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Anna Chęćka
https://orcid.org/0000-0002-9340-7672
University of Gdańsk, Institute of Philosophy
anna.checka@ug.edu.pl

MUSICAL THINKING REVISITED: AN INTERDISCIPLINARY APPROACH

Abstract: Following the trail set by Jerrold Levinson in his paper *Musical Thinking*, the author focuses on purely instrumental music as perfectly realizing the ideal of wordless thought of the composer, performer, and listener considering not only intellectual processes but also bodily and prereflective responses to musical stimuli. Philosophical speculations on the modes of musical thinking are presented in the article from an interdisciplinary perspective. Thanks to this, some intuitions rooted in the humanities are subjected to criticism. Apart from musicology and philosophy, the author reaches into neuroaesthetics and neurobiology.

Keywords: music, performance, thought, neuroaesthetics, brain

Today, the philosophy of music willingly abandons work-centred analysis and turns to the drastic perspective of a vast phenomenal explosion: performance.[1] A growing number of publications devoted to the performing arts emphasizes the perspective of an artist immersed in the process of musical interpretation.[2] This paper analyses possible thinking modes attributed to the performer and the composer. However, it is difficult to forget about the listener in these considerations, if only because every musician is also a listener.

The greatest inspiration for the author has been an article by Jerrold Levinson entitled *Musical Thinking* (2003). A critical analysis of its selected

1 See C. Abbate, *Music - Drastic or Gnostic?"*Critical Inquiry", 30/3 2004. pp. 505-536.
2 See John Rink, Nicolas Cook *et a*l.

threads forms the core of the paper. The author believes that the modes of musical thinking proposed by Levinson require development and should inspire not only theoreticians but also musiciansperformers. Are the modes of thought and types of musical activity of consciousness classified by Levinson as productive and receptive sufficient to describe the mental process of playing an instrument?[3] Would they stand up to the test of criticism formulated today from the perspective of empirical aesthetics and neuroaesthetics?

Three statements will act as a prelude to proper considerations in the paper. To begin with, the French essayist Pascal Quignard wrote: "Where thought is afraid, [there] music thinks".[4] The second quote comes from a musicologist, Karol Berger: "Music I must experience before I can begin to think about it, and I can always leave the thinking altogether out".[5] And finally, according to Kathleen Marie Higgins, an American philosopher of music: "Too many linguists and philosophers take language as the model of thought. I am convinced that music's centrality to human life is often obscured by the dominance of a linguistic model".[6]

Even a glance at these perspectives shows the common striving by the cited authors to capture the presumed uniqueness of music or even its difference compared to other arts. I assume that emphasizing the radical difference between music and literature or painting is most often a need of the heart rather than the fruit of reason. It does not mean, however, that music does not trigger particular mental states, or that it does not enable us to notice overlooked aspects of human experience. The article focuses on a few performing and musical elements. It will not be viable to show the specificity of "being in sounds" in all possible forms, but the author will strive to lay a modest foundation for further research.

Part One

The first quote above seems to be the least scientific and the most poetic one: "Where thought is afraid, there music thinks. The music that knows how to lose itself, is not afraid of pain". In his book "Boutes", Pascal Quignard expresses a longing for pre-linguistic innocence. The figure of the perfect listener, the main hero of Quignard's book, is illustrated by the famous ancient painting of the Paestum diver.

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3 J. Levinson, *Musical Thinking*, „Midwest Studies in Philosophy", 27 (2003), pp. 59-68.
4 *Là où la pensée a peur, la musique pense*, see: P. Quignard, *Boutès,* Galilée, Paris 2008, p. 19.
5 K. Berger, *A Theory of Art*, Oxford University Press, 2002, p. 35.
6 K. M. Higgins, *The Music between Us. Is Music a Universal Language?* The University of Chicago Press, Chicago 2012, p. 79.

Fig.1. The ceiling of the Tomb of the Diver, Paestum, Italy, c. 470 BC https://commons.wikimedia.org/wiki/File:The_Tomb_of_the_Diver_-_Paestum_-_Italy.JPG

Succumbing to the singing of sirens, he throws himself into the sea and surrenders himself with a current of music. The sea is an element in which Quignard's diver seeks oblivion like a listener in music. Moreover, thanks to the music, the diver goes to meet what is gone forever. Music can do this: it may allow listeners to regain what is lost, cancel the border between what is sensual and what is immortal, as we know well from another Quignard's book, *Tous les matins du monde*. According to Quignard, music goes beyond what is rational, or possible to analyse or verbalize. It is important to notice his specific sensitivity to the fact that music, as a perfect continuance in time filled with sound events, thinks "where thought is afraid". Broadly speaking, music allows people to recall seemingly forgotten facts. It becomes a stimulus to reflect on things that have passed, understand difficult events from the past and give them new meanings. Although Quignard has nothing to do with neurobiological methodology, his intuition is surprisingly confirmed by modern neurology.

Here we touch upon issues known from Daniel Levitin's book *This is Your Brain on Music*, Oliver Sack's *Musicophilia* or Robert Jourdain's *Music, the Brain and Ecstasy*. Only one such thread will be mentioned here: emotional memory, unblocked by music in the minds of people suffering from neurodegenerative diseases. One of the first symptoms of Alzheimer's disease is memory loss,

which is partly linked to degeneration of synapses and changes in neurotransmitter levels. How is it that many old people, even as the disease progresses, can still sing songs from their youth? Daniel J. Levitin explains:

> "Those years were times of self-discovery, and, as a consequence, they were emotionally charged; [...] we tend to remember things that have an emotional component because our amygdala and neurotransmitters act in concert to 'tag' the memories as something important. Part of the reason also has to do with neural maturation and pruning; it is around fourteen that the wiring of our musical brains is approaching adultlike levels of completion".[7]

