

WHAT IS MUSIC?

ON THE MOST ELEMENTARY KIND OF LISTENING: SOUND, NOISE, AND TONE (TO SAY NOTHING OF MUSIC)

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In the desert that music psychology will leave behind, three features of the landscape stand out. First, its starting from the tone, as if a somewhat harmonic soundwave automatically implies a psychological element called tone perception; second, its taking of the melody or chord sequence as the main characteristic of musical order; and third, its refusal of intently concentrated introspection, although the first two characteristics can only be obtained from introspection, which is until now all too superficial.

One epitomy of such, in my opinion, simply wrong basic assumptions is the following statement of a great man such as Helmuth Plessner, who wrote in 1915 that "the intention of hearing [unlike seeing] aims at sensations, tones, and sounds," and an analog to images does not exist.¹ He went on to say that, "acoustic data, on the other hand, are primarily of dynamic structure; the tone stretches."² The tone, in fact, has no object; because, unlike sound, it is psychically already perceived as an object, which, as I will show, is spontaneously applied to sound but at the same time follows a learned disposition. In short, tone and noise are already perceived—in the double sense of the word—within the framework of formed structures. They are abstracted. What is perceived concretely, I will explain empirically in this part of the essay.

Since I have neither time nor desire to get involved in musicology, to orient myself socially to then "perform" something, I thus constructively criticize the first and third of the aforementioned main features according to my instincts as an epistemologist, self-observer, and amateur guitarist. For all three, the experience is in the foreground, and I dare to say that thinking about music suffers from over-education. The ones who make music don't care about the theory, and the theoreticians look for the musical experience, whereas, in my opinion, they should start from the experience and look for the non-existent theory. The second main feature, being melody/chord progression versus mood as a musical element, I would then like to deal with in part two of the essay, building on the basis presented here.

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Helmuth Plessner,
"Hören und Vernehmen,"
Melos 4 (1925): 287.

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Ibid., 288.

The temptation to postulate noises and tones as elementary comes of course from sound as objectively measurable vibration or pitch idealizable to the sine wave. Even more seductive is that our familiar twelve-step tone system can be represented in integer ratios of wave frequencies and that the sine tone frequencies in Hz can be mapped as numerical ratios to align with our sense of intervals between two tones.

Based on these physical facts, so simple and admittedly extremely impressive, which were recognized already in antiquity (sound waves are visible not only on vibrating strings but also on liquid surfaces), modern music theory has erected a giant structure, on which in turn written staves, harmony theories, counterpoint, etcetera, build—as if music would be objective like sound. But listening to music is an achievement of the psyche!

For the record: Music psychology has always based its hypotheses on these quasi-objective facts. It postulates sound events and then investigates (but by which methods?) how these are “perceived” by the listener. In this, I think, music theory, which I had to painfully learn along with the instrument as a boy, historically serves as a didactic aid for the next generation of musicians. Sheet music is also, as the guitarist’s instinct says, “tablature.”

I support this admittedly unapologetic thesis with the fact that I once, as a not very gifted listener, had to project the intervals onto my instrument, while the not so few gifted musicians I know (and who wanted to make music by themselves as children, which is not so rare), in my opinion, already knew the intervals as emotional layers intuitively. They recognized in the musical notation the musical complexes (Handschin) they have already mastered, thus they found their names, whereas I had to construct them. That’s why gifted people, if they have to, generally grasp musical concepts so effortlessly, unlike me.

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Hermann von Helmholtz,
*On the Sensations of Tone
as a Physiological Basis for
the Theory of Music*, trans.
Alexander J. Ellis (German
orig. 1862). London,
New York: Longmans,
Green, and Co., 1895.

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Katsuki Sekida, *Zen
Training* (Boston and
London: Shambala, 2012).

