

Published in: *Journal of the British Society for Phenomenology*
 36(1), January 2005
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 Pages 4-22
 doi: [10.1080/00071773.2005.11007461](https://doi.org/10.1080/00071773.2005.11007461)

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Quasi-hearing in Husserl, Levinson, and Gordon

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Keywords: *Husserl, Zeithof (time halo), intentionality, Levinson, quasi-hearing, Gordon, audiation, time consciousness, temporal integration of acoustic information, musical understanding*

1. Husserl's Retentions, Primal Impressions and Protensions

According to Husserl the perception of music goes along with intentions we form and which - through our perception - either get fulfilled or frustrated as we go along listening:

When, e.g., a familiar melody starts, it rises definite intentions which during the gradual unfolding of the melody find their fulfilment. Something similar happens even if the melody is unknown to us. The regularities governing melody as such bring about intensions which, although they lack a full objective determination, find or can find their fulfilments.¹

Husserl's main idea is that perceiving a melody cannot mean merely perceiving single tones instantaneously one by one. As opposed to Brentano, for Husserl the perceived present has some duration, i.e. there is always an extended window in time we perceive 'at any moment'. This window in time he calls 'Zeithof' ('time aureole' or 'time halo').² His main argument for the conception of a 'Zeithof' is that otherwise it is hard to

1 My translation of 'Wenn z.B. der Anfang einer bekannten Melodie ertönt, so erregt er bestimmte Intentionen, die in der schrittweisen Ausgestaltung der Melodie ihre Erfüllung finden. Ähnliches findet auch dann statt, wenn uns die Melodie fremd ist. Die im Melodischen obwaltenden Gesetzmäßigkeiten bedingen Intentionen, die zwar der vollen gegenständlichen Bestimmtheit ermangeln, aber doch auch Erfüllungen finden oder finden können' (Husserl, 1968, vol. II/2, p. 39).

2 See, for instance, Husserl (1985), p. 33.

explain how we could perceive something like a melody which is essentially a phenomenon extended in time. If our perception would be bound to an infinitesimal point in time, how could we track any melody? Of course, the most obvious reply would be that we can do so because we use our memory ('Wiedererinnerung'), i.e. because of acts of conscious retrieval. Indeed such an account was favoured by Brentano who talked of phantasy representations ('Phantasievorstellungen'). According to him we would hear the actually given tone, while the ones played before are somehow consciously retrieved or imagined, and then all these tones get related or compared. This comparison then would allow me to judge whether, say, 'Blue Train' by John Coltrane is played or not.

This reply, however, is rejected by Husserl.³ First, because it seems questionable whether such a cognitively rather high process like a conscious retrieval is always involved when I recognise a melody. For I can distinguish 'Blue Train' from other melodies not only while carefully listening and memorising but also, as it were, in passing when my stereo is playing in the background and I am doing something else.

Second, as Husserl maintains, the approach in terms of memory leads to untenable results if applied to single tones of long duration. For 'in striking I hear the tone as now, but during the ongoing sound it always has a new "now", and the given preceding one turns into a "past"'⁴, and this would mean that while hearing a *single* tone I would always need some memory processes to make sure that I perceive it as a single tone and not as a series of separated instantaneously perceived tones. Moreover in that case the contents of my primal impression and my memory process are the same, they all represent parts of the same tone. Thus, to be distinguishable from one another they must have different temporal characters, i.e. the memory content other than the primal impression must have the temporal character 'past'. For otherwise they would, so to speak, 'melt into the primal impression'. (The analogue for the perception of a melody with brief tones would be that at any instance the last few tones heard would melt into a 'chord' or rather a tonal cluster). However, an appeal to these different temporal characters will not do, either, according to Husserl who then puts forward a critique largely similar to McTaggart's famous argument on the unreality of tense.⁵

Coming back to Husserl's own approach, what he assumes is something cognitively more primitive than a memory process. With respect to his own approach he therefore speaks of 'presentative' processes whereas acts like a conscious retrieval he christens 'representative'.⁶ By the same token, Husserl claims those presentative processes to be independent of attention; this means that other than memory processes, where paying more or less attention would change the retrieved contents, presentative processes and contents stay the same.⁷

3 Husserl (2000), p. 19.

4 My translation of 'beim Anschlagen höre ich ihn als jetzt, beim Forttönen hat er aber ein immer neues Jetzt, und das jeweilig vorangehende verwandelt sich in ein Vergangenes' (Husserl, 2000, p. 19).