We know today that listening to music displays a hierarchic character, since that is how we should understand a stream of sound structures, organized in time and proceeding horizontally and vertically, that activates different neuronal centres.[8] To follow the sounds, people engage nearly every known area of the brain. It starts on the level of the cochlear nucleus, the cerebellum, and the brain stem, and then travels to the auditory cortex located in both hemispheres. Levitin adds that following familiar and remembered music "recruits additional regions of the brain, including the hippocampus – our memory centre – and subsections of the frontal lobe, particularly a region called the inferior frontal cortex".[9]

Profound emotion linked to music that people recall as important in their lives relates to the involvement of regions known as the reptilian brain. It consists primarily of the central part of the cerebellum, known as the vermis, and the emotionprocessing amygdala. Since around 1999, thanks to groundbreaking research carried out by Anna Blood and Robert Zatorre, we know that powerful emotions connected with music are linked to systems of reward, motivation, and arousal: to the ventral striatum, amygdala, midbrain, and frontal cortex. What is intriguing here is the role of the nucleus accumbens, located in the ventral striatum, as the reward centre. It participates in the process of distributing opioids and releasing dopamine. As Levitin remarks: "Current neuropsychological theories associate positive mood and affect with

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7 D. J. Levitin, *This is your Brain on Music: Understanding a Human Obsession*, Penguin-London, 2019, pp. 231-232.

8 See Stefan Koelsch, *Brain and Music* (Chichester: Wiley- Blackwell, 2012), and Stefan Koelsch, Martin Rohrmeier, Renzo Torrecuso and Sebastian Jentschke, *Processing of Hierarchical Syntactic Structure in Music*, „Proceedings of the National Academy of Sciences of the United States of America" 2013, September 17, vol. 110, no. 38.

9 Daniel J. Levitin, *This is Your Brain on Music*, op. cit., p. 86.

increased dopamine levels [...]. Music is clearly a means for improving people's moods".[10]

Emphasis is also placed here on the connection – perhaps not initially obvious – between memory, dopamine, and music. As Levitin writes: "Memory strength is also a function of how much we care about the experience. Neurochemical tags associated with memories mark them for importance, and we tend to code as important things that carry with them a lot of emotion, either positive or negative".[11]

This is where the humanistic and neurobiological paths meet. In his book *Real Presences*, George Steiner advises us to assimilate works of art by heart, so that they would always form part of our personal memory archive. We turn to them when we are alone or ill, not always evoking only what is linked to the feeling of happiness. This kind of internalization of an artwork is a special task for the performer. What is particularly interesting here is the question of performing a work of art from memory. A piece of music matures along with the artist in their ageing body and, at various stages of life, becomes a vehicle for evoking, understanding, distancing oneself from or even reevaluating emotions. We can go even further and say that so deeply internalized music shows who they really are, not as artists, but as people. This is perfectly captured by George Steiner: "As we change, so does the informing context of the internalized poem or sonata. In turn, remembrance becomes recognition and discovery (to recognize is to know anew)".[12]

It is worth asking, if only briefly, about the relationship between music and memory, and a sense of one's own identity in the case of an incorporated thought of a performer. Let us think about the pieces that the performer knows by heart. Sure, she or he is afraid of a memory error. However, it is generally more convenient for a musician to play without the score when bodily automatisms are triggered. The artist seems to be deeply connected with the music, also thanks to longterm nondeclarative memory. The fluency of the performance is based, among other things, on learned motor patterns. The exercise process involves developing motor habits that do not have to be controlled or analysed when performing music on stage. Comparing a performance to walking is useful here. When such controlled stepping occurs with natural walking, we lose the fluency and fluidity of our movements. It is the same with playing an instrument. Excessive control and analysis are not conducive to doing it well. They disturb the fluency of trained motor patterns, probably because analytical thinking is not able to "catch up" with what is based on long-term non-declarative memory

10 Ibidem, p. 191.
11 Ibidem, p. 197.
12 G. Steiner, *Real Presences*, London Faber & Faber 1989, p. 9.

in a musical performance. To put it differently, analytical thinking seems to be slower than the flow of musical thought. It unnecessarily disturbs the fluidity of what flows from the body and makes music. Perhaps that is why obsessive verbal thinking when performing music leads to memory lapses. It will sound paradoxical, but perhaps an artist playing on stage should think less. The exercise process includes analysing individual movements. On stage, however, it is usually better to just go with the flow of the music.

As for the second thinker mentioned above, he follows a similar path, although he does not speak about the performer, but about the listener. For Karol Berger, musical experience is an invitation to suspend thinking: "Music I must experience before I can begin to think about it, and I can always leave the thinking altogether out". The first sentence is apparently seductive. In the context of the previous paragraph of our considerations, Berger's advice seems to be almost imperative. Yet other two sentences seem deceptive: "A painting can begin to exert its emotional impact only after the expressed object has been recognized. In painting a recognition of the imaginary represented object must come before any experience of the object can take place".[13]

As a representative of the humanities, the author deeply appreciates Berger's erudite writings. However, interdisciplinary cooperation within neurobiology makes her cautious about formulating effective, though disturbingly fragile statements, such as the one that appears after Berger's invitation to suspend thinking in experiencing music when he turns to paintings.

Berger is obviously right to point out the wordless experience of purely instrumental music and emphasize the uniqueness of being in sounds. However, he seems to forget that prereflective protomental experience is not reserved for musicians or listeners. Already at this point, one could object to favouring music as an example of wordless thought. A similar state of mind may accompany concentration on a mathematical equation, a chess game, or mystical or love ecstasy, to name just a few possible examples.

However, something else seems particularly interesting here. Writing about music and attributing various possibilities to it (according to the assumption that "music does something that other art cannot give us"), one often reaches for the difference between experiencing sounds (flowing in time) and static painting. Berger seems to go even further by arguing that the experience of painting presupposes the recognition of representation – in both abstract and representational painting. The experience of music and that of painting would therefore differ, among other things, in the absence of such recognition (music) and its necessary presence (painting). Berger's position seems to

13 K. Berger, *A Theory of Art*, op.cit., p.3 5.

imply that the presence of this recognition determines further enjoyment of the painting.