The mistake to parallel sound events with sound sensations was cemented authoritatively by Hermann Helmholtz in his classic *On the Sensations of Tone* from 1862. There he said: “The sensation of a musical tone is due to a rapid periodic motion of the sonorous body; the sensation of a noise to non-periodic motions.”³

Although Carl Stumpf also stated on the first pages of his main work in 1883 that the tone presupposes a “judgment” about a “sensation,” he remains, in good Kantian and Helmholtzian tradition, silent about what he means by “judgment” and “sensation.” Both must have been givens in the Romantic nineteenth century, which psychology then “operationalized” to a “we don’t know anyhow” in order to make experiments of a “psychophysical” kind and sound and noise henceforth somehow “measurable” non-entities.

The only way to observe more closely what psychology calls “sensation” as the interface between physical stimulus and its conscious perception is “expectationless self-observation,” which is enabled by the Buddhist technique of “absolute samadhi” – a physical state in which the concentration of breath is absorbed into the body in a way that the breathing person does not notice anything, yet is not fully asleep.⁴ In Zen literature, this state is also called “undirected attention,” which would be contradictory in Western psychology. It is, according to the definition in which the term “state of mind” implies consciousness, not a “state of mind” at all, because if I “wake up” from it by inner or outer stimulation, then I know only in retrospect that I must have been in it. Shikantaza, Japanese for “just sitting,” unintentionally, requires a lot of practice, daily if possible, which I have not been able to discipline myself to do for the past twenty years. How much practice, I do not know and would probably vary from person to person.

Why do I think this is the only method for studying sound perception? As Mach and Stumpf so clearly show, it is obvious but misleading to extrapolate perception from physical considerations. This kind of bottom-up “psychophysics” leads one astray. There simply remains introspection. However, in the usual task-directed self-observation the expectation

is already directed to tones or noises and therefore pre-structured.⁵ In directed self-observation, one can only get hold of processes that must already be called "thinking." Apart from undirected self-observation, there is no method.

So what can I now reconstruct as self-observation when this "state" of samadhi, which seems to be easier to reach when the environment in which one is sitting is "calm," is broken by a sound event?

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Thomas Raab, "Zur Affekttheorie," in *Selbstbeobachtung: Oswald Wieners Denkpsychologie*, ed. Thomas Eder and Thomas Raab (Berlin: Suhrkamp, 2015), 143–61.

1) If a sudden sound event occurs (at a certain measurable volume?), I retrospectively register in the first place and simultaneously or minimally delayed—perhaps by a tenth of a second—a partially inhibited motor reflex. This usually manifests itself, with me at least, in a small twitch in or minimal twisting of the upper torso and/or twitching of the biceps and deltoid muscle, bilaterally or more often on the right (?), or in the neck muscles. This phase, in which the motor system reacts rudimentarily (while writing it down, it occurs to me that this could be the inhibited residue of the motor-reflex in the infant), is not conscious and does not last longer than one or two tenths of a second.

2) In the next phase, which I estimate to also last about one or two tenths of a second, and which basically should be called "waking up," a spatial orientation arises: "I" have a first seed (Wiener 2023) vaguely indicating the direction of the source of the sound and thus implicitly the room and my sitting position in it are established as reference points. While the initial reflexive motoric activity, so to speak, "merged into the external stimulus," now a spontaneous polarization of self-awareness and external world occurs. However, I do not yet "hear" that it was a sound event.

3) Then I regularly experience very briefly, perhaps for a tenth of a second, a strange intrusion, which is difficult for me to illustrate, but I can only describe it with an image. Especially with "strange," i.e. complex noises or "sounds" like the (retrospectively noticed) automatic starting of the refrigerator, I intuit a simple structure, which I can interpret only with difficulty. In the case of the aforementioned refrigerator "boiing," it is a kind of vertical rod, on the upper end of which something like a hollow rubber hemisphere rests, whereby I have the feeling that a gap exists between the rod and the hemisphere. Both, however, are transparent, the size undefinable, the structure "fills my visual field" ("emulation", Wiener 2023). Is this mental object the natural objective of a sound source to be operated or to be seen fictively by me? After all, when I think about it ("dig deeper," as Schwarz calls it) the rubber to me alludes to these quite visceral funny "cartoon sounds," which can only be described by onomatopoeic words and mostly originate from dynamically complex movements or events. Does (in Silberer's sense) the fact that the rubber hemisphere rests movably on the stick symbolize the source of the noise? This becomes clearer in the case of simpler noises. In the case of a board banging on the floor at the construction site outside my window, it is simply a "brown" (like a blob in the visual field?), which probably "points" to wood. The "bang" is also an immersive object: the world is everything that the bang is—in this moment of first perception, anyway.

