

RESEARCH ARTICLE

The Philosophical Significance of Wittgenstein's Experiments on Rhythm, Cambridge 1912–13

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Wittgenstein's experiments on rhythm, conducted in Charles Myers's laboratory in Cambridge during the years 1912–13, are his earliest recorded engagement in thinking about music, not just appreciating it, and philosophizing by means of musical thinking. In this essay, I set these experiments within their appropriate intellectual, scientific, and philosophical context in order to show that, its minor scientific importance notwithstanding, this onetime excursion into empirical research provided an early onset for Wittgenstein's career-long exploration of the philosophically pervasive implications of aspects. Dramatically moving beyond the conceptual limitations, which were inscribed by Charles Myers's scientific program, Wittgenstein got a glimpse of a philosophical angle, which was bound to become very important to him not only in aesthetics, but also for his overarching philosophical development. He became interested in what we actually do when we re-phrase, compare, come up with good similes in order to illuminate something definite within the space of possibility, so a new aspect may come to life.

Keywords: Wittgenstein; music; rhythm; psychology; experiments; Charles Myers; aesthetic puzzle; church modes

'Make and cultivate music, said the dream' (Plato, *Phaedo*).¹

'I had a natural propensity to think about ideas which arise in music' (Ludwig Wittgenstein).²

¹ Plato, *The Trial and Death of Socrates: Four Dialogues*, trans. Benjamin Jowett (New York: Dover, 1992), 58.

² M, 9:40. Works by Wittgenstein are abbreviated as follows: *The Big Typescript: TS 213*, ed. and trans. C. Grant Luckhardt and Maximilian A. E. Aue (Oxford: Blackwell, 2005), abbreviated as BT; *The Blue and Brown Books: Preliminary Studies for the 'Philosophical Investigations'* (New York: Harper & Row, 1958), abbreviated as BB; *Culture and Value*, 2nd ed., ed. Georg Henrik von Wright and Alois Pichler, trans. Peter Winch (Oxford: Blackwell, 1998), abbreviated as CV; *Last Writings on the Philosophy of Psychology: Preliminary Studies for Part 2 of 'Philosophical Investigations'*, vol. 1, ed. Georg Henrik von Wright and Heikki Nyman, trans. C. Grant Luckhardt and Maximilian A. E. Aue (Chicago: University of Chicago Press, 1982), abbreviated as LW I; *Ludwig Wittgenstein: Cambridge Letters; Correspondence with Russell, Keynes, Moore, Ramsey and Sraffa*, ed. Brian McGuinness and Georg Henrik

While a student in Cambridge, Wittgenstein engaged enthusiastically for a while, in 1912 and 1913, in the empirical study of rhythmic perception at the newly built, technologically cutting-edge laboratory for experimental psychology, headed by the eminent British psychologist Charles S. Myers.³ In a few of these experiments Wittgenstein collaborated with Bernard Muscio, a young Australian researcher at Myers's laboratory, who studied philosophy with James Ward.⁴ David Pinsent, a fellow student with musical talent and a good friend of Wittgenstein, often served as a test subject. Pinsent recorded in his diary and letters many hours of experiments, and also mentioned conversations in which rhythm was discussed. Wittgenstein's experiments resulted in two public presentations in Cambridge. The first was given in July 1912 before the British Psychological Society, and the second occurred in May 1913, on the occasion of the ceremonial opening of the new laboratory for experimental psychology, which also included Wittgenstein's demonstration of an apparatus for the psychological investigation of rhythm.

Wittgenstein's 1912–13 experiments on rhythm are his earliest recorded engagement in thinking about music, not just appreciating it, and philosophizing by means of musical thinking. In this essay, I set these experiments within their appropriate intellectual, scientific, and philosophical context in order to show that, its minor scientific importance notwithstanding, this onetime excursion into empirical research provided an early onset for Wittgenstein's career-long exploration of the philosophically pervasive implications of aspects. The theme of aspects was not only a cornerstone of Wittgenstein's conception of aesthetics, but also central to his overall philosophical development.

In Section I of this essay, I set Wittgenstein's experiments in their scientific context, both in experimental psychology and in musicology. I argue that in the laboratory Wittgenstein followed Charles Myers's scientific program. Myers focused mostly on the simplest musical elements in order to trace the origins of our musical appreciation and attitudes. Wittgenstein initially followed Myers's conviction that aesthetic experience, which is evoked by complex artistic forms, is encapsulated in the experience of 'simple material'.

In Section II I argue that Wittgenstein produced in these experiments the onset of what he would later call 'noticing an aspect'. The experiments produced a sonic equivalent of an