This statement may provoke questions, such as: does everyone always react in this way? Is there any difference between recognizing abstract and representational painting? Do we know anything more about the nature of this cognitive process thanks to the empirical sciences?

It is enough to mention here bodily response to painting in the socalled embodied simulation described by Vezzio Ruggieri within the psychophysiological model.[14] Briefly speaking, before cognitive evaluation of a stimulus, the brain simulates a body state analogous to the observed one, which leads to the creation of subjective emotion. In other words, a given image may arouse unconscious reluctance of the observer, as evidenced by their bodily reaction in the form of muscle tension; thus, the initial emotional response to the painting determines the subsequent cognitive response to the stimulus.

So, to simplify, our body perceives an image as attractive or repulsive before we make a conscious aesthetic judgment ourselves. We react in this way not only to representational paintings but also to abstract ones. In "Broadway Boogie Woogie" by Piet Mondrian, elements such as line topography, colours, and rhythm of an image may or may not harmonize with our sensitivity from the very first sight. Thus, we do not have to rationalize what is presented in the picture for the image to move, delight or repel us. It turns out that a prereflective response to a musical stimulus is not something radically different from such a response to a picture. Undoubtedly, the empirical sciences today can tell us more and more about the nature of our experience of different types of art. One of the most interesting issues here is the possibility of observing the brain's activity in vivo thanks to functional magnetic resonance. It allows us to capture, for example, the activity of the premotor cortex preceding a conscious reaction to a stimulus. This is what happens, for example, when musicians are tested: their premotor cortex behaves as if they were performing the music they are listening to.

This is just one example of reaching the mystery of what is unconscious and what, perhaps, sheds new light on the problem of experiencing art.

Finally, let us move on to the inevitable question of the relationship between music and language by going back to the motto by Kathleen Marie Higgins: "Too many linguists and philosophers take language as the model of thought. I am convinced that music's centrality to human life is often obscured by the dominance of a linguistic model".

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14 See V. Ruggieri, Esperienzaestetica: *fondamentipsicofisiologici per un'educationeestetica*, Armando Editore, Roma 1997.

Higgins tells us to follow the path of evolution towards the origins of speech that flow from music. In short, she promotes the vision of music as a state in which the human being was immersed before becoming a linguistic being. Quoting many researchers, the philosopher tests what she calls "the language is music model", which involves reversing the usual order of thinking about music as a kind of language. Undoubtedly, a fascinating element of her considerations is the advice directed to philosophers of the mind that they should become more interested in nonverbal thinking triggered by music, both in the experience of performers and listeners. This thread is fundamental to the centuriesold discussion on the relationship between music and language in philosophy and musicology, not to mention the subject of prioritising what is musical over language, which is particularly attractive for neuroaesthetics as a relatively young research field, dating back to the beginning of the 21st century. Returning to the quote by Higgins, however, it is worth emphasizing one more thing. The philosopher suggests that music reflects specific modalities of thought even more accurately than language:

> "In my opinion – she states – the nuanced contents of music reflect much of our thinking life more aptly than does language, because it draws attention to various ways of holding mental content in mind (...) One can meditate upon a motive or theme; one can find its recurrence oppressive; one can linger over it; one can start to see reflections everywhere. Focus on propositions may be useful for analysing the power of language to convey explicit information, but it does not indicate the way a flow of thought occurs. Music can reveal both tonal attitudes of thought and the character of whole streams of thought, whether they are halting or straightforward, meandering or rushing. The pace is a part of the thought, sometimes trivially so, but sometimes importantly".[15]

The second part of the essay introduces Jerrold Levinson, whose research is most crucial to the discussion presented in the article. In his paper on the modes of musical thinking, we find all the nuances of music that Higgins mentioned. However, they go beyond music as a narrative. According to Levinson, music itself is the action or the agent that develops and guides sound events.

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15 K. M.Higgins, *The Music between* us, op. cit., p. 103.

Part Two

Here is what Levinson states in one of his opening paragraphs:

> "If someone asks me what I was thinking, can I not sometimes truthfully say, <<The opening of Mendelssohn's Violin Concerto>>? Could I not, in response, even whistle that opening? Note that the former response would not be the same as saying, <<I was thinking of the opening of Mendelssohn's Violin Concerto.>> For of course anything might be an *object* of thought. But that doesn't make it into an *example* of thought. No, the Mendelssohn opening is *what* I was thinking, not what I was thinking of".[16]

It seems clear that Levinson wants to make readers aware of the phenomenon of "being in music". "Listening" here is like "immersion in reading", which no one would call "thinking of" a book. It can be said that immersion in music is a kind of contemplation, a unique type of focusing the stream of our consciousness on a stream of sounds. This, however, happens on the listener's side. And what can we say about the thinking contained in sound structures? The following paragraphs introduce Levinson's typology and propose some modifications to it, not as part of a critique of his theory but rather as its development.

According to Levinson, there are three types of musical thought. The first one seems to be embodied in musical passages "wearing an appearance of thoughtful acts, such as questioning, concluding, searching, and the like (...) *embodied thinking* in music is thinking we ascribe to the *music*, as something it appears to be doing, and has no identifiable object".[17]

Levinson shows here the beginning of Beethoven's 'Tempest' Sonata Op. 31 No. 2, which he calls one of the most rhetorical pieces of music in all Beethoven's oeuvre:

> "The movement's opening gesture, a four-note rising motif in largo tempo beginning with an arpeggiated A major chord, has about it a pronounced air of uncertainty and wonder (ms. 1–2). It is followed by a descending allegro motif in D minor that anxiously frets, ending in an adagio turn of questioning character (ms. 2–6). Next the largo motif returns, to be followed by a more excited variant of the earlier allegro d minor music (ms. 7–16), whereupon the music gathers resolve in a passage in octaves

16 J. Levinson, *Musical Thinking*, op. cit., p. 61.
17 Ibidem, p. 64.

(ms. 17–18), before issuing in a full cadence on the tonic and the first episode of pure affirmation, a declaration in the bass and in allegro tempo of the opening fournote rising motif, now wearing a minatory cast, but rounded off in the treble by a new motif, plaintive and supplicating".[18]

Note that, on a rhetorical level, Levinson here combines a musicological description with a kind of anthropomorphising of sound structures.

