original account of “playing what I imagine” and “work[ing] with what’s on the table,” a process which, for L, is also shaped by theoretical knowledge sedimented through a history of “working on melody, thinking about melody, composing melodies, singing melodies, learning tunes.” The mountain-climbing analogy, much like E’s “steps taken while walking,” underscores an embodied responsiveness to material and context: each movement responds to affordances in the metaphorical terrain, determined by the performer’s current position and the possibilities disclosed from that vantage point.

Another key detail reported among this subset of participants proves revealing for the present discussion: experientially, no ontological distinction is felt in performance between imagined sounds and those produced with the instrument. For instance, B noted above that although SMIII A is predominantly experienced “in the hands,” the process is still regarded as “hearing” notes, where the next note in the melody “is meant to go.” This experience, which differs from the VPH outlined in the previous chapter, appears to be *involuntary* (hereafter termed *Involuntary Pre-Hearing*): the melodic line itself indicates where “it wants to go.”

One might therefore presume that a deviation from this involuntary pre-hearing would produce a sense of two-ness or duality—a clash between the imagined note and the one actually played. However, B’s reflections contest this view:

B: Sometimes I might not actually play the right note. [...] But it [i.e., involuntary pre-hearing] doesn't get in the way. But what can happen is, I'll hear the next note, but I'll play the wrong one [...] But I don't recall it ever, ever feeling like that [...] thing [i.e., the imagined sound] gets in a way, no.

For B, involuntary pre-hearing is not a separate mental entity but is experienced as part of the ongoing flow and affordances of the musical material itself: “part of the phrase I'm in.”

Accordingly, errors are not experienced as a bifurcation of two separate streams—one real, one imagined—but simply as a deviation from the pull of the evolving musical line. As B continues:

B: I can hear where it [i.e., the melody I am playing] is *meant* to go. [...] But I don't think it [i.e., the imagined sound] gets in the way, no. I don't feel like that because it's... Because it [i.e., involuntary pre-hearing] is probably it's probably part of the phrase that I'm in. It's a *phrase* that I'm wanting to hear.

B's account here closely resembles H's earlier descriptions of SMIII A “in a musical setting.”

In such contexts, H describes imagined notes as “pop[ing] into my head,” suggesting involuntary, rather than volitional, pre-hearing. However, these sounds are experienced as “part of the line,” not as an ontologically distinct imagined entity. For H, like B directly above, the experience of involuntary pre-hearing in the flow of improvised performance “is not like I'm hearing a separate sound.”

Similarly, when asked about the experience of SMIII A in cases of “error,” E is clear that there are not “*two* pitches going on,” instead likening the experience to mishitting a ball:

E: No, I don't think it is two separate things. [...] [M]aybe it's more of a... like a reflex? And when you execute [something] on that instinct or that reflex... [it's] like hitting a ball. You can be, like, “I'm going to hit the ball there,” and then you mess it

up and it goes somewhere else. And you know that's a mistake because [...] you had an expectation about what was going to happen. And that's like hitting a note out of tune. [...] [But] that's why I don't really say I'm "hearing" it in the same way. [...] So, [in error] you *know* that it's not right, but it's not like I'm hearing the correct pitch at the same time. [...] There's not *two* pitches going on.

E's notion of "expectation" can be clarified by aligning it with C's earlier discussion of "awareness"—that is, a protentional attunement to the unfolding of musical materials. While E is *aware* that the line being played has in some way deviated—experienced as an error—this is not a case of a pre-formed mental image diverging from reality. Instead, it is closer to J's observation that "each note is a little energetic bomb that's going off and vibrating in the ether," and that "bad notes" are not errors because they diverge from VPH, but because they "jar" with the ongoing musical flow—just as mis-hitting a ball can *jar* with one's expectations, without requiring the comparison of mental images to reality. These observations are especially striking because, although the language used in initial reports seemed to suggest a divide—such as B's reference to "translation" or "transmission" from an imagined to an actual form—upon further reflection, all participants ultimately suggested that no such distinction exists in practice.

Such findings are wholly consistent with Merleau-Ponty's radically embodied phenomenology, as discussed in the previous chapter (pp. 84-89). Recall: Merleau-Ponty conceptualises "original intentionality" not as mental representation but as a bodily engagement.¹¹ This orientation treats perception and action as a unity, whereby a musician's sense of agency arises within the lived body's direct attunement to its environment and can be seen reflected in T's claim that "my body knows more about playing the bass than I do,"

¹¹ Merleau-Ponty, *Phenomenology of Perception*, 139.

S's account of "gesture," M's notion of "focus," B's observation that, "[o]ur hands know what to do a lot of the time," E's description of "reflexes," and the general lack of "two-ness" experienced between imagined sounds and those created with the instrument. Each of these examples, illustrates the non-representational character of motor intentionality, where normative movements respond to musical solicitations without requiring separate mental representations of intended sounds.

Taken together, these accounts reveal a consistent phenomenological pattern: even participants who initially characterised SMIIIA in terms of VPH reported a qualitative shift in performance that closely aligned with those sceptical of pre-hearing. Despite differences in language or conceptual preference, the lived experience of these practitioner's reveals an invariant structure—namely, that SMIIIA is a process of negotiating, manipulating, and/or collaborating with sonorous materials with and through movement in the world. SMIIIA is neither a matter of translating mental representations of sound from mind to body to world, nor does it necessarily require pre-rehearsal via movement-based VPH. Instead, it unfolds as a materially engaged, embodied phenomenon, unifying my participants' experiences, regardless of their initial attitudes toward "playing what you hear."

In the flow of performance, SMIIIA appears to be more conspicuously "led" by the sounds being produced in the moment, something which can lead to an experience of involuntary pre-hearing. This, however, does not suggest the presence of two ontologically distinct entities—one mental and one actual. Rather, in performance, this distinction dissolves and is experienced as a mode of attunement to the unfolding of sounds: the imagined and perceived sounds are, as S puts it, "just one sound" (S). According to participant descriptions, then, SMIIIA is a motor intentional process of "shaping something" (J) with and through movements that are continuously and reciprocally shaping and shaped by sonorous materials in the world.

Material Agency

Appreciating the implications of my participants' descriptions above requires that we move beyond the body to consider how the unfolding musical materials are in fact active, co-constitutive participants in the phenomenon of SMIIIA. My central argument here is that SMIIIA is not simply enacted through the individual agency and intentionality of the improviser; rather, the sonorous musical material itself acts as a co-collaborator, exerting essential and inextricable agential forces within the creative process. The phenomenon of SMIIIA—"once the hands get involved"—thus emerges through a continually evolving, bidirectional "dance" of agency and patiency between musician and musical materials.

This perspective marks a significant shift: rather than viewing SMIIIA as a property located solely within the musician's mind or body, SMIIIA and the individual musician's agency emerge through the sustained interplay between skilled bodily movement and the evolving affordances and constraints of sonorous materials. Thus, SMIIIA is not simply a matter of unidirectionally imposing intention upon "inert matter," nor of expressing pre-formed mental sounds from mind to body to world, but is precisely this bi-directional shaping of ideas and intentions in the world—something that emerges in the relationship *between* musician and materials.¹² This is what Malafouris means when he observes: "Cognition is not a 'within' property; it is a 'between' property."¹³

Malafouris' *Material Engagement Theory* (MET) provides a powerful framework with which to understand this "constitutive intertwining of cognition with material culture."¹⁴ Through MET, he explores what he calls the "gray zone" between minds and materials—"the zone in which brains, bodies, and things conflate, mutually catalyzing and constituting one

¹² Malafouris, *How Things Shape the Mind*, 149.

¹³ Malafouris, *How Things Shape the Mind*, 85.

¹⁴ Malafouris, *How Things Shape the Mind*, 77.

another” (emphasis in original)—and, in doing so, recasts the boundaries of the mind, positing a radical “ontological inseparability” between cognition and material culture.¹⁵

While MET shares with extended-mind theories the notion that cognition is “locationally neutral”—not confined to the brain or even the body—Malafouris goes further, insisting that mind, agency, and intentionality are not constrained within “the biological boundaries of the individual” nor are they even solely human properties, but are co-constituted by material culture.¹⁶ In this way, MET presents an account of cognition which is “non-anthropocentric” and “symmetric” placing equal importance on human and non-human agents.¹⁷

MET is structured around three interrelated hypotheses, each clarifying this relational view. First, *the hypothesis of the extended mind* which understands the cognitive system as distributed across brain, body, and environment.¹⁸ Second, *the hypothesis of enactive signification*, a non-representational interpretation of material signs “as a semiotic conflation and co-habitation through matter that enacts and brings forth the world,” meaning that the significance of material signs is entangled with their specific material properties. Third, *the hypothesis of material agency*, which explores agency not as a human property but as the emergent product of situated material engagement—focusing not on “What is an agent?” but, rather, “When is an agent?”¹⁹

Underlying these hypotheses is Malafouris’ concept of “metaplasticity,” which describes the dynamic, co-constitutive integration of neural plasticity and cultural plasticity into a unified network.²⁰ As he puts it, metaplasticity refers to “the fact that we have a plastic mind which is embedded and inextricably enfolded with a plastic culture” which, as he

¹⁵ Malafouris, *How Things Shape the Mind*, 5; 36.

¹⁶ Malafouris, *How Things Shape the Mind*, 76; 10.

¹⁷ Malafouris, *How Things Shape the Mind*, 77.

¹⁸ Malafouris, *How Things Shape the Mind*, 50.

¹⁹ Malafouris, *How Things Shape the Mind*, 51.

²⁰ Malafouris, *How Things Shape the Mind*, 45-50. See also: Lambros Malafouris, "Metaplasticity and the Primacy of Material Engagement," *Time and Mind* 8, no. 4 (2015), <https://doi.org/10.1080/1751696X.2015.1111564>.

continues “might well be the locus of human uniqueness *par excellence*.”²¹ In other words, our own cognitive capacities and our ever-evolving plastic brain are always situated in a much broader plastic network of evolving practices and material artifacts—a network spanning brain, body, and world.²² With this brief sketch of MET on the table, I wish to focus specifically on the hypothesis of material agency, which offers the most direct analytical tool for understanding how SMIIIA emerges not from the musician alone, but from the dynamics of material engagement.²³

It is important to note, as Malafouris does, that the term “material agency” itself is something of a “misnomer.”²⁴ To be clear, the point is not to simply project human agency—narrowly construed—onto material things, nor to treat things as “agents” in a naive anthropomorphic sense. Rather, the concept of material agency is simply to acknowledge that an *agent* is not a condition solely held by humans, but “can be equally satisfied by persons and by things,” and that *agency* is neither something which humans nor materials individually possess but is rather “the relational and emergent product of material engagement.”²⁵

According to Malafouris, agency always involves a “fluid dialectic between ‘agents’ and ‘patients,’” understood not as fixed ontological categories but as transient, relational states that emerge in practice.²⁶ What counts as the agent in this dialectic is a relative position, and either pole can be occupied by human or non-human entities. For example, recall when B reports moments described as “being moved by the music,” stating “I’m being played. [...] I’m an instrument as well [...]. It’s nothing that I’m doing.” Here, B appears to

²¹ Malafouris, *How Things Shape the Mind*, 46.

²² According to Malafouris, musical practice provides an exemplar of the intertwining of neural and cultural plasticity constituting. Malafouris, *How Things Shape the Mind*, 47.

²³ Malafouris, *How Things Shape the Mind*, 119-49. See also: Lambros Malafouris, “At the Potter’s Wheel: An Argument for Material Agency,” in *Material Agency: Towards a Non-Anthropocentric Approach*, ed. Carl Knappett and Lambros Malafouris (United States: Springer, 2008).

²⁴ Malafouris, *How Things Shape the Mind*, 119.

²⁵ Malafouris, *How Things Shape the Mind*, 147; 148.

²⁶ Malafouris, *How Things Shape the Mind*, 145.

be describing an experience of slipping into the patient position within the agency-patency dynamic with the musical materials. While this need not always be how the scales tip in the dialectic of human and non-human agents and patients, Malafouris' account suggests that this fluid dance is always at play, underpinning the emergence of the human sense of agency and intentionality.²⁷ He writes:

in the human engagement with the material world there are no fixed attributes of agent entities and patient entities and no clean ontological separations between them; rather, there is a constitutive intertwining between intentionality and affordance. Agency and intentionality may not be properties of things; they are not properties of humans either; they are the [emergent] properties of material engagement.²⁸

While Malafouris acknowledges that the “sense of agency”—that is, the conscious awareness of voluntary behaviours, an explicit understanding of causality, and the ability to refer to oneself as the author of one's own actions—is perhaps a “uniquely human” phenomenon, this is an *emergent property* of material agency.²⁹ According to Malafouris, “*there is no way human and material agency can be disentangled*” (emphasis in original).³⁰

To better understand how this concept relates to our discussion of SMIIIA, I here focus on how Malafouris illustrates the phenomenon of material agency through two of his favourite examples: a potter making something out of clay and the ancient practice of

²⁷ I take the concept of material agency as offering an alternative and complementary lens for understanding the phenomenon that Høffding has termed “performative passivity”—“the experience of altered agency over the process of playing, that is, as the experience of someone or something other than me causing the music to unfold the way it unfolds.” (Simon Høffding, *A Phenomenology of Musical Absorption*, *New Directions in Philosophy and Cognitive Science*, (Cham: Springer International Publishing AG, 2018), 188.). While Høffding frames performative passivity in terms of the musician's experiential shift toward patency, material agency foregrounds the notion that agency is *always* a relational property—emerging within networks of human and non-human interaction, and possessed by neither in isolation.

²⁸ Malafouris, *How Things Shape the Mind*, 18.

²⁹ Malafouris, *How Things Shape the Mind*, 214; 215.

³⁰ Malafouris, *How Things Shape the Mind*, 119.

knapping stone tools. Beginning here with pottery, Malafouris asks us to consider the following:

What is it that guides the dexterous positioning of the potter's body? How do the potter's fingers come to know and control the precise force and position of the appropriate grip for the shaping of the vessel?³¹

One predominant explanation, of which Malafouris is critical, would frame this process as top-down control from mind (brain) to fingers to clay—essentially the same structure as the MBW account of SMIIIA. On this account,

the only way to deal with the inextricable dynamic coupling between the potter's fingers and body and the task environment is to assume, wrongly in this case, that the potter's fingers and body do nothing but execute the orders of the potter's brain—more simply, to assume that it is inside the head that we should be looking for the true source of agency.³²

However, a closer inspection of the phenomenon shows a more complex interplay. Contrary to this top-down approach, Malafouris frames the dynamics of the potter's skill acquisition and emergence of agency as follows:

first the hand grasps the clay in the way the clay affords to be grasped, then the action becomes skill, skill selects and effects results, and creative agency emerges from the results that matter.³³

Rather than positing a neatly demarcated human creative agency as the causal origin of such actions, the picture Malafouris pulls into focus suggests that, in materially mediated acts such as pottery, any such “purity” is lost. Through a sedimented history of skilful engagement with

³¹ Malafouris, *How Things Shape the Mind*, 209.

³² Malafouris, *How Things Shape the Mind*, 219.

³³ Malafouris, *How Things Shape the Mind*, 213.

the clay, the potter's body is transformed—it becomes a *potter's* body, it becomes “a *situated* body.”³⁴ He explains:

The potter's thinking, enmeshed in the mediated practice that we call pottery making, cannot be as rigidly defined and circumscribed as traditional cognitive theories of creativity might prefer. The being of the potter is co-dependent and interweaved with the becoming of the pot. This also means that the constituents of the creative process are not to be found before or outside the throwing or the shaping of the pot. The constituents of creativity are *in the throwing, in the shaping*. The creative process becomes, then, a binding of materials—a dynamic flow of the organic into the inorganic that can be understood as a new or “surprising” blend of ingredients that can act or be acted upon.³⁵

This means that the act of a potter simultaneously imagining and creating something in the medium of clay—or, as I am obviously working towards here, the act of a musician simultaneously imagining and creating something in the medium of sound—can now be reconceptualised as:

a dance between equal partners, the potter leading the dance at some times and the potter's “situation” leading it at other times [...], [where] many external factors (from

³⁴ Malafouris, *How Things Shape the Mind*, 221. It should also be stressed that becoming a “potter's body” also entails a transformation in how the world appears to the potter. It may be helpful here to frame this claim using the Merleau-Pontian notion of motor intentionality, introduced in the previous chapter. According to Merleau-Ponty, motor intentionality is not a one-way “searchlight” projecting onto a fixed world. (Merleau-Ponty, *Phenomenology of Perception*, 137.) Rather, he explains that “the relations between the organism and its milieu are not relations of linear causality but of circular causality”—a dynamic, reciprocal interplay he calls the *intentional arc* (Maurice Merleau-Ponty, *The Structure of Behavior* (Boston: Beacon Press, 1963), 15; Merleau-Ponty, *Phenomenology of Perception*, 137.) As Dreyfus describes, this “feedback loop between the learner and the perceptual world” means that the motor intentionality of the body schema and the manner in which the environment manifests are co-constitutive, each shaping and being shaped by the other over time—i.e., through sedimentation (Hubert L. Dreyfus, “Merleau-Ponty and Recent Cognitive Science (2004),” in *Skillful Coping*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2014), 234.). Merleau-Ponty's *intentional arc* thus offers an alternative conceptual lens for understanding the entanglement of embodied skill and material engagement at the heart of Malafouris' account.

³⁵ Malafouris, *How Things Shape the Mind*, 212-13.

the texture of the clay and its physical properties to the material affordances of the tools available to the potter) may be allowed to influence or determine some parts of the action.³⁶

As the practitioner manipulates the materials, the affordances and constraints of the materials transform in real time, simultaneously shaped by and shaping the continuation of the practitioner's embodied manipulation. This is the core of the "dance" of material agency: each movement alters the material's possibilities, which in turn reshape the practitioner's subsequent movements, a continuous reciprocal causal interplay of mutual transformation.

This "constitutive intertwining between intentionality and affordance" is brought to the fore in another favourite example of Malafouris: the ancient art of knapping stone tools.³⁷ He explains:

the directed action of stone knapping does not simply execute but rather *brings forth* the knapper's intention. The decisions about where to place the next blow and how much force to use are not taken by the knapper in isolation [...]. The flaking intention is constituted, at least partially, by the stone itself. [...] [T]he stone, like the knapper's body, is an integral and complementary part of the intention to knap. [...] The best angles for flake removal are neither identified nor imagined in the knapper's head before the act. The topography of the knapping activity and the accurate aiming of a powerful blow are neither pre-planned nor recollected; they are embodied, and therefore they must be *discovered* in action. Every stroke prepares and carves the platform for the next. Every stroke can also reveal something new about the stone's characteristics.³⁸

³⁶ Malafouris, *How Things Shape the Mind*, 220.

³⁷ Malafouris, *How Things Shape the Mind*, 18.

³⁸ Malafouris, *How Things Shape the Mind*, 173-74.

Thus the imagination, ideation, and intentionality of the practitioner in a particular skilful domain is not something which precedes action, but rather is *discovered in the action itself* as one engages with the materials.

At this point, the connection between material agency and my participant accounts should be obvious. When T describes their imaginative process as being “in responsive mode” or “work[ing] with what’s on the table,” of being “taken by sound,” or doing what “the music is asking” them to do; when C describes being taken for an “incredible ride” by the unfolding of sound, such that “the musical line takes me down” into painful regions of the instrument, or describes the “momentum” of melodies which one simply has to “embrace and go with”; when J describes SMIIIA as responding to a “state of energy” and an act of “shaping something,” simultaneously leading and being led by the musical sounds as they unfold; when S describes SMIIIA as gesture, following the “energy flow” of the musical materials, and being “sound driven”; when M describes “focus” as an immediate receptivity and responsiveness to the musical situation; when B speaks of following “where the melody wants to go,” or the feeling of “being played” or “being moved by the music”; when E describes “listening *within*” musical sounds in the absence of a “third thing” to the sounds being produced such that they are “actually hearing sound and not *just* imagining it”; when L describes SMIIIA as a process of gradually navigating the affordances of a cliff face; or when H describes their imagined sounds as “part of the line,” all of my participants appear to be offering an account of SMIIIA as a manifestation of material agency—that is to say, “a dance between equal partners” of skilful body and sonorous musical materials.³⁹

This perspective may also cast new light on the expression “playing what you hear,” even though not all participants felt that this phrase captured the nature of their SMIIIA. That

³⁹ Malafouris, *How Things Shape the Mind*, 220.

is, rather than interpreting “playing what you hear” as a process of reproducing on one’s instrument mentally pre-heard sonic representations, it can now be understood as a process in which practitioners manipulate (i.e., play) real sounds in the world (i.e., what they hear). To clarify this distinction, consider an analogy with pottery: one could, for example, speak of the potter “shaping what they see/feel.” In this context, *what* the potter sees/feels is simply the clay itself—not an ideal mental image of what the potter intends to make. Here, “shaping” refers to the skilful manipulation of the material present in the world. Thus, the fictional phrase “shaping what you see/feel” does not describe a translation from mind to body to world, but instead designates a dynamic process of imagining with and through movement and material.⁴⁰ This example is intended to clarify an observation made at the outset of this chapter: that when it comes to SMIII within musical performance, “musical sounds are to the improviser what clay is to the potter.”

The connection between imagination and MET is not without precedent.⁴¹ For example, Hutto explicitly grounds his enactivist account of imagination in MET, highlighting how this framework brings to the fore the deep connections between action, perception, memory, imagination, and materials.⁴² Gallagher similarly endorses this perspective, noting that “[MET] needs to be the starting point for the analysis of imagination.”⁴³

Further, while some might find it dubious given the apparently “insubstantial” nature of musical sounds in performance to posit them as having the same material affordances as

⁴⁰ Gallagher notes that this blending of imagination, action, and perception are all required for the experience of *affordances* in the first place, noting that “we should think that there is an aspect of imagination in perception itself [...]. In visual perception, for example, I see possibilities in things involving actions that have not yet happened—which is, in part, what affordance means. Likewise, in audition, the musician may hear things that afford improvisations that have not yet happened” (Shaun Gallagher, *Enactivist Interventions: Rethinking the Mind*, First edition, ed. (Oxford: Oxford University Press, 2017), 197.).

⁴¹ Indeed Malafouris himself explicitly apply his MET framework to imagination in Maria Danae Koukouti and Lambros Malafouris, “Material Imagination: An Anthropological Perspective,” in *The Cambridge Handbook of the Imagination*, ed. Anna Abraham (Cambridge University Press, 2020).

⁴² Hutto, “Overly Enactive Imagination? .”

⁴³ Gallagher, *Enactivist Interventions*, 193.

clay or stone, this connection too has been recognised.⁴⁴ Krueger, for example, offers a compelling data-driven argument suggesting musical sounds present unique affordances that non-musical sounds do not, soliciting movement/entrainment from the listener (a point I discuss in more detail in Chapter 8).⁴⁵ This suggests that extending Malafouris' claims from clay and stone to sound is not merely metaphorical, but rather reflects a substantive parallel in how material engagement operates with sonic phenomena. That is, even if musical sounds lack the tangibility of clay or stone, they nonetheless present affordances and can participate in the same dynamic, co-constitutive "dance" of material agency. As Gallagher notes:

Performance, from the most basic to the most advanced, happens in the dynamic unfolding of interactions and potential interactions with affordances in cultural frameworks, and in the material environment. [...] We can think of "material" in this context, not just as the clay or material stuff that is physically present in the environment, but also the dance, the music, the script that we have to work with.⁴⁶

In short, while the extension of MET into the realms of SMIIIA may be a novel move, its application to imagination and musical sound in performance is not.

Adopting this MET perspective also offers an alternative explanation for the phenomenon of involuntary pre-hearing, described throughout several participant accounts as "hearing where the line wanted to go." Rather than requiring pre-formed mental images, these experiences can now be understood as arising from the properties of the musical materials themselves—features of the unfolding music to which the culturally inculcated practitioner or listener is attuned or, to adopt C's term, *aware*. For my expert participants, this

⁴⁴ Lawrence M. Zbikowski, "Cognitive Extension and Musical Consciousness," in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019), 40.

⁴⁵ Joel Krueger, "Affordances and the Musically Extended Mind," *Frontiers in psychology* 4 (2014), 6, <https://doi.org/10.3389/fpsyg.2013.01003>.

⁴⁶ Shaun Gallagher, *Performance/Art: The Venetian Lectures* (Mimesis, 2021), 82.

is experienced as “hearing” where the line wants to go—involuntary pre-hearing—where, through sedimented experience, the body’s motor intentionality is, as Samuel Todes puts it, “poised” to respond to those musical solicitations.⁴⁷ Moreover, this theoretical framework also allows us to reconceptualise two hitherto unexplored yet pervasive phenomena reported by all nine of my participants under the rubric of SMIIIA: searching and self-surprise.

Searching and Self Surprise

Recasting my participant reports in the light of MET allows us to encapsulate a wider range of experiences under the rubric of SMIIIA. Rather than seeing SMIIIA as something *inner* and in need of external *ex*-pression, we now see that hands-on manipulation of sounds in the world—within the dynamic dance of material agency—is *itself* the imaginative process of “playing what you hear,” enacted *with* and *through* bodies and sonorous materials. This materially engaged perspective not only captures the descriptions of SMIIIA already discussed, but also helps reinterpret other commonly reported phenomena that traditional accounts might not include.

A key phenomenon here is the act of *searching for* and *discovering* musical ideas and intentions through direct engagement with musical materials. As B puts it, echoing a cliché associated with Ron Carter, improvisational performance is, in their experience, a matter of “*finding* the right notes for the situation” (emphasis added). Importantly, B is not suggesting that “the right notes” exist in some Platonic realm of ideals, waiting to be uncovered; rather, the focus is on the act of “finding”—the exploratory, searching nature of SMIIIA.

This searching quality of SMIIIA is evident in T’s commentary of performance footage where a particularly dense, fast-paced moment of group performance is unfolding. T observes:

⁴⁷ Samuel Todes, *Body and World* (Cambridge, Mass: MIT Press, 2001), 70.

T: I'm moving between playing short, sharp [sounds], playing time, playing circular phrases, being alive with, "I'm with you now, I'm with you now, I'm with you now" [referring to the sounds being created by the other three musicians on the stage]. [...] And for me, it's like that thing of playing and *searching*. I'm going, "Where's the [music going]?" [...] That's where I think I function in my listening. And the *trust* space is to go, "I'm going to be present for you. And then I'm going to go hard when I hear a path."

Here, T's searching is not framed as a mere prelude to imagination, but as imagination in action—SMIIIA as an exploratory, collaborative, movement-led process, shaping and shaped by the unfolding musical materials. In such moments, T is actively searching, experimenting, and testing musical sounds in real time with the other musicians on stage in order to discover or disclose the "path" for how the music will continue. This process is not about pragmatically translating pre-formed ideas from mind to body to world, but about movement-led sonic exploration.

These exploratory musical actions exemplify what Kirsch and Maglio call "epistemic actions"—"actions that use the world to improve cognition [...], performed to uncover information that is hidden or hard to compute mentally."⁴⁸ Through this lens, the cognitive process of SMIIIA involves the hands-on epistemic actions of testing, probing, and exploring musical sounds in the world. Illustrating this interpretation, J observes:

J: [In reference to the performance footage] I think [I'm] searching for sounds and letting stuff happen for sounds. And waiting. Like, getting my hands moving. [...] I'm not hearing specific notes at this point. I'm hearing texturally. And I'm contributing sound waves as opposed to pitches specifically. I'm not looking for pitches. [...] I'm

⁴⁸ David Kirsh and Paul Maglio, "On Distinguishing Epistemic from Pragmatic Action," *Cognitive science* 18, no. 4 (1994): 513, [https://doi.org/10.1016/0364-0213\(94\)90007-8](https://doi.org/10.1016/0364-0213(94)90007-8).

looking for textures. And I might traverse the entire fingerboard in search of where I should land. And what I'll do is I'll probably find a place where the bass can be heard. [...] I'm going with the flow texturally until something—until I hear something.⁴⁹

J's language—"searching," "letting stuff happen," and "looking for textures," until they "hear something" or "finds a place"—perfectly illustrates SMIIIA as an materially engaged process of searching and discovery. Here, epistemic actions unfold through the manipulation of musical materials: the performer searches for how the music should continue by making sound, allowing the materials themselves to guide the process and shape the direction of creative discovery.

L, who performed a three-minute bass improvisation during our interview, makes similar observations about the searching and discovering epistemic actions inherent in their SMIIIA:

L: Ok, so I'm really cold and got no idea what will come out. But that's, kind of, what we want. So, yeah, how about I just kind of pursue something. Yeah, just start. And we can analyse what I start with forever. **[SOLO BASS PERFORMANCE]** [...] I can remember specific moments where I was pursuing something [...] I just didn't really know where I was going next and suddenly something popped out, you know, a texture appeared on the instrument and I thought, "I'm going to pursue that."

Rather than seeing L's examples as falling outside the scope of SMIIIA, we can now interpret them as paradigmatic instances of imaginative searching and discovery. L is not merely executing pre-formed ideas but using epistemic actions to actively experiment with and test musical ideas in real time in order to discover how they will unfold. This is not about a

⁴⁹ Note that, given our reinterpretation of "playing what you hear," J's references to "hearing" are now completely ambiguous as to whether they are referring to imagination or perception. Thus, scare quotes around these terms has intentionally been omitted.

pragmatic translation of ideas from mind to body to world, but a movement-led sonic exploration of musical materials—epistemic actions, achieved through direct engagement with the evolving musical materials.

This process of searching and discovery often leads to another key phenomenon: self-surprise. All nine participants reported the paradoxical experience of being surprised by something they themselves have just played—moments where unexpected outcomes “suddenly pop out” (L), yet still feel as though they are one’s own idea. As M puts it, “I’m doing things all the time that I wasn’t expecting, I’m hearing [myself do] things all the time that I’m not expecting.” These moments are reported as highly prized in creative improvisation, as J notes: “that’s the best when that happens.” Or again, when asked if they are ever surprised by something they have just played, B explains:

B: Oh yeah. [**Laughs**] Yeah! Absolutely. [...] Yeah, that happens reasonably often. [...] And, to me, they’re the moments. That’s what keeps us coming back I reckon. Don’t you reckon? That’s like, for me it’s kind of those moments of, kind of, magic. And maybe not just me, but it’s everyone else as well. It’s like, “What was that?” [...] I don’t know where it came from. And, yeah, absolutely. With the right situation. But then again, you don’t know how [it happens]. You don’t know when that’s going to happen do you? You don’t know when inspiration is going to come and tap you on the shoulder. [**Laughs**] [...] [T]hey’re the magical moments where you feel like this is possibly coming from another place or something, and you really feel like you’re a vessel for something. And that’s where music has that mystical and spiritual aspect I feel like.

B here clearly articulates the feeling of being surprised by something that they are in the process of creating. However, prized as these moments may be, B’s description suggests that

such experiences are not something one can intentionally or volitionally evoke (“You don’t know when that’s going to happen”).⁵⁰

E’s experience reinforces this point, by showing that the opposite is also true: that self-surprise cannot be intentionally or volitionally prevented:

E: It’s funny, because the [solo] gigs that I’ve done, I’ve always had an idea of like, “I’ve got roughly these three or four things that can take the whole thing.” But somehow, I always end up doing something that I haven’t practiced at all. And I go like, “Wait, how did I get to this?” [...] It was like, even when I tried my best to not have anything happen just for the first time, it still happened.

While E describes approaching solo improvisational performances with the constraint of exploring only a limited array of techniques or sound worlds, they note how, inevitably, they “always end up doing something that I haven’t practiced at all.” In this case, even though E is actively trying to prevent the phenomenon of searching or self-surprise from occurring, the dynamics of material agency can still lead to such surprising and/or novel outcomes.

While it should be noted that “novelty” is not necessary for such self-surprise—one could play something familiar and still be surprised by one’s actions—unprecedented outcomes such as when, in T’s words, “I do something that I’ve never done before,” often emerge in these instances. As C elaborates:

C: The nights that I do enjoy a lot are nights where the unexpected happens. [...] We just play this amazing stuff that I’ve never played before in my life. [...] To me that’s kind of the ultimate kind of enjoyment. So, there’s no kind of preconception in that

⁵⁰ Berliner’s observes similar experiences reported by his participants, noting “As exciting ideas flood their imaginations, [...] they feel at times like recipients and conveyers, rather than inventors, of ideas. John McNeil describes himself as ‘a spectator in a way, and I’m usually surprised by what I play,’ he admits” (Paul F. Berliner, *Thinking in Jazz: The Infinite Art of Improvisation*, Chicago studies in ethnomusicology, (Chicago: University of Chicago Press, 1994), 218.).

[...] They're certainly not pre-heard or preconceived. [...] Sometimes I go, "Well, what the fuck was that?" [...] Every time we play, I mean, and this is, you know, irrespective of the style really, there is always going to be situations where you draw things out of each other.

While C explicitly notes that the phenomenon described here is not an instance of "pre-hearing"—which C interprets in narrow MBW terms—within the MET framework, such experiences can now be interpreted under the rubric of SMIIIA. The dynamics of material agency—between the motor intentionality of the body and the evolving affordances of the materials—demonstrate how a practitioner who is sufficiently and flexibly attuned to the particulars of the unfolding music can, and often does, end up playing "amazing stuff that I've never played before in my life." This creative process does not require pre-formed motor routines stored in the performer's mind; rather, new possibilities can be drawn out of the practitioner through the enactive dynamics of material engagement, resulting in genuinely novel outcomes.

All these descriptions exemplify what Malafouris describes as the conflation of making and enactive discovery—what he terms "creative thinging," a concept I will return to discuss in Chapter 7.⁵¹ For now, it is enough to note that, through the lens of material agency, each of these reports can now be understood as examples of SMIIIA. Following Malafouris' understanding of cognition in general, these reports collectively reveal that, in the context of "playing what you hear" in improvised musical performance, *SMIIIA is not a 'within' property; it is a 'between' property*—an emergent phenomenon grounded in a situated, dialogical attunement or resonance between musicians and musical materials.⁵²

* * *

⁵¹ Malafouris, "Creative Thinging," 144.

⁵² Malafouris, *How Things Shape the Mind*, 85.

This chapter has demonstrated that the qualitative shift described by improvising musicians—what happens “when the hands get involved”—is not simply a matter of translating VPH into real-world action. Rather, it is an ongoing, materially engaged negotiation between movement and the evolving affordances of the music itself. Drawing on Malafouris’ MET, I have argued that SMIIIA is a dynamic, movement-based, world-involving phenomenon—one that is enacted and discovered in real time through the reciprocal interplay of body and sound. It is a sensitivity to the evolving “dance” between movement and materials—much like a potter shaping and being shaped by clay—that marks the phenomenological distinction, or qualitative shift, reported by all of my participants “once the hands get involved” in the flow of real-time performance. This, I suggest, is precisely what improvising musicians are referring to when they describe “playing what they hear.”

Yet, as my data also makes clear, not all movement or material engagement is experienced as SMIIIA. H, for example, describes reverting to “a flippant or generic [...] pattern in my body,” which “feels like it’s completely broken whatever little vulnerable bubble that music had at that moment.” In describing such “physical patterns,” H notes:

H: There’s no real musical decision behind it. It’s just—Yeah, it could be as simple as, when I think about it, simple as just losing focus and not being one hundred percent aware of what’s going on around you.