5 For Husserl's critique on Brentano see Husserl (2000), pp. 8-16. For a detailed discussion of McTaggart's argument see Mellor (1998), ch. 7.

6 Husserl (2000), p. 35.

7 Husserl (2000), p. 92.

Hence, for Husserl the act of perception is itself a continuous process at the centre of which there are primal impressions ('Urimpressionen') coming up each moment and being the 'source' ('Quellpunkt') of a continuous manifold, namely the 'Zeithof'. As soon as a further primal impression arises the former gets into a state of 'fresh memory' ('frische Erinnerung'). 'Fresh' here emphasizes the presentiveness, i.e. the fact that this state is not to be confused with ordinary and representative 'memory' ('Wiedererinnerung').⁸ To illustrate this Husserl talks about the 'shades' ('Abschattungen') or 'tail' ('Schwanz') or 'tail of a comet' ('Kometenschweif') of a primal impression. However, his technical term for these 'fresh memories' or 'shades' is 'retentions'.

Husserl's account of a 'Zeithof', however, is not merely concerned with the past. In accordance with his talk about intentions and fulfilment we came across earlier, retentions have an analogue directed forward in time. With respect to these so to speak 'immediate anticipations' Husserl also talks about the 'horizon' ('Horizont') of a primal impression or about 'protentions'.⁹ Protentions like retentions are supposed to be presentative. Hence, they must not be identified with 'expectations'. For the latter - similar to conscious retrievals - are normally taken to be cognitively high level processes.

Thus, in his terminology 'every perception has a retentional and protentional halo [...] Every sensation has its intentions which from a given "now" lead to a new "now": the intention towards the future, and on the other hand the intention towards the past.'¹⁰

Applied to the perception of a melody the account works as follows:

Thus, the perception of a melody is indeed an act extending in time and constantly unfolding [...] and this act has a new point of 'now' over and over again, and within this 'now' something becomes present (tone perceived now) while at the same time a 'just past' and a 'even more past' is present; and perhaps something is even present as 'future'.¹¹

Let me play this through with the help of an example: consider the case where a melody of (very brief) tones is given.¹² Thus, let us take 'Blue Train', the theme starting off with E-G-B-G-A. At time t_1 I perceive the tone E and it is given to me as a primal impression. At t_2 , while the first G is given to me as a primal impression, the E is still

8 Husserl (2000), pp. 29-30.

9 Husserl (2000), pp. 20, 24, 25, 43 & 101.

10 My translation of 'Jede Wahrnehmung hat ihren retentionalen und protentionalen Hof. [...] Jede Empfindung hat ihre Intentionen, die vom Jetzt auf ein neues Jetzt usw. führen: die Intention auf Zukunft, und andererseits die Intention auf Vergangenheit' (Husserl, 2000, p. 91).

11 My translation of 'Also tatsächlich ist das Wahrnehmen einer Melodie ein zeitlich ausgebreiteter, sich allmählich und stetig entfaltender Akt, [...] und dieser Akt hat einen immer neu und neuen Punkt des „Jetzt“, und in diesem Jetzt wird etwas als Jetzt gegenständlich (jetzt gehörter Ton), während zugleich ein Soeben-vergangen, und wieder ein Noch-weiter-vergangen in einigen Gliedern gegenständlich ist; und vielleicht auch ein oder das andere gegenständlich als "künftig"' (Husserl, 1985, pp. 33-34).