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See Bernhard P. Staresina
and Maria Wimber,
"A Neural Chronometry
of Memory Recall,"
*Trends in Cognitive
Sciences* 23/12
(2019): 1071–85.

These first two seeds, spatial orientation and spontaneous intuition (2., 3.), are important for the concentration exercise in zazen. When my concentration is stable, I can "escape" from here back into samadhi with a brief contemplation of the abdominal area and the "spatiotemporal point" when the slow exhalation turns into inhalation. I assume "absolute samadhi" probably means that this return is "effortless" and relaxed. I think the phases described so far together last about half a second ⁶ (cf. Staresina/Wimber). Provided that the sound event does not change strikingly or something imposes itself as a "new" event, i.e. a new intuition emerges, phase 1 does not come back even then. "New," and psychologically defined, it is, therefore, a sound event that leads to a new intuition. If, however, the process of perception—the "waking up"—continues, these seeds, which are not even experienced as "noise," which is an abstraction of such concrete intuitions, but only as the aforementioned polarization with the primary intuition of the source, become more specific. After all, it can be said clearly that intuition is not a "sensation," but already always an object. It could be addressed as a primal element of hearing, i.e. of the acoustic perception. Noise and tone do not yet exist in this phase of the first initial version, they are "higher," more sophisticated. Because only now an "undergrowth" develops in the diction, which the ones who are observing themselves acquire. The components, i.e. still uncoordinated schemata, which are necessary for the further understanding of the sound event, are provided depending on the current running environment. The seed gets "a face." For example, if a sound came from the construction site on the other side of the street, I experience the image of a construction site, not necessarily this construction site in front of my window, because I did not look at it very attentively and consider it, but any construction site: lumber, a trough, dirt, work shoes, etc. are more than implied, they are pointed to, that is, I really experience them and could form a more detailed idea of them if I took this into account. The "undergrowth" also lasts about half a second.

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See Katsuki Sekida,
Zen Training.

Only now, after about one second, the actual assemblage begins, i.e. the setting up of a context in the preconscious, i.e. conscious working memory. At the said construction site, I remember the two construction workers whom I saw smoking cigarettes, a sloping timber board which can be driven over with the wheelbarrow leaning against the trough, and a concrete beam. Once this process, which from now on must be called "thought," is set in motion, the return to samadhi is noticeably more difficult. In zazen, the method of mu-breathing has become established for this purpose, which I will not go into here.⁷ The further assemblage as conscious thinking is thus based on the task-guided establishment of a context (or constructed environment). And this can be musical, especially if one wants to perceive music or music-like things as a musician (i.e. something that is addressed to others and should be heard). Or just not, then the running environment of the sound event is just "extra-musical." Only the perception of tones as noise is impossible (for me, anyway).

MUSICAL AND "EXTRA-MUSICAL" DISPOSITION

So I estimate: Within the first half-second after the onset of a sound event, a still disordered runtime environment for a noise or tone has passively built up from undirected attention, i.e., as neutral a mood as possible. This happens habitually and it is "formed" in the sense that several sound embeddings are possible for an adult, at least in principle. In the humanities, one often speaks of "contexts" here—an unfortunately objectifying word, because it is humans with their approaches who must embed sound events.