This description suggests that while SMIIIA is fundamentally movement-based, it is not *just* a matter of moving: it requires various affective modes of attunement to the materials. As E elaborates, there are moments when the connection to the sound of the instrument becomes “augmented,” but this is not always present and seems to require a particular kind of affective attunement:

E: It's funny, but the best way I can think to describe it [i.e., SMIIIA] is that... it's like the sound of my bass is a bit... augmented. Which it isn't always if I don't consciously... direct it. And... yeah... [referring to the recently recorded performance footage playing on a screen] And it is still—It is the sound of the bass. But [...] it's not always there. [...] It's really hard to put a specific... yeah, to really describe it.

These comments point to a crucial insight: there is more to the cognitive ecology of SMIIIA than just movement and sound. The phenomenon also involves a variety of thoughtful and affective factors that modulate the bi-directional attunement constituting the dynamics of the material agency at the heart of SMIIIA. Recognising these additional factors, my next chapter turns to explore these thoughtful and affective dimensions in detail, examining how they contribute to the ongoing negotiation between musician and musical materials.

6. The “Blank Canvas” Gets Meshy

So far, the picture of *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA) emerging from my data suggests that the expression “playing what you hear” is best understood as a paradigmatic manifestation of material agency—a process of thinking *with* and *through* movement and sound, in which the practitioner’s imagination both shapes and is shaped by the evolving affordances and constraints of the musical materials. The relationship between improviser and sound in SMIIIA thus appears to be one of bidirectional attunement or resonance: what I here term *SMIIIA-Resonance*.¹ In this chapter, I explore how practitioners modulate the nature of SMIIIA-Resonance by examining the ways in which conscious thoughts and affective forces can bring about holistic, gestalt-level transformations of SMIIIA, reframing the salience of certain aspects of the practitioner/sound relationship.

Many participants initially invoked strong anti-thinking claims when describing their ideal improvisational experiences of “playing what they hear,” providing support for Hubert Dreyfus’ paradigm of Skillful/Absorbed Coping, and implying that SMIIIA is a kind of reflexive reaction to environmental stimuli over which the practitioner has little control.² However, closer analysis of the transcripts reveals a more nuanced picture. Rather than conceptualising SMIIIA as something that only emerges in the absence of conscious thought, practitioners often describe spontaneously, intentionally, and seamlessly employing a diverse range of thoughtful techniques that holistically shape the nature of SMIIIA-Resonance. These include conscious adjustments of attention and playing style to seek what one participant describes as “equilibrium” with the specific musical situation; cue words, verbal maxims, and mantras; self-imposed constraints or “rules of engagement”; action gists; chord-scale theory;

¹ For a discussion of “resonance” as it is being used here, see: Kevin J. Ryan and Shaun Gallagher, “Between Ecological Psychology and Enactivism: Is There Resonance?,” *Frontiers in psychology* 11 (2020), <https://doi.org/10.3389/fpsyg.2020.01147>.

² Hubert L. Dreyfus, *Skillful Coping: Essays on the Phenomenology of Everyday Perception and Action*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2014).

imaginative role play; and in-the-moment “Yes/No” responses to the unfolding solicitations of musical materials.

While it is clear that some of these techniques do arise, consistently with Dreyfus’ account, in moments of breakdown, far more often participants report intentionally implementing them within the flow of improvised performance, with no obvious hindrance to expertise. Contrary to several participants’ initial attitudes, then—attitudes which often characterised “playing what you hear” as an entirely intuitive experience, categorically distinct from thinking—conscious thought processes do not appear to be mutually exclusive to SMIIIA.

These observations provide compelling phenomenological evidence for what several scholars, following Christensen, Sutton, and McIlwain, term the “meshed” approach to cognition.³ This “hybrid” approach suggests that expertise is not simply the result of what are traditionally framed as “top-down and bottom-up processes,” but rather emerges from a complex “vertical” integration of “cognitive” and “automatic” control.⁴ Høffding and Satne’s critical development of the meshed architecture—known as “Arch”—clarifies that this framework is not simply a restatement of the distinction between thinking and coping; rather, it can be interpreted as a holistic integration of these poles, further incorporating scaffolded external factors such as social interactions, environmental context, and material resources.⁵

In addition, Gallagher and Varga’s “enhanced” meshed approach highlights the need not only for a revised notion of habits as intelligent and context-sensitive within the

³ Wayne Christensen, John Sutton, and Doris J. F. McIlwain, "Cognition in Skilled Action: Meshed Control and the Varieties of Skill Experience," *Mind & language* 31, no. 1 (2016), <https://doi.org/10.1111/mila.12094>.

⁴ Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 43; Andrew Geeves et al., "Expanding Expertise: Investigating a Musician’s Experience of Music Performance" (ASCS09: Proceedings of the 9th Conference of the Australasian society for cognitive science, Sydney: Macquarie Centre for Cognitive Science, 2010); Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 39-41.

⁵ Simon Høffding and Glenda Satne, "Interactive Expertise in Solo and Joint Musical Performance," *Synthese (Dordrecht)* 198, no. S1 (2019), <https://doi.org/10.1007/s11229-019-02339-x>.

framework, but also places central importance on affect, broadly construed.⁶ Their framework situates affect at the intersection of the “vertical” and “horizontal” axes of the meshed architecture, suggesting that it modulates the integration of external (i.e., horizontal) resources within the dynamics of the cognitive system.⁷ Affect is here not understood as merely a lens or expressive layer, but as a constitutive element of cognition in expert performance, fundamentally shaping body-schematic processes, and providing the domain for understanding the radically situated nature of expert performance.

This chapter foregrounds several thoughtful and affective factors active within the fundamentally relational character of SMIIIA, clarifying the details of the claim that SMIIIA is not contained within the musician but is a dynamic, *situated* achievement, realised in the interplay between practitioner and world. While the idea that musical agency and imagination arise in the space “between” practitioner and world might initially seem abstract or elusive, the finer-grained analysis advanced here shows how the dynamics of this situated relationality can indeed be articulated. By bringing these relational dynamics into sharper focus, this chapter reveals that the mental “blank canvas” so often described by participants is, in practice, far messier—or *meshier*—than it first appears.

Thinking is Very Dangerous

I begin this chapter by exploring my participants’ initial attitudes toward the role of conscious thought in SMIIIA. Strikingly all nine participants, at some point in the interview, reported improvisational states that unfolded in the absence of conscious thought, with seven out of nine going further to claim that this “unthinking” state was, for them, an ideal or exemplar of best practice. Examples in the data abound. For example, C describes their ideal

⁶ Shaun Gallagher and Somogy Varga, "Meshed Architecture of Performance as a Model of Situated Cognition," *Frontiers in psychology* 11 (2020), <https://doi.org/10.3389/fpsyg.2020.0214>. See also Shaun Gallagher, *Performance/Art: The Venetian Lectures* (Mimesis, 2021), 31-63.

⁷ Gallagher and Varga, "Meshed Architecture of Performance," 1; 4; 6-7. See also Gallagher, *Performance/Art*, 31-63.

performance experience as like “having a blank canvas,” a state in which one can “totally switch your brain off and just be a receiver.” Similarly, T reports “I’m at my most able to connect to the potential of the universe when I’m not thinking,” a state resulting in their “most profound experiences as a musician.” For H, when they are “playing well,” they suggest that there is “less going on from an analytical standpoint, from that side of thinking about things” and more “a peripheral kind of awareness and trying to be in the moment” in which they can “let the response come.” Or again, recall M’s characterisation of “focus” (see pp. 124-25) as arising in moments “where I’m not thinking actively about what I’m going to play.” Further, both B and J suggest, in their most successful experiences of improvisation, “I’m trying not to think at all,” instead simply “reacting” and “not even aware of what I’m doing half the time” (J). As B puts it,

B: I guess I’m not thinking. I’m trying not to think while I’m playing. I’m trying to just react. That’s the other thing. I don’t want to think. [...] Maybe you do do that *sometimes*. But what we do I feel like is very much, it’s a bit like an extreme sport [...]. You’ve got to [**snaps fingers**] you’ve got to be able to react. Because anything can happen.

These accounts consistently associate “not thinking”—or, as C puts it, “having a blank canvas”—with a heightened sense of in-the-moment receptivity or a feeling of “being a receiver.” For these musicians, resonance or attunement to the musical situation is key. Yet, notably, each description suggests that conscious thoughts at best do nothing to help this attunement and, at worst, actively inhibits or disrupts one’s capacity for such a direct responsiveness.⁸

⁸ Bergamin observes a similar attitude held by his participants. Joshua A. Bergamin, "Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation," *Phenomenology and the Cognitive Sciences* (2024), 11, <https://doi.org/10.1007/s11097-024-09974-x>.

Articulating this stance explicitly, B continues:

B: If I’m thinking, if my head’s starting to tell me things while I’m playing music [...], then I’m not... I’m not in the moment with the music. Because what I’m trying to do when I play is, I don’t want to think. I don’t want to be thinking at all. I just want to be listening and reacting and grooving, or whatever. So, once the head comes into it, I think, once the head games start, that’s when musicians, I believe, run into trouble, you know? Because we have to be... Everything’s happening so quickly, you know? If I’m telling myself I sound shit, you know [**laughs**], or I’m uncomfortable, or blah blah blah, then I’m slowing down everything that needs to be happening and I’m not, I’m not in the moment, you know? Where I need to be. [...] Just concentrate. Stop thinking. Thinking is very dangerous, you know? [**laughs**]

Here, “thinking” is framed not only as something to be avoided but as being “very dangerous,” capable of getting the improviser “into trouble” by disrupting their capacity for in-the-moment engagement with musical materials. Since I have argued that this reciprocal, real-time attunement between sound and skilled movement—the material agency of the improviser—is the phenomenon at the heart of SMIIA, these accounts suggest a fundamental distinction between conscious thoughts and the more “intuitive” experience of “playing what you hear,” a distinction described by L as a “creative dilemma that we never solve.”

I interpret these participant descriptions as exemplifying a view of expert performance now closely associated with philosopher Hubert Dreyfus’ concept of *Skillful Coping* (often also referred to as “absorbed coping”; hereafter *Skillful/Absorbed Coping*).⁹ Dreyfus was a dominant voice in discussions of skill acquisition and expertise from the mid-1960s until his death in 2017. Drawing primarily on insights from Heidegger and Merleau-Ponty, Dreyfus

⁹ Dreyfus, *Skillful Coping*.

took a hard-lined critical stance against “representationalist models of the mind,” which, on his interpretation, classify intelligent behavior as “a bodily movement ... caused in the right way by something mental.”¹⁰ Instead, he argues that the unfolding activity of an agent absorbed in the flow of expert action is, “at its best,” neither preceded nor caused by thoughts of any kind, but rather—consistent with my participant descriptions above—experienced as drawn out of them by the evolving needs of the situation.¹¹

According to Dreyfus, expertise typically does not involve conscious deliberative or reflective thought except in “moments of breakdown.”¹² Further, in this view, to employ such thoughtful acts in the flow of expert absorbed coping generally degrades expertise. He illustrates this with an everyday example:

Most drivers have experienced the disconcerting breakdown that occurs when suddenly one reflects on the gear shifting process and tries to decide what to do. Suddenly the smooth, almost automatic, sequence of actions that results from the performer’s involved immersion in the world of his skill is disrupted. [...] He detachedly calculates his actions even more poorly than does [one of lesser skill] [...] and his performance suddenly becomes halting, uncertain, and even inappropriate.¹³

While this description may indeed ring true in certain circumstances, Dreyfus often advanced a more extreme position: that thinking of any kind during skilled performance *necessarily* degrades expertise. As Høffding observes,

¹⁰ Dreyfus, *Skillful Coping*, 200; 79.

¹¹ Hubert L. Dreyfus, “Heidegger’s Critique of the Husserl/Searle Account of Intentionality (1993),” in *Skillful Coping: Essays on the Phenomenology of Everyday Perception and Action*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2014), 81.

¹² Dreyfus, *Skillful Coping*, 34. In a lecture, he clarifies: ““breakdown” phenomenon isn’t quite the right word. It’s [more like] a “disturbance-of-the-flow” phenomenon.” (Hubert Dreyfus, “26 of 28 Heidegger’s Being & Time Hubert Dreyfus 2007,” (1:17:12, December 1, 2014). <https://www.youtube.com/watch?v=ijFK1-mLHvM>.)

¹³ Dreyfus, *Skillful Coping*, 35.

The radicality of Dreyfus’ position increases over time as the debate with McDowell advances. In a stronger reading, he now intends to show that “mindedness is the enemy of embodied coping” and develops an account that seemingly dispenses with all notions of content, objects, and subjects.¹⁴

As his position becomes more extreme, Høffding observes, Dreyfus asserts that mindedness—or reflective, intentional thought—is fundamentally incompatible with the embodied, absorbed coping characteristic of expert performance. On this reading, skillful/absorbed coping necessarily excludes thoughts of any kind; expertise is essentially mindless. This stance yields what Høffding terms “Dreyfus’ Dualism”: the view that thinking and coping “are mutually exclusive, the former inhibiting the latter,” such that if an expert engages in thinking, they are, in that moment, no longer experts.¹⁵ However, as Høffding rightly observes, such an interpretation of expertise not only renders skilled action phenomenologically inaccessible (i.e., there is no experience to analyse), but fails to account for the reflective capacities that experts demonstrably exhibit in practice—capacities that, in this view, are relegated to mere breakdown cases.

Despite the clear parallels between Dreyfus’ account of skillful/absorbed coping and my participants’ descriptions of “unthinking” best practice above, there are several reasons to exercise caution in drawing a connection. First, the notion of “absorption” at play in skillful/absorbed coping has been criticised by Høffding as being overly simplistic. In *A Phenomenology of Musical Absorption* Høffding argues that Dreyfus’ “absorbed coping” —

¹⁴ Simon Høffding, *A Phenomenology of Musical Absorption*, New Directions in Philosophy and Cognitive Science, (Cham: Springer International Publishing AG, 2018), 97. Even Dreyfus himself admits that the extremity of some of these claims is “absurd” or “outrageously extreme.” For example, during a lecture on Heidegger, Dreyfus reflects on his debates with McDowell: “The [truth] is that we’re both getting into absurdly, outrageously extreme positions; I’m... trying to say ‘Well, the really basic, important, foundational thing is the coping level,’ and he’s trying to say ‘what really makes us human beings, and separates us from animals, is that we’re always on the conceptual level,’ and the answer is [...] there ought to be steps involved in getting from one to the other so you can see how we can be both.” (Hubert Dreyfus, "19 of 28 Heidegger's Being & Time Hubert Dreyfus 2007," (1:17:10, November 30, 2014). <https://www.youtube.com/watch?v=wIoFWDQFd-I>.)

¹⁵ Høffding, *A Phenomenology of Musical Absorption*, 95; 98.

and, indeed, Csikszentmihalyi’s “flow”—overlook the diversity of absorption states experienced by experts.¹⁶ Drawing on interviews with the Danish String Quartet, Høffding identifies at least five distinct zones of musical absorption, including *standard absorption*, *mind wandering not-being-there*, *ex-static absorption*, and *absorbed not-being-there*.¹⁷ On Høffding’s reading, none of these states necessarily preclude thought—except perhaps *absorbed-not-being-there*, which, as a “black-out” like experience is phenomenologically inaccessible.¹⁸

Høffding’s revised account finds strong support in my participant data. For example, L—who did not necessarily share the strong anti-thinking stance of the majority—describes “several states” they can inhabit during improvised performance, many of which, despite being unfamiliar with Høffding’s work, align remarkably well with these categories. L notes states which involve thinking about the “absolute nuts and bolts” of what is happening in the musical situation and about possible musical responses: “[the pianist] is doing such and such. [The drummer] is doing such and such. How about I try such and such.” In these moments of *Standard Absorption*, L’s thinking might focus on “consciously technical” matters—specific techniques or note choices—or, conversely, their actions might be entirely intuitive: “I’ve got a very instinctive feeling as to what would be most appropriate, and it just happens.”

¹⁶ Høffding, *A Phenomenology of Musical Absorption*, 248.

¹⁷ *Standard Absorption*: the general state of concentration experienced by musicians which could “easily oscillate between bored “another-day-at-the-job” slightly absentminded playing and more concentrated absorbed playing,” and in which performers can readily think or be highly reflective about what they are doing. *Mind Wandering Not-Being-There*: a feeling of absentmindedness or mind wandering where musicians might be thinking about something completely separate from the music (like going to the supermarket) which can result in partial amnesia or forgetting exactly what had just happened.

Ex-Static Absorption: (from the Greek *ekstasis*, meaning to stand outside oneself), characterised by a sort of out-of-body experience, where the performer can experience be a spectating their own bodies playing and the music unfolding. Despite this spectatorial feeling, the performer’s still experienced a capacity to shape or influence how the music unfolded.

Absorbed Not-Being-There: characterised as a complete blackout: the musicians we so absorbed that they almost completely lost their sense of self. Following such experiences, the performers can only *infer* that they had just played a concert, but they had absolutely no memory of what had happened (Høffding, *A Phenomenology of Musical Absorption*, 73-87.).

¹⁸ Høffding, *A Phenomenology of Musical Absorption*, 81.

Or again, L frankly describes moments of *Mind Wandering Not-Being-There*—moments of being “literally distracted”—thinking about an airport pick-up or an upcoming holiday. While L acknowledges that some might consider such a level of distraction as *negative*, they suggest that this is often not the case, explaining:

L: My experience has been that sometimes that level of distraction is really good for improvised music. [...] I’ve even heard recordings of improvisations I’ve done [...] where I’ve thought, “Wow, I was actually somewhere else.” And it wasn’t even a musical space it was a really prosaic space that I was in. And yet that sounds really good. So, I, my personal experience has been to not dismiss the quotidian. [...] That can still be a fruitful place to be in.

Consistent with Høffding’s account of *Ex-Static Absorption*, L also describes “a third state” as an “almost out of body experience,” entailing a sense of self observation, as if “the body’s taking over.” These experiences often emerge “when things are really physical and it’s kind of like things have gone past the point of no return,” and sometimes lead to a form of *Absorbed Not-Being-There*, where, as L describes: “you’re just not there really [...] That’s when I actually I’m most likely to feel like, ‘Wow, I’m not even really here. I don’t know where I am.’” According to L—and consistent with Høffding’s own observations—the idea that musicians inhabit only a single state of absorption or merely operate in a non-thinking flow state is clearly and oversimplification.

Moreover, for L, the explicit thought processes which can emerge in many of these states of absorption are neither rare nor inherently detrimental to SMIIIA:

L: To even say, “Oh, I just play the sounds I ‘hear’ in my head,” I don’t think that’s even necessarily the most accurate way of describing it. Because I don’t think there’s many people out there that are purely just a portal between these sounds in their brain

and the instrument. You know, I think most of us do have a degree of calculation involved. We’re thinking about the logistical aspects of playing a particular phrase or a particular texture that we’re going towards. [...] and stepping between the calculated use of your knowledge and experience and the complete abandonment and just a kind of ecstatic state of, “It’s all just flowing out.” And in a given performance you can move between those states in seconds. And I don’t think that the ecstatic state is automatically a better state. [...] I think we’re actually identifying the creative dilemma that we never solve, no matter how much we achieve as a musician. And I think that’s a good thing.

While L’s articulation of their experience as involving “stepping between” calculated knowledge and ecstatic flow frames the tension between thinking and “playing what you hear” as a “creative dilemma,” their emphasis on “degrees” of calculation suggests a more blended, dynamic relationship than a simple switching between distinct, mutually-exclusive modalities. Thinking and coping, on this account, do not unfold in strict opposition but as intermingling aspects of a unified experience, emerging in different gradations across varying states of absorption.

Indeed, a closer reading of the transcripts reveals that even those who initially espouse a strong anti-thinking stance—like B, who described thinking as necessarily interfering with SMIIIA-Resonance—later acknowledge the paradoxes and complexities inherent in their own experience:

B: The other thing I guess I would say about all these things is, you know, is that there’s just—This whole—It’s all—It’s full of paradoxes. *Everything*, you know? Like, you know, one minute I say, “Well, I’m not—it’s not me and I’m trying not to think.” But then, of *course* I’m thinking, you know? [...] That’s what’s interesting about this, isn’t it? Because I say one thing, and then I realise I’m doing the opposite

anyway, you know? [Laughs] Like, I’m doing *both* [brings hands together]. Like it’s *both* happening. It’s not just *one* thing.

Moving beyond the anti-thinking ideal, I now turn to the diverse forms and functions that conscious thought can take within my expert participant’s improvisational practice and explore how these thoughts play into the dynamics of SMIIIA-Resonance.

I Just Thought to Myself...

All nine participants at some stage in the interview described experiences that could be classified as conscious thoughts. These span from a diaphanous awareness of pre-reflective, body-schematic adjustments to environmental solicitations to more, in Bergamin’s terms, “object-focused” or even linguistically formulated thoughts, which appear to exist on a continuum.¹⁹ My participant descriptions highlight how thinking in performance can take many forms—forms that need not be interpreted, in Gallagher’s words, as the “overly intellectualized [...] traditional conceptualist, internalist conception of mind” found in Dreyfus’ work.²⁰ The “thoughts” described here are not, as Sutton et al. put it, “instruction[s] sent from a detached mind to an obedient body” or “the top-down (re-)programming of the body machine.”²¹ Rather, expert performer’s employ a spectrum of thoughtful processes which, in Gallagher and Varga’s words,

[span] from thoughtful, reflective consciousness to a thin performative pre-reflective awareness, with different gradations in between, allowing for such variations as selective target control, conscious monitoring, a sense of one’s rightly configured

¹⁹ Bergamin, "Habitually Breaking Habits," 13.

²⁰ Shaun Gallagher, *Enactivist Interventions: Rethinking the Mind*, First edition. ed. (Oxford: Oxford University Press, 2017), 202.

²¹ John Sutton et al., "Applying Intelligence to the Reflexes: Embodied Skills and Habits between Dreyfus and Descartes," *JBSP. Journal of the British Society for Phenomenology* 42, no. 1 (2011), 92, <https://doi.org/10.1080/00071773.2011.11006732>.

body, performative awareness, and pre-reflective awareness [...], adjusting their attunement to changing conditions through improvisation.²²

To be clear: in acknowledging conscious thoughts in this context, I am not positing some inner representational process, but rather recognising an activity that emerges *between* practitioner and material culture. This is not a rejection of thinking, but a rejection of an unnecessarily narrow, internalist conception of thinking—a rethinking of what counts as thinking in the first place. As will become clear, many of the “thoughts” described below are less a matter of representing states of affairs and potential outcomes of actions to oneself, and more about holistically modulating the dynamics of SMIII A-Resonance.

Searching for Equilibrium

The most consistently reported form of conscious thought among my participants centres on subtly adjusting and maintaining the nature of the felt resonance *between* practitioner and musical materials—or the search for what J terms “equilibrium.” This experience involves intentionally heightening one’s awareness of particular features of the musical situation and making conscious adjustments to reach a “happy place,” or, as J puts it, “a way of finding an approach that will work for that performance.” This “happy place” is not mentally prefigured by any one musician; rather, it emerges through a process of sensitive, collective attunement to both the musical materials and the musical situation at large. The improviser continually adjusts their actions, with equilibrium serving as an apt description of the body’s basic motor-intentional responses to the solicitations of the moment, tending towards “optimal grip” (discussed p. 87).

While these adjustments often occur pre-reflectively—“we don’t even think about it anymore. we just do it, because that’s what ‘gig chops’ are, right?” (J)—they can also surface

²² Gallagher and Varga, "Meshed Architecture of Performance," 5.

in reflective consciousness, especially when the practitioner becomes acutely aware of a particular aspect of the situation in need of attention. Sometimes, this reflective awareness emerges in moments of “breakdown,” as when a problem is identified and calls for resolution. For example:

B: I’m really trying to home in on the groove if I’m feeling it’s not working [...]. I have to sort of concentrate on that and, you know, “What am I doing? Am I pushing? Am I dragging?” and “What’s going on with this guy? Or girl?” [...] Your attention is shifting all the time, isn’t it? It really is. Because if I’m concentrating on hooking in with the drummer but I hear the piano player’s playing a chord that doesn’t match up with mine [**clicks**], I hear it straight away. And I’m going to go, “Uh,” [**turns head**] [...] and I’ll try and fix that. Or, if I can’t hear it, I might even go, “Oh, what was that?” and I’ll try to figure it out for the next time. [...] I guess that’s our job, isn’t it? It’s really intense, deep listening in the moment. That’s what I’m doing. So, I’m just listening really. I’m trying to listen to everything.

B here describes moments where certain aspects of the musical situation are “not working” or not “matching up”—what Dreyfus would classify as an unusual “disturbance-of-the-flow” phenomena—requiring conscious problem solving (“What am I doing? Am I pushing? Am I dragging?”).²³ However, the fact that B refers to such moments as a basic aspect of the job—a part of what Høffding might call “standard absorption,” in which the performer’s attention can be flexibly directed as needed—suggests that such experiences are perhaps quite common place occurrences.²⁴ Further, there does not seem to be any obvious reason to assume here that such processes *necessarily* diminish expertise, as J notes in describing their conscious search for equilibrium: “you can do it in a *natural* way.” Searching for equilibrium, then, is a

²³ Dreyfus, “26 of 28 Heidegger’s Being & Time Hubert Dreyfus 2007.”

²⁴ Høffding, *A Phenomenology of Musical Absorption*, 75-76.

relatively common experience involving intentional modulations of awareness, allowing performers to focus on specific aspects of the musical situation—whether, in J’s terms, “global” (i.e., the entire ensemble or performance situation) or “local” (a specific instrument or feature of a sound).

This may include an awareness of and a sensitivity to the specific manifestation of sonic materials as they resonate in the performance space—the environmental factors and acoustics that shape a musical sound’s material presence. J continues:

J: Because the room can be different [...] So, there’s an adjustment that needs to happen in order just to get used to the sound that is being produced in that space. So, there’s all adjustments that we make as we’re playing and listening and feeling all the inputs coming back in.

Also implicated in these “ecological” factors are features like the presence (or absence) of an audience, which can affect not only the acoustics of a space but also contribute their own sounds and social “energy” (a topic I return to in Chapter 8).²⁵ J again:

J: Or the people that are listening can be different, and maybe there’s nobody listening [in the audience], maybe you’re playing to an empty room. [...] And then of course, if there are people listening, adjusting to understand or feel what their energy is that they’re putting back. Are they enjoying it? Or are they there to talk to their friends and really not enjoying it because it’s too loud and they can’t.

Searching for equilibrium, then, does not involve a controlling mind operating on abstract mental representations, but is rather a process of “adjusting” a set of attunements to a situation: adjustments that are in essence body-schematic and materially engaged through and

²⁵ For an excellent account of the various “ecological” factors influencing improvised musical performance, including the audience, see: Simon Høffding and Torben Snekkestad, “Inner and Outer Ears: Enacting Agential Systems in Music Improvisation,” in *Philosophy of Improvisation: Interdisciplinary Perspectives on Theory and Practice*, ed. Susanne Ravn, Simon Høffding, and James McGuirk (New York, NY: Routledge, 2021).

through, and yet capable of surfacing in conscious awareness. These descriptions reveal an acute awareness of and skilful adjustment in response to the ecological features of the immanent performance context, with conscious thoughts capable of re-framing and re-shaping the salience of certain aspects of the sonic materials with which the practitioner engages.

Further clarifying this point, recall the discussion of “searching” in the previous chapter—specifically J’s description of certain playing techniques as “searching for sounds”:

J: I’m searching for sounds and letting stuff happen for sounds. And waiting. Like, getting my hands moving. I’m hearing... I’m not hearing specific notes at this point, I’m hearing texturally. And I’m contributing sound waves as opposed to pitches specifically. I’m not looking for pitches [...]. I’m looking for textures. And I might traverse the entire fingerboard in search of where I should land. [...] So, I’m searching for, until I—I’m waiting until I hear something [...] My radar is not out to whether or not [I’m playing specific notes or pitches]. [...] In this instance, when I’m doing that [playing technique], I’m absolutely letting all of that go and playing the instrument as if it’s a sound production thing. It’s producing sounds. But it’s not producing... notes.

Although the example that J is here referring to did in fact involve pitches, their focus in that moment was on timbre. In searching for equilibrium, J is here consciously attuning to the timbral qualities of the musical materials. The analogy of a “radar” emphasises the active, searching quality of this process. To borrow a term from T, J is employing a self-imposed “frame” in which pitch is not of central (or even marginal) importance, with the effect of amplifying the salience of the timbral features of the musical gesture.

Cues, Nudges, and Gists

I here interpret this ability to re-frame the manner in which one is attuning to the musical materials/situation as a thoughtful process that exists in continuity with the basic motor-intentional body-schematic tendency towards optimal grip. The transcripts reveal that such consciously employed framing devices can take on a variety of forms. For some participants, this could even involve the use of linguistically formed “cue words” that establish a particular affective space or mood, fundamentally shaping SMIIA-Resonance. S describes:

S: I’ll often think about, like, you know, what words describe that quality. [...] Am I going for ethereal? Am I going for smooth? Am I going for angular? So, I guess words come to mind actually. [...] If I’m just imagining myself in that moment, often, yeah, I’ll have like a word association to describe what’s going on. And then, through that word association, it’ll inform a very specific sound that arises [...]. It’s like, “Angular. Okay, let’s do this weird double plucked technique under the bridge.” [...] Or “Ethereal. [...] Let’s do the artificial harmonics on G string and do glissando on them.” [...] [T]hat then becomes my vocabulary in these situations. [...] I think the words are a big thing.

This example demonstrates how a single word or phrase can serve as a powerful affective and conceptual anchor, guiding not only the mood but also the technical and sonic choices a performer perceives as possible in a given moment. Rather than representing a detailed plan, these cue words act as flexible prompts that open up possibilities in what Rietveld and Kiverstein refer to as the “landscape of affordances,” shaping the ways in which performers respond directly to the unfolding situation.²⁶ As Sutton et al. explain:

²⁶ Erik Rietveld and Julian Kiverstein, "A Rich Landscape of Affordances," *Ecological psychology* 26, no. 4 (2014), <https://doi.org/10.1080/10407413.2014.958035>.

The function of the verbal maxim is not exhausted—perhaps even no longer significantly affected by its semantic content: rather it operates in real time as a *material* symbol, an iterated and interactive self-stimulatory loop. The role of ‘instructional nudges’ like ‘watch the ball’ or ‘jazz hands’ [...] need not be precise control of the microstructure of the action: yet the expert performer is using these verbal components of multi-modal embodied routines to distribute intelligence, coordinating or often re-setting and re-chunking patterns of movement or affect or mood, as one among many forms of scaffolding that support the embodied rebuilding of action sequences from the inside.²⁷

Such cue words can also take the form of simple mantras with holistic bodily effects. For instance, B uses “instructional nudges” like “low shoulders” or “keep it light” to reduce physical tension when playing fast tempos, directly affecting their touch, dynamic control, and/or degrees of freedom—the range of possible movements or expressive choices open to the performer in a given moment.²⁸ These mantras are not just reminders; they holistically shape the performer’s bodily engagement and their available possibilities in real time.

Similarly, such cues can take the form of spontaneously self-imposed constraints or “rules of engagement,” with holistic effects on SMIIIA-Resonance. T, for example, who describes their compositional process as one of narrating or writing down in words either a specific order of musical events or specific “rules of engagement” reports that, in certain contexts, such rules or constraints can be spontaneously self-imposed during improvised performance:

²⁷ Sutton et al., “Applying Intelligence to the Reflexes,” 92-93.

²⁸ David Sudnow also reports employing similar techniques as his skills develop towards expertise. See David Sudnow, *Ways of the Hand: A Rewritten Account* (Cambridge, Mass: MIT Press, 2001), 127-30.

T: When I write down compositional ideas, I literally narrate what I want to have happen. [...] In words. [...] Or, in systems. You know, “When player *x* plays, player *b* can’t play.” [...] Rules of engagement, not material. [...] Because that’s how I play. [...] Because that’s a sign of connection. That’s one way to say, “I’ve got you,” and therefore you can go, “Huh.” It’s like the on-off switch of going, “I’m going to make this sound when you make that sound regardless of how long it’s going to take for you to make that sound again. So, I’m going to wait,” for example, you know? They’re, again, trust things. You know, so in a pure improvising sense [...] sometimes my brain is really engaged. And sometimes my brain is really not engaged.

Here we can see how the self-imposition of constraints or “rules of engagement,” even when formulated in words, do not act as rigid scripts—they do not pertain to specific “materials” (i.e., specific musical content)—but dynamic tools for shaping modes of interaction and trust within the ensemble. Like the cue words above, such “rules” can holistically reshape the landscapes of possibilities in a given situation, cultivating—rather than hindering—spontaneity and in-the-moment responsiveness.

Other participants report employing what Sutton et al. term “action gists”—varying from coarse-grained styles of movement to very specific technical or conceptual constraints that guide performance. As Sutton et al., explain such “action ‘gists’” can specify “not just an action type but also a particular way of performing the action appropriate to the circumstances,” shaping execution.²⁹ Some examples of action gists reported by participants include: “think rhythm” (L) or “put the notes last” (H) prioritising rhythmic development, “stay in this region” (C) constraining use of register, “don’t use open strings” (B)

²⁹ Christensen, Sutton, and McIlwain, “Cognition in Skilled Action,” 43.

encouraging vertical shifts, “oscillate between high and low” (E) shaping melodic contour, or “every single note on the bass is correct” (H) suspending judgment of note choices.³⁰

I don’t interpret the examples of action gists involving increasing specificity as requiring pre-formed cognitive plans, predictions, or representation; rather, it reflects a narrowing of the frame or attunement to “provisos” (see p. 36). As Bergamin notes, provisos may be as narrow as a particular chord-scale or other theoretical concept, which, for the experts in my study, are not experienced as isolated or separate from movement or SMIIIA, but as holistically integrated with both imagination and movement (recall L’s mountain-climbing example pp. 127-28).³¹ As B notes when asked to describe the relation between theoretical concepts and SMIIIA:

B: It’s “hearing” [and] it’s conceptualising, [...] It’s all of them, you know? [...] I get a very strong sense in my head... I can hear, I can literally hear where, what I want the next note to be is, you know? It’s like I’m singing. [...] But it’s [also] a conceptual thing. [...] You can see it in that solo [...] I like to play around with fourths. [...] [So] I might be experimenting with some intervallic shapes. Or there might be a little [fingering] pattern [...] So, it’s definitely not—It’s not definitely, not *one* of them. [...] All of those things are involved. Kind of all at once

Such descriptions highlight how, to use Wendy Hargreaves’ categories, audiation-generated, movement-generated, and strategy-generated ideas—traditionally demarcated as analytically discrete sources of idea generation in improvised music—are, for the experts in my study,

³⁰ The improvisers in Bergamin’s study similarly report employing instructional nudges and actions gists. Bergamin, “Habitually Breaking Habits,” 12.

³¹ Bergamin, “Habitually Breaking Habits,” 5.

experienced as a unified phenomenon.³² “Thinking” of a theoretical or intervallic concept is not something experience separate from SMIIA but is integrated with movement and sound.