12 This also works for the perception of a single tone of long duration and its various phases; see Husserl (2000), pp. 55-57 & 73.

present to me as a retention. Hence, within my fresh memory I have a kind of ‘shade of E’ - or ‘[E]’ for short. Then at t_3 , my perceptual state is described by the primal impression of B, the retention of G - now being a [G] - and the further retention of E - now given to me as a [[E]]. Something similar goes for the immediate anticipations, i.e. protensions: at t_3 , while my primal impression is that of B, I already expect another G to come next. Thus, G is given to me as]G[.¹³ It is only this continuous flow of retentions, primal impressions and protensions together that renders the perception of a *melody* (as opposed to merely perceiving unconnected time slices of tones) possible.¹⁴

As far as the temporal boundary of the ‘Zeithof’ is concerned, Husserl assumes that retentions get weaker and weaker when going back in time and that at some point they become imperceptible. Going along with that he assumes that the ‘Zeithof’ always has the same extension.¹⁵ Thus, for every retention that passing the boundary to imperceptibility there is a protension newly arising from what has been imperceptible before. However, the exact magnitude - in terms of seconds, hours or years - of the ‘Zeithof’ is maintained to be psychologically dependent. For God Husserl assumes the ‘Zeithof’ to be infinite, i.e. God retends and protends everything that has ever happened and ever will be.¹⁶ Although Husserl does not really comment on the extension of the human ‘Zeithof’ one can compare it to the extension of the so called ‘specious present’ known from psychology.¹⁷ However, here it might be enough to emphasise that we are interested in the extension of the ‘Zeithof’ for the concrete case of normal-hearing human adults and not in the perception of the ‘Zeithof’ *as such*. Therefore it is psychology and not phenomenology that can tell us about the time constant involved. Indeed the specious present and thus the human ‘Zeithof’ is found to be on the order of ten seconds.

Admittedly, others have argued that the extension of the ‘Zeithof’ is much larger and that indeed it encompasses ‘whole symphonies and even sounds of an entire musical epoch as when we hear a melody of Brahms opening onto the whole horizon of Romantic music and beyond.’¹⁸ However, the only Husserl quotes brought forward in favour of such a view are those where he talks about the perception of ‘whole melodies’. And surely we would not expect melodies to be on the order of an hour or a decade, but on the order of seconds or perhaps minutes - i.e. exactly about the order of the specious present. Furthermore, the fact that *in principle* Husserl allows for an

13 The convention with respect to the square brackets used here is to be understood as follows: every step forward in time is symbolised by bracketing; and left brackets to the immediate left of right brackets cancel out. Thus, the protension]]A[[gets a []]A[[] =]A[next and then turns into []A[] = A, i.e. into a primal impression.

14 Indeed this is enough of a reconstruction of Husserl’s theory for our purposes. The full picture, however, would be a little more complex. For to reconstruct our sense of the passage of time, it is not enough that the retention [A] I am having at the time t_2 is related to the primal impression A I had at t_1 . Indeed [A] has to encompass all the retentions and protensions I had at t_1 as well – see Miller (1984), ch. 7.

15 See Husserl (2000), p. 25.

16 Husserl (2000), ‘p. 25.

17 Much has been written on this issue. Just as an example, see Miller (1984), ch. 8.

18 McAdoo (1997), p. 66.

infinitely extended ‘Zeithof’ has also been emphasised here. However, such a ‘Zeithof’ is meant to be actual in God and not in human beings. Additionally, the idea of a ‘long-duration Zeithof’ heavily draws upon ‘parallels’ between aural and visual perception.¹⁹ However, these are very questionable indeed. For we know from empirical research that there are huge differences between the auditory and the visual modality already on the most basic levels of sensation and perception.²⁰ Thus, altogether it is sensible to stay with the claim that the extension of the human specious present and the human ‘Zeithof’ are the same.