von Wright (Oxford: Blackwell, 1995), abbreviated as CL; *Ludwig Wittgenstein: Public and Private Occasions*, ed. James C. Klagge and Alfred Nordmann (Lanham, MD: Rowman & Littlefield, 2003), abbreviated as PPO; *Notebooks 1914–1916*, ed. Georg Henrik von Wright and G. E. M. Anscombe, trans. G. E. M. Anscombe (Oxford: Blackwell, 1961), abbreviated as NB; *Philosophical Grammar*, ed. Rush Rhees, trans. Anthony Kenny (Berkeley: University of California Press, 1974), abbreviated as PG; *Philosophical Investigations*, ed. G. E. M. Anscombe and Rush Rhees, trans. G. E. M. Anscombe (Oxford: Blackwell, 1953), abbreviated as PI; *Philosophical Remarks*, ed. Rush Rhees, trans. Raymond Hargreaves and Roger White (Oxford: Blackwell, 1975), abbreviated as PR; *Remarks on the Philosophy of Psychology*, vol. 1, ed. G. E. M. Anscombe and Georg Henrik von Wright, trans. G. E. M. Anscombe (Oxford: Blackwell, 1980), abbreviated as RPP I; *Remarks on the Philosophy of Psychology*, vol. 2, ed. Georg Henrik von Wright and Heikki Nyman, trans. C. Grant Luckhardt and Maximilian A. E. Aue (Chicago: University of Chicago Press, 1980), abbreviated as RPP II; *Tractatus Logico-Philosophicus*, trans. C. K. Ogden (London: Routledge, 1995), abbreviated as TLP; *Wittgenstein's Lectures: Cambridge 1930–1933; From the Notes of G. E. Moore*, ed. David G. Stern, Brian Rogers, and Gabriel Citron (Cambridge: Cambridge University Press, 2016), abbreviated as M; *Zettel*, ed. G. E. M. Anscombe and Georg Henrik von Wright, trans. (Berkeley, CA: University of California Press, 1970), abbreviated as Z; Ludwig Wittgenstein and Friedrich Waismann, *The Voices of Wittgenstein: The Vienna Circle*, ed. Gordon Baker, trans. Gordon Baker et al. (London: Routledge, 2003), abbreviated as VW.

³ See PPO, pp. 359–60; Brian McGuinness, *Wittgenstein, A Life: Young Ludwig, 1889–1921* (Berkeley, CA: University of California Press, 1988), 125–29; Ray Monk, *Ludwig Wittgenstein: The Duty of Genius* (New York: Free Press, 1990), 49–50; Michael Nedo and Michele Ranchetti, *Ludwig Wittgenstein: Sein Leben in Bildern und Texten* (Frankfurt am Main: Suhrkamp, 1983), 84; Eran Guter, 'Where Languages End: Ludwig Wittgenstein at the Crossroads of Music, Language, and the World', PhD thesis, Boston University, 2004, 27–39.

⁴ W. M. O'Neil, 'Muscio, Bernard (1887–1926)', *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, 1986, <http://adb.anu.edu.au/biography/muscio-bernard-7714/text13511>.

ambiguous figure and Wittgenstein was aware of this, by his own admission. I argue that the conceptual limitations and the technological rigidity of the scientific apparatus for these experiments inevitably placed Wittgenstein's goal to investigate the nature of rhythm and its importance in music out of reach.

In Section III I offer a close reading of Wittgenstein's own account in retrospect of his original impetus behind the experiments.⁵ I argue that as Wittgenstein was hoping, by his own admission, to engage his test subjects in making illuminating comparisons inside an aesthetic system, he was in fact making a pioneering philosophical leap not only beyond psychology's mode of explaining things away, but also, and much more importantly, beyond Myers's simplistic conception of the simple as a component of the complex, beyond the tendency of rendering the simple and the complex as patent opposites, as contrasting qualities along a line of hierarchical, ordered development.

In Section IV I use Juliet Floyd's evolutionary account of the emergence of aspect-phrasing in early Wittgenstein to underscore the strikingly forward-looking philosophical impetus behind the experiments. I argue that the kind of attention to the activity of characterizing, and to the varieties of techniques for making illuminating comparisons, that Wittgenstein was seeking in his conversations with his test subjects, turns out to have been quite incongruous with the view of logic that was about to shape the *Tractatus*, anticipating, remarkably, the tenets of his much later philosophy, in particular what I propose to call the 'master simile' of language as music.

I. The Experiments in Their Scientific Context

Wittgenstein's experiments concerned a phenomenon then called 'subjective rhythm', aiming to determine the conditions under which subjects heard or read into a sequence of beats a rhythm which, in a sense, was not there. By 1912 this phenomenon had already been well documented and studied. As early as the 1890s, published research demonstrated that beat trains appear to group into units of two, three, or four despite being isochronal and equitonal and hence devoid of cues relating to coherence or pattern.⁶ In such cases, the initial beat was perceived to be accented, and time intervals between beats within each group appeared to be shorter than the interval between one group's final beat and the next group's initial beat. Of course, nothing about this phenomenon is more subjective than any other instance of rhythm perception, as Wittgenstein himself realized. According to McGuinness, Wittgenstein may have used some of the technical apparatus in use in other laboratories in such experiments: placing a metronome in a box, raising the lid unobserved by the subject, and comparing the beats thus stressed with those heard as stressed by the subject; or, alternately, tightening the elastic with which hammers are held so as to produce tones at a louder volume.⁷ In these kinds of experiments, the dynamic context brings about a similar reorganization of temporal experience: the interval following the louder beat seems shorter, and the interval preceding the louder note seems longer.⁸

In a lecture on May 26, 1933, Wittgenstein recounted some of his scientific findings in those 1912–13 experiments on rhythm:

⁵ This rare account was made available only recently upon the publication of G. E. Moore's complete notes from Wittgenstein's 1930–33 lectures in Cambridge. See M.

⁶ See T. L. Bolton, 'Rhythm', *American Journal of Psychology* 6 (1894): 145–238; Wilhelm Wundt, *Grundzüge der physiologischen Psychologie*, vol. 3 (Leipzig: Engelmann, 1903); Herbert Woodrow, 'A Quantitative Study of Rhythm', *Archives of Psychology* 14 (1909): 1–66.

⁷ McGuinness, *Wittgenstein, A Life*, 128.

⁸ Stephen Handel, *Listening: An Introduction to the Perception of Auditory Events* (Cambridge, MA: MIT Press, 1989), 386–89.

I did find out one thing, moderately interesting.
We wound a machine which didn't stress any notes.