Chord-Scale Theory

While the application of chord-scale theory is well-represented in discourse and pedagogy concerning improvisational process, consciously thinking about such concepts was reported by my participants relatively infrequently.³³ However, in the instances when it did arise, these moments appear to support my earlier characterisation of “action gists”: that is, as an increasingly specific focus on a particular proviso that can reshape the available possibilities of the situation without interfering with in-the-moment receptivity or requiring fully pre-planned mental representations. T lends support to this interpretation when reflecting on a specific recorded example:

T: This was an E-flat minor... frame [**holds up hands, creating a rectangle-shaped “frame”**]. [...] But then I... Yeah, I started taking the third [of the scale] to the low string. Then, it was just like, the thing went *bam* [**tilts the rectangle being formed by his hands into a parallelogram, indicating a change in the bounds of the “frame”**] It was still [...] really, on a very basic level [...] just, like, an E-flat minor scale. And then the question [for me] would be, what position is he [i.e., the pianist] [taking within this frame]? What’s his journey on that? And then how do I play within that [frame]? And what does that allow? How tightly does he [i.e., the pianist] stick to that [E-Flat minor frame]? Because that’s what I can hear... [**In reference to a change in the tonality of the music**] Because things are opening up already.

³² Wendy Hargreaves, "Generating Ideas in Jazz Improvisation: Where Theory Meets Practice," *International journal of music education* 30, no. 4 (2012), <https://doi.org/10.1177/0255761412459164>.

³³ Hargreaves, citing Kenny and Gellrich, recognises “the chord-scale formulaic method to be the most widely practiced method of teaching jazz improvisation in Western education.” (Hargreaves, "Generating Ideas in Jazz Improvisation," 360.)

T’s language here reveals how conscious awareness of a particular scalic proviso can emerge organically improvised performance, neither interfering with in-the-moment receptivity nor engagement with the musical materials. T remains flexibly attuned to the evolving situation, even as the narrowing of the frame to a specific key centre momentarily transforms the aspects of the musical situation to which they are attuned—namely, the pitches associated with E-flat minor. Significantly, T’s approach in this scalic “frame” is not described as a process of recalling and imposing pre-rehearsed scalic shapes, but rather as altering a mode of attunement in a specific moment to the pitches of the E-flat minor scale. The conscious awareness of this particular “frame” shapes both T’s listening/SMIIIA (“that’s what I can hear”) and decision-making (e.g., “taking the *third* [of the scale] to the low string”) in ways that discloses specific possibilities for action, while still requiring the enactive discovery of one’s own musical ideas (e.g., T still must ask: how do I play within this frame? What does this scalic frame allow?).

Pretend Play

Imaginative role-play also appears as another kind of conscious thought modulating SMIIIA-Resonance. For example, some participants describe explicitly “pretending” to be another player—“I’m Jimmy Garrison,” “I’m Richard Davis”—which, as E notes, is “not like a game, but it’s almost like a weird role-playing thing.” Others embrace another musician’s influence through imagination, for example “I was the fingerboard of Alan Silver” (T). Sometimes, this explicit imaginative play might involve deliberately re-imagining the performance context (e.g., imagining a live performance was a record the improviser is listening to), explicitly attempting to adopt an external or third-person perspective, with holistic effects on SMIIIA-Resonance. For example:

E: Sometimes I would imagine like, “What if what we’re playing right now was an album that I’m listening to?” [...] Sometimes I’m closing my eyes and being, like,

“Alright, this is an album.” This is [not] a performance, you know? I’m imagining [I’m listening to an album and] I’m just trying to fill in the gaps with what, you know, what could happen.

In other instances, such imaginative play becomes more metaphorical, as in H’s description of the band as “trees blowing in the breeze,” or T’s imagery of the notes of the bass experienced as “lava you can pour on anything.”³⁴ Again, rather than involving mental representation, I interpret such imaginative experiences as affective and conceptual frames, enacted through the improviser’s movements, shaping their orientation to the music, and opening up new expressive possibilities.

I interpret such imaginative frames in line with the enactivist conception of “pretend play,” introduced in Chapter 4 (pp. 90-91): that is, as an embodied activity rather than as the execution of pre-formed mental representations. Recall, on this view, pretend play is constituted through action: the imaginer does not first conjure a mental image of a “target” and then act accordingly. For example, a child need not first invoke mental images of a phone in order to make a phone call with a banana. Rather, she picks it up, dials the number by making button pushing gestures, puts it to her ear, makes ringing sounds with her mouth, speaks into it, etcetera. As Gallagher and Rucińska explain, on this interpretation, “the action is not a manifestation of the pretense, or the expression of an imagining done in the head first; it is the imagining itself.”³⁵

This enactivist interpretation of pretense parsimoniously accounts for both my participants’ descriptions of pretend play and their observable behaviours in performance. For instance, what prompted H to describe their experience as like “trees blowing in the wind”

³⁴ A phenomenon also identified in Høffding and Snekkestad, "Inner and Outer Ears," 175.

³⁵ Shaun Gallagher and Zuzanna Rucińska, "Prospecting Performance: Rehearsal and the Nature of Imagination," *Synthese (Dordrecht)* 199, no. 1/2 (2021), 4535, <https://doi.org/10.1007/s11229-020-02989-2>.

was the manner in which they were swaying and moving in a particular moment of performance footage—a style of movement that H described as informing their rhythmic approach during the improvisation. Such thoughtful imaginative processes are therefore *enacted* rather than merely represented and then *ex-pressed*, reframing and shaping the dynamics of SMIII A-Resonance.

Yes/No Reactions

Finally, explicit thoughts may manifest simply as consciously accepting or rejecting the solicitations of an affordance in the flow of improvised performance. As Kimmel et al. describe in the context of contact improvisation dance, these form:

a stream of momentary micro-intentions that say ‘yes, and’, or ‘no, but’ to short-lived micro-affordances, which allows both individuals to skillfully continue, elaborate, tweak, or redirect the collective movement dynamics.³⁶

In musical improvisation, these micro-intentions might appear as simple “yes-or-no” responses to another musician’s invitation to synchronise on a syncopation, decisions about when to stop, or whether to “stay” in a current musical world or “change” (L). For example:

E: Yeah, I’d say I’m making conscious choices. [...] Maybe it’s kind of a classic example but, when [...] someone plays an offbeat rhythm and you [often] jump on and play the exact same thing and everyone does it for a second and then goes back to normal. But [...] it’s actually kind of cool when the bassist [doesn’t do that]. [...] So then in that moment I’m making a choice, “Okay, am I going to also destabilise this in some way?” which sometimes I would do. Or am I going to stick to my guns and let

³⁶ Michael Kimmel, Dayana Hristova, and Kerstin Kussmaul, "Sources of Embodied Creativity: Interactivity and Ideation in Contact Improvisation," *Behavioral sciences* 8, no. 6 (2018), 1, <https://doi.org/10.3390/bs8060052>.

them do it. So, I guess it’s constantly those little choices popping up of, like, things to latch onto and either provoke, or support, or just ignore them and just keep playing.

Here, E describes the experience where a fellow musician establishes a syncopated rhythm which the bassist can either “jump on”—i.e., synchronise with the syncopated rhythm—or “stick to my guns”—i.e., resist the invitation to synchronise and continue with an unsyncopated rhythm. Such moments are described as “little choices” of which the performer is consciously aware. Significantly, these experiences appear to lack a strong predictive sense of specific continuations. That is, even when resisting a musical solicitation, participants do not report forming clear alternative plans. Instead, alternatives emerge through the very act of resistance itself.

In fact, I take this observation as applying to all the “thoughtful” examples in this subsection: they generally shape or inform a mode of engagement with the musical situation without necessarily *representing* any specific musical content. Rather than planning out the next musical event in detail, these thoughts function as flexible, context-sensitive orientations that guide and modulate the nature of the performer’s engagement with the unfolding musical materials (i.e., SMIII A-Resonance).

Adopting this interpretation also helps to account for many of the strong anti-thinking claims in the first section of this chapter. Recall how participants equated “not-thinking” with having a “blank mental canvas,” “not actively thinking about what I’m going to play,” “where there’s less going on from an analytical standpoint.” Such a state resulted in a feeling of “just be[ing] a receiver,” of being “taken by sound,” “reacting” while not being “aware of what I’m doing half the time,” and “let[ting] the response come.” However, we are now able to see that these “anti-thinking” claims are perhaps based on an overly narrow conception of thinking. If thought is constrained to describe a process akin to, to restate Sutton et al.’s caricature, “instructions sent from a detached mind to an obedient body” or “the top-down

(re-)programming of the body machine,” then, indeed, none of my participants think while playing.³⁷ However, as the examples in this subsection reveal, the thoughtful processes reported by my participants—many of whom originally made strong “anti-thinking” claims—are not thoughts of this sort. They do not appear to involve rigid plans or representations, nor do they describe a process of oscillating between “thinking” and “intuition.”

While some of these examples indeed occur during moments of what could be interpreted as breakdown, most cases demonstrate this need not be so. Nor does there appear to be any compelling reason to assume that such experiences align with moments of expertise degradation or a reduction in in-the-moment receptivity. Rather, my practitioners report moving fluidly along a continuum of engagement, thoughtfully modulating SMIIIA-Resonance through both reflective and pre-reflective means—ranging from full-fledged, linguistically formulated problem-solving to what H describes as a more “peripheral kind of awareness”—challenging simplistic dichotomies between thought and action. These examples reveal that *SMIIIA* can, and often does, involve a rich interplay of conscious thought, embodied skill, and features of the environmental context—a key observation motivating the so-called “Mesh” approach to cognition in skilled action, to which I now turn.

Mesh

In recent years, the *Mesh* approach has become an influential framework for understanding the cognitive processes involved in expert performance. Christensen, Sutton, and McIlwain’s original formulation proposes that cognitive and automatic processes remain closely integrated even at advanced levels of skill.³⁸ This model challenges views that frame expertise as either under “full ‘step-by-step’ cognitive control” (“*Full Cognitive*”) or as a progression from conscious, effortful control in early stages of skill development to fully

³⁷ Sutton et al., “Applying Intelligence to the Reflexes,” 92.

³⁸ Christensen, Sutton, and McIlwain, “Cognition in Skilled Action.”

automatic expert performance (“*Automatic*”), with the author’s aligning this latter stance with Dreyfus’ work as discussed above.³⁹

Framing their model largely in contrast to the “automatic” pole, the authors suggests a more integrated division of labour between “cognitive control”—which encompasses higher-level strategic planning, goal-setting, decision-making, and situation control—and “automatic control,” which handles the streamlined implementation of routine and automatic actions and/or “habits.”⁴⁰ For example, in the “primary skill” of driving a car, cognitive control manages navigation and situational adjustments, while automatic control takes care of the micro-actions of “steering, accelerating, braking, changing gears.”⁴¹

On this meshed account, both control systems are always present, with their relative contributions shifting according to task complexity: cognitive control increases with difficulty and novelty, while automaticity dominates in familiar, easy conditions.⁴² This dynamic, hierarchical integration allows the mesh model to explain a wide range of skill phenomena, including *reduced attention* (where experts seemingly require less attention to aspects of their skills in performance), *multi-task tolerance* (the ability to perform simultaneous tasks without a reduction in expertise), *disruptive attention* (the phenomenon whereby focusing attention on a mastered skill disrupts performance), *reduced cognitive effort* (the reduction in effortful thinking reported by experts in the flow of performance), and *reduced memory* (the phenomenon whereby experts can have reduced or absent memory of their actions in skilled performance).⁴³

³⁹ Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 41.

⁴⁰ Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 39-41.

⁴¹ Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 49.

⁴² Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 48.

⁴³ Christensen, Sutton, and McIlwain, "Cognition in Skilled Action," 47.

Subsequent scholarship has refined and expanded this framework. Høffding and Satne, for example, introduce a critical refinement of mesh they term “Arch.”⁴⁴ These authors question both the nature of hybridity between cognitive and automatic processes in the original mesh model and also propose a more integrated role for external scaffolds. According to Høffding and Satne, Christensen et al.’s account is ambiguous in regard to whether the mesh should be understood as “a meta-system that switches between two or more primary systems”—that is, between cognitive and automatic control, akin to a hybrid car—or as “a singular integrated system” like an okapi, a giraffe/zebra hybrid that is “integrated insofar as there only is one homeostatic system or organism.”⁴⁵ They interpret Christensen et al. as suggesting the former. However, drawing on their own research with expert musicians, Høffding and Satne advocate for the latter: “a singular self-integrating structure that develops together with, or as part of, expertise.”⁴⁶

Furthermore, they call for a more holistic integration of external scaffolds, expanding the original model’s vertical top-down/bottom-up meshing to encompass “shared strategies, and external materials.”⁴⁷ This reconceptualisation presents the meshed cognitive system involved in expertise not as a simple navigation between top-down thinking and bottom-up automaticity, but as an inextricable blend of factors, “arching” beyond the biological individual to include elements of the material/social/cultural environment.

Adopting these additions, Gallagher and Varga further “enhance” the original meshed architecture with several key features (hereafter referred to as *enhanced mesh*).⁴⁸ First, in conjunction with Arch, they propose a more nuanced account of what counts as cognition control—one that encompasses not only conscious awareness but also a spectrum of

⁴⁴ Høffding and Satne, "Interactive Expertise in Solo and Joint Musical Performance."

⁴⁵ Høffding and Satne, "Interactive Expertise in Solo and Joint Musical Performance," S431.

⁴⁶ Høffding and Satne, "Interactive Expertise in Solo and Joint Musical Performance," S431.

⁴⁷ Høffding and Satne, "Interactive Expertise in Solo and Joint Musical Performance," S428.

⁴⁸ Gallagher and Varga, "Meshed Architecture of Performance."

reflective, pre-reflective, and body-schematic processes, “adjusting their attunement to changing conditions through improvisation.”⁴⁹

Second, Gallagher and Varga challenge the traditional, mechanistic view of habit that underlies Mesh’s “automatic” functions.⁵⁰ According to Gallagher, the enactivist/pragmatist/phenomenological account of habit diverges from traditional understandings of habit as mindless, repetitious, and automatic.⁵¹ Instead, habits are re-interpreted as inherently flexible, context-sensitive, and “intelligent.” He explains

in Merleau-Ponty as in the enactivists we find the idea that habits *in their use* have a built-in flexibility. [...] We are not fixed in the worldly structure; the world that habit enacts is variable and our habits need to be open to that variability in their very performance. [...] [E]xercising a habit [...] [is an] improvisation in response to changing circumstances. Habituality does not preclude skillful adjustment to variations in circumstance.⁵²

On this interpretation, habits are a flexible style of comportment that responds not only to material affordances but also to social and cultural norms, traditions, and institutions.⁵³ Further, with each “repetition,” habits are not simply repeated but reshaped, simultaneously constituting the style of an organism’s being-in-the-world. For enhanced mesh, this means that rather than assigning “situation control” solely to the “cognitive control” pole of the vertical mesh—as Christensen, Sutton, and McIlwain do—habitual processes (relegated in the original Mesh framework to the “automatic” pole) are themselves understood as intelligent and context sensitive. As Gallagher notes elsewhere “on the vertical axis there are

⁴⁹ Gallagher and Varga, “Meshed Architecture of Performance,” 5.

⁵⁰ Gallagher and Varga, “Meshed Architecture of Performance,” 5.

⁵¹ Shaun Gallagher, “Habit, Sedimentation and Institutions,” *Cogent arts & humanities* 12, no. 1 (2025), 2, <https://doi.org/10.1080/23311983.2025.2480879>.

⁵² Gallagher, “Habit, Sedimentation and Institutions,” 5.

⁵³ Gallagher, “Habit, Sedimentation and Institutions.”

important bottom-up processes that are not automatic”—further supporting Arch’s more integrated understanding of hybridity.⁵⁴

Third, Gallagher and Varga situate *affect*—broadly construed to include not only “emotion[al] processes but also more general and basic bodily states such as hunger, fatigue, and pain”—centre stage.⁵⁵ Rather than viewing affect as a mere lens, filter, or expressive quality applied to otherwise neutral instrumental actions, they argue that affect is a foundational element of cognition in expert performance, permeating the body schema. They explain:

The body schema does not work independently to deliver technically proficient movement, to which an expressive style is then added as something motivated by specific and perhaps occasion-relative emotions. Affective processes directly shape body-schematic processes, slowing them or speeding them or leading them to a certain initial posture that may influence performance or change how agents are functionally situated. Accordingly, affect modulates functional integration. Affect and body-schematic processes are part of the vertical mesh in expert performance—but they also allow for an integration attuned to targets and environmental features in the performance situation.⁵⁶

According to enhanced mesh, affect is not something inside the individual and in need of expression. Rather, recalling Merleau-Ponty’s embodied account of gesture, affect pervades the entire being of the cogniser, shaping how their bodies organise and adapt movement, perception, and engagement with the environment. Crucially, Gallagher and Varga here frame affect as the dimension in which the *radically situated* nature of expertise is realised—

⁵⁴ Gallagher, *Performance/Art*, 44.

⁵⁵ Gallagher and Varga, “Meshed Architecture of Performance,” 6.

⁵⁶ Gallagher and Varga, “Meshed Architecture of Performance,” 6.

serving as the mediator at the intersection of the “vertical” (top-down/bottom-up) and “horizontal” (environmental, sociocultural, material) axes of the meshed architecture.⁵⁷ According to enhanced mesh, affect functionally integrates cognitive, bodily, emotional, social, cultural, and material dimensions into the cognitive architecture of the expert in action, as these authors explain, “‘affective framing,’ shapes our ability to cope with the surrounding world.”⁵⁸ This move advances a robustly situated model of expertise, where the expert’s relationship to their situation is best described as affective attunement or resonance (that is, rather than information processing).

Interpreted in the light of enhanced mesh, SMIIIA emerges as a fundamentally affective interaction with the musical situation where movement, perception, thought, imagination, and features of the surrounding environment coalesce within a dynamic affective field. Affect is not marginal nor merely an expressive layer; it is a pervasive dimension of SMIIIA which fundamentally structures its situated and relational nature. In the final subsection of this chapter, I present a cross section of examples from my data that illustrate how this “affective framing” manifests for my participants in practice, providing phenomenological evidence for the central role of affect in the meshed architecture of SMIIIA.⁵⁹

Affect

In the final sections of this chapter I turn to the various ways in which affect—broadly construed—modulates SMIIIA-Resonance. My aim is to demonstrate that affect is not merely a peripheral or secondary influence on the bi-directional attunement between practitioner and sound/situation; rather, it is a constitutive dimension of SMIIIA-Resonance, functionally

⁵⁷ Gallagher and Varga, "Meshed Architecture of Performance," 6.

⁵⁸ Gallagher and Varga, "Meshed Architecture of Performance," 6.

⁵⁹ Gallagher and Varga, "Meshed Architecture of Performance," 6.

integrating situated bodily, emotional, social, cultural, and material factors into the cognitive system, shaping the specific contours, trajectories, and qualities of an improviser’s SMIIIA. By foregrounding affect in this manner, my analysis underscores the fundamentally *situated* and *relational* nature of SMIIIA—one realised through affective attunement—thereby challenging accounts that reduce SMIIIA to the translation of mental representations from mind to body to world. I here discuss three broad ways in which affect manifests for my participants: *bodily affects*, *emotional affects*, and *perceptual affects*. Please note: this organisation serves narrative coherence and is not intended to imply that these modalities are discrete.

Bodily Affects

One of the most immediate ways affect constitutes SMIIIA is through the bodily sensations underpinning specific musical gestures and techniques. SMIIIA is often permeated by a tacit awareness—will this sound feel good for my body to play? These affective qualities are not fixed properties; rather, they emerge from the dynamic interplay between performer and situation, including the performer’s unique bodily makeup, personal preferences for physical exertion, the instrument’s physical characteristics, and the performance context. This bodily affectivity forms a foundational ground from which musical gestures are experienced as available, accessible, or inviting, shaping a performer’s musical sensibility and the possibilities that emerge in SMIIIA.

S, for example, describes SMIIIA as grounded in a felt sense of physical comfort with certain sound-producing gestures—choices are often guided by what, for S, “feels good to play”:

S: It’s, first of all, like, does this *feel* good to play? [...] If I needed to play something really physically taxing, I probably won’t intuitively or spontaneously choose to do

that unless it’s really cathartic, for instance. [...] Unless I’m like really slapping the strings and it feels amazing. [...] It’s more coming from what the music feels like as it’s, like, resonating in my body and in the bass as well. [...] I guess, there are different factors that inform those decisions. But most of the time I would say that a lot of the decisions I make, and the sounds that I play, feel good for my body to play. [...] The embodied sense is very important for me in terms of, like, the sounds that I bring out and offer to those situations.

S’s account reveals how SMIIIA is permeated by a sense of how a particular playing technique will feel to execute. What S experiences as musically appropriate is inseparable from this affective attunement—though this isn’t simply a matter of avoiding discomfort, as sometimes extreme physicality is experienced as “cathartic,” or gestures are driven by the agential pull of the sounds themselves. Here, bodily affects are framed as constituting judgement, directly informing what musical possibilities emerge in SMIIIA. S continues:

S: In terms of, like, the decision of entering with the sound, I guess, like, there’s a connection [i.e., between SMIIIA and the *feel* of playing a sound]. [...] I’ll choose that sound often because I know that it is something that will *feel* good [to play] [...] And [those techniques] have been informed by just exploring the instrument without any filter or without any stylistic box put onto it. [...] Often [a particular playing technique] will come very intuitively [...] and I’ll enter with that [sound] because I know very much what it feels like to play that sound and [...] [that] this is going to feel good in the context of this blend. [...] So, I think there is a correlation with those two [i.e., SMIIIA and the *feel* of playing a sound] in that way.

Here, S foregrounds how SMIIIA arises from their affective resonance with how a particular sound will feel for their body to play. There is not a process of first conceiving musical ideas before filtering them through a sense of “how will this feel?” Rather, only those actions and

gestures that feel satisfying in the body are even perceived as available options. S’s sedimented history of exploring the instrument shapes which gestures feel “right,” highlighting how affect functionally integrates contextual features in such a way that actively configures the landscape of musical possibilities before any explicit choice can be made. This reveals how, in expert practice, bodily affect is a fundamental generative force—structuring dynamics of SMIIIA-Resonance in real time.

The relational and personal nature of such bodily affects is further highlighted by T’s contrasting account. With a different physical build and a preference for “extreme physicality,” T actively seeks out demanding physical techniques that provide them with intense pleasure:

T: Me. My body. On a bass. I get a great deal of pleasure out of extreme physicality. [...] [I]t’s almost like being an elite athlete. [...] You’re dealing with speed and tactility and energy and maintaining physical gestures that are, like, *full on*. Physically really *fucking* hard to maintain. And doing it at a level, and *volume* level, and an *energy* level, in tempo, and responsively, and not panicking, so you can be playing hard and fucking fast and making the [bass] sound like a boulder’s falling down a hill. And [still] listening to everything that’s going on and being able to go [**clicks fingers**]. Silence [**blows air through lips**]. Shift.

T’s description reveals that, although the specific valence of certain playing techniques is perhaps inverted compared to S’s account, the same underlying principle remains: both musicians’ SMIIIA is fundamentally shaped by the way certain playing techniques *feel* for their body to play. For T, pleasure is found in pushing the limits of exertion and maintaining intense, physically demanding gestures, structuring the field of possibilities in SMIIIA from the outset.

Pain

Such bodily affects are, of course, not limited to positive feelings; pain, for example, can just as powerfully shape the ways in which horizontal factors are integrated into SMIIIA. Recall how, following a major shoulder reconstruction, C found they could no longer comfortably reach certain areas of the bass fundamentally shifting their basic sense of what Merleau-Ponty, following Husserl, refers to as the “I can,” making their usually transparent bodily coping come to the fore.⁶⁰ This case powerfully illustrates how pain, as a pervasive affective force, holistically reshapes the landscape of possibilities in SMIIIA. C’s SMIIIA was, following their injury, redirected toward certain regions of the fingerboard and ways of moving—not through conscious decision-making (“I don’t go, ‘Oh gee, [...] I really, really should not play this line because it’s going to take me down to the low F.’ Like, that’s something that would never occur to me”) but through the pre-reflective affective influence of pain.

Again, I’d like to emphasise that this is not a static state of affairs. As with S’s example above, the dynamics of material agency at the heart of SMIIIA sometimes mean that the materials themselves can “drive” a performer to play certain techniques. The musical line can exert a pull strong enough to temporarily override the affective constraints of pain, illustrating the complex interplay between material agency and bodily affects. However, this does not diminish the central claim here that bodily affects fundamentally structure the dynamics of SMIIIA-Resonance.

⁶⁰ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 113; 139; Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: Second Book*, trans. R. Rojcewicz and A. Schuwer (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1989), 159-60; Drew Leder, *The Absent Body* (Chicago: University of Chicago Press, 1990). For Merleau-Ponty and Husserl, the “I can” designates the lived sense of motor intentionality that stands in contrast to the “I think” at the heart of Descartes’ cogito. As Landes explains, “The perceived world is structured not according to an ‘I think,’ but rather according to our body’s capabilities and powers, a live ‘I can’” (Donald A Landes, *The Merleau-Ponty Dictionary* (London/UK: Bloomsbury Academic, 2013), 102.).

Pain also operates at a more granular level, influencing countless micro-decisions that may otherwise go unnoticed. For instance, while reviewing performance footage, I asked H about their choice to play an interval with what seemed like an “unconventional” fingering—a fine-grained detail made more apparent from my “insider” outlook. H’s response was revealing:

H: I have a busted tendon here [**refers to left index finger**] from catching a cricket ball when I was a teenager. And I can have an operation on it if I want where they can tighten it up, but I’d potentially lose a bit of movement. So, I’ve opted not to. So, I have a few weird tricks. One is [that] I have more strength on the E string with my other fingers. So, at any opportunity, I’ll use them. Sometimes, if I’m playing a low F, I’ll put this finger on top [**puts middle finger on top of index finger**]. When I’m playing thumb position, like, that will happen [**demonstrates the left index finger collapsing**]. [...]. So, I’ll avoid this finger if possible. Otherwise, like, if I come in at the wrong angle, that [joint] will kind of pop out a little bit and it really hurts, and it will sting for the next few minutes.

Like C, H’s account shows how pain can drive the development of highly specific adaptive techniques, resulting in idiosyncratic fingering choices that shape improvisational pathways. Rather than simply limiting H’s playing, pain has catalysed creative adaptations—“weird tricks”—that have become integral to their personal style. H’s description of avoiding their injured finger “at any opportunity” demonstrates how pain shapes the movements that constitute SMIIIA, guiding hand positioning and movement choices.

In both C and H’s examples, pain functions as a pervasive affective factor shaping SMIIIA-Resonance, either by rendering entire regions of the instrument less accessible or by driving musicians to use particular fingerings in specific positions. These adaptations further situate the improvisers’ bodies in certain positions or regions of the bass, where specific

improvisational possibilities become more or less accessible. From these locations, certain musical continuations are afforded or constrained and, together with our earlier discussion of movements that “feel good to play,” further shape improvisational choices, emphasising how affect reveals the radically situated nature of SMIIIA.

Fatigue

Fatigue is another way in which bodily affects can constrain and reshape SMIIIA, underscoring the dynamic and plastic nature of affective influences. Fatigue presents a common and variable influence—fluctuating throughout a performance and across different contexts.⁶¹ Sometimes, fatigue was framed as having a negative impact on performance. L, for example, mentions feeling “tired” as one of several factors that inhibit their ability to “feel at one with the instrument.” As a result, some participants reported employing deliberate pre-performance fatigue-management strategies:

B: I guess there was some preparation... in my mind in a way. Like, well, just knowing that I wanted to be feeling good. [...] Things like, on the day, I wanted to make sure that I had a little bit of a rest in the afternoon just so that I was feeling... cool, [...] that I didn't get tired. [...] It was an important [performance] for me, [...] with great, *great* players and I wanted to be feeling... comfortable. [...] I had actually had a coffee at about 5 o'clock in the afternoon, which I don't normally do. [...] There was [...] just a level of consciousness that I had to be on my A-game for this one.

The heightened stakes of the performance and sensitivity to the potential negative impact of fatigue on SMIIIA-Resonance led B to perform several rituals—including having a rest and, unusually, a coffee before the performance—to ensure they were alert and engaged. B's

⁶¹ Høffding and Snekkestad, "Inner and Outer Ears," 169.

conscious preparation prior to performance in anticipation of certain bodily affects such as fatigue unfolds in relation to the demands of a particular performance context, social stakes, and environment, again illustrating the situated nature of SMIIIA.

Fatigue management strategies could also occur spontaneously during performance, directly modulating a performer’s in-the-moment engagement with musical materials. When asked about a spontaneous change in bow grip—from an underhand German style to an overhand French style—E explained:

E: A way of like avoiding physical fatigue for repetitive movements is just by slightly changing the way you’re doing it. So, also part of like moving by hand to different spots [**moves hand around from should to belly of an imaginary bass**] or like keeping the wrist flush while moving the fingers [**demonstrates with left hand against right forearm**] or doing this [**same action but rolling fingers**] or that [**makes hands into claw**], like all of those changes are just like... changing the muscle group that you’re using, so that none of them gets too tired. [...] It’s sometimes it’s the same [with the bow strokes], because like these repeated strokes, [...] there’s a sort of a time limit to how long I can do each one without getting too tired.

These descriptions show how the continuation of a gesture, as it interacts with the unfolding affordances of musical materials, is simultaneously responding to the dynamics of muscular tension and fatigue. Such strategies can manifest as changes in the structure of a particular gesture or playing technique which, given the continuous reciprocal interplay of material agency, holistically shapes SMIIIA-Resonance.

Fatigue does not necessarily result in negative outcomes; it can also be leveraged into distinctive positive dynamics with the materials. S, for instance, recounts a performance following an exhausting day of teaching and mentoring:

S: I was exhausted [laughs]. [...] We’d all done workshops that day. The whole day. So, I had been in the [the venue] since 10 a.m. that day, without much natural light, and was taking workshops. [...] And the days leading up to that I just haven’t had a day off until today in three weeks. [...] I was kind of running on adrenaline [...]. Adrenaline and delirium [laughs]. [...] [A]ll of us were running on this delirious state of switching from educators, mentors, to performers in one day. But I think it was actually... such a nice thing to be able to perform that night after teaching. [...] I think my particular state was, like, exhaustion but a happy exhaustion because I got to just be with my instrument, and I didn’t have to speak. [...] Yeah, a very, very interesting but nice shift of existing.

For S, the shift from teaching to performance created a “happy exhaustion” that transformed fatigue into a different mode of being. Rather than diminishing their musical capacity, this transition fostered a heightened affective connection with the act of playing—relief that they “got to just be with my instrument”—enabling a joyful and focused engagement that might not have been accessible in other states. This example demonstrates how fatigue dynamically modulates the resonance between performer and the musical situation, shaping the possibilities for attunement with materials.

Further supporting this perspective, E reflects on how the physical and mental exhaustion associated with illness can, at times, result in a relaxed sense of presence, allowing them to give up control while still feeling both happy and focused:

E: The next day [i.e., following this performance] I got sick and then, in retrospect I realised, yeah, I was actually a little bit... low energy on the gig... And... I’m trying to think. My mindset was... [...] general words to describe it would be like “slow.” [laughs] And, like, “relaxed.” But... relaxed in a sense of just kind of... giving up control, rather than like relaxed and in control. ... I think I felt... physically and mentally tired. But I also know that I can still perform to a level I’m happy with even in that state. [...] I’ve always found that, even if I’m really sick, [...] when it comes to performance time, [...] something switches on for me that allows me to... to perform.

E’s comments reveal how fatigue can facilitate a special kind of release of conscious control—a relinquishing to “patency” in the agency-patency dyad with the musical materials—and an increased sense of what Høffding terms “performative passivity.”⁶² This description demonstrates how fatigue as affect directly—if non-linearly—plays into the dynamics of SMIIIA-Resonance, catalysing a transition away from “active” control to a more “passive” receptivity—in the Husserlian sense of these terms.

The examples described thus far—bodily pleasure, pain, and fatigue—reveal the deep and dynamic ways that SMIIIA-Resonance is “framed” by bodily affects. These examples collectively show that bodily affects are not post-hoc filters or lenses layered onto pre-formed ideas, nor are they merely expressive overlays influencing execution. Rather, affect is the dimension in which aspects of the performance context can be functionally integrated into the embodied cognitive system; dynamic and constitutive forces that underpins and informs the very emergence of possibilities in SMIIIA from the ground up.⁶³ In each case, affect emerges as a central feature modulating the resonance between skilled movements and musical materials.

⁶² Høffding, *A Phenomenology of Musical Absorption*, 188-95.

⁶³ Gallagher and Varga, “Meshed Architecture of Performance,” 6.

Emotional Affects

The following examples highlight how emotional states are similarly deeply entwined with the dynamics of SMIII A-Resonance. In this Merleau-Pontian view (see p. 86, FN 34), emotions are not hidden mental states subsequently expressed through musical gestures; instead, emotions are enacted or “accomplished” in a style of movement and material engagement.⁶⁴ Crucially, these examples show how emotional affects, when thus construed, function as dynamic mediators at the axis of the vertical and horizontal mesh, integrating sociocultural, material, and environmental dimensions of the situated performer into SMIII A. Please note: due to the especially personal nature of some of these examples, even the single letter identifiers have been omitted in this sub-section.

In some cases, emotional states stem from broader life experiences. One participant, reflecting on a time shortly following the death of their wife, describes how music provided a means of emotional processing—a way of being “rescued” through the act of performing itself, recalling:

When my wife died, I did a gig a couple of days after and [...] I was hesitant to do it, but it was a really good thing to do. It took me away from it... You think, “Oh, I know this is going to happen. I’m prepared for it.” But you’re not... You academically are, but emotionally you’re not. So, that’s one of the things about music. It really does kind of rescue you.

For this participant, the act of performing served as a vehicle for processing grief. The experience of loss was not merely expressed through music; rather, the practice of performance itself became part of their extended cognitive system for experiencing these

⁶⁴ Merleau-Ponty, *Phenomenology of Perception*, 190.

emotions. This demonstrates how affect integrates aspects of the performer’s broader life directly into the dynamics of SMIIIA-Resonance.⁶⁵

As this participant continues, these emotional states actively shape the musical ideas experienced as available within SMIIIA, positioning affect as a central factor defining a performer’s personal sound:

I think one of the things that makes us all sound different is the fact that your life experiences and your personality will also govern what you play. [...] I know my playing at various times of my life where there have been good times, I’ve sounded a certain way. When I have been in a situation that wasn’t good, my playing was different again. It was melancholy, or ... I don’t think I would’ve played a lot of quotes of “Happy Days are Here Again,” or anything like that, you know? I think if you are stupidly in love with someone you play differently to someone who just had a spouse die. [...] And I’m using all of those examples for a reason of course, because I’ve been through all that you know? My playing was very different at various times. It wasn’t, again, it wasn’t a conscious decision. It was simply: you can’t leave your emotions behind, even if you have a “blank canvas” that you think your toting around in your mind, you’re not.

This account illustrates that emotional states do not merely overlay SMIIIA; rather, they are a basic element of its cognitive ecology, inextricably shaping the dynamics of SMIIIA-Resonance through which possibilities for musical thought and action emerge. The “blank canvas” metaphor, cited by several participants, is thus revealed as an oversimplification: although this “canvas” may lack specific pre-formed mental representations, its metaphorical

⁶⁵ Joel Krueger has offered a number of key insights on this topic. See, for example: Joel Krueger, “Music as Affective Scaffolding,” in *Music and Consciousness 2: Worlds, Practices, Modalities*, ed. Ruth Herbert, David Clarke, and Eric Clarke (Oxford: Oxford University Press, 2019).

surface is textured by the situated improviser’s affective state, interweaving “horizontal” aspects of the performer’s sociocultural, material, and personal circumstances.