However, let us go further and look for other examples of music that is thinking itself. Consider now the beginning of Mozart's Fantasia in C minor K. 475 built of silence and diminished chords, and then surprising the listener with changing harmony, which makes them feel uncertain about what will happen next.

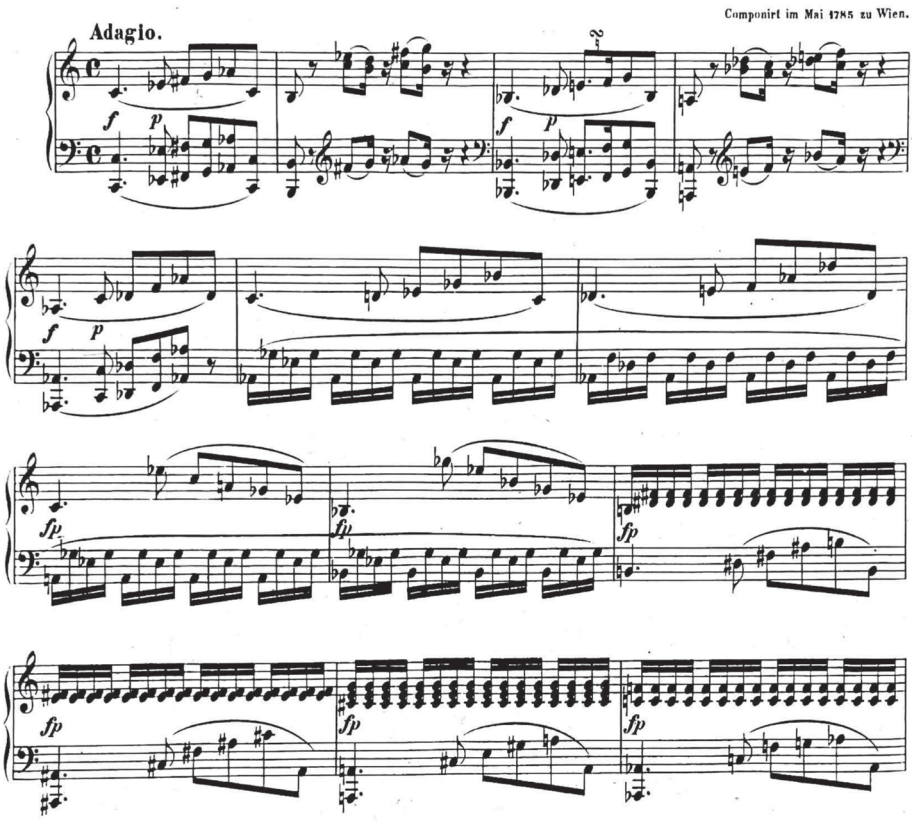

Fig.2. W. A. Mozart, Fantasy in c minor KV 475

18 Ibidem, p. 64.

Note that it is this passage that is analysed by Nadia Boulanger during her lesson with Emil Naumoff, captured in Bruno Monsaingeon's famous film-portrait, "Mademoiselle Nadia Boulanger".[19] Maestra shows the young pianist how Mozart's music acts by surprising or deceiving listeners' predictions. She makes her young student imagine music itself as "a thinker" and creator of moods, or an acting persona.

Let us stay with Mozart's Fantasia for a moment. By modifying Levinson's theory, I would add some kind of embodied thinking to his classification: embodied vocal thinking – imitating solo singing, which is obvious in the case of Mozart as an opera composer. Listening to the slow movements of his concertos or piano sonatas, we realize that he makes the piano (and the pianist) think vocally and sing, imitating a human cantilena, as illustrated by Figure 3.

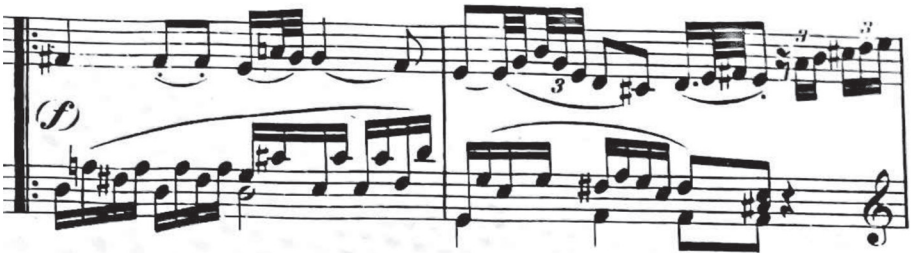

Fig. 3. W. A. Mozart, Fantasy in c minor KV 475

Or, also in the same Fantasia, we discover embodied symphonic thinking, where the piano texture imitates the orchestra, as shown in Figure 4.

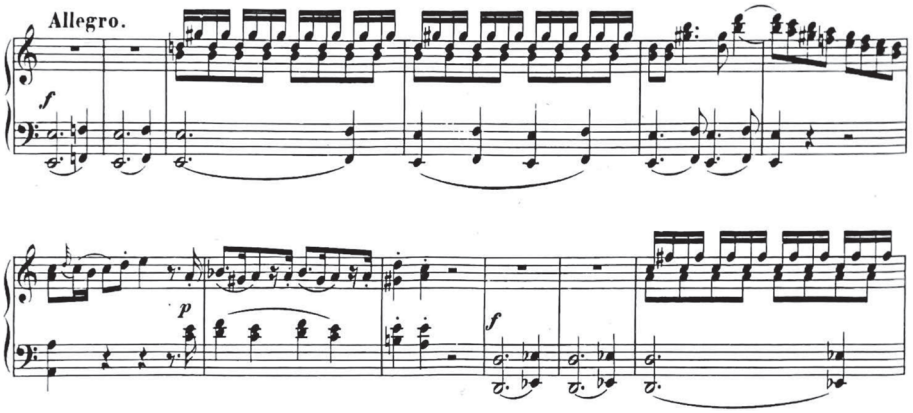

Fig. 4. W. A. Mozart, Fantasy in c minor KV 475

19 *Mademoiselle Nadia Boulanger, un film de Bruno Monsaingeon*, INA 1977, Medici Arts, Ideal Audience International 2007.