$\dot{m} - \dot{m} - \dot{m} - \dot{m} -$

When this was done, every one heard an accent on the last/first/of the three.
(Perhaps not exactly this; but –

1. You do hear some stresses, though machine doesn't give them
2. You can find laws which regulate what stress you hear. e.g. you try to divide into bars.

You tend not to stress 2 consecutive beats.

If you construct a rhythm in such a way that 2 tendencies conflict, a curious effect is produced – that of a constant stumbling. (M, 9:41–42)

In his lecture on May 16, 1947 (as reported by Gilbert Harris Edwards), Wittgenstein also referred to the experiments:

Talk of visual organization suggests grouping. Thus if a series of sounds of the same nature follow at equal distances in time, we can hear e.g. every second one as accented. [...] Suppose we say we hear the sounds accented \checkmark [short/long]. We may ask if this is an auditory matter. Of course it is. There is an auditory experience which will justify it; and we can have such an experience in fact, we can hear the sounds as they are really produced \checkmark [short/long]. (PPO, p. 360)

Wittgenstein's important point here is that we use a description of an actual rhythm for the accent heard in the isochronal and equitonal pulse train. To appreciate the philosophical significance of Wittgenstein's experiments and their results, we first need to consider what he was aiming for within the context of the work being carried out in the laboratory at the time, first and foremost by Charles Myers himself, who was directly involved in Wittgenstein's experiments.

Charles Myers's own research up until 1913 focused on two, ultimately interdependent lines of investigation: a study of so-called primitive music and rhythm, and an analysis of individual differences in listening to tones and music. This kind of work exemplifies a broad concern regarding the putative origins of music that had become widespread in Europe since the turn of the twentieth century.⁹ Myers maintained that the question concerning the origins of music and that of how it evolved in the way it did are intrinsically connected. Brian McGuinness suggests that Wittgenstein may have heard the talk Myers gave in 1912 on primitive music at the Moral Sciences Club in Cambridge, during which Myers sang some of the pieces he had brought back to England.¹⁰ If Wittgenstein indeed attended that talk, he might also have heard Myers express his conviction that early advances in choral singing in Europe, which required regular and frequent accents, hampered the development of complications of rhythmic succession that are the hallmark of so-called primitive music; only relatively recently have Western composers managed to successfully depart from a uniformity of rhythm.¹¹

In his experimental work, Myers focused mostly on the simplest musical elements in order to trace the origins of our musical appreciation and attitudes, thus bringing together the two aforementioned tiers of his work:

⁹ See Alexander Rehding, 'The Quest for the Origins of Music in Germany Circa 1900', *Journal of the American Musicological Society* 53 (2000): 345–85.

¹⁰ McGuinness, *Wittgenstein, A Life*, 127.

¹¹ See Charles S. Myers, 'A Study of Rhythm in Primitive Music', *British Journal of Psychology* 1 (1905): 397–406.

It is, I think, of no little psychological and experimental interest to note the consequent value of investigations with the simplest materials for our understanding of the aspects adopted, the kind of appeal made, in the case of works of art. It seems probable that the experience of beauty is rooted in man's remote past when it could be evoked by such simple material as one or two tones or splashes of colour, i.e. by the most primitive *forms* conceivable of art material, just as today it is evoked by more complex forms.¹²

It is easy to see Wittgenstein following suit in his experiments by his investigation of one such fundamental 'simple material': rhythm. Rhythm is an essential element in the structuring of musical time (in tonal music),¹³ a topic which continued to fascinate Wittgenstein throughout his career. His scientific rationale was solid: 'My idea was to investigate nature of rhythm, because you can produce it quite exactly by machinery' (M, 9:40). His upshot, boldly stated as the idea 'to investigate [the] nature of rhythm', also aligned itself with Myers's belief that aesthetic experience, which is evoked by complex artistic forms, is encapsulated in the experience of such 'simple material'. This bold conclusion was corroborated by David Pinsent, who understood from Wittgenstein at the time that the experiments, in which he participated, were meant to 'ascertain the extent and importance of rhythm in music'.¹⁴

However, the significance of Wittgenstein's experiments extended beyond Myers's methodological framework. Indeed, his scientific findings were moderately interesting at best, as he candidly admitted. Their significance is rather in the way that these experiments may have prompted Wittgenstein, so early in his career, to get a glimpse of what lies ahead for him.

II. Aspects and Phrasing

The striking thing about those experiments on rhythm is the fact, which has remained for the most part unacknowledged in scholarly literature, that Wittgenstein produced in them the onset of what he would later call 'noticing an aspect'. The experiments produced a sonic equivalent of an ambiguous figure. Wittgenstein's test subject could have heard the isochronal and equitonal pulse train either as duple (or, less likely, quadruple) meter or as triple meter. That is, he could have heard the accent either every other beat or every two beats, and he could have flipped back and forth between the two rhythmic patterns at will. As in Wittgenstein's own early example of the Necker Cube (TLP 5.5423), different 'hearings' (rhythms) manifest themselves according to different manners of projection.

It is crucially important that Wittgenstein actually confirmed that he attempted to tweak the experiment in order to produce a conflict between possibilities, between two tendencies to hear only one aspect of the isochronal and equitonal pulse train. He reported that he discovered that 'if you construct a rhythm in such a way that 2 tendencies conflict, a curious effect is produced – that of a constant stumbling' (M, 9:42). This is without precedent: the earliest evidence of Wittgenstein's career-long exploration of the philosophically pervasive implications of noticing an aspect, predating even his first treatment of aspects in his early writings on logic and mathematics.¹⁵

¹² Quoted in C. W. Valentine, *The Experimental Psychology of Beauty* (London: Methuen, 1962), 207.