Of course, not all emotional states that shape SMIIIA are negative. For example, another participant describes how a general sense of positivity regarding their life and musical practice infused their approach at a particular performance. They note:

I guess one meta-comment might be just... that, overall, in these last few weeks and even last few months I’ve felt really good about playing. I’ve felt like a lot of things that I’ve been working on in varying degrees, for even decades in some instances, are kind of starting to bear fruit. [...] And so, what I’m doing right now, I’m going in in a pretty positive frame of mind to begin with.

Here, as with the previous examples, this participant’s affective state is not experienced as a passive backdrop to SMIIIA. Rather, their headspace—emerging from a broader context of their evolving relationship with, and attitudes towards, their long-term practice—fundamentally shapes their confidence and receptivity in the moment. This emotional modulation of SMIIIA-Resonance again reveals affect as the domain through which personal, social, and material contexts are functionally integrated into the improviser’s situated cognitive system.

While these examples largely relate to broader life experiences, emotional affects also arise from highly local and immediate factors within the performance context, often involving complex intersubjective dynamics. For example, one participant, reflecting on a performance I attended, describes how the event was “poorly managed,” with “some really weird dynamics with the person who booked me,” and the added challenge of managing an audience whose expectations had been misset by the organiser. This situation led to feeling

both “anxious and stressed,” such that the usual dynamics of their SMIIIA-Resonance felt “quite challenging.”

Another participant described performing on the final night they would spend with their partner before a breakup, noting how the emotional complexity of the event—sadness, performance anxiety, organisational responsibility, and artistic expectations—created a deeply layered affective atmosphere from which their capacity to attune to the musical situation emerged:

This gig—There’s lots going on, but it was the last night I spent with my girlfriend because we decided that night will be the last time we spend the evening together. [...] [T]hat night was a very emotional night for me. [...] It was very *in* this gig [**refers to computer screen**]. [...] My layers. I’m breaking up with someone I love. [...] It’s a festival that I’ve been organising with my dear friend. It’s the opening night. We’re hoping it’s going to work. There’s all the organisational stuff going on around getting there. [...] There’s just a whole lot of pressure on. “Is this going to work? How’s it going to be?” [...] So, the mindset was scattered. Emotional. Tired. Like, emotionally tired. [...] My mind state was just deeply... fragmented and layered and with some very heavy pressures and some emotional stuff, some physical—just being tired—and also just the hopes that you’re going to pull it off.

Throughout our interview, this participant described how this multitude of emotional dimensions collectively shaped the quality of SMIIIA-Resonance during the performance. These emotions were not experienced as separable from music-making, but integrated into SMIIIA—forming the basis of their engagement with musical materials which themselves were experienced as imbued with “degrees of emotion”:

I found myself crying during some of this gig because I just felt it was, like, really—I was really upset and emotional. And also *in* the music, [which] had this deep, like, draw [**gestures hand as if stretching something out of an object in front of him towards the ground**] towards very narrative... sensualism. [...] So, there’s degrees of emotion connected to the sounds. [...] The emotional stuff was in it [i.e., the sounds]. [...] [So], to be all ears is the best thing you can be for everyone. Because [...] my *ears* know more than I do.

As this participant notes, these emotions were experienced both as personal and simultaneous “*in* the music,” and “connected to the sounds.” All of this highlights how these emotional affects permeate movement, perception, and imagination—revealing the irreducibly situated, embodied, and affective mesh underlying the dynamics of SMIIIA-Resonance. Here, emotional states are enacted and realised through situated acts of performing, listening, and engaging with musical materials and others, continually integrating an array of horizontal factors into SMIIIA.

Perceptual Affects

Further exemplifying the central role of affect in SMIIIA, several participants described how their basic perception of music is deeply shaped by affective factors. This dynamic was already alluded to in the previous quote, where this participant, reflecting on their affective attunement to emotions “connected to the sounds,” suggests, “my *ears* know more than I do.”

For example, according to T, affect is woven into the very experience of perceiving musical materials, conceptualised as something that “builds in their body” allowing them to “hear things viscerally.” Here, T recalls one of their earliest encounters with improvised music:

T: [T]here was an SBS [series] [...] [and] they did “Jazz Portraits.” So, there was Count Basie, Ella Fitzgerald, which was when I got into Chick Webb—Chick Webb was a really early emotional connection for me—and I think Buddy Rich, and then Billie Holiday, and then Coltrane, Ray Charles, like week after week, and I was just like, “This is the best thing I’ve ever heard in my life.” So, the first time I heard Ella Fitzgerald, I’m crying. [...] I’m like fourteen, fifteen and just going [**gestures many things flying at face with hands**]. And I couldn’t hear harmonically what was going on, on any level. I’ve listened back to some of those things and gone, “Why did I find that so abstract and just pure emotion?” You know? My ears have obviously developed. But the energy of the music was just deeply meaningful. [...] It was just a *visceral* experience. [...] For me, it was rhythm and emotion. I couldn’t dissect it musically, and I couldn’t hear it clearly. [...] Because all I was hearing was with every antenna I had to try and make sense of it. Which means it builds differently in your body. [...] I still remember the feeling of going “What *is* it?” as opposed to, “Oh, it’s these [chords] doing the da-da-da.” [...] So, it’s like, being able to hear things viscerally. [...] It’s how I still make music.

T’s reflections highlight how, in their experience, affect is foundational to how music is apprehended in basic perception, describing a mode of listening that operates through emotional resonance rather than theoretical understanding. The phrase “builds differently in your body” further points to how this affective listening sediments into the body schema, shaping the fundamental ways in which T engages perceptually with musical materials. This “visceral” form of listening remains central to T’s practice, persisting even as their analytical skills have developed (“It’s how I still make music”). All of this suggests that, even in their now highly-developed expert practice, T’s SMIIA-Resonance remains grounded in affective

emotional dimensions, constantly shaping and orienting the ways in which they listen, interpret, and move with the musical situation.

This affective dimension of perception appears to extend even to the most basic elements of musical materials. Consider the following example from C, who has perfect pitch. When asked to describe how they are capable of immediately distinguishing between different key centres, C frames their experience in terms of an affective resonance with sounds:

C: [F]or me the sound of each key is different. That’s what it is. Some people say there’s, like, colours involved. That’s not [the case] for me. I don’t associate it with colours. [...] But I think there’s a certain resonance. I think it’s a resonance issue. So, for me, D flat has a certain sound that D doesn’t, and that C doesn’t. D flat is kind of *majestic*. C is kind of *bland*, you know? D is *bright*. And why would they be? [But] that’s how I hear them.

C’s experience reveals how even seemingly abstract musical elements like key centres are, in their experience, perceived through affective qualities. Rather than describing keys in technical terms (frequencies, intervals, key signatures etc.), C characterises them through an affective resonance: D-flat as “majestic,” C as “bland,” and D as “bright.” This suggests that the most basic ways in which C encounters musical materials is not through an intellectual operation of information processing, but rather an affective *feel* for the resonance of certain musical materials. Even in what might seem like a detached act of key-centre identification, affective dimensions fundamentally shape how musical materials are experienced.

Taken together, these accounts of perceptual affects demonstrate how affect operates not as a separate dimension of musical experience but as a constitutive element of musical cognition at all levels. From T’s visceral response to Ella Fitzgerald to C’s perception of D-

flat as “majestic,” affect fundamentally shapes how musicians perceive and engage with musical materials, further supporting my core claim here that affect is a central facet in the dynamics of SMIIIA-Resonance.

* * *

In this chapter, I have explored the myriad ways in which conscious thought and affect modulate *SMIIIA-Resonance*: the bi-directional attunement or resonance constituting the dynamic interplay of agency and patiency of material agency at the heart of SMIIIA. While participants initially described conscious thought as categorically distinct from their more “intuitive” experiences of “playing what they hear”—with many suggesting that their ideal improvisational experience emerged from an essentially “unthinking” state—a closer examination revealed this to be an oversimplification. In reality, expert improvisers employ a diverse array of thoughtful techniques to skilfully direct attention and re-frame SMIIIA-Resonance, challenging any strict dichotomy between thinking and intuition.

Drawing on “meshed” approaches to cognition in skilled performance, I have argued that SMIIIA emerges from a dynamic integration of conscious thoughts with pre-reflective, materially engaged, body-schematic processes. Building on Gallagher and Varga’s “enhanced” mesh, this chapter has also illuminated the fundamental role of affect in SMIIIA—forces that bring about gestalt-level transformations of SMIIIA-Resonance. Crucially, by situating affect at the axis of the vertical and horizontal mesh, enhanced mesh foregrounds affect as the dimension through which sociocultural, material, and environmental factors are functionally integrated with the embodied-cognitive system. Affect is thus the dimension through which the radically situated nature of SMIIIA becomes intelligible, suggesting that SMIIIA-Resonance is, fundamentally, an affective resonance.

These observations challenge any account of SMIIIA as a straightforward translation of detached mental representations from mind to body to world. Instead, the evidence lends support to a fundamental claim emerging in our previous chapter: *SMIIIA is not a ‘within’ property; it is a ‘between’ property*, a radically situated, non-anthropocentric, relational phenomenon emerging “between” the practitioner and their materials. These insights make it clear that other crucial elements may exist within this distributed cognitive network which require further attention—most notably the musical instrument itself, a topic to which I now turn.

7. Musical Thinging

In the previous chapter I explored how the dynamics of *SMIIIA-Resonance*—the non-anthropocentric dance of material agency between improviser and musical materials—facilitates the integration of “horizontal” material, social, and cultural factors into the meshed cognition of the improviser. In light of this framework, it becomes clear that there remains a conspicuous element within this distributed ecology which has hitherto remained underexamined: the double bass itself. Just as the affective resonance between sound and movement continuously and reciprocally constitute SMIIIA, so too does the instrument occupy an equally fundamental role. In order to appreciate fully the instrument’s significance in SMIIIA, however, we must first engage with a more fundamental question: what is a musical instrument? As argued in this chapter, understanding the instrument’s role in my participants’ descriptions of SMIIIA will require us to reconsider some of our most basic ontological assumptions about the nature of instruments.

This chapter begins by considering what I interpret as the dominant view of musical instruments: as expressive tools. On this view, musical instruments are a kind of equipment that recedes or withdraws from attention during use—what Heidegger terms the “ready-to-hand”—and/or dissolves to become an extension of the performer’s body, i.e., Merleau-Ponty’s extended body schema.¹ While both of these frameworks do indeed illuminate important aspects of a musical instrument’s being, I here argue that neither quite captures how the musical instrument manifests in my participants’ experience.

Instead, I suggest that musical instruments are most holistically understood through what Heidegger came to term “things thinging”—neither present-at-hand objects nor ready-to-hand equipment that withdraw from attention, but rather “things” that, in their “essencing,”

¹ Martin Heidegger, *Being and Time* (Broadway, New York: Harper & Row, 1962); Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012).

“shine,” gathering and disclosing temporary worlds.² This framing sets the stage for another of Malafouris’ conceptual tools: “Creative Thinging”—the confluence of creation and enactive discovery which practitioners accomplish both *with* and *through* things.³

This lens reveals how musical instruments are neither merely tools that withdraw from awareness during skilled use, nor simply prosthetic extensions of the performer’s body, but rather active participants in the creative process that gather and disclose musical worlds.⁴ This perspective reinforces key insights from Chapter 5 by once again highlighting how humans may not be the causal centre of the creative process of SMIIIA, but rather one element in a non-anthropocentric distributed creative system co-constituted by the instrument itself.

Instrument as Ready-to-Hand

In the broadest sense of the word, an “instrument” is a “a tool, implement, or utensil used to execute a piece of work”—a usage that aligns closely with both everyday language and experience.⁵ It is therefore unsurprising that *musical instruments* are, in general, conceptualised as a kind of tool: equipment essentially used to express SMIIIA. For this reason, I begin by considering the musical instrument from this perspective.

Arguably the most influential phenomenological-ontological account of tools can be found in Martin Heidegger’s seminal work *Being and Time*. According to this era of Heidegger’s thinking, there is not one ontological category for capturing all that exists, but

² Martin Heidegger, “Building, Dwelling, Thinking,” in *Poetry, Language, Thought* (New York, NY: Harper & Row, 2013); Heidegger, “The Thing.”

³ Lambros Malafouris, “Creative Thinging: The Feeling of and for Clay,” *Pragmatics & Cognition* 22, no. 1 (2014).

⁴ It is important to note that by “prosthesis” I here mean in the everyday sense of “a mere extension of the human body.” However, Malafouris, following Bernard Stiegler, repurposes this term to designate a core feature of human becoming—a more nuanced usage with which I fundamentally agree. See: Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, 1 ed., The MIT Press, (Cambridge, Massachusetts: The MIT Press, 2013), 154.

⁵ Oxford English Dictionary, “Instrument.” https://www.oed.com/dictionary/instrument_n.

rather (at least) three distinct modes of being: the mode of being of humans (or *Dasein*)—“existence,” essentially characterised by “Being-in-the-World” (*In-der-Welt-sein*); the mode of being of *substances*—“presence-at-hand” (*Vorhandenheit*); and the mode of being of *equipment*—“readiness-to-hand” (*Zuhandenheit*).⁶ Heidegger argues that the history of Western philosophy has tended to understand all that exists primarily in terms of substances (substance ontologies), overlooking the unique ontological character of equipment and human existence.

According to substance ontologies, a tool can be understood as comprised of the substances from which it is made as formed in a particular way, and it should be possible to develop an account of what a tool *is* from this basis. However, Heidegger’s phenomenology of use-objects reveals several unique features of the “ready-to-hand” that challenge this reductive perspective. Firstly, equipment is—from the outset—something which is used in-order-to accomplish something and is tied into a complex totality of interconnected tools and projects. For the double bass, this means its being as an instrument is constituted by its relationship to other equipment (e.g., bows, rosin, stages, concert halls) and the existential possibilities it discloses (e.g., creating improvised music, being a musician). As Heidegger explains,

there ‘is’ no such thing as *an* equipment. To the being of any equipment there always belongs a totality of equipment, in which it can be this equipment that it is. Equipment is essentially ‘something-in-order-to...’ [*“etwas um-zu...”*]. [...] Equipment—in

⁶ For Heidegger’s original discussion see: Heidegger, *Being and Time*, Chapter 3. For an excellent brief summary of the text see: Mark A. Wrathall and Max Murphey, “An Overview of Being and Time,” in *The Cambridge Companion to Heidegger’s Being and Time*, ed. Mark A. Wrathall (New York, NY: Cambridge University Press, 2013). For a more detailed commentary see: Hubert L. Dreyfus, *Being-in-the-World : A Commentary on Heidegger’s Being and Time, Division I* (Cambridge, Mass: MIT Press, 1991).

accordance with its equipmentality—always is *in terms of* [*aus*] its belonging to other equipment.⁷

Heidegger refers to this irreducible network of interconnected equipment and the projects and possibilities it discloses as “the worldhood of the world”—“the referential totality which constitutes significance.”⁸ This, he argues, cannot be built up from present-at-hand substances—our *familiarity* with equipment is equally foundational and irreducible to accounts based solely on material properties.

Furthermore, according to Heidegger, when we skilfully use equipment for “dealings cut to its own measure (hammering with a hammer, for example),” its materiality essentially withdraws or becomes transparent as the user becomes absorbed into the *towards-which* of the project at hand.⁹ The hammer disappears into the act of driving the nail and the broader project of building. Heidegger explains:

The peculiarity of what is proximally ready-to-hand is that, in its readiness to hand, it must, as it were, withdraw [*zurückzuziehen*] in order to be ready-to-hand quite authentically. That with which our everyday dealings proximally dwell is not the tools themselves [*die Werkzeuge selbst*]. On the contrary, that with which we concern ourselves primarily is the work—that which is to be produced at the time [...] the ‘*towards-which*.’¹⁰

This “withdrawal” further complicates substance-based explanations of equipment. How, for example, could something be defined primarily by the substances it is made from if, when most fully being itself, its materiality withdraws? If the material “is used, and used up” and

⁷ Heidegger, *Being and Time*, 97.

⁸ Heidegger, *Being and Time*, 160.

⁹ Heidegger, *Being and Time*, 98.

¹⁰ Heidegger, *Being and Time*, 99.

“disappears into usefulness”?¹¹ The answer is that it cannot be defined in this way alone. The ontological status of equipment cannot be reduced to the substances from which it is composed.

This essential feature of equipment—that it fundamentally withdraws or becomes transparent in skilled performance—also represents a common stance regarding the ontology of musical instruments.¹² Don Ihde, for example, articulates this perspective when he writes:

We are now able to recognize a very basic relational ontology of instrument use. The human practitioner plays the flute to produce musical sound—I diagram this as:

Human → flute → music

[...] [However,] as skill is acquired, the flute is ‘mastered’ in that it *withdraws* or becomes more and more *transparent*.¹³

This understanding of musical instruments as equipment that withdraws during skilled performance finds further support in the accounts of several participants in this study. For example, S describes how playing with their eyes closed facilitates a transparent, unmediated “connection with the instrument,” explaining that explicitly focusing on the instrument disrupts this more direct relationship:

S: [W]hen I have my eyes closed—which is kind of my preferred mode—it means that I’m not relying on anything except the connection with the instrument and my ears. [...] [I]f I’m in the flow, that’s when I can actually really close my eyes because there’s this kind of momentum [...] [which] drives this really deeper relationship with

¹¹ Heidegger, "The Origin of the Work of Art," 44.

¹² See, for example: Andrea Schiavio and Hanne De Jaegher, "Participatory Sense-Making in Joint Musical Practice," in *The Routledge Companion to Embodied Music Interaction*, ed. Micheline Lesaffre, Marc Leman, and Pieter-Jan Maes (Routledge, 2017), 34-35.

¹³ Don Ihde, "Technologies–Musics–Embodiments," *Janus Head* 10, no. 1 (2007): 10-11.

the fingerboard. [...] And I think if I'm [visually] tracking the fingerboard while I'm improvising too much, I lose that sense of connection with the instrument [...].

Because I'm just thinking about, "Oh," you know, "Here's this note."

Similarly, B discusses moments when they "forget" that they are playing the double bass altogether:

B: I try to forget I'm a bass player. [...] Even though I am constrained by what I can do on my instrument and by the limitations of the double bass, at the same time, on the other side of that is that, when I'm improvising, I really [...] forget that I'm playing bass actually. [...] I'm just singing [through the bass] really. I'm just trying to sing. [...] It's just trying to make something beautiful.

Note, in both descriptions, the fact of the instrument withdrawing is only *implicit*: the withdrawal of the instrument from explicit awareness occurs precisely when the musicians are most engaged in the "momentum" or the *towards-which* of performance: "trying to make something beautiful." This withdrawal, however, presents a phenomenological paradox: becoming explicitly aware of this transparency would immediately disrupt it, bringing the instrument back into conscious attention. It is precisely because of this transparency that we require a contrast class to illuminate the ready-to-hand character of equipment—what Heidegger terms the "un-ready-to-hand."

Instrument as Un-Ready-to-Hand

Further support for this early-Heideggerian interpretation of musical instruments as equipment can be found in what happens when the normally transparent relationship between musician and instrument is disrupted. According to Heidegger, when we encounter issues with equipment—when it breaks, malfunctions, or proves unsuitable for the task—we

become explicitly aware of its present-at-hand properties. The equipment becomes “unready-to-hand”:

When we concern ourselves with something, the entities which are most closely ready-to-hand may be met as something unusable, not properly adapted for the use we have decided upon. The tool turns out to be damaged or the material unsuitable. In each of these cases *equipment* is here, ready-to-hand. [...] When its unusability is thus discovered, equipment becomes conspicuous. This *conspicuousness* presents the ready-to-hand equipment as in a certain un-readiness-to-hand.¹⁴

Such moments of un-readiness-to-hand bring the instrument’s present-at-hand properties to the fore, making *conspicuous* the usually transparent status of the ready-to-hand in the flow of expert performance.

Turning to a musical example, Jonathan De Souza here recalls an encounter with a malfunctioning piano:

My wife and I are playing violin-piano duets [...] [a]nd as soon as I start the accompaniment [...], the rickety baby grand starts to give me trouble. The F# below middle C sticks. [...] Every time I hit the note, it has to be manually fixed, and for the rest of the gig I remain acutely aware of this single, previously unremarkable black key. [...]. [W]hile playing piano, I rarely think about the keys; usually I am more focused on the music. But sometimes my hammer breaks. I stop. I look at the tool. Suddenly this thing demands my attention.¹⁵

De Souza’s hammer example here is a direct reference to Heidegger’s “‘tool analysis’ of Being and Time,” exemplifying how the understanding of a tool as essentially transparent in

¹⁴ Heidegger, *Being and Time*, 102-03.

¹⁵ Jonathan De Souza, *Music at Hand: Instruments, Bodies, and Cognition*, Oxford Studies in Music Theory, (Oxford: Oxford University Press, 2017), 83.

everyday usage—except in moments of breakdown—is a potentially appropriate characterisation of a musical instrument’s being.¹⁶

Further support for this position is found in my own data. For example, B, who had previously described forgetting that they are playing bass during moments of optimal performance, reports a contrasting experience of feeling “disconnected” from the instrument:

B: First of all, the mind game starts for me. [...] I start to doubt myself [...]. And when I get on the instrument, [...] it feels difficult. It feels difficult to play. And I feel like I’m focusing on... what my chops can and can’t do in that moment. And I’m probably focusing on that more than listening. [...] It just feels *hard*, you know? Like, it feels difficult. [...] Like, the action [i.e., the string height] feels really high all of a sudden on my bass. [...] There’s no consistency in my right hand in getting a sound and I... I might miss a note [...]. It just feels... *foreign*.

As we saw in B’s earlier comments, when all is going well there is a feeling of oneness with the instrument, such that it withdraws and they experience a direct unmediated expressive power. B’s description here presents the contrast class: what it feels like when this withdrawal is not happening, and their description aligns remarkably well with Heidegger’s account of the transition from readiness-to-hand to un-readiness-to-hand.

Can we not then say that instruments are paradigmatic examples of the ready-to-hand, whose ontological status is defined by the fact that they withdraw in skilled performance? As we shall see, while this may be an appropriate characterisation for some aspects and instances of the instrument-performer relationship, there are many additional examples that challenge this view and suggest an alternative ontological status.

¹⁶ De Souza, *Music at Hand: Instruments, Bodies, and Cognition*, 83.

Instrument as Bodily Extension

Heidegger's famous examples of equipment use in *Being and Time* are conspicuously devoid of the body. In fact, Heidegger mentions the body only once, simply to acknowledge it as falling beyond the scope of his project.¹⁷ This omission constitutes a significant gap in his phenomenology, particularly when we turn to activities like musical performance, in which, as we have seen, bodily engagement is central. Addressing this gap, Merleau-Ponty extends and develops Heidegger's key insights by grounding them in an explicitly embodied framework.¹⁸

According to Merleau-Ponty, our basic way of being-in-the-world is embodied, and our capacity for action is lived through the body schema. Recall that the body schema is not rigid or fixed but evolves through *sedimentation*—the gradual incorporation of skills and intelligent habits into our embodied capabilities (see pp. 78-80; 177-78).¹⁹ Skill/habit acquisition involves a “reworking and renewal” of the body schema, which Merleau-Ponty describes as “knowledge in our hands.”²⁰

It is this adaptability which, on Merleau-Ponty's account, allows us to incorporate tools and instruments into our body schema. That is, familiar tools may become so fully integrated that they expand our embodied capacities, effectively “dilating our being in the world.”²¹ He writes:

To habituate oneself to a hat, an automobile, or a cane is to take up residence in them, or inversely, to make them participate within the voluminosity of one's own body.

¹⁷ Heidegger, *Being and Time*, 143.

¹⁸ Merleau-Ponty, *Phenomenology of Perception*.

¹⁹ Merleau-Ponty, *Phenomenology of Perception*, 131-32.

²⁰ Merleau-Ponty, *Phenomenology of Perception*, 145.

²¹ Merleau-Ponty, *Phenomenology of Perception*, 145.

Habit expresses the power we have of dilating our being in the world, or of altering our existence through incorporating new instruments.²²

For example, a blind person's cane becomes an extension of their sensory awareness; its tip transforms into a "sensitive zone" that expands their ability to perceive their surroundings.²³ Or again, as Nijs explains, with sufficient experience, the "musician no longer experiences a boundary between herself and the instrument" such that "it becomes as transparent as our body in daily life activities," effectively becoming "an organic component of the body and as such part of the somatic know-how of the musician."²⁴ Thus, on this account, musical instruments "withdraw" from explicit awareness during skilled use, in a manner similar to Heidegger's account of ready-to-hand equipment. However, on Merleau-Ponty's account, this is due to the tool's transparent integration into the body schema.

Participants in my study also frequently report such a deep integration of instrument and body. Their descriptions reveal how the double bass becomes experienced not as an external object, but as an extension of their bodily capacity for expression, resulting in a sense of freedom to "just listen" and "just play" without experiencing the instrument as mediating their musical intentions.

For example, many participants describe experiencing their instrument as an extension of their voice, suggesting a profound integration of the instrument into an extended sensory-motor system. As C explains:

C: For me the bass feels like my voice. [...] It *feels* like that. And, you know, I did do a lot of stuff to link my ears up to the instrument. [...] Lots and lots and lots of stuff

²² Merleau-Ponty, *Phenomenology of Perception*, 144-45.

²³ Merleau-Ponty, *Phenomenology of Perception*, 144.

²⁴ Luc Nijs, "The Merging of Musician and Musical Instrument: Incorporation, Presence, and Levels of Embodiment," in *The Routledge Companion to Embodied Music Interaction.*, ed. Micheline Lesaffre, Pieter-Jan Maes, and Marc Leman (New York, NY: Routledge, 2017), 51.

that [...] just aligned these weird appendages [**refers to ears**] with that weird wooden bass [**refers to instrument**]. You know, it just helped to kind of cement the two things together for me.

C's description vividly illustrates the process by which repeated practice sediments and reconfigures the body schema to incorporate tools. Through deliberate practice connecting singing, listening, and playing, C "cemented together" different elements of their embodied experience, effectively blurring the lines between their sense of vocal expression and the double bass.

Or again, T describes their musical self as inseparable from their embodied engagements with the instrument, describing the relationship as "fully symbiotic":

T: It's, like, fully symbiotic, right? [...] [M]y whole relationship to making music is physically connected to the bass. I don't have an innate physical connection to any other instrument. The rest of it is technical. Like, I can go to a guitar and go, "Oh, it's these notes," and work out a thing. But my relationship on my body is here [**refers to the bass**].

T elaborates on how this embodied relationship enables them to exist within and engage with a wide range of musical contexts:

T: So, it's still very [**moves the body as if playing the bass**], you know? My body, my ears, and working with what I'm given. [...] What's the situation I'm in? How do I respond? So, musically, that's connected to [**refers to the bass**]. You know, the breadth of music that I make, even if it's all improvised music, is fucking diverse. [...] They exist within this, sort of, broad space of improvised music, but their actual gestural and musical and timbral and physical qualities are really different. And,

somehow, I understand how to be in them. [...] [But] I can't do it separate to the bass.

I'm not, like, a composer. I mean, like [**snaps fingers**], "Here's an idea."

While T's account could certainly be interpreted as a matter of the bass becoming subsumed into the body schema, their comments shift the conceptual register from "instrument as tool" toward a genuinely *symbiotic* relationship—here interpreted in the literal sense of "living together"—emphasising an ongoing cohabitation rather than a one-way absorption.²⁵ Unlike the tool paradigm, where the instrument is, at the height of expert performance, expected to "withdraw" into seamless usefulness or dissolve into the performer's body schema, T's language of symbiosis highlights a mutuality and ongoing interaction. The instrument is not simply absorbed by skill; it remains present as a co-constitutive force in musical thought and action, arising neither from the performer nor the instrument alone, but from their ongoing, relational interplay.

Based on this account—and more to follow—it becomes clear that we cannot simply frame musical instruments as expressive tools, whose ontological status is defined primarily by their transparency in skilled performance. As compelling as these frameworks may be, they capture only particular dimensions of the rich, ongoing relationships musicians form with their instruments. Both accounts—the instrument as ready-to-hand equipment and the instrument as bodily extension—share a common limitation: they tend to position the instrument as essentially passive, something to be incorporated, mastered, or overcome through skill acquisition. Indeed, both Heidegger's and Merleau-Ponty's later philosophical developments suggest a sensitivity to the limitations of these initial frameworks.²⁶ Heidegger, for example, moved beyond his early tool analysis toward a more nuanced understanding of

²⁵ Oxford English Dictionary, "Symbiosis." https://www.oed.com/dictionary/symbiosis_n?tab=meaning_and_use#19326994.

²⁶ See for example: Heidegger, "The Origin of the Work of Art"; "Building, Dwelling, Thinking"; "The Thing"; Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Alphonso Lingis, ed. Claude Lefort (Evanston: Northwestern University Press, 1968).

what he called “things thinging.” Perhaps, then, beginning an ontological investigation of musical instruments as expressive tools—the most common approach in existing literature—puts us on too narrow a path from the outset.

Instrument as “Thing”

Over the course of his career, Heidegger’s philosophical framework underwent significant transformations, culminating in his nuanced concept of “things thinging,” offering profound insights into how musical instruments may be more than transparent tools or extensions of the body.²⁷ This evolution constitutes not merely refinements of earlier ideas, but substantive reconceptualisations of the relationship between being and beings. Heidegger’s intellectual journey reveals an increasingly sophisticated understanding of how “things” participate in the disclosure of worlds, moving from equipment analysis to a more poetic, event-centred, and relational understanding of thing and world. In order to grasp the significance of this claim, it is first necessary to trace the general trajectory of Heidegger’s thought.

The “early” Heidegger was concerned with what he termed “fundamental ontology,” an ambitious project aiming to understand being itself: that on the basis of which particular beings are intelligible as the things that they are. In *Being and Time*, being is conceptualised as “the clearing” (*Lichtung*), a space—metaphorically speaking—of intelligibility that makes possible our understanding of particular entities.²⁸ Heidegger’s frequently evoked imagery of a clearing in a forest here is useful—it can help us to imagine how a particular clearing in a forest might let certain patterns of light shine through, illuminating or disclosing particular entities within the clearing in a certain way, while casting others into shadow. However, it is also important that within this example we don’t *reify* the clearing: as Heidegger cautions,

²⁷ Heidegger, “Building, Dwelling, Thinking.”; Heidegger, “The Thing.”

²⁸ Heidegger, *Being and Time*, 171.

being (or the clearing) is not itself *a* being. The clearing is perhaps better conceptualised, following Dreyfus' interpretation, as a network of sociocultural "background practices" against which entities show up as what they are.²⁹

The "middle" Heidegger abandoned this project, as he came to recognise that being did not reveal itself through a singular, ahistorical clearing, but rather through multiple historical understandings of being. During this period Heidegger shifted focus from "fundamental ontology" towards an examination of different historical "epochs" in humanity's understanding of being. In this phase, he identifies works of art as possible catalysts around which a historical people's understanding of being is formed. For example, in "The Origin of the Work of Art" lectures, Heidegger uses the example of the ancient Greek Temple to illustrate how such works "gathered" the practices of a historical people, focusing the style of their clearing, and illuminating a particular understanding (or "truth") of being. Unlike equipment, which withdraws in use, the materiality of such works of art did not get "used up" in their essencing. Instead, they "shone forth," revealing the nature of an entire paradigm to those living in its metaphorical light. The Temple, standing in its material presence, gathered and revealed the ancient Greek understanding of gods, nature, self, and community into a coherent world. This capacity to "gather" and "shine" made artworks distinctive among beings, capable of organising and revealing an entire historical epoch's understanding of being.³⁰

The "late," or post-war Heidegger's thinking shifted to focus largely on our current epoch, known as the technological understanding of being.³¹ The essence of this clearing—known as "enframing"—levels meaningful distinctions, transforming all that *is* into flexible

²⁹ Hubert L. Dreyfus, *Background Practices: Essays on the Understanding of Being*, ed. Mark A. Wrathall, First edition. ed. (Oxford: Oxford University Press, 2017).

³⁰ Heidegger, "The Origin of the Work of Art."

³¹ Martin Heidegger, "The Question Concerning Technology," in *The Question Concerning Technology and Other Essays* (New York: Harper & Row, 2013).

resources (or “standing reserve”) to be optimised, organised, and made maximally efficient for efficiency’s sake. However, Heidegger observes that, even amidst enframing’s levelling tendencies, intimate and temporary clearings replete with meaningful distinctions did occur—gathered not by monumental artworks, but around the humble “thing.” In essays like “The Thing” and “Building Dwelling Thinking,” Heidegger explores how everyday objects—a bridge, or a wine jug at a celebratory dinner—can “shine” and gather temporary worlds.³² This process—which Heidegger terms “things thinging”—differs from his middle-period focus on entire historical cultural paradigms, instead highlighting the “nearness” of more intimate and temporary clearings, bringing both things and people into their own authentic being—what Heidegger terms their “own most.”³³

Dreyfus and Spinoza capture this admittedly complicated picture in elegantly simple terms, usefully integrating Albert Borgmann’s related concept of focal practices (i.e., the *practices* involved in the gathering or focusing of a local clearing):

In these [later] essays, [Heidegger] turns from the cultural gathering he explored in “The Origin of the Work of Art” (which sets up shared meaningful differences and thereby unifies an entire culture) to local gatherings that set up local worlds. Such local worlds occur around some everyday thing that temporarily brings into their own

³² Heidegger, “Building, Dwelling, Thinking.”; Heidegger, “The Thing.”

³³ I am conscious that the phrase “things thinging” may be off-putting some for readers, especially those less familiar with Heidegger’s work. This challenge arises from Heidegger’s preoccupation with *being*: the mode of being of particular beings. Due to the structure of language, it is nearly impossible to discuss the being of something without using a form of the verb “to be,” thereby presupposing precisely what one hopes to analyse. To address this, Heidegger reworks the notion of “essence”—not as a fixed set of universal properties, but as a verb: “essencing.” Instead of asking, “What are the essences of entity-X?” he asks, “How does entity-X essence?” Here, the process of “essencing” is always relative to the particular clearing in which that entity emerges as what it is. Thus, rather than speaking about the *being* of the work of art, of the world, or of the thing, Heidegger speaks of an artwork *working*, a world *worlding*, or a thing *thinging*. These neologisms allow Heidegger to gesture toward the unique modes in which art, world, or thing manifest, without presupposing in advance or reifying their modes of being.

both the thing itself and those involved in the typical activity concerning the use of the thing. Heidegger calls this event a *thing thinging*.³⁴

When things *thing*, they perform several interrelated roles. First, they gather the fourfold of earth, sky, divinities, and mortals (to which I return, below), bringing people together for a time and concentrating attention and practices. Second, they shine forth rather than withdrawing (like the ready-to-hand), becoming focal points illuminating “meaningful differences”—that is, disclosing other entities as what they are and, indeed, revealing those present as *who* they are. Third, they disclose or open up an intimate, temporary world, illuminating for a limited duration what Heidegger calls a “nearness.” Finally, they make us aware of our role as preservers, highlighting that these meaningful gatherings require cultivation and care to maintain their world-disclosing power.