At this point a few comments should be added for those more familiar with Husserl’s work. Roughly from 1905/07 onwards - having to do with his newly developed method of transcendental reduction - Husserl deals with an ‘absolute consciousness’ (‘absolutes Bewußtsein’) which is ‘understood metaphorically as a flow which is not *in* time, but which is the constitutive source of temporality.’²¹ Again this is closely linked to his notions of retentions and protensions. In this paper, however, I am purely concerned with the Husserl of the *Logical Investigations* and of the 1905 lectures on inner time consciousness and various other texts on the same topic which originated no later than 1905 and are thus independent of the notion of an absolute consciousness. Furthermore, all considered passages are taken to be independent of Husserl’s A-theory account of the flow of time.

So far for an introduction to the phenomenology of melody perception. Let us now turn to what contemporary analytic philosophy has to say on the same issue.

2. Levinson’s Quasi-Hearing

One of the most eminent contributors to the flourishing field of analytic philosophy of music undoubtedly is Jerrold Levinson. His 1997 book *Music in the Moment* to a large extent is a polemic against the tenet of music theory that tracing the architectonic structure of a musical work is necessary to ensure basic musical understanding. At the heart of Levinson’s work stands a concept closely related to Husserl’s notion of retentions, primal impression and protension; namely ‘quasi-hearing’. At this point I am not interested in whether quasi-hearing is the one and only process needed for basic musical understanding. This is an issue we will come back to in section 5. For the moment being I shall investigate the question of how quasi-hearing relates to Husserl’s account on the perception of music.

Levinson defines ‘quasi-hearing’ as follows:

The experience of quasi-hearing can be usefully thought of as having three components or aspects. The first would be the *actual hearing* of an instant of music, the second would be the *vivid remembering* of a stretch of music just heard, and the third would be the *vivid anticipation* of a stretch to come.

19 McAdoo (1997), *passim*.

20 See standard textbooks of neurophysiology (sensory level) and psychology (level of perception) like Kandel (2000) and Fraisse (1957).

21 Mohanty (1995), p. 60.

Vivid memory and vivid anticipation might be thought to provide tonal images that exist for listening consciousness simultaneously, yet somehow noninterferingly, with the current sound impression, in something like the way the peripheral objects of vision are present to the eye, though obliquely, at the same time as the object that is in central focus.²²

The parallels to Husserl's account should be obvious. Additionally, they even get acknowledged by Levinson who maintains in a footnote that his approach and Husserl's 'seem roughly isomorphic'.²³ The mapping given by Levinson is that between retention and vivid memory, protension and vivid anticipation, the Now and a quasi-hearable span surrounding a given instant, and between (listening) horizon and 'an extent of music beyond what is quasi-heard and providing a sort of context to that which is'.²⁴

In the same footnote Levinson emphasises that he came across Husserl's account only after he had started to set up his own scheme. Accordingly, the given list of mappings gets mentioned in passing but is neither elaborated on nor is it meant to be complete. Indeed there are several further parallels in the terminology of Levinson and Husserl. First, one might add that 'the window of quasi-hearing' in Levinson would be what Husserl called 'Zeithof'. Second, Levinson baptises his approach 'concatenationism' ('catena' being Latin and meaning 'chain') 'because it expresses the idea that music essentially presents itself for understanding as a chain of overlapping and mutually involving parts of small extent'.²⁵ Husserl also uses a chain metaphor and talks of 'Verkettungen' ('con-catenations') at various places when introducing retentions and protensions.²⁶ Third, there is indeed a passage where Husserl uses, as a noun, the term 'quasi-hearing' ('Gleichsam-Hören') and speaks of retentions as that which is 'quasi-heard' ('das Gleichsam-Gehörte').²⁷ At some other point Husserl mentions the quality that primal impressions get from protensions, i.e. some kind of presentative expectation, and calls it a 'quasi-quality'.²⁸ Fourth, on several occasions Levinson refers to Leonard Meyer as an influential theorist for his own account.²⁹ In his *Emotion and Meaning in Music* Meyer himself, however, sounds very much like Husserl and even uses the latter's notions of 'fulfilment' and 'frustration'. Levinson presents Meyer's account as follows:

Later events then satisfy or frustrate, in varying degrees, the expectations generated by the perception of earlier events. The experience of these later events is then affectively colored in virtue of what has been apprehended

22 Levinson (1997), p. 16. As already emphasised, the comparison between the auditory and the visual system should at most be understood as a metaphor and not as a literal one.

23 Levinson (1997), p. 17, fn. 7.

24 Levinson (1997), p. 17, fn. 7.

25 Levinson (1997), p. 13.

26 See, e.g., Husserl (1985), pp. 6 & 16.

27 See Husserl (2000), p. 30.

28 See Husserl (1985), p. 5.

29 See Levinson (1997), pp. 48 & 87. To be a little more accurate, Levinson refers to the English psychologist and musician Edmund Gurney as the father of his approach and then takes Meyer to stand in a Gurneyan tradition.

before. And every arriving event becomes a generator of expectations, which may or may not be fulfilled, for events still later in the course of the piece.³⁰

Having shown all these parallels, the interesting question becomes whether the ideas brought forward by Levinson are sympathetic to, or critical of Husserl's approach. For example, we lacked an explicit statement on the temporal extension of the 'Zeithof' in Husserl and were only able to reconstruct it using psychological insights. Levinson on the other hand has to say something on the interval we perceive via quasi-hearing; something which indeed fits very well with what we have said about the specious present:

The span that one can quasi-hear [...] is to be measured in seconds or possibly minutes, not in hours or quarter-hours. Typically it extends no further than a single long melody.³¹

Finally, since according to Levinson quasi-hearing is all that is needed for basic musical understanding, the reader might wonder whether quasi-hearing is not a cognitively high level process as opposed to Husserl's retentions and protensions. On this Levinson says the following:

What I maintain instead is that much in the aural comprehension of extended pieces of music that seems to implicate explicit architectonic awareness can be explained by appeal to tacit, unconscious correlation of present passages or bits with earlier ones, rather than explicit, conscious grasp of relationships of a broad-span sort.³²

According to this, quasi-hearing - like protensions and retentions - has nothing to do with conscious retrieval, i.e. it is a concept similar to '*fresh* memory' and 'immediate anticipation' as opposed to 'memory' or 'expectancy.' However, with respect to its dependence on attention Levinson comes to a different conclusion than Husserl:

Quasi-hearing can be conceived as a process in which conscious attention is carried to a small stretch of music surrounding the present moment [...]. None of that, however, entails that one is consciously *aware* of quasi-hearing [...] while one is doing so [...].³³

Thus, in contrast to retentions and protentions, quasi-hearing is supposed to be dependent upon attention, i.e. altogether is a kind of 'attentive listening in the moment'.³⁴

30 Levinson (1997), pp. 38-39.

31 Levinson (1997), p. 17.

32 Levinson (1997), p. ix.

33 Levinson (1997), p. 18.

34 See Levinson (1997), p. xi.

3. Gordon's Audiation

Edwin Gordon is perhaps the most discussed author within music learning theory. Apart from concrete schemes for the teaching of music he has to some extent given a theoretical account on the perception of music, too. At the core of his account stands 'audiation', which supposedly is to music what thought is to language or, to put it in his own words, 'sound becomes music only through audiation, when, as with language, you translate the sounds in your mind to give them meaning.'³⁵

To see why a comparison between Gordon's audiation and Levinson's quasi-hearing is legitimate let me give the following quote taken from Levinson:

The width of the window of quasi-hearing, so conceived, is thus at any point a direct function of the reach of vivid memory and vivid anticipation at that point, which is a matter of the extent of virtual imaging backwards and forwards that the musical material and one's familiarity with it allow.³⁶

About this passage Gordon says that 'this is part of what I mean by audiation'.³⁷ Further evidence for the similarity between audiation and quasi-hearing is, for instance, given by Gordon's claim that 'audiation is the understanding of the flow of music'.³⁸ Remember here that Levinson claimed quasi-hearing to be all that is needed for basic musical understanding.