¹³ Musical motion is enabled by a multilevel structuring of three facets: a hierarchy of tonal materials, rhythmic grouping and patterning, and a sense of closure. While the tonal materials provide pitch hierarchy, the rhythmic grouping and patterning of these tonal materials both organize and regulate their flow into musical events, thereby creating additional hierarchic layers. The coordination of pitch and rhythm enables punctuation, which gives rise to a sense of closure.

¹⁴ Quoted in Nedo and Ranchetti, *Ludwig Wittgenstein*, 84.

¹⁵ Comp. Juliet Floyd, 'On Being Surprised: Wittgenstein on Aspect-Perception, Logic and Mathematics', in *Seeing Wittgenstein Anew: New Essays on Aspect Seeing*, ed. William Day and Victor Krebs (Cambridge: Cambridge University Press, 2010), 314–33.

In the *Big Typescript*, Wittgenstein offers a serviceable image, framing matters clearly for our present concerns:

But the notion of 'seeing something in something' is taken from the case where I see the figure | | | |, for example, 'phrased' differently. But in that case – and in a different sense – I really am seeing different figures, and what they have in common, aside from their similarity, is that they were caused by the same physical image. (BT, p. 251)

Wittgenstein's use of the word 'phrasing' here is much closer to music (a specific grouping of consecutive notes) than to language (putting something into a specific form of words).¹⁶ Indeed, just as we can see a new possibility in | | | | such as || || or ||| |, Wittgenstein's test subjects could differently phrase the isochronal and equitonal pulse train into duple or triple meter. The perceived rhythms, the phrasing and re-phrasing of the physical pulse train, reveal possibilities in the physical pulse train that may not have been realized before. In other words, we become acquainted with an aspect of the physical pulse train through the specific way and manner in which we phrase it in the characterization.¹⁷ Noticing these aspects is patently new and surprising.

Against this backdrop, we can say that Wittgenstein, looking into the phrasings of his test subjects, in fact intended to probe the dialectic of meter and rhythm, the kernel of the duality of time control – the musical element which draws in significance in music (especially in cases of non-linear tempi) as it is being performed.¹⁸ This topic remained central to Wittgenstein's thinking about and through music throughout his career. In much later passages he was still mulling over the difference between playing on the beat and playing according to the measure (both captured in the German term *Takt*; see CV, pp. 85, 92).¹⁹ Playing according to the measure is couched in terms of the meter, not as a time signature for the metronome, but as a mode of attending (by the performers and the listeners), and in terms of rhythm as the ordered time attended. Thus, Wittgenstein determines that the simultaneity [*Zeitgleichheit*] of the clock and simultaneity in music are by no means equivalent concepts. The concept of simultaneity in musical performance is rough and vague in relation to our techniques of representation; yet as such it is needed to characterize our experience.

Yet one of the crucial elements in any successful management of musical time is achieving the 'right' tempo in performance. This is often an elusive target, a matter of searching for a fitting characterization, even in musical styles that are familiar and whose performing practices are well documented. For Wittgenstein, achieving the right tempo is a perfect example for what he called an 'aesthetic puzzle' (in his lectures on aesthetics in 1933 and 1938). It involves the possibility of hearing something differently, 'just as you may find the head in a puzzle-picture' (M, 9:31). The point is that merely setting the metronome will not solve the aesthetic puzzle: the proof is in the playing, in the aptly collaborative realm of music-making. Making a choice about tempo is another instance of characterizing, of assembling in a specific field of valence and possibility and contrast. By characterizing we draw in significance, evincing a physiognomy. The attempt to characterize involves, as Juliet Floyd puts it, 'the

¹⁶ Wittgenstein actually refers in *Zettel* to 'phrasing by eye or ear'. See Z, p. 38, § 208.

¹⁷ See Juliet Floyd, 'Aspects of Aspects', in *The Cambridge Companion to Wittgenstein*, 2nd ed., ed. Hans Sluga and David Stern (New York: Cambridge University Press, 2018), 381.

¹⁸ See David Epstein, *Shaping Time: Music, the Brain, and Performance* (New York: Schirmer, 1995), chap. 11.

¹⁹ I discuss these passages at length in Eran Guter, 'Measure for Measure: Wittgenstein's Critique of the Augustinian Picture of Music', in *Wittgenstein and the Limits of Language*, ed. Hanne Appelqvist (London: Routledge, 2019), 245–69.

"coming into view" of a scheme of possibilities available for characterization given a particular mode of characterization'.²⁰

The specificity of characterization means that by characterizing we can 'get it just right', can meet or miss the mark, so we patently need to seek the right level and arrangement of elements in order to reveal something, to discover ways in which things and possibilities become significant for us. Wittgenstein wrote: 'I think it is an important & remarkable fact that a musical theme, if it is played <at> (very) different tempi, changes its *character*. Transition from quantity to quality' (CV, p. 84). Such transition from quantity to quality, from configuration to an aspect, was precisely at the heart of what Wittgenstein was looking for in his 1912–13 experiments on rhythm. Yet the conceptual limitations (including the purported reduction of music to 'simple materials') and the technological rigidity of the scientific apparatus (as described in the previous section) are clear: under these musically sterile conditions phrasing and characterizing could not feed back into a choice of tempo. There was no room for a sense of the aesthetically 'right'. In the laboratory Wittgenstein's ultimate goal – 'to investigate the nature of rhythm' or 'to ascertain the extent and importance of rhythm in music' – remained inevitably out of reach. Wittgenstein was quite aware of this at the time. In a letter to Bertrand Russell on July 1, 1912, Wittgenstein ridiculed his own presentation before the British Psychological Society as 'a most absurd paper on rhythms' (CL, p. 16).