Before sound and tone, these abstract terms, every sound event, as can be well observed with small children, is the name for a concrete object. I remember a one-year-old boy who was so small that, standing up, he could not yet look out of the open window onto the street. When a car drove by, he said, with his eyes open, "brmm-brmm," his onomatopoeic expression for this. A moment later, a second car came and his response was "Mmm-brmm-brmm," where "mmm" was his expression for "one more, one more." Well, the two sounds were certainly not the same, though similar. The sensorimotor abstraction already consists in assigning two different sounds to the same object. But for the boy the name is the object, he has no concept of noise, i.e. certain conceptually analyzable aspects of a car. Here, only when embedded, precisely the sensorimotor "of daily life" is possible.

So how does the sound embedding, which follows the intuitive perception phase, happen? After this first half-second, the intuition can now be "expanded" as tone or noise, i.e. considered under pressure of a task, classified in a creative or habitual way. One leaves the control of the sequence of attunements and seeds of the following sound events themselves and "surrenders" to the acoustic. The former is very special and I will not go into this "higher sound psychology" here. It is primarily interesting for composers and other creative musicians and musicologists.⁸

Instead, let's stay as elementary as possible. What distinguishes noise from tone? The consensus is that the latter has a character in addition to its pitch, which is quite difficult to assess for the untrained, even for the amateur musician. This is expressed, when questioned, as a mood "corresponding" to the note, which has a common and a musical aspect. At first instance a mood, mostly tied to life experience: the subdominant is "strong," "muscular," the leading note "restless," "leading on" to the tonic.⁹ Hansberry criticizes this kind of introspection insofar as such descriptions of feeling did not mean "tonal qualia" but already included associative interpretations of the tone.¹⁰ These are "extra-musical."

The aspect of elementary sound reception called "synchronous effect" by Wiener, which probably corresponds to the intuition (phase 2) of elementary sound experience in musical expectation, means something more elementary than such associations. If a single tone is heard, the naive listener tends to perceive it as tonic, i.e. as the keynote of a scale, which, according to habit, will be major. This overheard tone is a "quale" and therefore cannot be separated from the "pure tone," which, as I said, is psychologically too strong an idealization. I mean, the mood could also put one in a minor key here, but tonic remains tonic. The "re-listening" of the tone to another pitch, e.g. the dominant, is not trivial and requires, just like the interval presentation and listening, an "ear training." I made my own self-observations on this in 2016, which I will bring to Part 2 of this essay, since they reach too far beyond the elementary into music at this point. In any case, the same series of notes, even played in the same rhythm and ductus, can make one hear completely different tonal characters, depending on the harmonic runtime environment. Wiener brings here, so far unpublished, as in my opinion very clear example the first five notes of the melodies of "Blueberry Hill" and "Alle Vöglein sind schon da," which are the same, but the fourth note is very different in its character.

This spontaneous habitual classification into a musical running environment happens before any thinking, i.e. without approaching the tone with a concrete task. But it is nevertheless carried by a disposition that habitually forces the sound event to be heard as a tone. This is not so in the lack of expectations of "absolute samadhi." That is why meditation teachers like to give as a riddle what one actually "hears" at the sound of a bell tearing them out of samadhi. At first nothing but the first reflex and an intuition, as described in the first section.

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See Hermann von Helmholtz, *On the Sensations of Tone as a Physiological Basis for the Theory of Music*, trans. Alexander J. Ellis (German orig. 1862), (London, New York: Longmans, Green, and Co., 1895); also, Jacques Handschin, *Der Toncharakter* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1995).

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David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge: MIT Press, 2006), 145.

Marco Costa, Pio Enrico, Ricci Bitti and Luisa Bonfiglioli, "Psychological Connotations of Harmonic Musical Intervals," *Psychology of Music* (April 2000): 4–22.
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A running environment is an ordered pattern of sensorimotor schemas that, as introspection retrospectively shows, are kept episodically "conscious" by an assemblage. In academic psychology, this is somewhat blandly called "working memory." But even without assemblage, i.e. constructive thinking, the running environment is not disordered. On the contrary, one can recognize from everyday observations alone—what strikes me on the outside, what forces itself from the inside into consciousness?—that a multitude of mostly everyday tasks always "interferes" with the relaxed stream of consciousness.