Here, I propose that musical instruments offer a paradigmatic example of “things thinging,” and suggest that this characterisation offers the best account of how musical instruments manifest in the experience of my participants. In performance, instruments are not merely expressive tools for translating the performers ideas and intentions, nor do they simply disappear into their readiness-to-hand (although they can), nor are they merely subsumed into the body schema (although they can do this also). Rather, musical instruments gather performers and listeners into shared worlds of musical experience, shine forth in their materiality and sonority, and call upon us to preserve the practices they enable. This reconceptualisation unlocks new avenues for understanding how musical instruments participate in SMIIIA, fundamentally blurring the distinction between practitioner and world.

³⁴ Hubert L. Dreyfus and Charles Spinosa, "Highway Bridges and Feasts: Heidegger and Borgmann on How to Affirm Technology (1997)," in *Background Practices: Essays on the Understanding of Being*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2017), 206.

The Fourfold

Heidegger's concept of "things thinging" describes how everyday objects can *shine forth* and gather temporary worlds. When things "thing," they illuminate meaningful differences, clarify the identities of those present, and reveal possibilities for action within that world. Significantly, the "world" disclosed by the thing is not some broad cultural paradigm but something more intimate and transient—like a celebratory meal or, as I argue here, a musical performance. According to Heidegger, when things "thing," they gather what he terms "the fourfold" (or, more precisely, "the oneness of the four") of earth, sky, mortals, and divinities—technical terms whose meanings resist straightforward definition. Heidegger himself describes these elements poetically rather than analytically. He writes:

Earth is the serving bearer, blossoming and fruiting, spreading out in rock and water, rising up into plant and animal. When we say earth, we are already thinking of the other three along with it, but we give no thought to the simple oneness of the four.

The sky is the vaulting path of the sun, the course of the changing moon, the wandering glittering of the stars, the year's seasons and their changes, the light and dusk of the day, the gloom and glow of the night, the clemency and inclemency of the weather, the drifting clouds and the blue depth of the ether. When we say sky, we are already thinking of the other three along with it, but we give no thought to the simple oneness of the four.

The divinities are the beckoning messengers of the godhead. Out of the holy sway of the godhead, the god appears in his presence or withdraws into his concealment. When we speak of the divinities, we are already thinking of the other three along with them, but we give no thought to the simple oneness of the four.

The mortals are the human beings. They are called mortals because they can die. To die means to be capable of death *as* death. Only man dies, and indeed continually, as long as he remains on earth, under the sky, before the divinities. When we speak of mortals, we are already thinking of the other three along with them, but we give no thought to the simple oneness of the four.

This simple oneness of the four we call *the fourfold*.³⁵

The fourfold stands among Heidegger's most challenging and esoteric concepts, with no clear consensus in the secondary literature as to precisely what these four terms designate.³⁶ In making my case for musical-instruments-as-things, I offer an interpretation of the fourfold, grounded in and responding to examples from my data. This analysis reveals a hermeneutic circularity: the fourfold's framework uncovers latent dimensions of the musical instrument's thing-being, while conversely, the quotes and concrete musical examples elucidate my interpretation of the fourfold itself, highlighting the various ways in which musical instruments transcend the ontological category of "expressive tool."

Earth: Materiality Matters

Earth, in Heidegger's conception, stands for the foundational materiality of a thing—or, more precisely the ways in which a thing's materiality manifests sensually—which resists absolute conceptualisation or disclosure. In "The Origin of the Work of Art," Heidegger describes earth as "undisclosable," "self-secluding," "sheltering and concealing," emphasising its persistent resistance to ever being fully clarified or exhausted by theoretical

³⁵ Heidegger, "Building, Dwelling, Thinking," 147-48. As indicated by the recurring phrases in this passage, these "four" elements are intended to be conceptualised as a unity (the "oneness of the four"), not as the mixing together of four distinct ingredients. It may be more helpful to think of them as different vantage points or lenses for viewing the "thing," each highlighting or emphasising different essential characteristics.

³⁶ For an excellent overview of major interpretations, see "Supplement: Heidegger and the Other Beginning (Dwelling and the Fourfold)" in Mark Wrathall, "Martin Heidegger," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta and Uri Nodelman (Metaphysics Research Lab, Stanford University, 2025). <https://plato.stanford.edu/archives/spr2025/entries/heidegger/>.

explanation without altering its fundamental nature.³⁷ For example, in attempting to clarify something about the “earthly” quality of stone, we might break it into pieces to understand its composition, observe its resistance to gravity, or weigh it with scales.³⁸ But, as Heidegger notes, all such attempts to clarify the materiality of the stone in this way ultimately transform and obscure its “earthly” quality. As Heidegger explains, this time in regards to colour:

Color [sic] shines and wants only to shine. When we analyze it in rational terms by measuring its wavelengths, it is gone. It shows itself only when it remains undisclosed and unexplained. Earth thus shatters every attempt to penetrate it.³⁹

This notion of “material foundation,” then, diverges radically from the common sense or scientific view that might identify the material basis of something as the measurable or decomposable substances from which it is made. Rather, as Andrew Mitchell puts it, earth designates “the phenomenality of things” as such: their “shine,” “gleam,” or “phenomenal radiance”—that is, “the very *appearing* of things themselves in all their sensuousness.”⁴⁰

For musical instruments, earth can be understood as referring to this material grounding—the hardness and gleam of the wood of the double bass’ body, the tension and texture of the steel or gut of the strings, the vibration of its resonating chamber, the feel of its particular sonorous qualities as they penetrate the body. Unlike tools in the mode of the ready-to-hand, this materiality does not withdraw into usefulness but, rather, shines forth. The musician *encounters* the instrument’s earth through tactile engagement and affective resonance through which one *feels* how the wood vibrates against the chest or how strings

³⁷ Heidegger, “The Origin of the Work of Art,” 46; 47. The interpretive strategy of relating the “earth” of the fourfold back to “earth” of the work of art—as a “non-quantifiable sensuous appearing”—is well-established in the secondary literature. See, for example, Andrew J. Mitchell, *The Fourfold: Reading the Late Heidegger*, Northwestern University Studies in Phenomenology and Existential Philosophy, (Evanston, Illinois: Northwestern University Press, 2015), 8.

³⁸ Heidegger, “The Origin of the Work of Art,” 45.

³⁹ Heidegger, “The Origin of the Work of Art,” 45.

⁴⁰ Mitchell, *The Fourfold*, 71;74.

respond uniquely to the fingers or the bow. This “sensuous phenomenality” forms the necessary ground from which instruments gather the fourfold and disclose transient musical worlds.⁴¹

The following participant reports attest to this earth aspect of the fourfold gathered by the instrument as thing. These examples reveal earth as the instrument’s sensuous material foundation which resists being subsumed into mastery, anchoring the world-disclosing capacity of the musical thing.

S, for example, here describes how the tangible *feeling* of weight and movement of the bass against their body fundamentally grounds how they encounter their instrument in performance:

S: It’s this kind of rotating body. The weight distribution [**rocks body**] and the way that it falls onto your body [**gestures to chest**] I think is, for me, very much a factor in the way that I play [...]. It’s this kind of, like, moving body [**rocks body, rolls head**] and depending on, like, what you’re feeling in your body or, like, that breath, it can actually *move* the bass [...]. The bass is resting on me and then, when I play it, it also moves [...]. It’s not this, like, stationary object. [...] That weight distribution of the instrument itself [...] is actually [...] a moving part of the process. It’s not this stationary vessel that’s just there. [...] It’s kind of like you’re holding another body.

S’s description of their embodied experience of the weight, shape, size, and movement of the bass powerfully illustrates how an instrument’s earth is viscerally experienced in performance, remaining a salient factor constituting SMIII A. This account shows that the instrument is not a mere expressive tool or passive object that withdraws in use; its

⁴¹ Mitchell, *The Fourfold*, 71.

materiality is sensuously encountered, actively shaping rather than merely expressing SMIIIA.

H speaks of how the felt vibration of the instrument connects them to certain notes in ways that are irreducible to theoretical knowledge:

H: [T]here is a vibration. A weird vibration [...] that I'm used to standing next to on the instrument [...]. [T]hat feeling, that vibration, as well as hearing. [...] I think they're related. [...] So, it is just the **[plays bass]** and that feeling of that vibration, of that note **[plays bass]** [...] is A flat. I think that's a wolf-note or whatever, but it has a weird kind of vibra[tion] **[plays note]**. Like, a *thing* to it. And so that one sometimes I can imagine that weird thing, whatever it does, and the note follows. [...] I'm not thinking "A flat." [...] [Rather,] it's just the weird physical thing that's related to my instrument for that note.

H's reflection on the "weird vibration" of specific notes captures the way the instrument's materiality is viscerally encountered in performance, simultaneously revealing something of the undisclosable nature of earth. For H, the bass' vibration resists being fully conceptualised (i.e., "I'm not *thinking* 'A Flat'") and is instead known through an embodied, affective resonance with "the weird physical thing." This sensuous experience does not withdraw, but rather grounds H's SMIIIA in ways irreducible to theoretical knowledge.

C reveals how the materiality of the instrument manifests in even the most basic plucking gestures, where the tactile sensation of string tension co-constitutes the practical know-how of pizzicato:

C: *You* don't pull the string back and let go of it [...]. You pull the string back and when *it* goes off, it goes off basically. [...] [You're] not plucking the string necessarily, but rather dragging your hand across it and *knowing* when *it* will go off.

So, the physical movement and the feel of when it will actually go “ga dunk,” you know, is kind of a very tactile part of what I worked on. [...] I mean, obviously you *do* pluck it, but it’s synonymous with the feeling of the knowledge of when *the string* will pop. And that’s why, you know, if I’ve got different strings on it [...] they speak differently. And they go off differently because they have different tension.

C’s distinction between unilaterally “plucking the string” and “knowing when it will go off” captures something of the nature of their engagement with the instrument’s earth, knowable only through a tactile encounter, irreducible to theoretical conceptualisation. This affective knowledge—the *feeling* of “when the string will pop”—of how different strings “speak differently” further illustrates how the instrument’s earthly dimension does not necessarily withdraw into usage, but is ever present, continually revealing subtle variations which the practitioner stays attuned, shaping SMIIIA at the most fundamental level.

M speaks of a similar irreducible tactile knowledge when describing the earthly characteristics of bowing techniques:

M: So, I’ve got the bow. I know if I go towards the bridge, I’m going to get a sort of sound area that’s, like, overtone—sort of, less subtones in there, less fundamental [pitch]. [...] [But] the sound isn’t as set in my mind. But the knowing of the physicality, the knowing of going towards the bridge, the knowing of the bow is going to... something’s going to happen there, and you have a notion of the sound world. [...] [B]ut the glory of those sounds is that they’re sort of a bit indeterminate [...]. Because it depends on the humidity and the, you know, all the aspects like the string tension. [...] Those gestural movements tend to be... less determinant. [...] I suppose I choose those things because they’re more... malleable in the moment.

M here vividly describes how their experience of the instrument's physical properties shape distinctive sound worlds. Yet these techniques resist absolute control or prediction; instead, they are experienced as a "knowing of the physicality." M embraces the variability of these techniques—"the glory of those sounds"—and acknowledges how uncontrollable environmental factors shape the way this earthly aspect of the instrument manifests. These experiences are knowable only through sensuous encounter, each moment discovered anew in a palpable awareness of the instrument's materiality.

Finally, L provides concrete examples of how their acute sensitivity to specific material conditions shape SMIIIA, highlighting the non-substitutable nature of each instrument's earthly dimension:

L: [Before I play] I'll also just stress, this is not the instrument I played last night. And I'll also just stress that a very immediate input into the performance was [that] I was hearing the sound of the bass as an instrument in the entire room, going into the P.A., and I was very, very pleased with the sound [...]. I was like, "I'm really enjoying this sound and here we go." And I think I just started [...] [**plays a double-stop tenth interval**]. And then investigating some sounds like that through the P.A. [...] I have a slightly longer first fingernail [...] and it's possibly got a bit long lately so [...] [**plays bass**] when I was playing these tenths, the top note was coming out a lot more distinctly. So, I started looking into that [**plays bass, emphatically using the fingernail to scratch the top string**] and getting kind of [**continues example**] grainy kind of textures. None of this works here because we're in a little living room, and it's not even the instrument, and the different strings, and it's not going through a [P.A.]. [...] But it [i.e., this particular idea] literally came from this position of me going, "[**sighs**] I don't know what to play."

By drawing emphatic attention to playing a different instrument than the previous night, L reveals how the unique material properties—the specific instrument, the way sound resonates through the PA system, and even the distinctive scratch from a slightly longer fingernail—are sensuously encountered, shaping and revealing SMIIIA. These gestures were not the product of premeditated actions or imposed intentions (“I didn’t know what to play”), but rather emerged from a collaborative process, as performer and instrument uncovered possibilities together. This exemplifies a continuous, responsive negotiation with the instrument’s material character, which shapes SMIIIA and forms a vital, co-creative aspect of L’s creative process.

These examples illuminate the earth aspect of the fourfold as experienced by the expert participants in my study. Their accounts show how Heidegger’s concept of earth attunes us to the irreducible material foundation of the instrument as thing—a sensuous, physical presence that enables SMIIIA while resisting absolute control. This materiality is not something that, as with the tool, is “used, and used up [...], disappear[ing] into usefulness,” but rather, as with the artwork, “shines forth”—actively collaborating in the emergence of possibilities during the creative process.⁴² At the same time, these concrete musical encounters provide tangible illustrations of Heidegger’s notoriously abstract concept, rooting his philosophical insights in the lived experience of practitioners. The double bass, in its material specificity, reveals earth as that which both “shines” and yet can never be fully mastered or conceptualised, remaining foundational to the world-gathering power of the musical instrument. In essence, as my epigram suggests: *Materiality Matters*—not as a passive substrate, but as an active participant in the creative process.

⁴² Heidegger, "The Origin of the Work of Art," 44.

Sky: Pathways of Potential

Sky refers to what is made clear or manifest within a particular clearing—the possibilities for being illuminated by the world-disclosing power of the thing. Drawing on Dreyfus and Spinoza’s interpretation, sky corresponds to the transient possibilities opened up by focal practices, essentially fulfilling what Heidegger had earlier, in “The Origin of the Work of Art,” called the “world” function:⁴³

The world [or “sky” on this interpretation] is the self-disclosing openness of the broad paths of the simple and essential decisions in the destiny of an historical people.⁴⁴

Here, I propose taking the notion of “paths” as our guiding metaphor. Rather than viewing the instrument as simply controlled or dictated by performer intentions, the instrument illuminates possibilities for action—paths that are encountered in the world as *what it makes sense to do*. These paths are not rigid constraints, neither demanding adherence nor exhausting the range of possible actions. Rather, under the light of sky, certain possibilities are disclosed as intelligible, allowing those present to discover their “ownmost” possibilities in each moment.

⁴³ Dreyfus and Spinoza, “Highway Bridges and Feasts,” 207.

There is some contention in the secondary literature on drawing this correlation between “sky” and Heidegger’s earlier concept of “world.” Amongst one of the several criticisms is the fact that the earth and world relationship in “The Origin of the Work of Art” is framed as a conflict, whereas the earth and sky relationship in the fourfold is viewed as a marriage. Dreyfus suggests that this may be due to the scope of the world gathered by the artwork—i.e., an entire historical cultural paradigm—as opposed to the thing—i.e., an intimate and temporary event. As he explains: “There’s a struggle between earth and world in the work of art—where “earth” is the concealing and “world” is the out-in-the-open manifest—and there’s a parallel “concealed” and “manifest” in the thing thinging, but there’s not a “struggle,” there’s a “marriage.” They are just happily together. And now why is that? Well, that’s because the artwork is trying—so to speak—to cover everything: to gather in all paths of destiny; to bring everything into that one style. So, it’s going to come up against the resistance—all sorts of resistance—namely, the “reservoir” of other possible styles [of being], the material—which is never going to be fully brought under any given style—and so forth. But the thing thinging isn’t trying to make itself universal. It isn’t trying to set up a [epoch-level] style. It isn’t gathering in all the paths. So, when it comes up [against] what can’t be brought into manifest-ness—like the sensuous side and the body side [...]—when it comes up against the limits to what is clear, it just happily connects with the limits to what is clear. It isn’t in the job of making everything clear [or] bringing everything under one style [like an artwork], getting a universal truth of being. “Heidegger’s Later Works (Part 3) [Video],” Later Heidegger (Lecture Series), UC Berkeley, YouTube, 2019, accessed 17 July 2025, <https://www.youtube.com/watch?v=DIZBSj2vc3o>.

⁴⁴ Heidegger, “The Origin of the Work of Art,” 47.

Unlike Heidegger's earlier notion of "world," which applied to entire historical epochs, sky operates at a more intimate scale—temporarily gathering possibilities for action within specific events like performances, rituals, or celebrations. Supporting this interpretation, consider the inherently transient imagery that Heidegger evokes in his characterisation of sky: "the *vaulting path* of the sun," "the *changing moon*," "the *wandering glittering of the stars*," the seasons and their *changes*, "the *drifting clouds*" etc.⁴⁵ These images emphasise transience and change rather than the enduring stability of a historical world.

In musical contexts, instruments gather sky by disclosing particular possibilities for action among performers and listeners. Possibilities are experienced as intelligible or appropriate in the moment, with each performance dynamically revealing new avenues, inviting certain directions while foreclosing others. Such pathways are not imposed by practitioners but disclosed through the instrument in the flow of performance, fading away as the event concludes and highlighting the ephemeral, situated character of sky.

The following participant examples speak to the sky aspect of the fourfold as gathered by the instrument as thing. These examples show how instruments disclose horizons of possible action within particular musical contexts.

S describes how the absence of chordal instruments reveals unique pathways of possibility for their bass playing, simultaneously shaped by the instrument's earthly constraints:

S: I would say my playing becomes a little bit more melodic in these spaces because I'm [accompanying] essentially, but there's no chordal instrument. So, in this context, the bass is able to be filling space in a [particular] way [...] because there is no

⁴⁵ Heidegger, "Building, Dwelling, Thinking," 147.

guitarist, there's no pianist. So yeah, [...] I'm thinking more texturally and more abstractly around the different notes so they're not all measured or they're not all in time, they're more just like little twinkles of information. [...] Little constellations of ideas.

In this scenario, the absence of chordal instruments opened a space for the bass to explore melodic and textural territories, prompting S to shift focus from strictly rhythmic or harmonic roles to more abstract, melodic gestures—"little constellations of ideas." The pathways discovered are neither predetermined nor simply subject to S's intention; rather, they emerge through the interplay between the instrument's earth and the situated possibilities disclosed by sky—possibilities for being that might have otherwise remained hidden.

E reflects on how the instrument discloses distinct "fields of possibility," illuminating creative pathways within different aesthetic worlds:

E: It [i.e., the bass] creates this... field of possibilities, that—which brings some things to the fore, and which sidelines certain things. [...] As a double bassist in this context, like... it's always this question of, like, straddling the line [between] maybe what constitutes "jazz," [...] but also other styles of music that you wouldn't describe at all as jazz. [...] We can bring different aesthetic worlds to bear on the music. But, at the same time, it's not like overly permissive, like, "anything goes," or "anything could happen."

E's language of a "field of possibilities," where certain musical actions come to the fore and others recede, beautifully illustrates the sky dimension of the fourfold. E's observation that "it's not like, 'anything goes'" highlights how the musical world gathered by the instrument reveals boundaries that structure SMIII A, while still allowing the performer to bring different

aesthetic worlds to bear. This description captures the non-deterministic yet oriented nature of sky as it is gathered by the instrument in musical improvisation.

T offers a nuanced perspective on how possibilities are disclosed and navigated by the instrument within the shifting worlds of freely improvised music. Far from presenting music-making as either limitlessly open or strictly prescribed, T emphasises that roles, space, and pathways for action are constantly negotiated in real time:

T: I think that the whole thing is to create spaces where everyone can bring their full self to the moment. [...] Everyone is present in the thing. [...] It has that sense of trust that that's coming from a place of active being and active listening [...] and really active gestures in this space... that are trusted, you know? And then there's room. Like, you know, [he's] playing saxophone, so the physics of that are: you've got the melody, dude. Unless you choose not to. And if you choose not to, then I've got room. I might play a melody. But only because it's been opened up.

Here, T shows how—even within apparently “constraint-free” contexts like free improvisation—musical possibilities are continually “opened up” and renegotiated. The concept of sky is manifest in the roles and possibilities for action that emerge through the interplay of instruments and performers, with each musician's actions illuminating or foreclosing pathways for the rest. This is a dynamic process whereby practitioners can bring their “full self to the moment”—not by asserting control, but by responding to new possibilities as they arise within the musical world disclosed by the instrument.

T extends this idea with the analogy of a well-hosted party, emphasising that musical worlds are most vibrant when they disclose both freedom and boundaries:

T: [But] I don't think *anything* can coexist. [...] It's kind of like... a good party.

People feel present. And that they can just bring themselves to it and be free. [...] You

want to be a good host... and go, “I’ll make... I’ll make a strong space for you to feel strong in.” That’s, I think, the ideal. [...] [That creates the] space in which we inhabit to play within. [...] Because a lot of what I do [...] is played with the *intent* of the bass... that creates a great deal of room for everyone. [...] There’s a huge amount of room given... to other people. [...] It’s not like I’m holding you... captive. I’m never going to hold someone captive.

I interpret T’s party metaphor as directly evoking the temporary worlds disclosed by instruments in performance. This description beautifully captures how the bass as thing can create “a strong space for you to feel strong in”—simultaneously offering freedom while maintaining the boundaries that make intelligible interaction possible. This example also highlights, once again, the notion that our guiding metaphor of “paths” illuminated by the instrument are not routes laid down in advance nor strict confines—it’s not something which is “hold[ing] someone captive”. Rather, T describes how the bass “creates a great deal of room for everyone,” allowing people to “feel present” such that they can just “bring themselves to it and be free,” where pathways are disclosed rather than imposed, enabling a sense of authentic presence.

These examples illuminate the sky aspect of the fourfold as experienced by the improvising musicians in my study. Through their accounts, we see how Heidegger’s concept attunes us to the temporary horizons of possibility that instruments help gather—illuminating a clearing where certain actions become intelligible while others recede. Reciprocally, these concrete musical examples provide accessible illustrations of Heidegger’s abstract concept, showing how sky operates not at the level of historical epochs but within the intimate scale of performance events. As we can see, the double bass, in its gathering power, temporarily illuminates transient possibilities for acting in a world—or what I have termed *Pathways of Potential*.

Mortals: Presence in Passing

Mortals indicate what humans bring to the thing as beings who dwell with an awareness of finitude. For Heidegger, mortals are defined not by their capacity to physically die (or what he calls “perish”), but rather by their contingent identities—fragile yet meaningful relationships that shape who one is, but can always collapse or pass away. This awareness of finitude is something we carry with us always, which is what Heidegger means when he states that humans are dying “continually.”⁴⁶

It may seem obvious that, without the participation of mortals, things could not *thing*; without us, things would be mere objects incapable of gathering worlds. However, what I want to emphasise here is that, in this gathering, things and mortals are co-determining, bound in a reciprocal unveiling. That is, the thing discloses the clearing in which the mortal *is* who they *are*. The mortal’s existence—in this case, as a musician—is constituted by this relationality with the instrument, both fundamental yet contingent. The instrument, therefore, doesn’t merely serve as an expressive tool for projecting a mortal’s SMIII; it establishes who the mortal is such that SMIII can emerge in the first place. This co-determinative and contingent nature of identity becomes starkly evident when the bonds between practitioner and instrument are disrupted. Such disruptions lay bare just how vulnerable and precarious the identities formed with and through instrumental engagement truly are—a manifestation of the mortality that Heidegger associates with human existence.

There is another sense in which things gather mortals: the clearing gathered by instruments and performers is itself temporary, or “mortal.” In improvised music especially, we witness the gathering and dissolving of ephemeral worlds that emerge only in their

⁴⁶ This existential conception of mortality originates in Heidegger’s analysis of “being-towards-death” [*Sein-zum-Tode*] in *Being and Time* (279-311), reworked through the late-Heidegger’s emphasis on “dwelling.” For further discussions see Hubert L. Dreyfus, “Foreword to *Time and Death* (2005),” in *Background Practices: Essays on the Understanding of Being*, ed. Mark A. Wrathall (Oxford: Oxford University Press, 2017).

unfolding. When instruments gather the fourfold, the mortal's contingent identities are established and linked to the inherently transient worlds they disclose, making the performance a meaningful yet temporally-bound event where finitude is acknowledged through the very transience of the musical event. The transience of these gatherings does not diminish their significance but rather intensifies it, creating a heightened awareness of being fully present precisely because that presence cannot last.

The following quotes take up the mortals aspect of the fourfold gathered by the instrument as thing, as reported by the participants in my study. These examples illuminate how instruments reveal the temporality, finitude, and identities of those who dwell within the worlds they disclose.

L reveals how the instrument becomes fundamental to identity formation, highlighting how their relationship with the bass has become foundational to their being:

L: On a broader career-length philosophy: I play the double bass. That's the instrument I'm wedded to. This is what I'm working with. [...] [But] I don't know that I have a particular passion for music. Music just feels like *life* to me. It feels like normality. I cannot imagine not being a musician. [...] [T]o me, the normal way to live your life is playing music. That's normality. It's not passionate at all. It's normal.

L's metaphor of marriage underscores the depth of their identity-forming connection with the instrument. The bass is not, for L, a mere tool, but something they are "wedded to," something they work *with*. Most striking is how this relationship is described as so foundational that it withdraws into "normality"—ceasing to register as passion or choice and instead becoming the very basis of their existence. This illustrates how completely L's being is constituted by and contingent upon their engagement with the instrument-as-thing, not merely an object, ontologically distinct from and under the control of a separate subject.

T demonstrates how the material aspects of the instrument actively participate in shaping who they are, revealing the interplay of earth, sky, and mortality:

T: I over-killed it. So, I've gone too far. Like, no one has a bass setup like that. [...] I've come to realise that. I sort of pushed that line a bit far. [...] When you start doing anything late in life, and I was twenty-four when I started playing double bass, I just wanted to be legit and prove to myself too. Prove to people that I could do this [...]. But what I decided to do was to make my bass so... To go, "I'm a fucking man," you know? It's ridiculous. I'm a kid. This skinny fucking beanpole going, "I want to sound like a man." [...] It was like, "Because if I can do this then I will earn your respect." [...] So basically, I've had to, like [hand] cramp exercises and shit for my hands since day one, just to be able to go play a note. [...] And that's what I wanted. I wanted to be able to be present and go, [...] "I'm here. This is what's possible." [...] But when I look back, I was pretty intense, you know? And probably not in a way that I respect entirely. I go, "Well, it was a bit ridiculous." But I also go, "Good." You know, like, if you can't care that much when you're starting something, then what's the point.

T's account shows how physical struggle with the earthly aspects of the instrument illuminated certain pathways for being (sky), co-determining their existence as mortal. The demanding bass setup helped T establish legitimacy and presence—"I'm here, this is what is possible"—while simultaneously embodying their commitment to the musical path as disclosed by the double bass. T's retrospective ambivalence about this choice—finding it both "ridiculous" and necessary—reveals how identity formation through instrumental engagement involves deep commitment while living in the finitude of these choices—both characteristics of Heidegger's notion of mortals.

C powerfully illustrates the contingent nature of this identity when describing a year away from playing due to injury:

C: [W]hen I had the year off from playing and I had nothing to do, that was an interesting year because... I kind of lost my identity. I didn't have one. At all. [...] I guess in my own way of thinking, I'm so defined by the fact that I've been playing the bass forever, I've been a teacher at the [university] forever, and I wasn't doing any of it. And so, I was sort of sitting there going, well... I have nothing. Really. [...] I'm very glad to be back playing. I don't know how much longer I would have lasted without going around the bend. [...] It's actually sort of taught me who I actually am. Which I didn't know. [...] I've sort of found a different part of myself, which is nice. [...] There are times when I felt a really deep connection with the instrument and the music [...] And it's very elusive. It would come and go. [...] I always loved doing it, but there would be times that were really special.

Taking a year off due to injury resulted in C experiencing a kind of identity dissolution. This crisis revealed how thoroughly C's self-understanding was constituted through their relationship with the bass. Yet this very disruption created space for transformation—it “taught me who I actually am”—demonstrating how the mortality of identity enables, rather than forecloses, its authentic emergence. C's description of connection with the instrument as “very elusive” and coming in “special” moments further emphasises the temporal, passing nature of the worlds gathered through musical engagement—the essence of what it means to be mortal in Heidegger's sense.

B articulates the mortal nature of the musical world gathered by the instrument, describing it as the “inevitability of the process”:

B: I think that's always there. Inevitability. [...] Like there's just inevitability of the process, you know? Whatever that means... Because the music is taking you somewhere. [...] And I will... hang in there as long as possible. [...] I'm just on the ride, you know? I'm just on the ride with [the pianist]. [...] And it's opening me up. I can do whatever I want now. [...] I've got a lot of freedom here. [...] I'm just... on the ride until the inevitable. [...] Just riding it out. And trusting that. And that's thing [...] you've *got* to trust each other. [...] You *know* that it is going to *end*. [...] I think it's inevitability with all of it really because it's... it's all going to end, you know? The song is going to end.

For B, the transience of the world disclosed by the instrument is not a limitation but a source of opportunity: being “taken” by the musical situation opens possibilities, creating a “ride” that is “opening me up” and providing a profound sense of freedom. This temporary world becomes a trustful space precisely because participants acknowledge its finitude—a shared understanding that “it’s all going to end”—exemplifying Heidegger’s notion of mortals as beings who dwell in their finitude, finding meaning in transience rather than despite it.

These accounts demonstrate how instruments gather mortals through multiple dimensions of temporality and finitude, including how instruments constitute foundational identity (L), physically manifest that identity through material struggle (T), reveal the contingency of identity through its potential disruption (C), and gather awareness of the fundamental transience that characterises all musical experience (B). Musicians don’t merely *use* instruments as expressive tools; they emerge as “bassists,” “improvisers,” or “artists” through the gathering of the fourfold—identities that are deeply meaningful yet fragile, constantly open to transformation or dissolution. For improvising musicians, the ephemeral, emerging and dissolving character of musical worlds is brought to the fore in performance. This dual mortality—of identity and event—reflects *Presence in Passing*, acknowledging

how instruments both disclose who we are while reminding us of the transient nature of that disclosure.

Divinities: Beckoned Beyond Ourselves

Divinities manifest as that for which we are grateful—the “beckoning messengers” that appear when a thing gathers a world with a grace and significance experienced as coming from beyond oneself. In the context of improvised music, the divinities once again highlight that improvisers do not merely use instruments to *pro-ject* or *ex-press* SMIII; rather, SMIII is continuously and reciprocally experienced as something *drawn forth*—as if from without. Taking a family meal as an example, Dreyfus and Spinoza describe the divinities as follows:

When a focal event such as a family meal is working to the point where it has a particular integrity, one feels extraordinarily in tune with all that is happening, a special graceful ease takes over, and events seem to unfold of their own momentum—all combining to make the moment all the more centred and more a gift. [...] [O]ne feels thankful or grateful for receiving all that is brought out by this particular situation.⁴⁷

While this concept bears, perhaps inevitably, religious overtones, it manifests in diverse ways for my participants. Divinities might appear as moments when performers feel extraordinarily connected with others involved with the transient world disclosed by the instrument. Some describe experiencing their most authentic self in these moments, as if something beyond the ordinary has been *drawn out of them* through the musical situation.⁴⁸ Others might experience the divinities as a profound connection to a musical lineage or

⁴⁷ Dreyfus and Spinoza, "Highway Bridges and Feasts," 207.

⁴⁸ For example, E who notes: “There are things that the gig might draw out of you that it’s impossible to bring to absolutely every single gig. Like you can do—You can bring your best job. But then the situation will pull things out of you or not.”

tradition—a grateful acknowledgment of belonging to something that transcends the immediate performance context—or even as being “a conduit for the universe” (T). Still others describe gratitude that improvisational music reveals a mode of being that cannot be reduced to technological efficiency (i.e., enframing) yet remains deeply meaningful in ways that resist straightforward explanation.⁴⁹ As J explains, “there’s an element of serving a purpose to what we do.”

Musicians articulate these experiences across a spectrum of language: some by relating it to their basic being-in-the-world (“that’s your life [...], I think about improvised music as... as a life... as connected to life” (T)), others with explicitly mystical or religious terminology (“a spiritual thing,” “magic,” (B) or serving a kind of “God of Music” (E)). Despite these differences in expression, what unites these experiences is the sense that something special has emerged through the gathering power of the instrument—something beckoned from beyond, evoking gratitude, where the musical event is experienced as a gift, not merely a product of technical skill.

The following participant quotes exemplify the divinities aspect of the fourfold as gathered by the instrument as thing. These examples reveal how these practitioners experience moments of transcendence, connection to something beyond themselves, and gratitude for experiences of SMIII A that feel given rather than merely self-produced.

J articulates perhaps the clearest expression of the divine dimension in musical experience, describing music-making as a “spiritual pursuit” which involves a humble and grateful servitude:

J: I think we’re here, we play music, I think there’s an element of serving a purpose to what we do. And I think that it’s a spiritual thing. And I think that we, as musicians,

⁴⁹ Heidegger, “The Question Concerning Technology,” 19.

serve some sort of God. You know, some sort of ‘God of Music.’ Now, I don’t mean that as being a Christian God, or any kind of God like that. [...] What I mean by that is that there’s a sense of *servicing*. And that’s actually a really—it feels really good to do that. [...] We want to make the music better, for example. Why do we want to make the music better? It’s perfectly alright as it is. You can earn money playing it as it is. You don’t *need* to make it better. Why would you want to improve? [...] There’s that thing, that motivation, to actually get better. [...] It’s a spiritual pursuit for me and I think definitely for you and for most musicians. And I think that’s where we’re lucky in our job choices that we have. It is a spiritual pursuit. But there’s also that sense of wanting to serve the music and by that, I mean [...] to make it the best that it can be. And the best that *we* can be.

J’s reflection reveals the mysterious nature of their own artistic motivations—why they feel the need to continually strive to improve beyond practical necessity. This pursuit transcends rational explanation, originating not from within but from a calling experienced as coming from without. J’s expression of gratitude (“that’s where we’re lucky in our job choices”) further emphasises how this connection is experienced as a gift rather than merely self-generated achievement.

T describes how the divine dimension can also manifest through a connections to musical lineage—encounters with influential musicians that create a sense of being summoned into vocation:

T: William Parker was the first bass player I ever—He’s the reason I play bass. I saw him play a gig and I had a bass in my hand the next day. So, I was just like [**claps hands**]. [...] I watched him play and went, “That’s what I’m going to do for the rest of my life.” And I literally walked out onto the steps, and I met a bass player randomly, and said a funny thing. He said “Oh, I’ve got a bass.” I was like, “Can I

pick it up tomorrow?” He’s like, “Yes.” I have had the universe say “Yes” to me, you know, through this process of being a bass player. [...] [Parker is one of] my models, you know? And so, if I’m going to sit in that room, I’ve got to have a sound and a virtuosity and physicality. Of course, you never live up to that. But that’s the vision, right? That’s the work.