III. The Quest for Illuminating Comparisons

In his lecture in Cambridge on May 26, 1933, Wittgenstein provided specific context for his self-criticism concerning his onetime stint at the laboratory: 'The idea of Psychology explaining Aesthetic experiences I once had myself, & made useless experiments on rhythm in the laboratory' (M, 9:40). In the 1930–33 lectures, Wittgenstein conceived of aesthetics as a mode of discussion, or rather as the cultivating of a mode of discussion, which concerns what he variously calls 'aesthetic controversy', 'aesthetic enquiry' or 'aesthetic investigation', and 'aesthetic puzzle' or 'aesthetic puzzlement'. An 'aesthetic controversy' occurs always *in situ*: it concerns something concrete that needs to be resolved, worked out, corrected, or agreed upon for a particular purpose – hence an aesthetic discussion is always particular, addressing a tension arising in the case at hand. For Wittgenstein, music (that is, music making) affords the most typical examples (M, 9:19). Thus, Wittgenstein sets himself the task in these lectures of clarifying the mode of discussion appropriate to aesthetics, which he understood in terms of the attempt to remove some form of aesthetic puzzlement or other.

Wittgenstein proceeds to explicate the unique character of aesthetic discussions by means of a contrast between experimental psychology and psychoanalysis. This is clearly one of the most striking features of his 1933 lectures on aesthetics. The upshot for him is that whereas psychology has 'a tendency to explain away' (M, 9:39), 'aesthetics like psychoanalysis doesn't explain anything away' (M, 9:45). The uniqueness of aesthetics lies in the nature of the explanations (reasons, justifications) that are offered and accepted in the attempt to address, and possibly remove, a given instance of aesthetic puzzlement. Contrasting the modes of explanation in psychology and psychoanalysis allows him to spell out the conversational, non-hypothetical and therein immanently human character of aesthetics.

The crux of Wittgenstein's distinction between psychology and psychoanalysis is his distinction between hypothesis and representation. Hypothesis transcends the particular cases, which the general laws, posited by the hypothesis, cover. Representation, on the other hand, is un-hypothetical in the sense of affording a mere picture as a useful device, which 'enables

²⁰ Floyd, 'Aspects of Aspects', 368.

[one] to overlook a system at a glance' (M, 9:38). It inheres in the particular case by means of paraphrasing, giving good similes, which result in a collective arrangement of (often surprisingly) similar cases. 'Criterion of correctness of aesthetic analysis must be agreement of person to whom I make it,' says Wittgenstein: 'Freud's remark that we don't know why we laugh /when hear a joke/ points to the puzzle which gives rise to aesthetics. But aesthetics does not lie in finding a mechanism' (M, 9:46). In the last analysis, according to Wittgenstein, 'Freud's discoveries are in fact merely of striking ways of expressing certain facts, & seeing them in a system: not causal explanations' (M, 9:47). And 'what Freud says sounds as if it were science, but is in fact a wonderful representation' (M, 9:50). Indeed, for Wittgenstein, 'Freud on "Wit" is a good example of an Aesthetic investigation' (M, 9:45); 'it is aesthetic in so far as it isn't hypothetical' (M, 9:37).

While causal explanations turn a blind eye to the manifold 'verifying phenomena' in human interaction (see M, 9:43), aesthetic explanations preserve them in their fullness: 'I say all Aesthetics is of nature of giving a paraphrase, even if same words also express a hypothesis. It is giving a good simile' (M, 9:37). That is why Wittgenstein maintains that aesthetics does not explain anything away. What is unique about aesthetic explanation is that it calls for reasons, not causes. 'Aesthetic craving for an explanation is not satisfied by a hypothesis,' he says: 'This is what I mean by saying Aesthetics is not Psychology' (M, 9:39). 'What is a reason in Aesthetics?' he asks: 'A reason for having this word in this place rather than that; this musical phrase rather than that' (M, 9:30; comp. PI, §§ 527–35); 'a reason consists in drawing your attention to something which removes an uneasiness' (M, 9:33). A reason, in this sense, addresses what presents itself as a necessity, an experience of meaning: for example, 'Why is this note absolutely necessary?' (M, 9:31) Aesthetic explanation involves presenting phenomena, laid out side by side, independently of the causally determined sequence of events, in a creative, fitting order, which enables one to see things with understanding. To answer an aesthetic puzzle one needs to make a synopsis possible (M, 9:39). The open-endedness of the discussion, its flow, is regulated by manifold, nuanced, patently incalculable 'verifying phenomena' of the parties involved.

In retrospect, Wittgenstein was not interested in tinkering with perceptual oddities just for the common scientific thrill of 'find[ing] laws which regulate what stress you hear' (M, 9:41). He set himself to probe the nature of rhythm (as he said) or to ascertain the extent and importance of rhythm in music (as Pinsent reported) because it harbored an idea that he already found crucially important – a philosophical idea: 'I was looking forward to talking with my subjects about something which interested me. I was looking for utterances inside an aesthetic system. [...] When I made those experiments, what would have satisfied me was comparison, within a system' (M, 9:40–41). Wittgenstein chose to focus in his experiments on the musical element of rhythm, the counting and recounting of musical time, because it was the easiest to model experimentally by means of a mechanism (M, 9:40). Yet he was first and foremost interested in why significance is drawn in. To his frustration, in the actual setting of the experiments his subjects did not comply:

To most people the rhythm meant nothing: one lady said: 'It makes me feel like a butterfly with a pin through me'.

Why is this interesting? If you were merely looking for effects of rhythm, here you've got one.