The last example of embodied thinking concerns not an abstract motif or phrase, as Levinson put it, but a "virtual narrator". Very often, teachers use this type of embodied illustration during master classes. By anthropomorphizing music, ascribing actions or feelings to it, they stimulate students' imagination. A clear example of this mode of thinking is Jenefer Robinson's theory of the musical persona, perfectly illustrated by Brahms' Intermezzo in B flat minor Op. 117, with its two themes showing the psychological drama of a virtual narrator. We can hear a virtual narrator drama as a conflict between the yearning theme A in tonic minor and the more stable theme B in relative major, as shown in Figure 5 and 6.

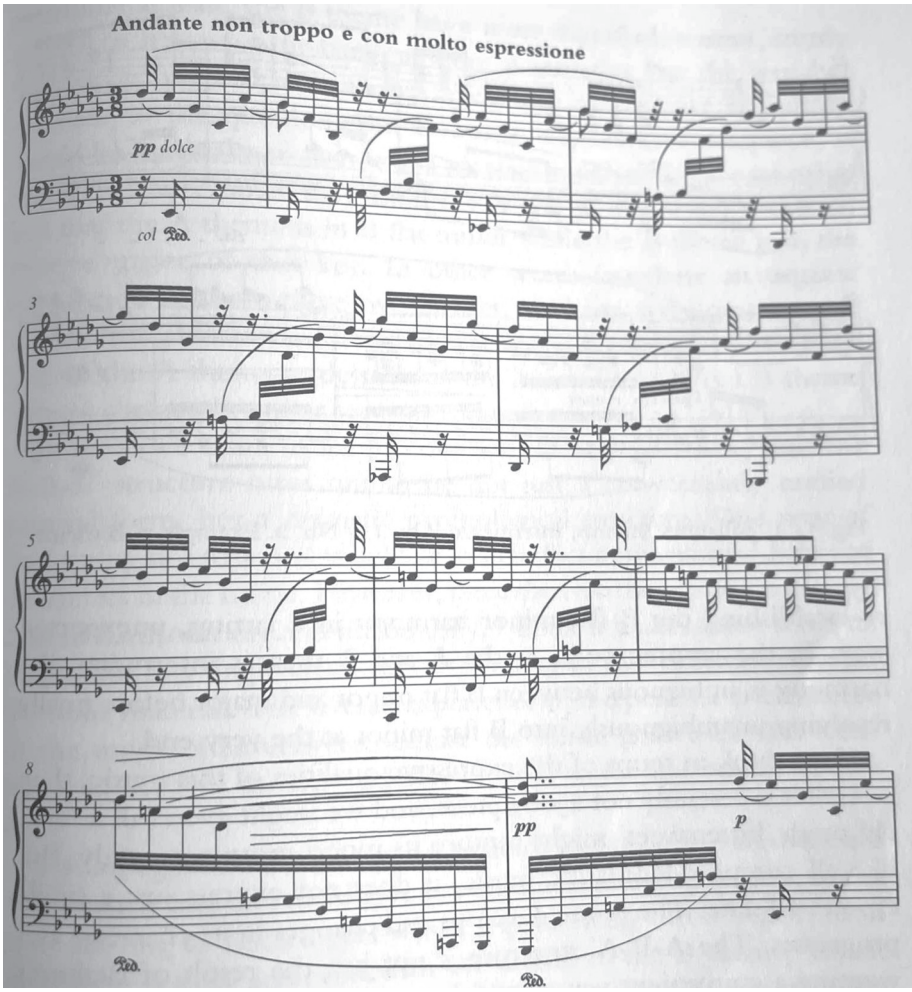

Fig. 5. J. Brahms, Intermezzo in B flat minor op. 117, theme A

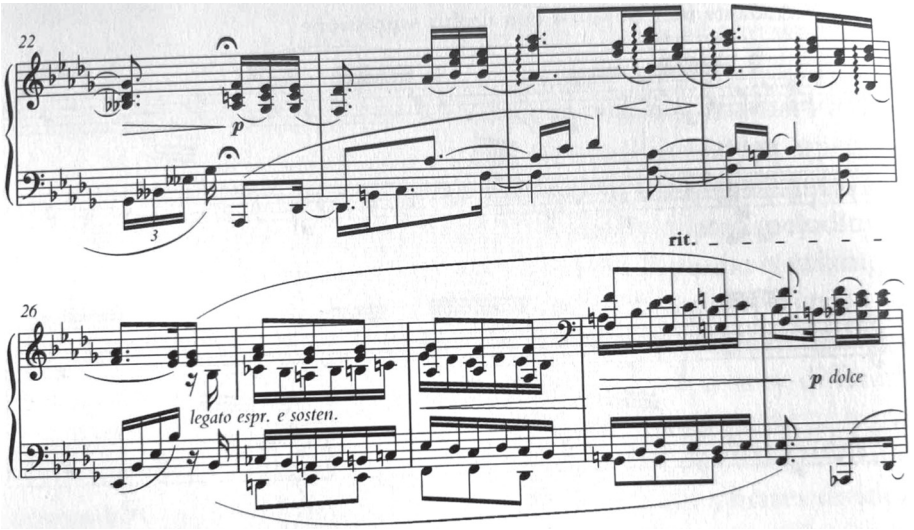

Fig. 6. J. Brahms, Intermezzo in B flat minor op. 117, theme B

Jenefer Robinson's interpretation of this Intermezzo has a few advantages both from the point of view of musicology and interpretation practice. The following fragment of the author's comment concerns cognitive processes present in sound structures:

"The Intermezzo is able to express cognitively complex emotions. The passionately striving A aspect of the persona is influenced by the at least apparently calmer B aspect, so that we can say that the character arrives at a partial resignation to his fate (...) Alternatively, I suggested we can hear the piece as despairing, as the character realizes that he will never be free of striving and yearning. Both these interpretations ascribe complex emotional states to the persona in the music".[20]

It seems, therefore, that Levinson's intuition is perfectly connected with Robinson's concept.