T here describes an enduring sense of responsibility to metaphorically “sit in that room” with great bass players from the tradition (like Parker) and expresses gratitude for having “the universe say ‘Yes’” to this path. This example illustrates how instruments gather not only mortals who are physically playing, but also connect practitioners with divinities—in this case, past experiences with master musicians—creating a sense of participation in a musical lineage that beckons one through the instrument into particular ways of being and playing (a topic I return to in the next chapter).

B employs the language of “magic” to describe moments that emerge unexpectedly within performance—experiences that feel given rather than produced, as when “inspiration” comes to “tap you on the shoulder” within “the right situation”:

B: [T]hey’re the moments. That’s what keeps us coming back I reckon. Don’t you reckon? That’s like, for me it’s kind of those moments of, kind of, magic. And maybe not just me, but it’s everyone else as well. It’s like, “What was that?” But yeah, I’ve come out with things and played stuff that I’ve never practiced. I don’t know where it came from. And, yeah, absolutely. With the right situation. But then again, you don’t know how—You don’t know when that’s going to happen do you? You don’t know when inspiration is going to come and tap you on the shoulder. [Laughs] But, I feel like they’re the moments and, you know—I mean, it’s just *great* playing music.

B's description highlights a bewilderment ("What was that?") at the source of musical ideas—"I don't know where it came from"—suggesting they cannot be summoned through technical skill alone but emerge as if drawn from beyond oneself. This experience evokes gratitude ("it's just great playing music"), revealing how these "magical" moments become beckoning messengers that gather a world of special significance.

J articulates how these divine dimensions transform the performer's relationship with the instrument during moments of transcendence:

J: Yeah [**very long pause**]. When you're... in that sort of, and I guess it's a, it could be described as an ecstatic moment—even though we're not, you know, defining ecstasy [...]. I don't want to get into the definition of ecstasy. But I think it's fair to say that that moment is ecstatic. You're in a really happy place, but you're not necessarily self-aware. [...] That's the spiritual aspect of that moment as much as anything else. That to be able to... sublimate yourself so that you are actually, you *are* the instrument. ... You and the bass are the instrument as a whole—not you *playing* the instrument, if you see my meaning—then you aren't aware. It is a deeply spiritual and ecstatic moment. And it can last for a while. It can last, you know, for the entire song or just for a section of the song. And [**in reference to the footage**] I think that's what that was. So, you're not really aware of how your body is moving, or even that it is moving. You're just... You're in the moment.

J describes an "ecstatic" state where ordinary self-awareness dissolves, replaced by a "deeply spiritual" sense of unity with the instrument itself. Again, the language of sublimation and a lack of bodily awareness points to an experience in which one is not simply wielding the instrument as tool, but rather where the instrument as thing gathers earth, sky, mortals, and divinities, as described here, into a unified experience that feels given from beyond the self and profoundly meaningful.

These examples illuminate the divinities aspect of the fourfold as experienced by the participants in my study. Through their accounts, we see how instruments participate in disclosing experiences that transcend the individual performer—connecting musicians to something beyond themselves, evoking gratitude and wonder. Whether described as serving a “God of Music” (J), feeling connected to a larger musical tradition or a “conduit for the universe” (T), experiencing inexplicable “magical” moments (B), or achieving ecstatic unity with the instrument (J), these musicians encounter what Heidegger describes as the “beckoning messengers of the godhead.” The musical instrument, within its gathering power, temporarily creates worlds where musicians feel “Beckoned Beyond Themselves”—drawn into experiences that feel given rather than produced.

Things Thinging

According to Heidegger, then, things *thing* by gathering the fourfold of earth, sky, mortals, and divinities. In doing so, they *shine forth* and gather temporary intimate worlds, thus transcending the status of transparent expressive tool or mere bodily extension. Rather, things *thinging* are that on the basis of which we are capable of such embodied coping—temporarily constituting “the-world” of our “being-in-the-world.” The fourfold attunes us to the interconnected dimensions through which musical instruments disclose worlds where materials, possibilities, identities, and meanings converge. Musical instruments do not simply withdraw except in moments of breakdown, but they are viscerally experienced as *shining* in ways that meaningfully shape the performer’s mode of engagement with their practice; they gather the foundations upon which such engagement becomes possible.

As esoteric as these ideas may initially appear, the fourfold offers a powerful and non-reductive framework for bringing into focus various details constituting the complex, affective, relational ontology of practitioner, thing, and world in ways which often evade us

in everyday language, challenging traditional ontological categories and distinctions. As Mitchell notes:

The fourfold provides an account of the thing as inherently relational. [...] Unlike the self-enclosed object of modern metaphysics, the thing is utterly worldly, its essence lying in the relations it maintains throughout the world around it, the world to which it is inextricably bound. The world becomes the medium of the thing's relations. The fourfold is the key to understanding this streaming, mediated, relationality of finite, worldly existence.⁵⁰

Interpreting musical instruments as *things thinging* does justice to the complex and slippery ontology of musical instruments as reported by the expert practitioners in this study. When instruments are understood in this way, we recognise that they constitute the very clearing within which both withdrawal and bodily extension can occur.

This perspective highlights how instruments themselves possess a powerful agency in the dynamics of SMIIIA—something which can *lead* the practitioner, something *with* and *through* which musicians collaboratively create and discover SMIIIA. That is, this material agency (discussed pp. 134-139) is itself a *creative* agency: what Malafouris terms “Creative Thinging,” to which I now turn, revealing the implications of this revised ontology for SMIIIA.

Creative Thinging

Malafouris introduces the concept of *Creative Thinging* as a means of reinterpreting the notion of creative *thinking*: an alternative framework for making sense of human creativity and its inexorable entanglement with “things.”⁵¹ This concept—adapted from

⁵⁰ Mitchell, *The Fourfold*, 3.

⁵¹ Malafouris, "Creative Thinging."

Heidegger's work on "things"—aims to highlight the inextricable creative, affective, and aesthetic power of things within the cognitive landscape of human creativity.⁵² Creative Thinging rejects a *hylomorphic* understanding of creative action (*hyle* = matter; *morphe* = form), instead framing human creativity as *hylonoetic* (*hyle* = matter; *nous* = mind), emphasising the *continuity* between mind and matter. Simply put, Creative Thinging integrates the notion of material agency discussed in Chapter 5 with the understanding of things developed above, to provide an understanding of the creative process as something we collaboratively accomplish "with, through and about things."⁵³

While Malafouris does not elaborate on the Heideggerian fourfold as I have, above, his concept of "thinging" has direct roots in Heidegger's work, specifically "the phenomenal power of things to 'gather' space and time [i.e., a world]."⁵⁴ However, Malafouris diverges from Heidegger with his specific focus on *creative* cognition, emphasising the process-based and relational characteristics involved in this gathering, making it directly applicable to our present discussion on SMIII.A.⁵⁵

Thinging—as opposed to mere thinking—shifts our focus from individual internal cognitive processes to the entangled relationships (or "ontological *synechism*") between practitioner and world.⁵⁶ It brings attention to "the vitality, affect and agency of things in human thinking"—precisely what our analysis of the fourfold has demonstrated through examining how musical instruments gather earth, sky, mortals, and divinities in the context of improvised musical performance.⁵⁷

⁵² Malafouris, "Creative Thinging," 141-42.

⁵³ Malafouris, "Creative Thinging," 140.

⁵⁴ Malafouris, "Creative Thinging," 141-42.

⁵⁵ Malafouris, "Creative Thinging," 142.

⁵⁶ Malafouris, "Creative Thinging," 142.

⁵⁷ Malafouris, "Creative Thinging," 142.

Creative Thinging describes the culturally and historically situated ways that humans discover new material forms through “*a saturated, situated engagement of thinking and feeling with things and form-generating materials*” (emphasis in original).⁵⁸ A distinguishing feature of Creative Thinging, then, lies in the peculiar combination of materially engaged *enactive discovery* and *making* that forms its core. As Malafouris observes, “Humans usually either discover or create. The differentiating feature of Creative *thinging* is that we discover by creating.”⁵⁹

Creative Thinging is committed to the primacy of material engagement, recognising that cognitive processes emerge from the irreducible coupling between brain, body, and material culture.⁶⁰ This theoretical commitment stands in contrast to traditional neurocentric views of creativity that locate the creative process primarily in brain states.⁶¹ While Malafouris does not deny that neural processes obviously participate in creative process, they are unintelligible when abstracted beyond the broader “brain-body-environment dynamics” as situated in particular “context[s] of creative material engagement.”⁶² Rather than viewing creativity as the manifestation of mental/neural representations that precede action, Creative Thinging embraces a process ontology where “the ‘conceptual space’ is not given to us preformed as a mental map inside our heads; rather, it needs to be discovered or constructed in moment-to-moment, improvisational thinking inside the world.”⁶³

Following Tim Ingold, Malafouris directly challenges the “hylomorphic conception of creativity” defined as “the imposition of preconceived abstract form on inert matter.”⁶⁴ This dominant view assumes that creative ideas are first formed in the mind and then imposed

⁵⁸ Malafouris, "Creative Thinging," 144.

⁵⁹ Malafouris, "Creative Thinging," 144.

⁶⁰ Malafouris, "Creative Thinging," 147.

⁶¹ For an examples of this position, see discussion of Boden in Malafouris, "Creative Thinging," 144-45.

⁶² Malafouris, "Creative Thinging," 147.

⁶³ Malafouris, "Creative Thinging," 146.

⁶⁴ Malafouris, "Creative Thinging," 145.

upon passive materials. In contrast, Creative Thinging embraces a *hylonoetic* understanding where mind and matter are understood as continuous and mutually constitutive. The hylonoetic perspective recognises that materials are not passive recipients of pre-formed mental intentions but active participants in the creative process.⁶⁵ As Malafouris explains:

According to [the *hylonoetic*] view, design is no longer a process by which the mind imposes forms on matter; instead, it is a process of enactive discovery and material engagement. Mind and matter are one, and thus the processes of forming are as much mental as they are physical. [...] Within the hylonoetic field [...] it only makes sense to think of process and flow and ask questions about what [in the context of pottery] the clay and the human hand can do when acting together, in partnership, or about how exactly they relate and connect to each other, or about what they affect, about what they become, about what they bring about.⁶⁶

Malafouris describes this as the “feeling *of* and *for*” materials—a “dynamical process of creative material engagement, wherein material and human creative agency are coupled allowing action to gain a ‘life of its own.’”⁶⁷ In Creative Thinging, creative agency is distributed across the network of relations between human and material agents. Neither the human nor the material alone determines the outcome; rather, creativity emerges as a *relational* property of their coupling. This echoes our analysis of how musical instruments gather the fourfold—including materials, possibilities for action, personal identities, broader traditions, etc—where we observed the active role instruments play in shaping musical possibilities within the transient worlds they gather.

⁶⁵ Malafouris, "Creative Thinging," 142-43.

⁶⁶ Malafouris, "Creative Thinging," 152.

⁶⁷ Malafouris, "Creative Thinging," 151.

These dynamics make intelligible what Malafouris terms forms of “tectonoetic awareness” including “the sense or consciousness of making in the absence of *telos*,” whereby the practitioner’s creative ideas and intentions are formed through a direct connection with the materials at hand, in the absence of pre-formed goals.⁶⁸ Malafouris explains:

Potters, like many other makers and builders, can be very confident about their skills, abilities and movements without any certainty about what will ensue from their actions. Of course, the potter might well entertain various working hypotheses or ideas about what the final product might be or look like, since mechanically reproducing a number of set forms and shapes is part of their ordinary job. Still, those working ideas have little to do with or contribute to the potter’s ‘tectonoetic awareness.’ This kind of material consciousness is felt and becomes realised through the harmonious negotiations and improvisations between fingers and material.⁶⁹

This understanding of the creative process as “Creative Thinging,” especially when considered in the light of our characterisation of musical instruments as “things,” has profound implications for our evolving understanding of SMIIIA, and the role of musical instruments in this process. Rather than conceiving of musical improvisation as involving preformed sonorous musical imagery, ideas, or intentions, that are subsequently translated into action, SMIIIA—a paradigmatic manifestation of material agency—is now understood as an act of making through enactive discovery: that is, more precisely, *SMIIIA is Creative Thinging*. On this account, the *instrument* itself (along with the sonorous musical materials) actively participate in the creative process, blurring the distinctions and lines of causality between subject and world. The instrument-as-thing does not merely passively accept the

⁶⁸ Malafouris, “Creative Thinging,” 151.

⁶⁹ Malafouris, “Creative Thinging,” 151.

improviser's pre-formed musical intentions but actively and dialectically participates in SMIIIA, allowing the practitioners to *discover* (sometimes in surprising ways) their creative intentions *with* and *through* the instrument and musical materials in the world.

* * *

In this chapter I have explored the various ways the double bass manifests in the experiences of my participants, aiming to illuminate the role of the musical instrument in SMIIIA. Beginning with the question, “what is a musical instrument?” my data revealed that while participants sometimes described their instrument as ready-to-hand equipment withdrawing into use or as extensions of their body schema, many accounts suggested relationships that did not fit neatly within the tool paradigm. Instead, I argued that musical instruments offer paradigmatic examples of “things thinging”—entities that gather and disclose temporary worlds—an interpretation which most effectively captures the nuanced affective resonance binding practitioner, instrument, and musical materials in SMIIIA.

To clarify the nature of this affective resonance, I employed Heidegger's concept of the fourfold of earth, sky, mortals, and divinities as analytic tools. These concepts help foreground the subtle modes of encounter through which participants experience instruments, often in ways that escape common language or everyday understandings of objects.

Earth was interpreted as the material foundation of the thing: a presence that does not withdraw into mere usage and resists being reduced to terms or concepts beyond its immediate sensuous manifestation. When my participants describe the “feel” of their instrument or its resonance, they invoke this earthly dimension, accessible only through tactile and sonic encounters. In this sense, *Materiality Matters*—the specific physical properties remain foundational to the instrument's significance.

Sky illuminated certain horizons of possible action available within the intimate world gathered by the instrument, revealing transient, situation-specific possibilities at the intersection of material affordances and socio-cultural contexts. By revealing these pathways, the instrument does not predetermine possibilities but allows participants to come into their “ownmost,” disclosing specific sonic, melodic, and rhythmic possibilities, and interactive responses while concealing others. Through this continuous opening, instruments gather sky by creating *Pathways of Potential*.

Mortals represented what my participants brought to the thing as beings who dwell in finitude. A musical instrument cannot “thing” without performers who inhabit contingent identities within its gathered world. My participants do not merely use instruments; they become “bassists,” “improvisers,” or “artists” through their engagement—identities that are meaningful yet contingent, capable of transformation or dissolution, thus folding the lines of causality in SMIII A into a fundamental circularity. Moreover, the musical world itself was revealed as possessing this temporal character, emerging and dissolving through performance. This dual mortality—of identity and of the gathered world—reflects *Presence in Passing*, acknowledging how instruments momentarily disclose who my participants are while reminding us of the ephemeral nature of that disclosure.

Divinities manifested when the instrument’s gathering power connected my participants to something transcending that which is immediately present. This dimension emerged as a profound connection to one another, to a cultural lineage, or a sense of participating in something larger than the self. Whether described as spiritual communion or gratitude for the gift of music-making, these experiences share a common feature: they are felt as received from beyond, rather than produced from within. The instrument beckons musicians into new ways of being, creating moments of being *Beckoned Beyond Ourselves*.

This reconceptualisation of instruments as things thinging paved the way for Malafouris' account of *Creative Thinging*, providing the theoretical framework for understanding SMIIIA as a hylonoetic process in which creation and discovery happen simultaneously through material engagement. The musician does not first form musical ideas to be later translated into the world (MBW); instead, musical ideas emerge through the dialogical coupling of musician and instrument—nested within a broader ecology of couplings—in a temporally unfolding process of Creative Thinging. For my participants, SMIIIA just *is* this hylonoetic process of Creative Thinging: a radically enactive creative thinking “with, through and about things.”⁷⁰

Understanding SMIIIA as Creative Thinging reveals SMIIIA as a fundamentally collaborative process. As Malafouris notes, the creator's “perception-action loops and movements are dynamically coupled and resonate with the affordances and physical qualities of the material at hand, as if maker and material, potter and clay, can participate in each other's sense making.”⁷¹ L adds vivid testimony to this claim:

L: I don't want to—what's the term—anthropomorphise and, you know, give human characteristics to that box of wood with strings on it, but all I can say is that when I feel at one with the instrument, I feel like the instrument, and I are both working to the same goal. We're on the same page, so to speak. We understand each other.

Thus, the concept of Creative Thinging as a collaborative process naturally extends toward the intersubjective elements of SMIIIA, setting the stage for my final data chapter, which explores the ways my participants accomplish SMIIIA with others.

⁷⁰ Malafouris, "Creative Thinging," 140.

⁷¹ Malafouris, "Creative Thinging," 151.

8. All Together Now

In the previous chapter, *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIA) was revealed as *Creative Thinging*—a non-anthropocentric dance of creative material agency, realised through the affective resonance between situated bodies, musical sounds, and instruments/things, by which my participants simultaneously enact and discover musical ideas. This framing once again positions SMIIA not as a *within* property, but as a *between* property: essentially, an act of collaboration. Building on this insight, the present chapter shifts focus to the intersubjective dynamics of SMIIA. Here, I examine how my participants experience SMIIA collaboratively *with others*.

Rather than viewing SMIIA as an individual capacity simply influenced by social factors, I propose that, in group improvisation, SMIIA is a fundamentally co-created phenomenon. The improvisational ensemble can thus function as a “distributed” cognitive system—a musical “hive-mind” comprising agents both on and off stage, transcending individual cognition.¹ This reframing shifts our understanding from isolated imaginative processes aligning by influence to a shared SMIIA that is irreducibly collaborative and interactive.

The data presented here largely provide support for several existing theories within the enactive approach to social cognition—many of which have already been applied to musical performance—including interkinesthetic affectivity, we-agency, participatory sense-making, and extended musical historicity (discussed below).² This chapter extends these

¹ Edwin Hutchins, *Cognition in the Wild* (Cambridge, Mass: MIT Press, 1995); Vlad Petre Glăveanu, *Distributed Creativity: Thinking Outside the Box of the Creative Individual*, 1st 2014. ed., SpringerBriefs in Psychology, (Cham: Springer International Publishing, 2014). Simon Høffding, *A Phenomenology of Musical Absorption*, New Directions in Philosophy and Cognitive Science, (Cham: Springer International Publishing AG, 2018), 217-46.

² Høffding, *A Phenomenology of Musical Absorption*, 217-46; Hanne De Jaegher and Ezequiel Di Paolo, "Participatory Sense-Making: An Enactive Approach to Social Cognition," *Phenomenology and the Cognitive Sciences* 6, no. 4 (2007), <https://doi.org/10.1007/s11097-007-9076-9>; Andrea Schiavio and Hanne De Jaegher, "Participatory Sense-Making in Joint Musical Practice," in *The Routledge Companion to Embodied Music*

frameworks by demonstrating how these interpersonal dynamics not only help to explain musical coordination, but also deepen our understanding of SMIIIA as rooted in social/intercorporeal engagement. I frame these social interactions as co-substantial acts of SMIIIA, where musical ideas and intentions are collectively formed through the dynamic interplay of situated bodies, sounds, instruments, and socio-cultural contexts. This framing ultimately positions SMIIIA as a *collaborative achievement*, emerging in the intersubjective space between musicians, audiences, and musical materials.

Theory of Mind

To understand the intersubjective dimensions of SMIIIA, we must first engage with some foundational debates in social cognition—specifically, the question of *how we know others*.³ Experimental psychology has long sought to explain our capacity to understand and/or empathise with others, often framing this ability as an inferential process whereby we attribute and interpret the hidden mental states of others. Within this paradigm, one's basic ability to recognise how another person is feeling necessarily requires some kind of "mind reading."⁴ Core insights in this field have arisen from numerous developmental studies aiming to understand the ontogenetic emergence of this cognitive ability.⁵ Findings in this space are

Interaction, ed. Micheline Lesaffre, Marc Leman, and Pieter-Jan Maes (Routledge, 2017); Joshua A. Bergamin, "Habitually Breaking Habits: Agency, Awareness, and Decision-Making in Musical Improvisation," *Phenomenology and the Cognitive Sciences* (2024), <https://doi.org/10.1007/s11097-024-09974-x>; Andrea Schiavio et al., "By Myself but Not Alone: Agency, Creativity and Extended Musical Historicity," *Journal of the Royal Musical Association* 147, no. 2 (2022), <https://doi.org/10.1017/rma.2022.22>.

³ Gallagher and Zahavi, *The Phenomenological Mind*, 197.

⁴ Alvin I. Goldman, "Theory of Mind," in *The Oxford Handbook of Philosophy and Cognitive Science*, ed. Stephen P. Stich, Richard Samuels, and Eric Margolis, Oxford Handbooks (United States: Oxford University Press, 2012). See also, Daniel A. Schmicking, "Auditory Imagination: A Phenomenological Perspective," in *The Oxford Handbook of Sound and Imagination*, ed. Mark Grimshaw-Aagaard, Mads Walther-Hansen, and Martin Knakkegaard, Oxford Handbooks (New York, NY: Oxford University Press, 2019), 92-94.

⁵ For example, Heinz Wimmer and Josef Perner, "Beliefs About Beliefs: Representation and Constraining Function of Wrong Beliefs in Young Children's Understanding of Deception," *Cognition* 13, no. 1 (1983), [https://doi.org/10.1016/0010-0277\(83\)90004-5](https://doi.org/10.1016/0010-0277(83)90004-5); Simon Baron-Cohen, Alan M. Leslie, and Uta Frith, "Does the Autistic Child Have a "Theory of Mind"?", *Cognition* 21, no. 1 (1985), [https://doi.org/10.1016/0010-0277\(85\)90022-8](https://doi.org/10.1016/0010-0277(85)90022-8); Josef Perner, Susan R. Leekam, and Heinz Wimmer, "Three-Year-Olds' Difficulty with False Belief: The Case for a Conceptual Deficit," *British journal of developmental psychology* 5, no. 2 (1987), <https://doi.org/10.1111/j.2044-835X.1987.tb01048.x>. For a brief overview see: Gallagher and Zahavi, *The Phenomenological Mind*, 199-200. For a more detailed discussion see: Goldman, "Theory of Mind."

widely interpreted as evidence for the emergence of a *Theory of Mind* (ToM), defined, in Gallagher and Zahavi's formulation, as:

our ability to attribute mental states to self and others and to interpret, predict, and explain behavior in terms of mental states such as intentions, beliefs and desires.⁶

Amongst proponents of ToM there are conflicting views regarding the specific mechanisms which could make such a "mind reading" process possible, crystallising into two dominant camps: *Theory Theory of Mind* and *Simulation Theory of Mind*.⁷

Theory Theory (TT) of mind suggests that the cognitive leap identified in developmental studies reflects an infant's recognition that the mental states of others differ from their own. TT suggests that, in order to navigate these differences, the infant must form hypotheses and theories to *infer* the nature of these hidden states.⁸ As De Jaegher and Di Paolo observe:

Contemporary social cognitive science [tends] to paint a picture of individuals who have to work out each other's minds much like they do with scientific problems. In this view, what counts as 'social' differs from non-social problem-solving merely as a matter of degree.⁹

On the TT account, then, understanding others is essentially a *third-person* process: an act of observation and inference aimed at deciphering the hidden mental states of others.¹⁰

Simulation Theory (ST) of mind, on the other hand, proposes that we infer these hidden mental states by internally simulating the perspective of others. This essentially

⁶ Gallagher and Zahavi, *The Phenomenological Mind*, 197.

⁷ Gallagher and Zahavi, *The Phenomenological Mind*, 197-203.

⁸ Goldman, "Theory of Mind," 403-04.

⁹ De Jaegher and Di Paolo, "Participatory Sense-Making," 486.

¹⁰ Shaun Gallagher, *How the Body Shapes the Mind* (Oxford: Clarendon, 2005), 222.

involves mentally representing yourself as in the other person's position, allowing you to infer their perspective from your own.¹¹ As Gallagher explains:

[According to ST,] the subject seemingly reads off the meaning of the other, not directly from the other's actions, but from the internal simulation of *the subject's own* 'as if' action. This view suggests that the subject who understands the other person is not interacting with the other person so much as interacting with an internally simulated model of himself, pretending to be the other person.¹²

For ST, understanding others is therefore a *first-person* process that relies on simulating or representing the hidden mental states of others as if they were one's own.¹³

In the social cognitive sciences, TT and ST— whether used in isolation, or blended in what Gallagher and Zahavi term “hybrid theories”—are not merely invoked to explain infant cognition, but also as fundamental mechanisms underpinning everyday social interactions more generally.¹⁴ However, this view has faced growing criticism, some critics arguing that ToM approaches reduce social cognition to detached mental operations, neglecting the embodied and interactive nature of everyday encounters, facing “problems of homuncularity,” and running the risk of “infinite regress” in attempting to account for “meaning-generating processes.”¹⁵

¹¹ Robert M Gordon and Joe Cruz, "Simulation theory," *Encyclopedia of Cognitive Science* 4 (2003). NB: There are various versions of simulation theory, some presenting it as an “exercise of conscious imagination and deliberate inference,” others suggest that the “simulation, although explicit, is non-inferential in nature,” while others again—invoking “subpersonal mirror neurons, shared representations, or more generally resonance systems”—suggest that simulation is “implicit and subpersonal.” Gallagher and Zahavi, *The Phenomenological Mind*, 198; 203.

¹² Gallagher, *How the Body Shapes the Mind*, 222.

¹³ Gallagher, *How the Body Shapes the Mind*, 222.

¹⁴ Gallagher and Zahavi, *The Phenomenological Mind*, 198; Gallagher, *How the Body Shapes the Mind*, 207.

¹⁵ De Jaegher and Di Paolo, "Participatory Sense-Making," 486-87. For an excellent discussion of various contemporary corrective responses to these theories—including “embodied simulation theory” and “interaction theory”—see: Dylan Van der Schyff, Andrea Schiavio, and David J. Elliott, *Musical Bodies, Musical Minds: Enactive Cognitive Science and the Meaning of Human Musicality*, The MIT Press, (Cambridge: The MIT Press, 2022), 109-19.

Further, a key phenomenological critique, on which I wish to focus here, is that in all but the most unusual cases, our everyday *second-person* interactions do not typically involve experiences of theorising or simulating mental states. On this account, running theories and simulation is the *exception*, not the rule, when it comes to social interaction. As Gallagher and Zahavi explain in their critique of ST:

When we consult our own common experience of how we understand others, we don't find such processes. Of course, that is not to say that we never use simulations, but that in itself is telling. It may be the case that confronted with some unaccountable behavior I do try to understand the other person by running a simulation routine. This is clearly the rare case, however. Moreover, I can easily become aware that I am in fact taking this approach, and it is all the more apparent when I do this, simply because it tends to be the exception. But this tells against our idea that I employ simulation in the usual everyday circumstances.¹⁶

As the data presented below reveals, the reports of participants in my study provide compelling ethnographic data in support of this phenomenological critique, instead framing their experience of joint musical performance as grounded in more direct forms of bodily attunement rather than theorising or simulation. However, before I discuss these examples, let us first turn to some alternative perspectives emerging from these ToM critiques and explore their implications for collective musical improvisation and SMIIA.

Høffding's Critique

Simon Høffding, in *A Phenomenology of Musical Absorption*, directly challenges ToM explanations of how musicians achieve synchrony in ensemble performance.¹⁷ For

¹⁶ Gallagher and Zahavi, *The Phenomenological Mind*, 202-03.

¹⁷ Høffding, *A Phenomenology of Musical Absorption*, 217-46. See also, Andrea Schiavio and Simon Høffding, "Playing Together Without Communicating? A Pre-Reflective and Enactive Account of Joint Musical Performance," *Musicae scientiae* 19, no. 4 (2015), <https://doi.org/10.1177/1029864915593333>.

example, he observes that dominant cognitive psychological accounts of ensemble interaction in musical performance—even those acknowledging embodied practices—often implicitly rely on ST's assumption that synchronisation requires *mental simulation*. For example, he cites Keller's model of musical coordination, which posits that

[musical] synchrony is achieved by each performer internally simulating the concurrent actions of other ensemble members, relying initially on how they would perform in their stead.¹⁸

While not discussed explicitly by Høffding, one of the key mechanisms underpinning Keller's model is anticipatory auditory imagery (discussed p. 22-24).¹⁹ According to Keller, musicians employ explicit anticipatory auditory and/or motor imagery not only to mentally pre-hear their own future sounds, but simultaneously to simulate and predict the mentally pre-formed goals of others. He explains:

Ensemble performance requires each musician to anticipate his or her sounds and the sounds produced by other musicians. It is assumed here that these forms of anticipation involve mixtures of auditory and motor imagery, and that such top-down anticipatory processes coevolve with bottom-up expectancies generated on the basis of the perception of actual sounds. It is through the generation of auditory and motor images that musicians activate internal representations of performance goals and plans. While engaged in such imagery, the auditory component is most likely paramount in the performer's phenomenology: It is what an individual has in mind while playing.²⁰

¹⁸ Peter E. Keller, Günther Knoblich, and Bruno H. Repp, "Pianists Duet Better When They Play with Themselves: On the Possible Role of Action Simulation in Synchronization," *Consciousness and cognition* 16, no. 1 (2007): 102, <https://doi.org/10.1016/j.concog.2005.12.004>. quoted in Høffding, *A Phenomenology of Musical Absorption*, 219.

¹⁹ Keller, "Joint Action in Music Performance," 207-10.

²⁰ Keller, "Joint Action in Music Performance," 207-08.

As we can see, this model presupposes a particular phenomenology of individual musical experience which involves the translation of mentally pre-heard musical/motor images from mind to world—a notion challenged by this thesis—scaled up to include predictions about the future actions of others.

Høffding concedes that while explicit coordination techniques may be employed in certain (often extenuating) circumstances, they cannot account for the fluid, intuitive attunement characteristic of most expert collective musical performance.²¹ Drawing on interviews with the Danish String Quartet, Høffding critiques a broader tendency in existing research to ground the dynamics of collective musical performance in players' conscious awareness of "their co-players' mental states" and "shared common goals."²² By contrast, his data reveals that expert musicians coordinate through at least three distinct, yet interrelated, modes: *Motor Resonance*—a subconscious mimicry and synchronisation of/entrainment with other's movements; *Explicit Coordination*—deliberate communication and signalling (often in moments of risk or uncertainty); and *Interkinesthetic Affectivity*: a pre-reflective, shared bodily attunement with others' movements, sounds, and expressive gestures.²³ This attunement can occasionally lead to "a feeling of one shared body" and a sense of *We-Agency*, wherein musical ideas and intentions—traditionally relegated to the individual minds of performers—are collectively formed, emerging from the interplay of the ensemble's intercorporeal and interpersonal dynamics.²⁴

Høffding suggests that cognitive psychological models tend to over-prioritise explicit coordination, which he interprets as a limited mode of collective music-making, with an "antagonistic" sense of agency, requiring conscious effort (discussed below).²⁵ Instead, he

²¹ Høffding, *A Phenomenology of Musical Absorption*, 233.

²² Høffding, *A Phenomenology of Musical Absorption*, 220.

²³ Høffding, *A Phenomenology of Musical Absorption*, 230-40.

²⁴ Høffding, *A Phenomenology of Musical Absorption*, 235.

²⁵ Høffding, *A Phenomenology of Musical Absorption*, 233.

argues that in expert practice interkinesthetic affectivity takes precedence.²⁶ This mode of engagement bypasses theorising or simulating the goals and mental states of others, instead relying on the performers' capacity to merge with the ensemble's collective intercorporeal dynamics.²⁷

Høffding's critique supports Gallagher and Zahavi's assertion that simulation is the *exception*, not *the rule*, in social understanding. Further, as I will demonstrate, below, this alternative framework parsimoniously aligns with the participant accounts in my own study, capturing many of the nuances of their embodied, non-representational experiences of ensemble improvisation. Before turning to those accounts, I first want to unpack the three modes of coordination Høffding identifies in the collective practice of ensemble musical performance.

Motor Resonance

For Høffding, motor resonance is a sub-conscious process which can unfold without joint attention, conscious intention, or mental simulation, offering a foundational mode of musical coordination. At its core, motor resonance involves involuntary synchronisation between performers, bypassing the need for plans, goals, or representations of others' mental states.²⁸

Høffding identifies "entrainment" as one specific manifestation of this phenomenon.²⁹ Entrainment, as defined by Pacherie, is "a process whereby two people involuntarily synchronize their behaviour, even in the absence of direct mechanical coupling."³⁰ Everyday

²⁶ Høffding, *A Phenomenology of Musical Absorption*, 233.

²⁷ Høffding, *A Phenomenology of Musical Absorption*, 233-40.

²⁸ Høffding, *A Phenomenology of Musical Absorption*, 230-32.

²⁹ Høffding, *A Phenomenology of Musical Absorption*, 231.

³⁰ Elisabeth Pacherie, "How Does it Feel to Act Together?," *Phenomenology and the Cognitive Sciences* 13, no. 1 (2014/03/01 2014): 31, <https://doi.org/10.1007/s11097-013-9329-8>, <https://doi.org/10.1007/s11097-013-9329-8>. quoted in Høffding, *A Phenomenology of Musical Absorption*, 231. See also: Joel Krueger, "Affordances and the Musically Extended Mind," *Frontiers in psychology* 4 (2014), <https://doi.org/10.3389/fpsyg.2013.01003>.

examples of entrainment include two individuals in rocking chairs unintentionally synchronising their motions (even when the chairs differ in size or rhythm), or the outcomes of experiments in which participants swinging pendulums will do so asynchronously until visual contact involuntarily triggers phase-locked coordination.³¹ Høffding suggests that in musical coordination motor resonance often arises from mere bodily presence: musicians need not share explicit intentions or even direct their attention toward one another—physical proximity alone can suffice to align their movements.

As a sub-conscious process, motor resonance operates beneath performers' awarenesses, rendering it inaccessible to direct participant reporting except by inference (as with Høffding's examples).³² However, reflecting on my own experience, perhaps I can offer a first-hand illustration of motor resonance in collective improvised musical performance. I play bass in a very experienced group, with a nearly 15-year residency, playing a style of music in which we always aim to maintain a steady tempo during extended improvisations. However, despite this explicitly articulated collective intention, I occasionally notice that the tempo has in fact drifted, but *only after the fact* (for instance, towards the end of the song as the original melody is being restated). That is, I do not always register that the tempo is changing *as* it changes. In such cases, it is clear that no individual has consciously adjusted the beat; rather, we have simply "slipped," or entrained, into alignment, guided not by shared goals or simulated intentions, but by the tacit resonance of bodies sharing space and sound. Of course, in many such instances individual members will be aware of subtle tempo shifts coming from their co-performers, and take steps to actively resist them. However, my focus here is on the examples in which we all appear to drift, subconsciously, *together*. While this

³¹ Pacherie, "How Does it Feel to Act Together?," 31; De Jaegher and Di Paolo, "Participatory Sense-Making," 490-91. It should be noted that, while I'm here focusing on biological/social relations, the phenomenon of entrainment simply designates, in van Der Schyff et al.'s words, "the tendency for oscillating systems to synchronise with each" and thus can also emerge in non-biological systems (e.g., wall mounted pendulums) (Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 142.).