But I was looking for utterances inside an aesthetic system.

If I ask 'Why do you like this tune?' & answer is 'Because it reminds me of my grandmother', this doesn't interest me. (ibid., my emphasis)

Wittgenstein's subjects answered the *how* question, the psychological (hypothetical) one, instead of the *why* question, the aesthetic. Wittgenstein said: 'The question of Aesthetics is not: Do you like it? But, if you do, why do you?' (M, 9:27) It is also not the question of how a particular effect is produced, and, most pertinent to the context of his experiments on rhythm, it does not concern 'what machinery produced it' (M, 9:40) – 'aesthetics does not lie in finding a mechanism' (M, 9:46). To answer the *why* question, the question about significance, to give a reason, requires making comparisons and ordering, as we draw in a field of possibilities and necessities, eventually offering the gift of a good simile.

In his 1912–13 experiments, Wittgenstein had hoped to receive good similes from his subjects as an answer to the *why* question of aesthetics – in his middle-period terminology, he refers to this as specific 'comparisons within a system', an aesthetic system, one of a multitude of possible such systems. The explanation of meaning is always a sentence inside an autonomous system of rules. Meaning is what an explanation of meaning inside a system explains.

In Wittgenstein's middle-period view,²¹ the primary condition for understanding a sentence is the knowledge not of how it is to be compared with reality or how it can be made true, but rather of its relation to other sentences in a language system. So what we need to look at when we want to understand what is relevant with regard to aesthetic impressions is how they are expressed in a sentence, and how this sentence relates to other sentences in the same language system. That sentence's specificity depends solely on other sentences in the same system; one always means something 'in contrast to' other given possibilities in the system. When one explains what one means, one explains it in contrast to other possible explanations in the system, choosing one of the system's possibilities.

Moreover, Wittgenstein insisted (in relation to his experiments on rhythm), 'you want to compare notes but not any notes; only those which are illuminating' (M, 9:41). Such characterization requires a choice and an effort 'to get it right' within the space of possibility (a 'synopsis') in order to show someone else and enable a response. Consider the musical example, which Wittgenstein gave in direct relation to the philosophical shortcomings of his experiments on rhythm:

If you hear music in one of the ancient modes, an ending doesn't at first seem like an ending. But one can be made to understand it in various ways:

- (1) you could point out similar things in our modern keys
- (2) you could leave out the tonic: & say: You've got to imagine it.

[...]

What sort of thing is not understanding a church mode? & therefore 'understanding'?
What makes you 'understand' is a typical aesthetic explanation.

When I made those experiments, what would have satisfied me was comparison, within a system. You want to compare notes but not any notes; only those which are illuminating.
(M, 9:41, my emphasis)

The case of understanding (or failing to understand) church modes recurs throughout Wittgenstein's middle and later periods (see PR, p. 281, § 224; PI, p. 144, § 535; RPP I, p. 118, § 639). He raises the question regarding not understanding the ending of a piece of music, namely, a chant written in one of the church modes. His question is: what sort of thing is not

²¹ More specifically, in the framework of what Engelmann describes as Wittgenstein's 'genetic method'. See Mauro L. Engelmann, *Wittgenstein's Philosophical Development: Phenomenology, Grammar, Method, and the Anthropological View* (Basingstoke: Palgrave Macmillan, 2013), 95–98.

understanding a church mode? An answer to that question should prepare the way to appreciate what it *is* to understand a church mode.

Wittgenstein describes a case in which we listen to a chant, and when it ends we experience the ending, the final tone, as imposed rather than necessary. This is what not understanding the church mode amounts to in this example. The question 'why does this final tone feel imposed?' is analogous to the question 'why is this note absolutely necessary?', which Wittgenstein raised elsewhere. Both questions posit a puzzle, which Wittgenstein asserts could be answered via the presentation of a synopsis, by placing things side by side, making comparisons, drawing in a field of possibilities and necessities. The striking thing about Wittgenstein's example is the underlying notion of the twofoldness of the relevant pitch collection, which is involved in this particular instance of not understanding a church mode. This is easily shown in the case of the ancient Hypodorian scale, which is virtually identical in terms of pitch collection to a modern A minor scale.²² What is the difference between the two scales? Why would one not understand the Hypodorian scale, yet understand the A minor? Why would we be blind to one of the two aspects of a given physical pitch collection?

The *finalis* (final tone) of the Hypodorian scale is the fourth tone of the A minor scale. Hearing the ending as imposed means that we had certain expectations for the assertion of the tonic (in a modern key), which the assertion of the *finalis* seems to defy. Hence, not understanding a church mode means that we failed to distinguish two alternate principles of organization for the pitch collection. One principle, belonging to the church mode, is rhetorical, a matter of the orderly delivery of the verses, and intervallic, an expression of thinking musically in terms of local relations between two pitches (as opposed to harmonic thinking). The other principle, belonging to the modern scale, is hierarchical, that is, a matter of systematized pitch relations all gravitating toward the central tone of the scale. And so, seeing necessity where there is none, we vainly looked for tonal directedness.

Wittgenstein's suggestion as to how someone can be made to understand the church mode amounts to teaching him differences: the difference between the two principles of organization. Leaving out the tonic in a modern key, showing that one readily imagines it, allows one to directly experience the hierarchy. Not understanding that this is just one possibility is precisely what prevents one from hearing the ending of the chant as necessary.