Although some elements have been added to Levinson's distinction (embodied vocal and symphonic thinking) in the paper, the author totally agrees with his concept of embodied thinking as a manifestation of a mental process attributed to music.

Moving on to the second type of musical thought, implied thinking that concerns music is the thinking that we ascribe to the composer. It has quite a definite object, namely the evolving composition itself.

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20 Jenefer Robinson, *Deeper than Reason. Emotion and its Role in Literature, Music, and Art*, Clarendon Press, Oxford 2005, p. 345.

According to Levinson, "we might even go so far as to say, as Wittgenstein would urge us to do, that we directly hear the composer's thought in the musical process. For we are confronted with compositional choices at every turn that we cannot but regard as manifestations of mind. (...) Examples of the second kind of thinking would be the assessment we infer Bach must have made in devising a fugue theme combinable with itself in counterpoint, or the judgment we suppose Mozart to have exercised, in composing a piano sonata, in designing a second theme whose character would contrast suitably with that of the first theme, or the vision we understand Beethoven to have displayed in opting for a C-sharp rather than a C-natural in the fourth bar of the opening theme of the "Eroica" Symphony, setting up a tension exploited significantly later in the movement".[21]

Here again, Levinson invites the reader not to a polemic, but to develop his concept.

Embodied thinking opens vast possibilities of grasping stylistic idioms or characteristic signs, which makes it possible for us never to confuse Chopin's thinking (e.g., when he treats harmony in a special way, not to mention tempo rubato) with someone else's cantilena. A good example of a manifestation of a composer's mind could be the ostinato figure that appears in Schubert's pieces, for instance in Andante sostenuto, the slow movement from his last Piano Sonata in B flat major.

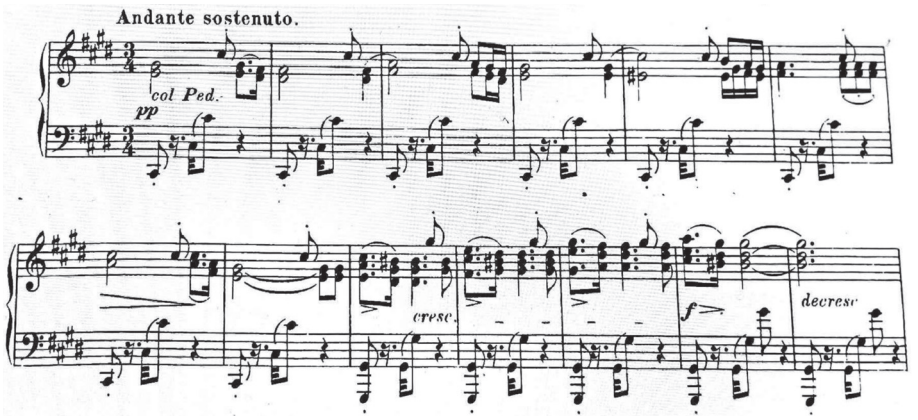

Fig. 7. F. Schubert, Piano Sonata in B flat major, Andante sostenuto, ostinato figure

21 J. Levinson, *Musical Thinking*, op. cit., p. 63.

Schubert's ostinato is conducive to contemplative listening, stops time and becomes – in a broader perspective – a characteristic feature of Schubert's style. Therefore, the author would suggest that implied thinking in Levinson's typology could be developed towards the study of stylistic idioms. Nevertheless, some doubts surface here.

There are situations in which embodied thinking is difficult to clearly separate from implied thinking, such as in the initial phase of Chopin's Polonaise-Fantasy, Op. 61, which can be described as "laborious search for a path to a goal". But who is looking for this path? Who is the thinking subject here – Chopin himself, or a musical structure?

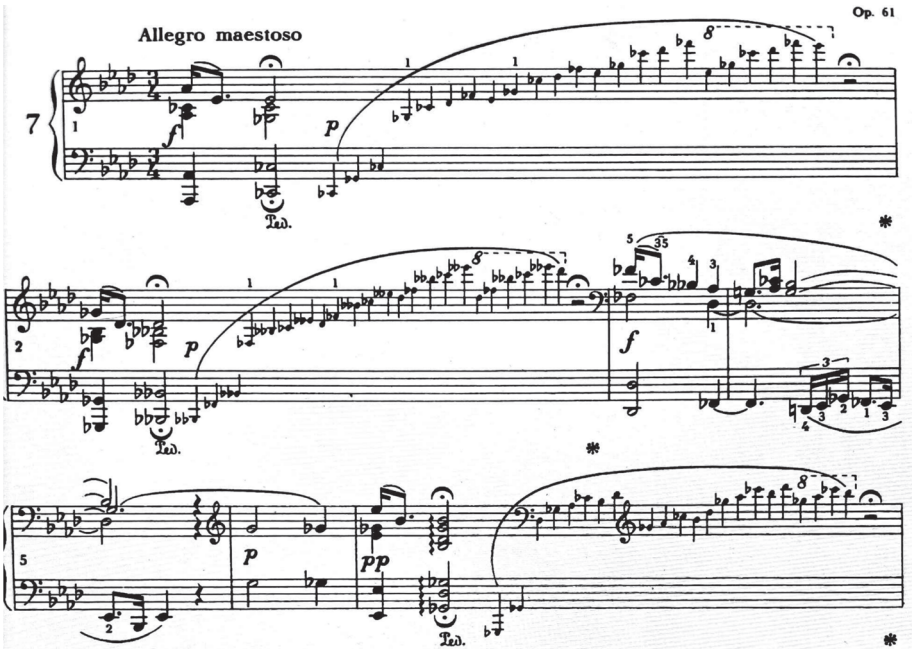

Fig. 8. F. Chopin, Polonaise-Fantaisie op. 61

Apart from the two already described types of thinking (embodied and implied), Levinson proposes a third one, which a less benevolent reader might find redundant. Levinson calls it "inherent musical thinking" and explains that it may reside in the mere succession from chord to chord, motive to motive, or phrase to phrase at every point in any intelligible piece of music.[22]