³² Høffding, *A Phenomenology of Musical Absorption*, 230.

subtle drifting is unintended—and, in this context, undesirable—it exemplifies both the pervasive and subpersonal nature of motor resonance, and how it can play into collective rhythmic synchronisation.

When my ensemble rhythmically adjusts, no one is simulating co-performers' hidden beliefs or desires. There are no covert hypotheses about what others intend to play. Indeed, in the example just given, these tempo changes *defy* the group's collective intentions, challenging the ToM claims that synchrony in ensemble performance depends on internal modelling or simulation of others' mental states. Instead, synchrony emerges through pre-reflective bodily resonance between movements, sounds, and rhythms. However, as Høffding notes, “[this] kind of unconscious coordination [...] is not the most usual kind of interaction between the DSQ [Danish String Quartet] members,” suggesting that motor resonance alone cannot fully account for collective musical performance.³³

Explicit Coordination

The second mode of musical interaction identified by Høffding is explicit coordination, which he characterises in terms of conscious and deliberate communication between performers, or of intentional strategies implemented by one performer to maintain or regain synchrony with their co-players.³⁴ These may involve intentional cues or explicit signalling, including, but not limited to, body language or facial expressions. Explicit coordination often arises during moments when performers have to *try*, actively, to play together.³⁵ Such instances result in what Høffding terms an “antagonistic” sense of agency,

³³ Høffding, *A Phenomenology of Musical Absorption*, 232.

³⁴ Høffding, *A Phenomenology of Musical Absorption*, 232-33.

³⁵ Høffding, *A Phenomenology of Musical Absorption*, 232.

whereby a distinction between a “you” and an “I” are fully explicit, and the possibility of maintaining cohesion at constant risk through miscommunication and miscoordination.”³⁶

As mentioned above, Høffding suggests that cognitive psychological accounts of joint musical performance tend to focus on this level of analysis, taking it to be fundamental. However, as his data suggests, such explicit, deliberate, and effortful forms of coordination are atypical of his participants’ experience of playing together, an observation supported by my participants’ insights below. According to Høffding, while explicit coordination occasionally plays a significant role in joint musical performance—like motor resonance—it is “not the most ordinary form of musical interaction,” again challenging accounts of musical synchrony founded in TT and ST.³⁷

³⁶ Høffding, *A Phenomenology of Musical Absorption*, 233. For an example of explicit coordination in my data, consider the following anecdote from C, who recounts a challenging experience when a new pianist, who regularly implemented unusual chord sequences, joined an already familiar band:

C: I was kind of going, like, “Oh shit.” I had no idea what to play. And I was starting to panic. I thought “I can’t play. I don’t know what to do.” Because my ears stopped, because I was in the middle of panicking. [...] I used to blunder through these tunes, have miserable nights, and the gigs there were really long. So, I’d be absolutely emotionally exhausted by the time I got home. And then [...] I just thought to myself [...] “Why don’t you just actually stop panicking and actually listen to what he’s doing?” And so, after about half an hour, I had them all figured out. And so, every time he brought one of his cascading two five licks out [...] I was onto it. And the first time that I started to play all of these things with him he kind of looked at me and sort of nodded and smiled and kept playing, you know? But after a couple of weeks [...] he said to me, “You know, [...] it’s really, really nice that you’ve bothered to, you know, work out what I was doing.” [...] “But,” he said, “You know that if you follow me like that, and play all the stuff that you know I’m going to play, you know that it renders everything that I do ‘inside.’ So, I’m not actually able to be ‘outside.’ Because you’re not letting me.” [Laughs] [...] I had to make myself, like, *not* do it at times, you know? Which was quite hard.

C here highlights several dynamics central to explicit coordination. Initially, C struggled with their intuitive approach to playing alongside the pianist’s unfamiliar chord changes, disrupting their interaction and leaving C panicked and “emotionally exhausted.” To address this, C consciously analysed the pianist’s actions and adapted their own responses—a deliberate strategy requiring focused attention and intentional effort. C had to consciously “*work out* what [the pianist] was doing,” deciphering the pianist’s emerging goals and intentions, as C deliberated over whether to align with or diverge from the pianist’s playing. The pianist’s smile acknowledged C’s effort to synchronise—a non-verbal signal recognising C’s adaptation—however, explicit verbal feedback later revealed that C was in fact *misreading* the pianist’s goals and intentions. C’s initial attempt at “mind reading” their co-players’ mental states and goals was unsuccessful, creating a tension between C’s natural inclination to follow the pianist’s lead and the deliberate decision to resist doing so at certain times.

³⁷ Høffding, *A Phenomenology of Musical Absorption*, 233.

Interkinesthetic Affectivity

Through extensive interviews with his expert participants, Høffding identifies “a different mechanism,” constituting a more “normal,” pleasurable, and highly valued mode of playing together as experienced in “peak instances” of trust and enjoyment.³⁸ Such experiences involve neither theories nor simulation, but manifest as a *feeling*—a “knowing without knowing”—whereby musicians intuitively anticipate their co-players’ actions without explicit plans or predictions.³⁹ Such a state emerges from a profound “trust in the situation,” cultivated through extensive experience with collective performance.⁴⁰

This phenomenon is experienced as a tactile bodily connection despite physical separation—a shared corporeal attunement that Høffding terms *Interkinesthetic Affectivity*, a term he takes from Elizabeth Benkhe.⁴¹ In musical performance, this phenomenon is comprised, Høffding explains, of four key features: first, *Auditory Perception*—that is, a non-visual sense of connection, prioritising collective listening over visual cues, enabling musicians to perceive micro-timing nuances (for example, bow shifts) not as discrete sonic events, but as kinetic gestures.⁴² Second, *Affectivity*—which is to say that the experience is imbued with an emotional resonance (discussed below), fostering trust and a shared sense emotional engagement.⁴³ Third, *Interoception*—highlighting how sounds literally penetrate the body, allowing musicians to physically feel each other’s movements as somatic events through sonic vibrations that resonate within their bodies.⁴⁴ And, finally, *Intersubjective*

³⁸ Høffding, *A Phenomenology of Musical Absorption*, 233.

³⁹ Høffding, *A Phenomenology of Musical Absorption*, 234.

⁴⁰ Høffding, *A Phenomenology of Musical Absorption*, 233.

⁴¹ Høffding, *A Phenomenology of Musical Absorption*, 233; Elizabeth A. Behnke, "Interkinaesthetic Affectivity: A Phenomenological Approach," *Continental philosophy review* 41, no. 2 (2008), <https://doi.org/10.1007/s11007-008-9074-9>.

⁴² Høffding, *A Phenomenology of Musical Absorption*, 235-36.

⁴³ Høffding, *A Phenomenology of Musical Absorption*, 236-37.

⁴⁴ Høffding, *A Phenomenology of Musical Absorption*, 237.

Proprioception (or *Interkinesthesia*)—the sense of a joint body schema where co-performers' movements are experienced as extensions of one's own.⁴⁵

While Høffding notes that interkinesthetic affectivity can function in isolation, making it “sufficient, although apparently not necessary” for ensemble performance, he also notes that it does not preclude the other aforementioned modes (e.g., motor resonance and explicit coordination).⁴⁶ However, the prevalence of interkinesthetic affectivity in expert performance—with its lack of explicit theorising, simulation, or mind reading—presents fundamental challenges to theories of collective musical coordination grounded in ToM frameworks.

Turning now to my data, many descriptions offered by the participants in the present study provide persuasive ethnographic validation for Høffding's account of interkinesthetic affectivity. For example, C here describes the immediacy and effortlessness characterising their experience of connecting with certain musicians, even during a first encounter:

C: You know how sometimes you play with someone for the first time and it's like you've been playing with them all your life? It's such an incredible feeling. There's no reason for it really. [...] And some people you can play with a lot and it's never comfortable. You always have to be wondering what's going to happen next? What are they going to do? Maybe I should suggest this? [i.e., requiring explicit coordination] [...] I've played a lot with [this piano player] [...] [and] he and I clicked the first time we ever played together. [...] It was always kind of [**clicks fingers**] boom, you know? [...] And so, you know, he and I have this huge connection [...] which is lovely. And it's not a pre-conceived thing. It's actually that it's just part of our dialect.

⁴⁵ Høffding, *A Phenomenology of Musical Absorption*, 237-39.

⁴⁶ Høffding, *A Phenomenology of Musical Absorption*, 239.

C describes how their most pleasurable experiences of collective improvisation are grounded in auditory perception and affectivity—specifically shared emotional engagement and mutual trust—rather than pre-conceived plans, anticipatory mental imagery, or explicit coordination (see p 256, FN 36 for a contrasting example). C’s description accentuates how interkinesthetic affectivity emerges naturally and intuitively through a shared musical “dialect,” fostering an effortless sense of connection that transcends the absolute control of either musician individually, but which they can directly affect.

T, in a reflection on their musical interactions with a close friend, emphasises how trust in the situation and pre-reflective embodied knowledge—hallmarks of interkinesthetic affectivity—play into their experience:

T: We’ve played a lot now. But, even from the first time we played, it was like I can trust that, if I throw something down, he’s going to do something. I don’t know what he’s going to do, but I’m going to be responding [**clicks finger**]. [...] My body knows more about playing the bass than I do [...]. I’m at my most able to connect to the potential of the universe when I’m not thinking. When I’m in responsive mode. When I’m taken by sound. [...] That’s where I make the most profound [music and] have the most profound experiences as a musician. [...] I go, “I trust this entirely” [and] it takes my whole being [...] And that tends to rub off. [...] Because that tends to be a shared experience, right? Like, you put people meditating in a room [...] or you go and speak in tongues at an assembly of Christ, it’s the same thing. Like, what’s the energy that transfers?

Here, T describes a sense of their body connecting in an unmediated way with their co-player’s actions, bypassing deliberate thought and engaging in a pre-reflective “responsive mode.” While T doesn’t “know” what their co-performer will do next, there is a strong sense in which their *body* does—a kind of “knowing without knowing,” where T experiences a felt

sense of connection and anticipation that transcends explicit prediction. T's comparison to meditation or collective energy transfer further emphasises the shared affective resonance and corporeal attunement intrinsic to interkinesthetic affectivity.

E elaborates on the *non-visual* nature of interkinesthetic affectivity, describing how closing their eyes enhances their auditory attunement to musical sounds as holistic kinetic gestures:

E: It's that thing of just deprive one sense and [then] the other senses... feel more... finely tuned or engaged. So, [...] I'm hearing the sound in more detail. Like, of everyone else... Because [...] what you look at changes how you hear. Because if I look at [the drummer], then I'm... I'm kind of categorising her sounds into, "Those are [her] sounds. And that [sound] is something else." But, in this situation [...], I want to think about the whole body of sound. And I don't necessarily want to think about three or four people doing these individual roles. But I want to *feel* it as a holistic sound. And closing my eyes allows me to do that.

E's description highlights how closing their eyes enables them to participate with the music as a cohesive sonorous whole rather than individually contributed musical sounds with which they must synchronise. This reflects a shift from visually monitoring and intellectualising co-players' actions to an affective immersion in the auditory field, where sounds are "felt" as kinetic gestures.

Finally, B vividly describes what it feels like to synchronise rhythmically with others, recognising "groove" as something which neither musician has *individually* but which emerges from an intercorporeal play:

B: It's in your body as well. Absolutely. I think you have to *feel* it in your body. [...] I feel like it's—We're *dancing*, you know? We're dancing. [...] That's exactly what

it's like. We are like that [**interlocks fingers**]. You know? Me and the drums. We have to be like we're dancing together. And that's a very bodily thing. So, I feel like I feel the groove in my body absolutely

B's metaphor of dancing captures the physicality inherent in interkinesthetic affectivity while emphasising interoception and interkinesthesia—the sense of shared proprioception where movements feel interconnected across players' bodies through the medium of sound. B's description underscores how tactile and kinesthetic aspects contribute to musical connection—in this case, groove—in ways irreducible to the individuals involved.

I take this cross-section of examples as aligning with Høffding's account of interkinesthetic affectivity, elucidating how improviser's play together without simulating or theorising about the hidden mental states of others. Pertinent to the present study, Høffding suggest that certain experiences involving interkinesthetic affectivity can alter the performer's sense of agency. In such cases, individuated distinctions between “I” and “you” dissolve, manifesting a collective intentionality and sense of agency—a *We-Agency*—that fundamentally reconfigures our understanding of SMIIA.

We-Agency

As I have shown, interkinesthetic affectivity blurs body-schematic boundaries between performers, which can result in a sense of one shared body. Merleau-Ponty's conception of the body schema, which grounds an individual's “I can,” here expands into a *we-can*: a distributed sense of possible actions arising from the ensemble's amalgamated kinaesthetic awareness. The Danish String Quartet violist Asbjørn Nørgaard colourfully refers to this phenomenon as the “hive-mind,” a metaphor evoking the collective behaviour of insects (or aliens!) acting as a single organism.⁴⁷ In such states, individual intentions dissolve

⁴⁷ Høffding, *A Phenomenology of Musical Absorption*, 233.

into a shared sense of agency, with musicians describing their evolving musical ideas and intentions as *ours* rather than *mine* or *yours*. This we-agency contrasts the individual sense of agency—defined as “a sense of being the initiator or source of a movement, action, or thought”—by foregrounding the *collective* authorship of musical ideas and intentions, providing what I interpret as a radical reframing of SMIII A.⁴⁸ Through Høffding’s observations, we can begin to see how SMIII A, traditionally framed as personal, private and representational, in fact emerges as irreducibly social, collectively shaped by the ensemble’s intercorporeal dynamics.

Given that this level of we-agency is something that many people may not have experienced, Høffding offers the example of rowing to focus the phenomenon:

In a double scull, [...] communication is not primarily visual nor is it verbal. Rather, [the rowers] are kinesthetically coupled through the oars as extended limbs in the medium of the water and the boat itself. For optimal rowing, [...] [Juliane] must feel and incorporate Anne’s [pace] through the medium of the oars [sic] in the water to get in sync and must furthermore continually adjust her own desire for a certain rhythm to that of Anne. Her sense of agency is at the same time delimited and extended to that of Anne. [...] The coordination that is generated from this kind of coupling is not primarily one of explicit prediction—although that might be involved, especially in breakdown situations—but rather a form of kinesthesia.⁴⁹

This example highlights how we-agency operates with and through material mediums (e.g., oars, water) and interkinesthetic sensitivity (i.e., “feel and incorporate” Anne’s movements). Similarly, in musical performance, where “instruments are analogous of oars [sic] and the played music of water,” improvisers typically coordinate via shared bodily intentionality

⁴⁸ Gallagher, *How the Body Shapes the Mind*, 173.

⁴⁹ Høffding, *A Phenomenology of Musical Absorption*, 238.

rather than explicit mental predictions, such as anticipatory auditory imagery.⁵⁰ As already argued throughout this thesis, SMIIIA is here construed as Creative Thinging—a creative material agency encompassing the performer’s situated body, the sonic materials, and their instrument. We-agency extends this observation to include others, where interkinesthesia and shared body schemas distribute SMIIIA across the ensemble.

T’s account here crystallises this phenomenon in the context of improvised ensemble performance

T: We can move into time, like that [**clicks finger**], and then move out and... You know, it’s still a mystery to me. [...] [E]veryone goes, “Oh, that just happened.” [...] Like this, see this all just shifted. Like, for *no* apparent reason, everyone just knew that it was a new section, you know what I mean? [...] Everyone’s present in the thing. [...] And it has that sense of trust that that’s coming from a place of active being and active listening and all that and really active gestures in this space... that are trusted. [...] And you can *see* it. You can see [it] in this gig, [...] [W]e’re all going “Ffff” [**swims hands in an around each other, implying an amorphous whole**].

T’s description vividly epitomises the experience of we-agency: musical transitions are instigated collectively (“*we* can move,” “*everyone* just knew that it was a new section”) and without any individual consciously understanding how (“it’s still a mystery to me”). This coordination arises from a “total cohesion” rooted in a mutual “sense of trust” and presence. Crucially, T notes that this unity is in fact externally observable—not merely an internal feeling but a perceivable, embodied synchrony—recalling Merleau-Ponty’s account of the direct perception of the meaning of expressive gestures (discussed pp. 86-88).

⁵⁰ Höffding, *A Phenomenology of Musical Absorption*, 238.

These insights refine the intersubjective dimensions of SMIIIA. In explicit coordination, agency remains individualised, with others “influencing” or “affecting” one’s choices. Yet under interkinesthetic affectivity, SMIIIA *itself* becomes intersubjectively distributed: musical imagination is not individually formed but is an emergent phenomenon, arising from ensemble interaction. The “hive-mind” does not merely influence ideas and intentions; it *generates* them, rendering SMIIIA a collective phenomenon perceptible to both performers and audiences.⁵¹

Participatory Sense-Making

Høffding’s critiques of ToM approaches to collective musical performance, leading to his account of interkinesthetic affectivity and we-agency, offer crucial insights into the collective dimensions of SMIIIA, especially with regard to on-stage interactions between performers. However, in what follows, I wish to widen the scope of the interpersonal dynamics to include the role of the audience, and the influence of “absent” others. To address these examples, I turn to the theory of *Participatory Sense-Making* (PSM): an enactivist theory of social cognition that reframes meaning as emergent from the autonomous coordination of interaction rather than individual mental states.⁵² PSM provides a complementary framework to Høffding’s insights by theorising how a broad range of social interactions—which, according to van der Schyff et al., include those “between performers,

⁵¹ Schmicking similarly hypothesises that, contrary to existing phenomenological accounts of imagination, a collective SMIIIA may be possible in improvised musical performance. However, given the previously identified gap in ethnographic data, he regards this possibility only “tentatively.” He writes: “we might finally ask whether it is possible that co-performers accomplish something like joint musical imagining. [...] One of the few extensive phenomenological analyses of imagination [by Casey] confirms the private nature of imagining: “actual episodes of imagining are always first-person in character (there is no such thing as co-imagining in any strict sense).” Is there co-imagining in a less strict sense? I am inclined to affirm so tentatively. As co-performers are united in joint perceptual attention to their collective action, say, an improvisation, they are not only directed to the joint acting via perception, planning, and understanding musical gestures but also grasp the others’ nascent gestures and, just as their gestures interlace, they jointly develop the emerging improvisation” (Schmicking, “Auditory Imagination.”). I believe the data presented in this chapter now allows for a more robust affirmation of Schmicking’s hypothesis.

⁵² De Jaegher and Di Paolo, “Participatory Sense-Making.”

audience members, and performer and audience”—can develop their own self-sustaining organisation, enabling emergent domains of meaning that transcend the sum of individual contributions.⁵³

Sense-Making is a foundational tenet of enactivist cognitive science, which frames cognition as an emergent process of meaning generation through the ongoing sensorimotor coordination of autonomous, embodied agents with their environments.⁵⁴ Enactivists reject cognitive models that position organisms as passive receivers and processors of pre-given environmental stimuli, instead emphasising their active role in *enacting*—or bringing forth—a world of significance through lived engagement. As De Jaegher and Di Paolo explain:

Organisms do not passively receive information from their environments, which they then translate into internal representations whose significant value is to be added later. [...] They actively participate in the generation of meaning in what matters to them; they enact a world.⁵⁵

This “world-making” process, through which organisms bring forth significance in their interactions with their environment, is what enactivists term *sense-making*. Sense-making can, for example, reveal organism-relative valences—such as edible, dangerous, or valuable—which are neither intrinsic environmental properties, nor mental constructs. Rather, they are relational dynamics—or affordances—co-constituted by the organism’s biological constraints, sensorimotor history, and current activities. Thompson clarifies this relational ontology with the canonical enactivist example of a bacterium in a sugar solution:

although sucrose is a real and present condition of the physiochemical environment, its status as food is not. That sucrose is a nutrient is not intrinsic to the status of the

⁵³ Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 110.

⁵⁴ Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, Mass: Belknap Press of Harvard University Press, 2010), 158.

⁵⁵ De Jaegher and Di Paolo, "Participatory Sense-Making," 488.

sucrose molecule; it is rather a relational feature, linked to the bacterium's metabolism. Sucrose has significance or value as food, but only in the milieu that the organism itself brings into existence. [...] Living is a process of sense-making, of bringing forth significance and value. In this way, the environment becomes a place of valence, of attraction and repulsion, approach or escape.⁵⁶

This example highlights one of enactivism's core theses: cognition is not a process of representing a pre-given objective world, but rather one of *enacting* a world of significance through sensorimotor engagement (i.e., sense-making).

De Jaegher and Di Paolo extend the concept of sense-making into the social domain through their theory of PSM, which emphasises the interaction process itself as fundamental to collective sense-making.⁵⁷ This is not merely to say that the behaviour of two agents exerts an influence over each other (although they do), but rather identifies the interaction as having its own, self-sustaining, autonomy, which itself exerts influence over those involved. This influence is reciprocal—participants shape the interaction while simultaneously being shaped by it—thus affecting the collective sense-making of those involved.⁵⁸ Taking a conversation as an example, De Jaegher and Di Paolo explain:

[T]he agents sustain the encounter, and the encounter itself influences the agents and invests them with the role of interactors. The interaction process emerges as an entity when social encounters acquire this operationally closed organization. It constitutes a level of analysis not reducible, in general, to individual behaviours. [...] Individuals co-emerge as interactors with the interaction.⁵⁹

⁵⁶ Thompson, *Mind in Life*, 158.

⁵⁷ De Jaegher and Di Paolo, "Participatory Sense-Making."

⁵⁸ De Jaegher and Di Paolo, "Participatory Sense-Making," 494.

⁵⁹ De Jaegher and Di Paolo, "Participatory Sense-Making," 492.

Van der Schyff, Schiavio, and Elliot extend this insight specifically into the realm of music—or what they refer to as “participatory musical sense-making”—with Rooney and Bergamin specifically recognising *improvised* musical performances as paradigmatic examples of PSM.⁶⁰ According to van der Schyff, Schiavio, and Elliot, participatory musical sense-making designates

[t]he various ways we directly and collaboratively engage with rich, cross-modal networks of bodily, emotional, sonic, social, cultural, technological, and material scaffolding that support and constrain intelligent (i.e., creative, adaptive, skillful, goal-directed) behavior. [...] [T]he ways this plays out cannot be properly explained only in terms of internal simulations. It is more fully described [...] in terms of a unfolding process in which agents come to know and understand each other directly through histories of direct embodied interaction that occur within the shared (and extended) sociomaterial milieu they are embedded in.⁶¹

In musical performance, multiple agents engage in an interactive and dialectical process between one another (musicians with musicians, audience members among themselves, performers with audience) and with the interaction itself (the emergent musical performance).⁶² Crucially, as we have already seen in Chapter 5, the interaction itself (the improvised musical performance) can exert its own agency, which, as Bergamin notes in the context of improvised music, “opens certain paths forward while closing off others, and hence develops in ways that may be independent of the intentions of any of its creators.”⁶³ As Schiavio and De Jaegher explain:

⁶⁰ Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 119-23; Rooney, "The Improvising Body," 15-17; Bergamin, "Habitually Breaking Habits," 4-6. See also: Schiavio and De Jaegher, "Participatory Sense-Making in Joint Musical Practice."

⁶¹ Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 122.

⁶² Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 110.

⁶³ Bergamin, "Habitually Breaking Habits," 6.

the dynamical nature of sense-making may reveal the ‘musical object’ not as a fixed and wholly pre-given structure, but rather as an emergent phenomenon that develops through shared active involvement in the musical event; the musical object is, by this light, an ongoing open structure that shapes and is shaped by the sensemakers in a circular fashion.⁶⁴

Following these scholars, I here suggest that understanding SMIIIA as PSM—as a social interaction with its own self-sustaining internal structure (or *operational closure*) and autonomy capable of shaping the collective sense-making of those involved—can help us interpret a myriad of participant descriptions in this study. This framework is particularly valuable for interpreting accounts that implicate an even wider range of interactors (including audience members and absent others) in the process of collective SMIIIA.

For example, J’s account illustrates how interaction processes can exert autonomy beyond the intentionality of individual musicians. Reflecting on footage from a recent performance, J describes the emergence of two unplanned collective moments:

J: We had agreed not to play any standards on the gig. [...] So [the pianist] starts playing [...] and I go, “Well, have I forgotten something?” [...] So, I started playing [...] and then I suddenly realised we’re kind of in a sort of free improvisation. And I think what [the band leader] did then was, [...] he started to play it’s—I’m not sure if he meant to play the standard or what the thought process was there, but it ended up being *Alone Together*. And we’re all still playing free up until the point that we all recognise, you know, what he was playing. Felt that pull, and then joined in.

This example vividly demonstrates PSM in action—the interaction itself became an autonomous process with emergent properties transcending individual intentions. Despite

⁶⁴ Schiavio and De Jaegher, "Participatory Sense-Making in Joint Musical Practice."

explicit agreements not to improvise freely in this section, nor play jazz standards at all during the performance, the collective dynamics facilitated the spontaneous emergence of both. The musicians experienced being “pulled” into musical territories through the coordinative dynamics of their interaction rather than through individual decisions.

S describes how interaction dynamics affect not just musical actions but their attentional patterns, which are described as not only “being pulled” from one musician to another, but also to the relations emerging *between* the three musicians:

S: It’s kind of like maintaining two roles at that point [...]. I want to be, you know, aligned with the drums in terms of the energy, but also, I want to be reactive and responsive to what [the saxophonist] is bringing to the table there as well. And [...] there’s this connection between those two... two sound sources. Those people. So yeah, [my attention] definitely shifts, I think. And I think it shifts almost unconsciously because... yeah, it’s almost like there’s not that much control in that space of like who I listen to. [...] You’re being *pulled*.

S’s experience illustrates how attention in PSM can become distributed across the social field rather than remaining under individual control. The “pulling” of attention between different musicians and their relationships highlights how, in improvised musical performance, sense-making can become an intersubjective process, experience as shaped by the dynamics and autonomy of the interaction itself.

C elaborates how such experiences often manifest as a kind of “joint thinking,” explicitly connecting these interactive dynamics to a collective SMIIIA:

C: I think it’s definitely a joint thinking thing. [...] Irrespective of the style really, there is always going to be situations where you *draw* things out of each other. [...] Which, speaking to the question of is it pre-heard or not, makes it even harder to

answer. [...] You're driven by what you know, you're driven by what you can imagine. [But] if you're with another person, or two people, or three people, you know, you're listening to—[you're also] drawing on all of them. I mean, collective performance is and should be that.

C's reflection directly addresses how SMIIIA emerges through PSM, where musical imagination becomes a collaborative achievement rather than an individual cognitive process. This exemplifies PSM and the emergence of a collective SMIIIA—musical ideas emerge through the coordination dynamics between musicians rather than being merely transmitted between them.

E invokes the Korean concept of *nunchi* (눈치)—a kind of social awareness “not of individuals but of the overall context and atmosphere of a [social] situation”—to articulate these collective dynamics in improvised performance:⁶⁵

E: There's this Korean word called *nunchi*, which means, like, it's kind of like your awareness of other people and of social dynamics. [...] And I think music's full of that. And conversations. Like, it would be kind of low [*nunchi*], if [...] you're just kind of doing your own thing and you're not really creating something new between the two of you. You're kind of just blurting out all of your stuff. And music can be the same. [...] I guess over the past few years I've tried to be more aware of those types of social dynamics and be, like, “Okay, well, what's the *new* thing that's created now that the three of us are here.” [...] But I think, yeah, socially, like, the social dynamics of playing in an ensemble are, like, the biggest way that the lay person might understand the dynamics [and] have an insight into what it's like playing. [...] So,

⁶⁵ Euny Hong, "What Is Nunchi? The Korean Secret to Happiness," *The Guardian* 2019, <https://www.theguardian.com/lifeandstyle/2019/nov/11/what-is-nunchi-the-korean-secret-to-happiness>.

that's, like, not *just* audiation, but like... that's like a socialised version of like the quote, unquote "effect" it's going to have.

E's reference to *nunchi* provides an alternative framework for understanding PSM—highlighting how attunement to the emergent social field transforms individual intentions. This sensitivity or awareness—*nunchi*—to the social dynamics of ensemble improvisation—reified as that "*thing* that's created now that the three of us are here"—affects E's mode of engaging with others, informing a kind of "socialised" audiation (a collective knowing the "effect" of certain gestures). E's explicit comparison between musical ensembles and conversation emphasises how both contexts involve similar dynamics of PSM, where meaning emerges through the coordination of multiple agents.

B develops this insight, describing how specific social configurations shape a collective SMIII A:

B: I will play very differently with [drummer A] and [pianist A] than I would play with [drummer B] and [guitarist A]. Very differently. [...] With certain people. [...] It really does depend on who I'm playing with and what the situation is. [...] I will "play what I hear" is appropriate for each situation. [...] And I think that my job is to read the situa[tion]. [To] understand what the parameters are within a certain situation. [...] It's just finding the right notes for the situation. [...] But I guess I'm not thinking. I'm trying not to think while I'm playing. I'm trying to just react.

B's reflection emphasises how specific social dynamics imbue the interaction with a normativity underpinning SMIII A in ways that do not require conscious deliberation. Their different approaches with different ensembles demonstrate how SMIII A is, for B, a socially situated phenomenon—emerging through specific interactive contexts rather than from

individual cognitive processes alone (“I’m not thinking”), framing SMIIIA as an emergent property of social interaction.

Finally, T uses a boat-building metaphor to capture the role of the interaction in a collective SMIIIA:

T: It’s a very collective [way of thinking]—I mean, that’s the gift of that group of people, you know? Like, none of us can do what the other one can do and we all love what the other one does. [...] And so, there’s real relationships [**moves hands back and forwards**] between that sense of collective responsibility and shared... desire, you know? There’s this very nice interview with William Parker [...] [and] Daniel Carter and they’re talking about [...] what collective music is. And they’re describing it as, well, they have to build the boat together. And then the building of the boat determines how that boat is sailed. And then they have to sail the boat. [...] And what we do is probably an even much more extreme version of: build the vessel, travel, have the vessel fall apart because the circumstances change [**moves hand like waves in the ocean**]. And so, you have to change the vessel to suit the circumstances. But you’re still always looking for that thing to go, “Let’s ride this. Let’s build the thing we ride.” And sometimes that journey is a long one, and sometimes it’s like [**shrugs**] can be, you know, a minute.

T’s description of “build[ing] the thing we ride” elegantly encapsulates the essence of PSM—the interaction becomes a collectively constructed “vessel” that both enables and constrains the musical journey, informing a collective SMIIIA (here referred to as a “shared desire”). This co-created structure exemplifies how PSM transcends individual contributions, creating emergent possibilities that couldn’t exist within any single musician (“none of us can do what the other one can do”). The boat metaphor highlights how the interaction acquires its own

autonomy, requiring ongoing collective adaptation while enabling musical experiences that exceed what any individual could achieve alone.

The Audience

Thus far, my examples have focused primarily on interactions among musicians on stage. However, I would like to suggest that an additional benefit of the PSM framework is its capacity to implicate the audience in the social dynamics of SMIIIA. A key limitation of the present study is that my data centre solely on observations of my participants and their subjective experiences, rather than on those of the audience *per se*. Nevertheless, philosopher Joel Krueger has offered a wealth of insights into the nature of music listening which, in conjunction with findings from Geeves et al. and my own participants' accounts, are instructive in understanding how the audience functions as a co-constitutive element in the emergence of SMIIIA.⁶⁶

In his article "Affordances and the Musically Extended Mind" Krueger develops "an affordance-based approach to music listening."⁶⁷ He observes that the act of listening to music is never truly "passive," explaining

our engagement with music is always *reciprocal* and *interactive*. [...] [W]e are active perceivers: we latch onto musical affordances and respond, motorically, to the solicitations of these affordances—even if this response is at times involuntary. And crucially, the way we latch onto musical affordances determines the phenomenal

⁶⁶ See for example, Joel Krueger, "Enacting musical experience," *Journal of Consciousness Studies* 16, no. 2-3 (2009); Krueger, "Affordances and the Musically Extended Mind."; Joel Krueger, "Musicing, Materiality, and the Emotional Niche," *Action, Criticism, & Theory for Music Education* 14, no. 3 (2015). Andrew Geeves et al., "Between the Crowd and the Band: Performance Experience, Creative Practice, and Wellbeing for Professional Touring Musicians," *International Journal of Wellbeing* 10 (2020), <https://doi.org/https://doi.org/10.5502/ijw.v10i5.1509>.

⁶⁷ Krueger, "Affordances and the Musically Extended Mind," 5.

shape of how music comes back to us, so to speak, how the music is constituted, perceptually.⁶⁸

According to Krueger, musical sounds present unique affordances that non-musical sounds do not, soliciting movement from the listener and, more specifically, “different forms of entrainment (both voluntary and involuntary).”⁶⁹ He notes,

music exhibits a strong affective allure; it is difficult to ignore it or repress our bodily responses, even very early in life. From the start, we experience music as something that naturally invites this kind of synchronized interaction.⁷⁰

As listeners, “music draws movement out of us” manifesting in explicit behaviours such as dancing, nodding, swaying, clapping, finger tapping, or singing, as well as subtler, often pre-reflective motor responses—such as synchronous changes in breathing, or movements of the mouth, tongue, or eyes (some of which have been observed even in “neonates and pre-term infants”).⁷¹

Importantly, as already mentioned above, this process is not unidirectional and Krueger emphasises the dynamic feedback between the way we hear and respond to music “how the music is constituted, perceptually.”⁷² For Krueger, the relationship between listener and music is comparable to that between performer and instrument in so far as they “form an integrated system,” grounded in movement.⁷³ Moreover, in group settings, collectively

⁶⁸ Krueger, "Affordances and the Musically Extended Mind," 6.

⁶⁹ Krueger, "Affordances and the Musically Extended Mind," 6. The interpretation of affordances employed by Krueger simply as: “action possibilities in a perceiver’s environment that are specified *relationally*, that is, both by (1) particular structural features of the environment and things in it, as well as (2) the repertoire of sensorimotor capacities the perceiver employs to detect and respond to these structural features. A perceiver, in virtue of being embodied in a particular sort of way—and possessing an accumulated history of environmental interactions—will experience affordances as furnishing different sets of interactive possibilities.” (Krueger, "Affordances and the Musically Extended Mind," 2.)

⁷⁰ Krueger, "Affordances and the Musically Extended Mind," 3.

⁷¹ Krueger, “Affordances and the Musically Extended Mind,” 5; 6. See also, Van der Schyff, Schiavio, and Elliott, *Musical Bodies, Musical Minds*, 156-58.

⁷² Krueger, "Affordances and the Musically Extended Mind," 6.

⁷³ Krueger, "Affordances and the Musically Extended Mind," 7.

attending to and entraining with the same musical event (and with each other's movements) creates what he terms *affective synchrony*: "the sharing of feeling states that often emerge when individuals entrain their movements with one another—for example, when jointly listening to or performing music."⁷⁴ Bolstering his claims with findings from a range of studies, Krueger ultimately suggests that "we quite literally hear music through movement."⁷⁵

In principle, Krueger's insights apply to performer-audience relations, although his work primarily focuses on the listener's experience. Nevertheless, affective synchrony seems to be a fundamental feature not only among listeners jointly attending the same musical event, or between performers playing together, but also *between* performers and their audience.⁷⁶ As remaining examples in this chapter reveal, there are myriad explicit and pre-reflective ways in which performers and audiences appear to synchronise through joint attention, movement, and entrainment—continuously and reciprocally "determin[ing] how we respond, which shapes what we hear, which informs our further responses, etc.," offering a compelling basis for how the audience can be understood as directly participating in SMIIIA.⁷⁷

Advancing Krueger's insights, Geeves et al. explicitly examine how the dynamics of the performer-audience relationship affects touring musicians' "headspace and wellbeing," as well as their "creative processes" in performance in the context of the four-piece rock group *Cloud Control*.⁷⁸ A key finding here is that, for the participants in their study, the creative

⁷⁴ Krueger, "Affordances and the Musically Extended Mind," 3.