Now if, as Wittgenstein said, the example of not understanding a church mode points to what he was really looking for in his 1912–13 experiments on rhythm, then in fact he has made a pioneering philosophical leap – beyond Charles Myers's scientific program for explaining aesthetic experience, and beyond psychology's mode of explaining away. Wittgenstein was spurred to move decisively, even dramatically, beyond Myers's simplistic conception of the simple as a component of the complex, beyond the tendency of rendering the simple and the complex as patent opposites, as contrasting qualities along a line of hierarchical, ordered development. These early experiments on rhythm turned out to be an origin of Wittgenstein's mature philosophical realization that what is taken to be simple within one procedure or way of looking at things may, regarded by itself, wind up as being complex.²³ That is to say, simplicity is not absolute, neither as a fixed point of departure or as a fixed destination, but rather is relative to a choice of system, and is always *in medias res* – an idea that Wittgenstein made explicit in his philosophical thinking only much later (see PI, pp. 21–31, §§ 46–64). The philosophical shortcomings of these early experiments taught Wittgenstein that a touchstone of simplicity, the noticing of an aspect in the pulse train, characterized rhythmically,

²² This example was suggested to me by Inbal Guter.

²³ See Juliet Floyd, 'The Fluidity of Simplicity: Philosophy, Mathematics, Art', in *Simplicity: Ideals of Practice in Mathematics and the Arts*, ed. Roman Kossak and Philip Ording (New York: Springer, 2017), 153–75.

may come to look like a possible step in a journey, a starting point that we can share, break off from, pass off to the next person, reject, discuss, and contest.

For Wittgenstein, the significance of noticing that rhythm was in its being an achievement of acquaintance: a shared understanding, a moment in a conversation. This is the sense in which (he thought) aesthetics does not explain anything away (M, 9:45). This is also what we do when we partake in musical understanding (as performers or listeners): we re-phrase, compare, come up with good similes in order to illuminate something definite within the space of possibility, so that a new possibility or aspect may come to life. It is quite remarkable that Wittgenstein was determined to engage his subjects in giving aesthetic explanations of this sort as early as the years 1912–13. Yet, as he said: 'I had a natural propensity to think about ideas which arise in music' (M, 9:40).

IV. Language as Music: A Master Simile

Read in context, Wittgenstein's 1912–13 experiments on rhythm, his earliest recorded exploration of aspects, disclose a robust, philosophically far-reaching role for music in his philosophical development. This can be best appreciated against the backdrop of Juliet Floyd's recent evolutionary account of the emergence of aspect-phrasing in the early Wittgenstein, and the way these primary considerations eventually propelled Wittgenstein's transition from the framework of the *Tractatus* to his middle and then later work, where the theme of aspects reached its full maturity and philosophic effect.²⁴

According to Floyd, the initial impetus for Wittgenstein's career-long engagement with the theme of aspects was his push against Russell's notion of acquaintance. Wittgenstein's refashioning of Russell's notion of acquaintance involved two major tasks: resurrecting our working modal notions of possibility and necessity, and returning Russellian acquaintance to its everyday home, the sense in which we may be acquainted with a person. For this purpose, Wittgenstein developed what Floyd calls 'a master simile', likening the notion of an 'aspect' in logic to the 'look' or 'character' of a face, a facial expression or feature. Floyd's substantial contribution lies in her explanation of how Wittgenstein refashioned Russell's notion of acquaintance, which draws us to the private realm of sense data, in a way which returns us to the activity of characterizing. According to Floyd, 'Wittgenstein stressed that getting to the particularity of that which is characterized requires attending carefully to the specific way and manner of its characterization, and, in particular, to the relevant system(s) of possibilities in which it inheres'.²⁵

As we have seen, in the 1912–13 experiments, Wittgenstein expected his test subjects to further engage in making illuminated comparisons within an aesthetic system, which then would enable them to make meaningful distinctions between right and wrong. The very individuation on a given occasion of that which we 'get right', among the variety of possible things that can be said but may just be 'not as right' or even 'wrong', turns out to be a requirement within such an interaction that cannot be eliminated. If my characterization is successful, if it is illuminating, then ways are given to see likenesses and differences, and to go on discussing and drawing out from the articulations further aspects of what is characterized, which are there to be seen in and by means of it. This lends an illuminating characterization a sense of 'deepening', which Floyd interprets in terms of logical possibility – a comparison is an articulation of possibilities, which invites further comparisons and re-phrasings, serving and instancing possibilities for characterization of what can be seen and said.

²⁴ Floyd, 'Aspects of Aspects'.

²⁵ *Ibid.*, 366.

Floyd's evolutionary account serves to underscore the philosophical significance of Wittgenstein's 1912–13 experiments on rhythm since the kind of attention to the activity of characterizing, and the varieties of techniques for making illuminating comparisons (comparing only 'illuminating notes'), that Wittgenstein was seeking in his conversations with his test subjects, turns out to be quite incongruous with the view of logic that was about to shape the *Tractatus*, anticipating, remarkably, the tenets of his much later philosophy. Floyd's important insight is that Wittgenstein's early disregard of characterizations, his stultification of the physiognomic master simile within the framework of the *Tractatus* via the belittling of the *specific* techniques of characterization involved in symbolizations and representations of all kinds, could not do justice to the nature of the logical from his later philosophic point of view.²⁶ Yet in the 1912–13 experiments on rhythm, Wittgenstein decisively directed himself (and his test subjects) to the logical valences of the physical pulse train, its character, and the possibilities for its employment in devising fitting characterizations. Hence, he palpably showed on that occasion a propensity for entertaining (in the context of thinking about music) ideas which are much more logically advanced, according to Floyd's evolutionary account, than what the *Tractatus* was soon to allow.