In 2015, I called this medium-term calibration of the running environment "disposition,"¹¹ because it is neither habitual in the classical sense, i.e. trained, nor clearly oriented towards a task. It could be taken as a very general "term," since it not only influences every conscious perception, but also controls what one perceives in the first place. I understand it as a task landscape slowly sedimented within one's lifetime, as all tasks are connected in a "personal" (biographical, "neurotic") substrate of interest. In the following, I am talking about the disposition towards music and the disposition towards noise and its spontaneous structuring, as it seems to be cultivated in Jan St. Werner's class Dynamic Acoustic Research at the Academy of Fine Arts Nuremberg.

The musical disposition—seen from the general population—is normally established as soon as a series of tones or aspects of it, be it only a rhythm, become noticeable. I classify: "normally" means also that it needs a kind of unconditioning to hear a noise, a tone or rhythm as "material," with which one builds on as "freely" as possible, like a sculptor for instance, whereby they must not function as a seed of a harmonic or disharmonic chord sequence or melody. In short, one must wean oneself from the musical disposition in order to be able to make "extra-musical" sound art. How Jan does this himself I do not know, but he seems to succeed. In any

case, my observation that the first auditory intuition is an object is quite congenial to his concept of material. The acoustic, as I wanted to show, is indeed psychologically a metaphor.¹²

John Cage, following Russolo, was the first to realize spectacularly that a musical disposition can be applied to sounds of any kind. For him, if music means active enjoyment of sound events, then everything that can be actively perceived with pleasure is music. The emphasis is on "can," because it requires not only the insight that one can rethink and rehearse "music" according to one's liking, but this insight must become habitual as a disposition through learning practice.¹³ It needs the will to make noise. Whether this aesthetically pleasurable play is conceptually productive, I dare to doubt. It is certainly possible and enjoyable.

If, however, the definition of music strictly presupposes tones, and one insists on this attitude, then noise compositions are simply not music. The objectively simpler definition is this old one, otherwise it would not have endured from the beginning of human history until Cage. However, it is also, as I hope to have shown, not psychological and therefore not only strangely unromantic but also dull. After all, the composers castrate themselves with it.

For Jan, it seems to me, turns Cage's tables. He does not try to hear noise as music, but music as noise. He is concerned with that "intuitive material" that is capable of producing aesthetic experience, and any means will do. Perhaps he works

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Thomas Raab,
"Zur Affekttheorie."

← 12

Jan St. Werner, De-
ikonographie &
Multiperspektivität,
E-Mail from Jan St. Werner
to Thomas Raab, 2020.

← 13

Cf. Minsky, "Music,
Mind, and Meaning,"
Computer Music Journal
5/3 (1981): 28–44.

with the intuitions I experienced in phase 3. And it is true: intuition and mood, cores of the musician's life, cannot be determined by tones alone, because these are objectively too imprecise.¹⁴ The aesthetic experience is not at all dependent on the mode of the senses, but encompasses the whole body.¹⁵

Since Jan likes to work in groups, the aspect of psychodynamics is added to his art. Creating noises, and depending on the approach and mood, he and his collaborators "move on" in a sensorimotor associative way. They do something. I attempted to get closer to the psychodynamics of this group creativity through a kind of self-observation I know from Nikolaus Gansterer, who developed his own acoustic notation system to describe specific mood changes and intuitive micro-choreographies in joint performative work. Through intensive attention practice, group members attempted to mark sensorimotor perceptual patterns during the sessions through nine clicks and hisses, and then translate them into speech or drawings.

← 14

Court B. Cutting,
"Microtonal Analysis
of 'Blue Notes' and
the Blues Scale,"
*Empirical Musicology
Review* 13/1 (2018).

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Ananda
Coomaraswamy, "That
Beauty Is a State,"
Burlington Magazine
(April 1915); also
Erich Hornbostel,
"Die Einheit der
Sinne." *Melos* 4
(1925): 290–97.

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