22 Ibidem, p. 64.

Adding the third type of musical thinking might be questioned. In the author's opinion, it perfectly reflects the idea of musical formalism. It might be a sufficient supplement for followers of formalism, which can replace both embodied and implied thinking. A formalist could say that it is a pure musical structure that triggers another pure musical structure. Music does not imitate gestures, questions, answers, etc. It works solely through the laws of its own tension and relaxation.

Another solution may be suggested here, however. It is possible that musical thinking is almost always the result of conceptual blending and that this blending characterizes both the composer's work and the attitude of the performing artist, as well as the experiencing subject – because it concerns thinking in general. It is difficult to say when memories join our wordless pursuit of purely instrumental music, bringing up together images, tastes, smells, and concepts. Even focusing on a mathematical proof does not assume operating in the world of abstraction but may assume using metaphors. Therefore, it is worth being aware of the fusion of different modes of thinking during one aesthetic experience or cognitive task.

However, this does not change the fact that the distinctions introduced by Levinson show, as if enlarged, separated possibilities of analysing musical thought, which is undoubtedly beneficial for understanding the very nature of musical experience.

Further in his essay, Levinson proposes a typology of mental activities that characterize music. Although he sees moments of intertwining of various activities in considerations of various types of mental activity related to music (following, determining, generating, interpreting music), he calls them all productive (in contrast to "following music").

"Now, on the one hand, these activities of determining, interpreting, and generating music might all be classed as *productive*, whereas that of following music might by contrast be classed as *receptive*, though that should not make one lose sight of the anticipatory and constructive element in the activity of following music by ear. On the other hand, the activities classed as productive in a sense also involve actions of following: the composer follows one measure with another as he composes, the performer follows his reading of one phrase with his reading of the next, the improviser follows what he has just played by playing something else. But those sorts of following are manifestly not the same as that involved in listening. In the one case what is central is the tracking of what already exists, whereas in the other case what is central is a bringing into being at each step".[23]

[23] Ibidem, p. 66.

Can one agree that following music is receptive and passive? Is the listener indeed receptive when following music?

To make Levinson's typology less obvious, let us begin with testimonies of musicians listening to recordings. Both come from the essay of the philosopher K. M. Higgins:

> "A pianist complained to me that she could not relax while recordings of piano music were playing in her presence. Having devoted years to mastering the piano and frequently having listened to recordings of skilful performers for the details of their articulation, she could no longer listen without focusing on technique. Hearing piano music, she felt as though she should be working on it".[24]

A few lines later, the author herself makes a personal confession:

> "When I hear a recording of a piano work that I have at one time performed, my attention becomes riveted. I have difficulty attending to conversation. This is so even if the volume is low, and music is functioning as background music (not an uncommon situation in certain restaurants)".[25]

So far, we have relied on musicians' personal confessions. Let us see what the objective research method tells us. Today, the claim about the receptive nature of listening to music cannot be sustained also due to neuroimaging research. If the listener is a musician, their motor cortex is active even when they are not playing – and this can be observed thanks to functional magnetic resonance imaging.[26]

Coda

Coming slowly to the end of the paper, the author would like to formulate a few more critical statements about the concept of musical thinking. The black-and-white division (receptive or productive, passive or active, etc.) is therefore

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24 K. M. Higgins, *Musical Idiosyncrasy and Perspectival Listening* in: J. Robinson, ed. *Music and Meaning*, Cornell University Press, Ithaca and London 1997, p. 94.

25 Ibid.

26 See S. Koelsch, *Brain and Music*, Wiley-Blackwell, Oxford 2013 Kindle, loc.2456, where the author writes about premotor processes evoked by music perception and cites research conducted by such researchers as Rizzolatti and Craighero, 2004 (premotor functions related to action planning) Haueisen and Knosche 2001(pianists listening to piano pieces) or Callan *et al*, 2006 (non-musicians listening to songs).

not quite adequate when empirical research on the brain can tell us more about its activity. For instance, knowledge about neural networks and brain plasticity seriously weakens the binary divisions into the right and left hemispheres of the brain.

The idea of tension between the right and left hemispheres, however, shapes many books and articles. More precisely, the relation between music and language, respectively, is still surprisingly central to humanistic reflection.

The following is one of the pieces of evidence, also from the works of Jerrold Levinson. Reflecting on the special impact that jazz pieces in which wellcomposed music is accompanied by a sophisticated poetic text have on the listener, he states:

"Perhaps the special satisfaction derived from song is partly rooted in some systemic awareness of the two halves of one's brain being singularly united in the comprehension of what one is hearing, on the assumption of the right hemisphere as the main locus of musical processing and the left hemisphere as the main locus of verbal processing".[27]

Humanists are still easily seduced by the study of the connection between divided neurological functions. This path, however, requires critical reflection and interdisciplinary cooperation, as well as keeping up to date with brain science.