Wittgenstein's physiognomic 'master simile' (likening the notion of an 'aspect' to the 'look' or 'character' of a face) is virtually covered by his parallel analogy between music (a melody, a passage, an entire piece) and the 'look' or 'character' of a face. Remarkably, this parallel analogy was already in the background as early as 1915, when Wittgenstein introduced the philosophically significant analogy between a sentence in language (not being 'a blend of words') and a melody (not being 'a blend of tones'; NB, p. 41). At the very beginning of his middle period this analogy is already in full bloom.²⁷

The parallel analogy between music and the look of a face in fact indicates another 'master simile' for Wittgenstein: language as music.²⁸ One of the main characteristics of Wittgenstein's robust view concerning music lies in his approach to music, which undercuts the underpinning of the distinction between music and language by a philosophical theory. Wittgenstein's remarks on music (early, middle, and late) are not at all geared toward a conceptual definition of the object 'music'. His robust view concerning music – noticeable even in its primary, embryonic display in his 1912–13 experiments on rhythm – is primarily an appeal to the importance of shared understanding in learning to listen and play. For Wittgenstein, there is no point in thinking about music without specific characterization, no point in thinking about musical sound apart from its embeddedness in a specific human gesture, that is, apart from what Wittgenstein considered to be the preconditions, and the lived, embodied realities, of musical intelligibility – as if there could be a smile without a face, as if musical significance could be drawn in like the self-sufficient smile of the Cheshire Cat.

That Wittgenstein makes, like everybody else, the ordinary distinction between language and music does not in any way imply that the distinction is, or could ever be, underpinned by a philosophical theory based on the drawing of a specific line. As Andrew Bowie points out, 'the problem with such a line is that what is supposed to be on each side of the line cannot be said to be stable. Furthermore, the resources for drawing the line, that is, language itself, may not be sufficient to describe the musical "side" of the line, which has to be experienced

²⁶ Ibid., 376.

²⁷ See CV, p. 19; PG, p. 179. The example from *Philosophical Grammar* is particularly pertinent, because it shows not only the analogy and a *bona fide* instance of noticing an aspect in music complete with its dynamics of making comparisons, but also, quite palpably, its direction: the face is compared with the chord modulation.

²⁸ The master simile of language as music culminates spectacularly in the *Philosophical Investigations*. See PI, §§ 527–35.

in ways language cannot circumscribe.²⁹ Wittgenstein's spelled this out beautifully during his middle-period:

To understand a proposition means to know under what circumstances it is true or false. If one sets aside this demand for verifiability, one can still 'understand' the proposition (admittedly in a quite different sense). But in that case even understanding a musical theme has a distant similarity with understanding a sentence. Schopenhauer quite rightly saw this in saying that music is a universal variable. In musical thinking there actually survives an element of sentence-intonation, of the rhythm of accented and unaccented syllables, of pausing for breath, even of question and exclamation – hence too the inclination to search for words to go with music. Music has developed from singing, it is a kind of prolongation of language, and that is important because it shows how language trails off into what no longer would be called language. (VW, p. 395)³⁰

The image of language trailing off into music seems to be characteristic of Wittgenstein's philosophy *mutatis mutandis* from the *Tractatus* to his very late output, where he thinks most explicitly that 'the theme and the language are in reciprocal action' (CV, p. 85). In the last analysis, describing what we hear, what is significant about it, hinges on characterization, on drawing comparisons (BB, p. 166). As we have seen, this idea was already distinctly present in Wittgenstein's original thoughts for his 1912–13 experiments on rhythm. Such fluidity was brought to the fore in the experiments in terms of noticing an aspect.

The importance of aspects for Wittgenstein became more and more pronounced in his later writings (from 1929 until his death in 1951), where his remarks on aspects are replete with musical instances. Here are some very instructive examples: hearing a theme as a march or as a dance (PI, p. 206); hearing a certain bar as an introduction or in a certain key (RPP I, p. 2, § 1; Z, pp. 37–38, § 208); experiencing a certain interpretation of a musical passage as inevitable (RPP I, p. 6, § 22); playing a passage with more intense or with less intense expressiveness, with either stronger or lesser emphasis on rhythm and structure (RPP I, p. 97, § 507); playing a passage with the correct sort of expression (LW I, § 688); hearing one thing as a variant of another (RPP I, p. 97, § 508; RPP II, p. 89, § 494); rephrasing a variation in such a way that it could be conceived as a different variation on the same theme, hearing a theme differently in a repetition (RPP I, p. 98, § 517); hearing a melody differently after becoming acquainted with the composer's style (LW I, § 774).

The most striking thing about these examples is that they encompass virtually the entire range of what is fundamental to the hearing and the performance of music: the experience of musical motion through rhythm and structure, the identification and re-identification of musical materials, the fine nuances of musical expression, and the overarching considerations of performance practice, of genre and style. Thus, the very early Wittgenstein had anticipated what the much later Wittgenstein is saying in a clear voice: that which is *musical* is fundamentally *aspectual*, a matter of characterization, the coming into view of a scheme of possibilities for characterization. Indeed, in light of Floyd's evolutionary account, it appears that thinking about and through music has afforded Wittgenstein with a spring of serviceable images for his career-long philosophical exploration of the fluidity and communicability of aspects. The master simile of language as music was bound to be philosophically forward-looking and potent. The philosophical significance of Wittgenstein's 1912–13

²⁹ Andrew Bowie, *Music, Philosophy, and Modernity* (Cambridge: Cambridge University Press, 2007), 18.

³⁰ The allusion to Charles Myers's view concerning the origins of music in the last sentence is quite striking.

experiments on rhythm lies, by his own admission, in the way they prompted him to tap into such far-reaching ideas for the first time.

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