⁷⁵ Krueger, "Affordances and the Musically Extended Mind," 6.

⁷⁶ Here, one could also invoke the concept of *joint attention*, where performers and audiences share an awareness of being collectively focused on the unfolding music. While Krueger does not explicitly discuss the technicalities of joint attention, Cochrane's analysis describes a spectrum from basic mutual awareness to "more mature forms of joint attention" in which the sharing of attention transforms the very meaning and unfolding of the musical event. As Cochrane puts it, such experiences are "not merely attending to something, plus being aware of the other person," but rather a deepened "experience of seeing in a more fundamental way" (Tom Cochrane, "Joint Attention to Music," *The British Journal of Aesthetics* 49, no. 1 (2009): 59, <https://doi.org/10.1093/aesthj/ayn059>).

⁷⁷ A point also observed in Høffding and Snekkestad, "Inner and Outer Ears," 171.

⁷⁸ Geeves et al., "Between the Crowd and the Band," 8; 9.

process was primarily shaped by the social interaction *between* performers and audience. As one participant in their study remarks:

The crowd is just as important as the band. It's all about the crowd, but then it's all about the band. It's all about what is *between* the two [emphasis added].⁷⁹

Through immersive, ethnographic interviews with *Cloud Control* on tour, the researchers identify two “emergent, overarching and interdependent themes” constituting the participants’ performance experience: *Performance Headspace*—or the “participants’ mindset about performance,” which performers exhibit some capacity to strategically cultivate or modulate—and *Connection with Audience*—defined as “the quality of connection a musician experiences with an audience.”⁸⁰

While the study’s focus is primarily on performer wellbeing, the authors also argue that performance headspace and connection with audience are fundamental components of the performers’ creative processes in performance. Thus, the unfolding musical performance itself is experienced by performers as a collaborative—though often asymmetric—act achieved both by musicians and their audience; an “emergent form of creativity [...] co-created by, or between, the crowd and the band, in each unique musical ecology.”⁸¹

Of course, this connection is not static: its intensity and valence can vary, with corresponding effects on wellbeing ranging from “virtuous” (strong, positive, and mutually reinforcing) to “vicious” (equally strong, but negative and downward-spiralling) loops of influence, which can affect both performers and audiences emotions and behaviours in a circular fashion.⁸² As the authors recognise, there is a

⁷⁹ Geeves et al., "Between the Crowd and the Band."; Geeves et al., "Between the Crowd and the Band."

⁸⁰ Geeves et al., "Between the Crowd and the Band," 5; 16; 17; 18.

⁸¹ Geeves et al., "Between the Crowd and the Band," 21.

⁸² Geeves et al., "Between the Crowd and the Band," 15.

bidirectional shaping of the performer-audience relationship [...] in which each musician's performance experiences are co-constructed by the perceived experiences of audience members and other onstage musicians.⁸³

Through this lens, we can see how SMIIIA is not simply unilaterally projected by performers to the audience; rather, creative decision-making is an emergent property arising from the dynamics of the interaction (*qua* PSM). Further, when going well, the nature of this interaction can result in a virtuous experience of emotional resonance—described by one participant in their study as “feel[ing] like everyone is there with you and you’re supporting each other to make something together”—which I interpret as a manifestation of Krueger’s account of the “affective synchrony” that occurs when multiple people jointly attend to a musical event through their movement-based forms of listening.⁸⁴ Notably, both in Geeves et al.’s study and in my own research, performers display a marked sensitivity to how audiences physically engage with the music—whether explicitly, such as through clapping, cheering, dancing, singing along, or raising their hands, or more subtly, as the intangible “energy” a receptive audience brings to the performance, an energy which participants describe as something they “feed off,” fuelling their creative process.⁸⁵

Although Geeves et al. acknowledge that the dynamics of a four-piece rock ensemble differ from those of other musical genres—such as jazz, where improvisational practice is more explicit—their findings nonetheless provide a valuable entry point for understanding the audience as a constitutive element in SMIIIA: how the act of “playing what you hear” in fact emerges from a complex, looping social ecology in which the audience is fundamentally implicated. Building on these insights, I suggest that the following participant descriptions

⁸³ Geeves et al., "Between the Crowd and the Band," 12.

⁸⁴ Geeves et al., "Between the Crowd and the Band," 18; Krueger, "Affordances and the Musically Extended Mind," 3.

⁸⁵ Geeves et al., "Between the Crowd and the Band," 6.

illuminate how audience-performer interactions function as a critical dimension of SMIIIA's distributed nature. These dynamics operate in ways that are similar to, though not identical with, the PSM found in performer-performer interactions. Viewed through the lens of Krueger's and Geeves et al.'s theories, these examples can be understood as instances of PSM—interactive processes that take on a life of their own, through which both performers and audience members actively co-constitute SMIIIA.

J provides one of the most explicit descriptions of this collaborative element, emphasising how the audience is “involved as much as you are”:

J: The only way that I can kind of make sense of it is that we are, at that point, involved in a kind of an energetic field. [...] When you have a big audience, in a concert situation, and they are with you, and you feel that they're supportive of what you're doing, they're there to hear what you have to say, and they love the band or— It's positive. It's a positive feeling that you're getting back from the audience. [...] They're really enjoying themselves, and they're conveying that they're enjoying themselves to you. Now how are they doing that? How are they conveying their enjoyment? Through applause? But even *beyond* the applause, you *feel* that. And how are you feeling that? Because they're omitting some sort of energy. Some emotional energy that you are picking up on. [...] And you're aware of that and you feel that. [...] You feed on that. You are actually creatively tapping into that. [...] They [the audience] are involved as much as you. [...] They're involved as much in the performance as you are.

J describes being sensitive to an intersubjective “energetic field,” suggesting that this connection transcends overt audience expressions like applause. J's experiences this as a shared affectivity—what Krueger calls “affective synchrony”—an emotional energy that performers can “creatively tap into,” explicitly framing SMIIIA as emerging through this

collaborative interaction. This account reflects Geeves et al.'s finding that creative processes are “co-created by, or between, the crowd and the band,” positioning the audience not as passive recipients but as active co-creators of SMIIIA. This dynamic interaction not only shapes the performer's musical ideas and intentions but also exemplifies how SMIIIA emerges as a co-created phenomenon.

E reflects on how different audiences imbue performances with distinct qualities of energy, introducing the notion of “stakes,” or a palpable sense of responsibility, to the interaction:

E: The energy [from the audience], I think it has a very big impact. [...] I think I'm quite aware of, like... the feeling of, like, the stakes of the performance [...]. And inevitably there are going to be higher-stakes and lower-stakes kind of performances. Which can come across as [...] overly hierarchical or, like, potentially as respectful and disrespectful to different people presenting concerts. But it's not really about that. It's more just like, how big is the audience? And who is the audience? And what's the context? [...] At this event [**referring to the footage**], it's small and for a group of people that, even if they don't like it, are going to understand it and be able to contextualise it within a realm of music. And that's like probably the lowest-stakes performance you could do. [...] [But] I did a gig recently with [a well-known piano player] at [another venue] and it was really full and full of people I didn't know at all. [...] It was a bit more like playing to the public. And it was exciting, with a visiting artist. That raised the stakes. And then, [...] there was like a heated moment between [the pianist] and these audience members [**Laughs**]. And that just [...] put the music back into this context of, like, this is a two-way street and you're not just doing your own thing up there. [...] That's to give an example of a situation that feels a bit more imbued with, like... almost like *consequences*. [...] It just made me much more aware

of this, like, kind of back and forth between an audience that expects something versus an audience that is there with you, no matter what.

E's account foregrounds how the character and context of an audience can shape the collective energy of a performance, modulating the sense of responsibility and possibility for the musicians involved. An awareness of the "stakes"—shaped by audience size, makeup, and expectations—directly affects E's orientation toward musical risk and creativity, situating the ensemble's SMIIIA within a dynamic, socially charged space. The "heated moment" between performer and audience catalysed a heightened sense of music-making as a two-way process. Moreover, E's distinction between audiences that "expect something" and those "that are there with you, no matter what" highlights how the nature of audience-performer participation can shift along a spectrum, reinforcing the distributed nature of SMIIIA as emerging through participatory dynamics within each unique performance environment.

H offers a hypothetical example highlighting how joint attention between performers and audiences can create shared expectations embedded "in the music" itself, rather than in representational mental schemas. They practically illustrate this using a blues progression:

H: Say, we've already played a chorus [**plays the final bars of a typical twelve bar blues bassline**]. The first couple of bars go [**plays the first four bars of a blues, then stops**]. The listener really wants to hear that B flat next, right? [...] So, that was messing with [the listener] expectations based on the idea of how a blues should sound. [...] It's just picking whether that moment feels like it needs tension or not. Like, another expectation is often in jazz we play two-feel for a while [**plays a two-feel blues bassline**] and then it wants to go to a walking, you know? Maybe you don't go to walking. Maybe you play quiet and play a sort of more abstract two-feel for a second. [...] These are *really obvious* ways of setting up expectations, or using

expectations that are *in* the music, and then not meeting them or going somewhere else.

H's account reveals how their SMIIIA is shaped by normative "pulls" within the musical material—affordances produced by genre conventions as well as by the joint attention of both co-performers and audience. H's language frames these expectations as properties inhabiting the music itself ("*it* wants to go to walking," "expectations that are *in* the music"), rather than as individually conceived intentions. This highlights how, for H, SMIIIA could be interpreted as emerging from an embodied responsiveness to the normative field established through joint attention to the musical material. In this way, H's improvisational choices reflect a dynamic negotiation within a shared environment of audience and performer expectations in an ongoing process of PSM.

M's anecdote further exemplifies the complexities of these interactive dynamics, showing how explicit audience behaviours can also redirect, or disrupt SMIIIA in negative ways:

M: I was laughing at [...] the cool bartender that came out and [started] dancing. And then I was thinking about the fact [...].[that] the minute we play a rock-and-roll song the people got up and danced. And I'm pretty sure what's going through my head is like, "Oh, fuck! This is what we are meant to be doing the whole set, and I don't have enough tunes." [Laughs] [...] So, I'm sure I was [experiencing] a mixture of relief that they were dancing, and then also that I just sort of going, "Oh, so is this what we should be doing all night? Uh oh [...] What other songs have I got?" [...] All those stupid things. [...] Deciding what tune's next, what the order of things are, when am I going to come back in singing? Am I going to try and stretch it out in some way because people are dancing? [...] [This gig] was a massive cognitive load in that way. Especially because this was a venue I don't know, a band that we don't play together

very often [...]. Just, like, so many unknown parameters starts making the gig a really big cognitive load. Yeah, rather than just making music.

M's anecdote exemplifies the complex dynamics of audience-performer interaction, showing how explicit audience behaviour can redirect—or even disrupt—SMIIIA in “vicious” ways.⁸⁶ The spontaneous dancing from the bartender and crowd, rather than providing a straightforward boost to M's creative energy, instead triggered a cascade of strategic thinking and anxiety. As a result, M's SMIIIA shifted from intuitive creative flow to metacognitive, task-oriented planning, now heavily oriented around external audience cues, repertoire limitations, and unfamiliar circumstances. This “massive cognitive load” captures a distinctly “vicious” performance headspace, as conceptualised by Geeves et al.—one in which audience input generates stress, constraint, and a sense of what Høffding termed an “antagonistic” sense of agency, rather than mutual co-creation. Here, the interaction constrains M's choices and disrupts the improvisational process, pushing them towards explicit, effortful coordination rather than spontaneous, distributed sense-making (i.e., “rather than just making music”).

L further addresses the asymmetry present in audience-performer dynamics, acknowledging the influence of the audience while reaffirming the performer's core responsibility:

L: [As] much as it's great playing to such a responsive and warm audience, I don't think it's their responsibility to make the music good. It's on us. So, we sure appreciate getting that vibe back, but the task starts with us. We've got to be putting the music out in a form that is going to attract them. [...] That's how it should work.

⁸⁶ See also: Geeves et al., "Between the Crowd and the Band," 19-21.

L's reflections highlight an important nuance in audience-performer PSM: while the audience's contribution to SMIIIA is recognised—particularly through the “vibe” or energy they provide—L maintains that, in their experience, performers ultimately bear responsibility for initiating and shaping the musical exchange. This perspective suggests that improvisational performances often involve asymmetric but reciprocal interaction, where agency and influence flow bidirectionally, though not always evenly, between stage and audience. Even so, L's observation that performers must “put the music out in a form that is going to attract them” points to an awareness of audience interaction as a fundamental feature of SMIIIA.

L's insights remain wholly consistent with De Jaegher and Di Paolo's conception of PSM as extending along a spectrum. Just as performer interactions can range from an “antagonistic” sense of agency to fully integrated we-agency, so too audience-performer interactions may occupy varied positions on a spectrum between individuated sense-making—merely *influenced* by the interaction—to a fully integrated joint sense-making.⁸⁷

Recognising this spectrum of participation enriches our understanding of collective SMIIIA by accommodating varying degrees of audience participation—from J's profound sense of co-creation to M's experience of a disruptive “antagonistic” interaction. Rather than undermining the participatory nature of SMIIIA, this variability reflects the dynamic, situated nature of distributed cognition in improvised music. Whether manifesting as a pervasive “energetic field” (J), a heightened sense of responsibility (E), normative expectations through genre conventions (H), or explicit reactions triggering strategic planning (M), audience participation fundamentally shapes SMIIIA. The dynamic feedback loops between

⁸⁷ De Jaegher and Di Paolo, "Participatory Sense-Making."

performers and listeners remain integral to SMIIIA, even as asymmetries in control and experience persist.

Absent Others

To conclude this exploration of SMIIIA's intersubjective dimensions, I wish to investigate the collaborative dynamics of improvised musical performance that extend beyond those physically present. Schiavio et al. foreground these absent social relations by examining the "*inherently participatory*" nature of solitary musical practices.⁸⁸ Through interviews with musicians across varied expertise levels, they develop the concept of *Extended Musical Historicity* to account for the "complex interplay of felt, imagined, and predicted shared experiences by which each musical agent relates to a broader (past, present, or future) social ecology."⁸⁹ Crucially, they emphasise that even solitary musical acts are underpinned by "rich, multi-levelled histories of social participation," that "guide the meaningful experiences that arise in a given musical situation."⁹⁰

While Schiavio et al. focus on solo practices—a methodological decision that sharply illuminates extended musical historicity—their framework also clarifies how absent others can permeate the collective sense-making of ensemble improvisation. These interactions, invoked through memory, imitation, and shared aesthetic frameworks, reveal how the social networks constituting collective SMIIIA transcend the immediate spatio-temporal bounds of performance.⁹¹

⁸⁸ Schiavio et al., "By Myself but Not Alone," 534.

⁸⁹ Schiavio et al., "By Myself but Not Alone," 534. I wish to acknowledge here, as the authors do, that this account demonstrates similarities with Høffding and Satne's discussion of "Arch" (Schiavio et al., "By Myself but Not Alone," 534.). See: Høffding and Satne, "Interactive Expertise in Solo and Joint Musical Performance.").

⁹⁰ Schiavio et al., "By Myself but Not Alone."

⁹¹ Several of these examples are closely related to the way that the instrument gather "divinities" into the fourfold, discussed in the previous chapter (pp. 232-37).

For example, E reflects on how their earliest listening experiences attuned them to the social dynamics between musicians, a sensitivity that continues to shape their SMIIIA in collective improvisation:

E: I loved listening and, like, hearing the personalities of the players and how they interacted and stuff and, like, playing along in the vibe. Like, just trying to almost read it socially. Like, what does that person inject into the band? [...] And so, I started thinking about that. And then I feel like sometimes, [...] I'd almost imagine [...] "Oh, what if I'm like Jimmy Garrison?" Just being really solid and quite minimal and just like rock solid and beautiful sound. But then other times I might be like, "What if I'm like Richard Davis?" who's kind of like adding a lot of extra stuff. So, it's almost like this interactive—not like a game, but it's almost like a weird role-playing thing.

E's account illustrates how past encounters with absent others—mediated through recordings and cultural narratives—inform real-time interactions with present collaborators. E's SMIIIA emerges not only from in-the-moment social interactions, but also from historically sedimented social "readings" of iconic figures, enacted through imaginative role play.

Similarly, T traces aspects of their foundational gestural approach to formative encounters with mentors and idols:

T: I'm aware of the history of the bass. And I'm aware of the gesture. [...] I think playing pizz, [...] I've had people say, [...] "You do sound like someone who's into Henry Grimes." [...] So, you know, there's a very distinct connection to some of those players in my basic gesture. [...] [Grimes] was also someone I had in my dream. [...] And I basically have played the same ever since. Like, my basic feel hasn't changed. They were defining dreams for me. And that's how I play.

T's anecdote reveals a "distinct connection" to the absent Henry Grimes (whom T personally knew) in their "basic gesture" vividly illustrating how past experience with Grimes continues to shape their sense-making in collective improvisation. T's somatic connection to these figures highlights how embodied histories sediment into intelligent musical habits (discussed pp 177-178) collapsing temporal boundaries between past mentorship and current practice.

M further elucidates this interplay, describing their improvisational development as a trans-instrumental dialogue with past mentors and musical influences:

M: [In improvised performance] I'm thinking about... a lot of emulating. A lot of, like, emulating sounds, [...] emulating other improvising musicians [...] on the double bass. [...] I think things became really clear for me when I heard Bae Il Dong. [...] I went to Korea that year after I heard Bae Il Dong sing [...] going, "I like the way that sounds. How the fuck do I then be a bass player? [...] How do I make [the bass] sound like that?" [...] In emulating things, especially if you're moving instruments, you improvise in the process of trying to work out what the hell they're doing. [...] And I think that's how my real improvising started to emerge.

M here describes their improvisational process as one of imitating the sounds of others from one domain to another. This imitation becomes a creative act, as M enacts a kind of interaction with absent others, generating novel technical and expressive possibilities. M's SMIIIA, then, emerges not from solitary invention in response to immediate environmental stimuli, but from embodied interactions spanning mediums, cultures, and time.

These examples illuminate extended musical historicity's central thesis: that musical agency and creativity are decentralised across broad social ecologies that include both present collaborators and absent others. The networks of historically distributed social dynamics

which inform an improvising musician's SMIIA, then, extend not only beyond the individual, but beyond the time and space of the performance itself. As Schiavio et al explain:

the creative re-enactment of existing, shared experiences can give rise to novel intersubjective connections based on a decentralization of agency, which involves the felt, imagined or predicted presence of other agents. Such relationships can be transformed on the basis of the moment-to-moment contingencies of performance, affecting our creative choices and corporeal experiences.⁹²

By incorporating extended musical historicity into our interpretation of SMIIA, we begin to recognise that we are dealing with a phenomenon which is neither individually authored nor bound to the present time and space. Rather, it becomes a collaborative achievement stretched across history, where the “we” of improvisation further encompasses absent collaborators, inherited traditions, and the ghosts of interactions past.

* * *

In this chapter, I have argued that SMIIA is not merely an individual capacity influenced by social interaction but a phenomenon that emerges *through* collective engagement: it is something we do *with others*. The evidence presented in this chapter demonstrates that SMIIA is irreducibly distributed across networks of human and non-human actors. Improvising musicians do not simply coordinate preformed ideas; they co-create musical meaning in real time through embodied interaction with collaborators, audiences, and absent others.

Høffding's account of interkinesthetic affectivity revealed how SMIIA can arise from a shared corporeal intentionality—a “we-agency” in which individual body schemas merge into a collective *we-can*. This “hive-mind,” experienced by performers as sharing “a

⁹² Schiavio et al., "By Myself but Not Alone," 554.

malleable bubble on their heads that [they] can affect directly,” transcends isolated intentions, grounding SMIIA in the interlocking sounds, gestures, and embodied affective resonances of the ensemble.⁹³ Such experiences of SMIIA are not individual achievements, but emerge from dynamic sonorous, interoceptive, and interkinesthetic engagements, reaffirming SMIIA’s status as an inherently collaborative phenomenon.

Complementing these insights, PSM reframed improvisational interaction as a self-sustaining entity with its own autonomy. Participants described how the nature of these musical interactions can “pull” them into unplanned territories, revealing how SMIIA is shaped by the emergent structure of the interaction itself. Further, I explored examples where these dynamics extended beyond the stage, showing how audiences contribute to SMIIA through movement-based listening and joint attention, resulting in an affective synchrony between audience and performers, transforming the improvisational event into a distributed cognitive system where the creative process emerges from the interactions between performers, listeners, and the musical materials.

Extended musical historicity further expanded this network beyond the immediate performance, showing how SMIIA is scaffolded by a broad social ecology which includes absent others. As Schiavio et al. note, these “multi-levelled histories of social participation,” further decentralise agency, allowing past interactions to permeate present creativity.⁹⁴ SMIIA, in this light, is not bound to the here-and-now but is inextricably interwoven with historical social participation.

Together, these insights challenge accounts of SMIIA that position musical imagination as an individual endeavour. Instead, SMIIA is recast as emergent, intercorporeal, interactive, and historically extended—arising not from private mental

⁹³ Höfding, *A Phenomenology of Musical Absorption*.

⁹⁴ Schiavio et al., "By Myself but Not Alone," 542.

processes but from the dynamic interplay of bodies, instruments, sounds, and shared histories.

To imagine music together is to participate in a collaborative achievement, transcending individual agency and unfolding in the intersubjective space where we, as improvisers, listeners, and inheritors of tradition, create musical meaning *all together now*.

9. Hearing the Flesh of the World

In this thesis I have sought to understand precisely what phenomenon improvising musicians are referring to when they speak of “playing what they hear”—a phenomenon I have termed *Sonorous Musical Imagination, Ideation, and Intention in Action* (SMIIIA). My motivation for this investigation arose from Schmicking’s identification of a “technical problem”: the critical absence of ethnographic data and phenomenological insight into this ubiquitous yet poorly understood aspect of musical practice. This gap, coupled with questions emerging from my own experience as a practitioner and practice-based researcher, led to the present inquiry.

To address these lacunae, I conducted extensive interviews with nine expert improvising double bassists. I employed a mixed methodological approach integrating ethnographic and phenomenological methods informed by post-E-turn developments in cognitive theory—primarily enactivism, distributed cognition, situated cognition, and Material Engagement Theory (MET). Contrary to prevailing explanations that characterise SMIIIA as internal representations of musical imagery requiring translation from mind to body to world—what I have termed the *Mind → Body → World Model of Improvisational Process* (MBW)—my findings reveal that SMIIIA is not a *within* property but rather a *between* property. This thesis has examined the essential structures and dynamics constituting this relational reconceptualisation.

Beginning with experiences most consistent with MBW, I investigated *Volitional Pre-Hearing* (VPH)—the deliberate, often melody-oriented imagining of musical ideas prior to performance. Contrary to MBW, my analysis revealed that the phenomenon of VPH is fundamentally grounded in movement. Drawing on Merleau-Ponty’s account of embodied expression and enactivist theories of imagination, my investigation showed that, rather than exemplifying “offline” manipulation of disembodied mental representations, VPH emerges

through rich sedimented histories of embodied musical engagement and remains anchored in *embodied action*, whether overt or inhibited.¹ This suggested a fundamental dissolution of the mind-body distinction implicit in MBW. Moreover, VPH emerged as a limit-case phenomenon, experienced by only a subset of participants within highly specific contexts of planning and deliberation, with practitioners describing a marked qualitative shift when immersed in the flow of real-time improvisation.

My investigation subsequently examined this qualitative shift occurring “once the hands get involved” during improvised performance. Here, those sceptical of “pre-hearing” characterised their SMIIIA as direct embodied engagement with sounds in the world—an insight which proved generalisable to the entire cohort. By employing conceptual tools from Malafouris’ MET, particularly the notion of material agency, my analysis revealed SMIIIA as emerging from a “dance” of situated bodies continuously and reciprocally shaping and being shaped by sonorous musical materials.² MET provided an alternative framework for understanding the phenomenon of *Involuntary Pre-Hearing* as a skilful attunement to the agential pull of the materials, while also accounting for SMIIIA’s experienced *searching* quality as well as the phenomenon of *self-surprise*. These findings again undermined MBW explanations by calling into question the boundaries between (embodied) mind and world, as well as those between imagination and perception. Rather than interpreting SMIIIA as “playing what you (mentally pre-) hear,” these insights suggest it is better understood as an experience in which practitioners are “playing what they are (literally) hearing”—that is, directly shaping and being shaped by sounds in the world. Further, these findings provide the first clues that SMIIIA may not be a strictly anthropocentric achievement.

¹ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (Abingdon, Oxon: Routledge, 2012), 179-205; Shaun Gallagher, *Enactivist Interventions: Rethinking the Mind*, First edition. ed. (Oxford: Oxford University Press, 2017), 187-204.

² Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, 1 ed., The MIT Press, (Cambridge, Massachusetts: The MIT Press, 2013).

Despite this emerging non-anthropocentric understanding of SMIIIA as resonance between bodies and materials, participants did not characterise their experiences as mindless or reflexive responses to environmental stimuli. Rather, my data revealed a sophisticated repertoire of thoughtful techniques that practitioners skilfully and spontaneously deploy to modulate the dynamics of what I term *SMIIIA-Resonance*, providing compelling evidence for “meshed” approaches to cognition in expert performance.³ Through Gallagher and Varga’s enhanced mesh framework, affect emerged as central to *SMIIIA-Resonance*, functioning as mediator between the vertical (top-down/bottom-up) and horizontal (environmental, social, material) dimensions of the meshed architecture.⁴ Analysing examples of bodily, emotional, and perceptual affects revealed *SMIIIA-Resonance* to be fundamentally an *affective* resonance—the dimension through which diverse material, social, and cultural factors integrate into *SMIIIA*.

These insights concerning the integration of external factors prompted a closer examination of the role of the musical instrument in *SMIIIA*. Rather than accepting the conventional view of instruments as mere expressive tools that withdraw in the process of translating ideas from mind to world, I argued that the ontology of musical instruments itself demands reconsideration. By adopting Heidegger’s notion of “things thinging,” and the fourfold gathering of earth, sky, mortals, and divinities, I leveraged these terms to illuminate the nuanced ways instruments manifest within my participants’ experience.⁵ This included the various ways practitioners sensuously encounter their instrument (earth), how this affective encounter reveals possibilities for being and acting (sky), which fundamentally shapes practitioners’ contingent identity (mortals)—all experienced as like a “gift” received

³ Wayne Christensen, John Sutton, and Doris J. F. McIlwain, "Cognition in Skilled Action: Meshed Control and the Varieties of Skill Experience," *Mind & language* 31, no. 1 (2016), <https://doi.org/10.1111/mila.12094>.

⁴ Shaun Gallagher and Somogy Varga, "Meshed Architecture of Performance as a Model of Situated Cognition," *Frontiers in psychology* 11 (2020), <https://doi.org/10.3389/fpsyg.2020.02140>.

⁵ Martin Heidegger, "The Thing," in *Poetry, Language, Thought* (New York, NY: Harper & Row, 2013); Heidegger, "Building, Dwelling, Thinking."

from beyond themselves (divinities). This conceptualisation of instruments as things thinging established the groundwork for understanding SMIIIA as a distinctive form of creative material agency: *Creative Thinging*—Malafouris' conception of the confluence between making and enactive discovery *with, through, and about* things.⁶ This blurring of boundaries between practitioner, instrument, and world further challenges MBW logic by exposing the inherently collaborative and non-anthropocentric nature of SMIIIA.

These observations regarding SMIIIA's inherently *collaborative* nature led inevitably to deeper exploration of its intersubjective dimensions. Moving beyond dominant *Theory of Mind* explanations that inform MBW, I drew on Høffding's alternative conceptions of *Interkinesthetic Affectivity* and *We-Agency* to demonstrate how improvising musicians can achieve a collective experience of SMIIIA with fellow musicians.⁷ By integrating the enactivist concepts of *Participatory Sense-Making* and *Extended Musical Historicity*, I further expanded this intersubjective network to encompass not only fellow musicians but also audiences and absent others within SMIIIA's distributed social ecology.⁸

All these insights converge around a fundamental realisation: *SMIIIA is not a within property; it is a between property*—between mind and movement, body and materials, thing and world, self and other. Rather than requiring translation from mind to body to world, SMIIIA emerges as a non-anthropocentric act of Creative Thinging, revealing a profound “ontological *synechism*” between practitioner and world.⁹

⁶ Lambros Malafouris, "Creative Thinging: The Feeling of and for Clay," *Pragmatics & Cognition* 22, no. 1 (2014).

⁷ Simon Høffding, *A Phenomenology of Musical Absorption*, New Directions in Philosophy and Cognitive Science, (Cham: Springer International Publishing AG, 2018), 217-246.

⁸ Hanne De Jaegher and Ezequiel Di Paolo, "Participatory Sense-Making: An Enactive Approach to Social Cognition," *Phenomenology and the Cognitive Sciences* 6, no. 4 (2007), <https://doi.org/10.1007/s11097-007-9076-9>; Andrea Schiavio et al., "By Myself but Not Alone: Agency, Creativity and Extended Musical Historicity," *Journal of the Royal Musical Association* 147, no. 2 (2022), <https://doi.org/10.1017/rma.2022.22>.

⁹ Malafouris, "Creative Thinging," 142.

As Malafouris observes, the implications of this revised understanding necessitate a shift away from traditional approaches to cognition, with profound consequences for the interdisciplinary study of mind and creativity, noting that

none of the usual radionuclide tracers used in brain imaging would be of any help here. The question is not about the changes in cerebral blood flow; it is about the “leaks” of this flow into the world. The challenge, in other words, lies in figuring out how our plastic brains can be understood within the wider networks of non-biological scaffolds and enculturated social practices that delineate the spatial and temporal boundaries of the human cognitive system as a cultural artifact. To visualise that, a different kind of tracer—an “epistemic” kind—is needed.¹⁰

While Malafouris’ claim here, along with the findings of my own thesis, may raise more questions than they answer, I take my approach here as heeding Malafouris’ call for a “different kind of [epistemic] tracer.” Consistent with a growing tide of scholars questioning “all in the head” approaches to creativity, my findings here contribute to an understanding of SMIIIA as fundamentally enactive, exploratory, materially engaged, and collaborative. For musicology, pedagogy, and cognitive psychology, this underscores the necessity of reconceptualising methodologies to account for the situated ways cognition “leaks” into the world.

Given SMIIIA’s radically situated nature, several limitations affect the generalisability of my findings, pointing toward productive avenues for future research. While the general movement-based and materially engaged nature of SMIIIA may prove broadly applicable, the distinctive material, social, and cultural affordances of different instruments, practices, and cultural backgrounds may reveal different organisational

¹⁰ Malafouris, *How Things Shape the Mind*, 249.

structures. For example, trumpeters might experience different relationships between inner voice and performed sounds, given the shared muscle groups involved in playing trumpet and subvocalisation. Moreover, practitioners from different cultural backgrounds—for example, those embedded in traditions in which music, dance, language, history, law, and Country are less sharply differentiated, and/or connection to ancestors and cultural responsibility are more explicitly foregrounded—would almost certainly reveal alternative dimensions of SMIIIA, further nuancing or contrasting the account provided here.

These findings also have potential implications for music pedagogy.¹¹ For example, I take my data as consistent with the so-called *Constraints-Led Approach*—an approach based on a similar understanding of skilled movement as emergent from the interplay of body, task, and environment—providing a potentially productive inroad for pedagogical implementation of these ideas.¹² While there is growing research in sports training as well as increasing application in practice-based artistic research, we currently lack detailed data and systematic techniques for applying the constraints-led approach to music education, suggesting possibilities for future research.¹³ Further, although I frequently reference the phenomenological notion of *sedimentation* throughout my thesis, this aspect too could be explored in greater detail through longitudinal studies examining how SMIIIA develops through skill acquisition.

¹¹ For excellent ideas already unfolding in this space, see: Andrea Schiavio and Dylan Van der Schyff, "4E Music Pedagogy and the Principles of Self-Organization," *Behavioral sciences* 8, no. 8 (2018), <https://doi.org/10.3390/bs8080072>.

¹² Rob Gray, *How We Learn to Move: A Revolution in the Way We Coach & Practice Sports Skills* (Independently Published, 2021).

¹³ Phillip James Slater, "The Dark Pattern: Towards a Constraints-Led Approach to Jazz Trumpet" (PhD University of Sydney, 2020); Samuel Gill, "A Constraints-Led Approach to Improvisational Saxophone Practice" (PhD, The University of Sydney, 2023); Jessica Anne Ingrid Green, "Patterns in Flight: Constraints-Led Practice to Develop Coordinative Skill for Improvised Guitar Performance" (PhD, The University of Sydney, 2023); Ben Panucci, "Just You, Just Me: Applying the Constraints-Led Approach to Binaural Guitar Performance" (PhD, The University of Sydney, 2024).

Finally, I hope researchers in other disciplines might find ways to productively integrate my findings into their studies to better account for musical cognition's radically situated nature. For example, the paradigm of anticipatory auditory imagery (discussed pp. 22-24) evolved from a particular interpretation of practitioner anecdotes, lending support to predictive processing models of the brain.¹⁴ How might “front-loading” the phenomenology of SMIIIA presented here compliment, develop, or challenge such models?¹⁵ How might these findings productively influence the design of third-person quantitative research? While this list is far from exhaustive, I offer these here as possibilities for future research.

* * *

If this thesis has accomplished nothing else, I hope it has demonstrated the importance of questioning the nature of SMIIIA in improvised performance—questions that have too long remained unexamined due to assumptions about its self-evident nature. By taking seriously the lived experience of practitioners and submitting it to rigorous phenomenological analysis, we discover that “playing what you hear” involves far more than the translation of inner representations into outer expression. Instead, SMIIIA emerges as a non-anthropocentric, relational phenomenon—*not a within property, but a between property*. SMIIIA is an act of Creative Thinging, arising through the interplay of practitioner and world—a dynamic “dance” of situated bodies, instruments, materials, and social contexts. This revised understanding stands not only to enrich existing theoretical frameworks, but also potentially opens new possibilities for research, pedagogy, and practice—embracing the full

¹⁴ Peter E. Keller, "Mental Imagery in Music Performance: Underlying Mechanisms and Potential Benefits," *Annals of the New York Academy of Sciences* 1252, no. 1 (2012), <https://doi.org/10.1111/j.1749-6632.2011.06439.x>.

¹⁵ Shaun Gallagher and Dan Zahavi, *The Phenomenological Mind*, Third ed. (Abingdon, Oxon; New York, NY: Routledge, 2021), 43-45.

complexity of musical creativity as it unfolds, in Merleau-Ponty's words, within the "flesh of the world."¹⁶

¹⁶ Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Alphonso Lingis, ed. Claude Lefort (Evanston: Northwestern University Press, 1968), 144.

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