Here is one of the theses that herald a paradigm shift in our thinking about the brain. According to a world-famous professor of neurosurgery, Hugues Duffau, localizationism (which states that each region of the brain is dedicated to a particular type of activity) does not exist in the central nervous system; this is only a dogma.[28] In the last two decades, research has continued to describe "plastic" functional reorganization of the brain. In short, under certain circumstances, the brain is capable of adaptation if damaged. What does it mean for us and for our reflection on musical thinking? Music perception and interpretation – however unique it may be – is a hierarchical model involving the whole brain and, as such, can be treated by researchers as a very complex model of thinking.

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27 J. Levinson, *Musical Concerns. Essays in Philosophy of Music*, Oxford University Press 2015, p. 130.

28 Hugues Duffau is the chairperson of neurosurgery at the Montpellier University Medical Center in France. He also has a PhD degree in clinical neuroscience and is a highly regarded expert in the surgical management of slow growing (lower grade) brain tumours using comprehensive cognitive mapping during surgery. Duffau has spent two decades treating patients assisted with complex brain mapping to gather data and publish research. He is also the author of the book *L'Erreur de Broca: Exploration d'un cerveauéveillé*, Pocket, Paris 2017, in which he explains a breakthrough in the treatment of low-grade gliomas and at the same time presents the clinical benefits of intraoperative monitoring of higher brain functions.

Therefore, it is a fascinating puzzle for philosophers, musicologists, and artists. However, it cannot be easily solved. Certainly, we should not see this issue in sharp opposition to language. Ultimately, it is still not known whether the processing of music and language involves common neural networks or not. Numerous studies related to the mapping of higher brain functions are needed to solve this mystery. Thanks to them, perhaps, we will soon be able to create a map of the musical connectome. Finally, let us be clear: philosophical speculation is not enough here. The hope of discovering a specific musical connectome as a network of brain connections conditioning musical thinking lies in interdisciplinary cooperation.

BIBLIOGRAPHY

Abbate Carolyn, *Music – Drastic or Gnostic?* "Critical Inquiry", 30/3 2004, pp. 505-536.

Berger Karol, *A Theory of Art*, Oxford University Press, 2002.

Duffau Hugues, *L'Erreur de Broca: Exploration d'un cerveau éveillé*, Pocket, Paris 2017.

Higgins Kathleen M., *The Music between Us. Is Music a Universal Language?* The University of Chicago Press, Chicago 2012.

Higgins Kathleen M., *Musical Idiosyncrasy and Perspectival Listening* in: J. Robinson, ed. *Music and Meaning*, Cornell University Press, Ithaca and London 1997, pp. 83-102.

Koelsch Stefan, *Brain and Music Wiley-Blackwell*, Oxford 2013.

Levinson Jerrold, *Musical Concerns. Essays in Philosophy of Music*, Oxford University Press 2015.

Levinson Jerrold, *Musical Thinking*, "Midwest Studies in Philosophy", 27 (2003), pp. 59-68.

Levitin Daniel J., *This is your Brain on Music: Understanding a Human Obsession*, Penguin-

-London, 2019.

Quignard Pascal, *Boutès*, Galilée, Paris 2008.

Robinson Jenefer, *Deeper than Reason. Emotion and its Role in Literature, Music, and Art*, Clarendon Press, Oxford 2005.

Ruggieri Vezzio, *Esperienza estetica: fondamenti psicofisiologici per un'educatione estetica*, Armando Editore, Roma 1997.

Steiner George, *Real Presences*, London Faber & Faber 1989.

NOWE SPOJRZENIE NA MYŚLENIE MUZYCZNE: PODEJŚCIE INTERDYSCYPLINARNE (streszczenie)

Abstrakt: Idąc tropem wytyczonym przez Jerrolda Levinsona w artykule *Musical Thinking*, autorka skupia się na muzyce czysto instrumentalnej jako tej, która doskonale realizuje ideał myśli bezsłownej kompozytora, wykonawcy i słuchacza – uwzględniając nie tylko procesy intelektualne, ale także cielesną i przedrefleksyjną odpowiedź na bodźce muzyczne. Filozoficzne rozważania na temat modusów myślenia muzycznego zostały przedstawione w artykule w perspektywie interdyscyplinarnej. Dzięki temu niektóre intuicje zakorzenione w naukach humanistycznych poddawane są krytyce. Autorka oprócz muzykologii i filozofii sięga do takich dziedzin jak neuroestetyka i neurobiologia.

Słowa kluczowe: muzyka, wykonanie, myśl, neuroestetyka, mózg

Anna Chęćka holds a post-doctoral degree in the humanities (philosophy). She is an associate professor at the Institute of Philosophy, University of Gdańsk, and head of the Chair of Aesthetics and Philosophy of Culture. She completed piano studies at the Academy of Music in Gdańsk and studied with Bernard Ringeissen in Paris on a French government scholarship. In 2005 she completed her PhD studies in philosophy (dissertation *On criticizing music. Metacritical aspects of musical performance's evaluations*). In 2014, she got her habilitation in philosophy. She has published four books: *Dysonanse krytyki. O ocenie wykonania utworu muzycznego*, [*Critical Dissonances. Evaluating Performances of Musical Work*] Gdańsk 2008, *Ucho i umysł. Szkice o doświadczaniu muzyki* [*Ear and Mind. Sketches of Musical Experience*] Gdańsk 2012, *A jak Apollo. Biografia Alfreda Cortota* [*A for Apollo: A Biography of Alfred Cortot*] Warszawa 2019, and *Słuch metafizyczny* [*Ear for metaphysics*] Warszawa 2020, translated into English and published by the Chopin Institute in 2021 as *Metaphysical Hearing* (Warsaw, 2021). In 2021 she translated Julian Johnson's *Out of Time. Music and the Making of Modernity* for the PWM publishing house. Anna combines humanistic study with a view inspired by neuroaesthetics and neurobiology. In 2021 she co-edited a special neuroaesthetic issue of the Polish Journal of Art and Philosophy (*Sztuka i Filozofia*, 56/2020) and published several papers on music and the brain in collaboration with her Neurobiology Study Group.