A different description of audiation goes like this:

Audiation takes place when we assimilate *and comprehend* in our minds music that we have just heard performed or have heard performed sometime in the past. We also audiate when we assimilate *and comprehend* in our minds music that we may or may not have heard but are reading in notation or are composing or improvising. Aural perception takes place when we are actually hearing sound the moment it is being produced. We audiate actual sound only after we have aurally perceived it.³⁹

This seems to imply that audiation takes place on a cognitively higher level than we assumed for quasi-hearing as well as for retentions, primal impressions and protentions. For 'comprehend' (and the word 'meaning' used by Gordon in the first quote from above) sounds like a complex cognitive process. Also the temporal order between 'aural perception' and 'audiation' mentioned in the last sentence seemingly implies some processes of conscious retrieval which have been explicitly opposed by Husserl and Levinson. We will come back to this shortly when talking about the AMMA test and later on in sections 4 & 5.

35 Gordon (1997), p. 5. The comparison between music and language will be picked up again in section 5.

36 Levinson, *Music in the Moment*, p. 16.

37 Personal communication, October 2001.

38 Gordon (1997), p. 8.

39 Gordon (1997), p. 4 (accentuation in the original).

Up to now I have shown commonalities between Husserl and Levinson as well as between Levinson and Gordon; and indeed the ‘missing link’ between Gordon and Husserl is also easy to provide. Although Husserl himself is not concerned with Gordon’s main interest, which is music learning theory, there are papers claiming to stand in a Husserlian tradition that deal with this topic. Thus, we should have a look at one of those. The main results of such an ‘applied phenomenology of music’ as presented by the music educationist Douglas Bartholomew are these:

Formal music instruction often begins with single notes: pitch names, rhythm names, quarter notes, whole notes, pitch matching, and so on. These identification skills are important and are roughly comparable to alphabet skills in language learning. The comparison is revealing. The alphabet no more introduces the child to language than do these note identification strategies introduce students to music. [...]

A rich and valued musical life is what is required. It is this that will be the foundation of musical understanding. If we are to respond to meter, motive, motion, contrast, tonality, growth; if we are to learn a musical vocabulary, a vocabulary of textures, chords, scales, patterns, a vocabulary of terms we can use in the absence of music; if we are to be able to imagine the presence of sound when we look at notation; and if we are to value musical experience in the midst of instruction, then we will have to learn to respond to these parts in the musical whole. [...]

We need to cultivate teaching strategies that maintain and respect musical contexts. Solfege, Curwen/Kodaly handsigns, and rhythm syllables are strategies that can be used within a context. They articulate relationships in musical flow. They can be used to focus on particular relationships without the loss of context. [...]

Musical understanding is rooted in the felt awareness of musical contexts.⁴⁰

All the main ideas put forward here can also be found in the works of Gordon. The latter makes use of exactly the same comparison of classic music instruction to teaching the alphabet or syllables instead of teaching words - as indeed it should.⁴¹ Gordon, too, emphasizes the importance of a pattern vocabulary usable also in the absence of music.⁴² He also employs solfege and rhythm syllables at the core of this teaching, and he puts much emphasis on the learning of musical contexts as well.⁴³

40 Bartholomew (1991), pp. 188-190. Indeed there are several other works coming to similar conclusions. See, for example, Smith (1979), Clifton (1983), Bartholomew (1985), Lewin (1986), and Orlik (1994).

41 See Gordon (1997), p. 98, e.g.

42 Gordon (1997), pp. 203ff.

43 Gordon (1997), pp. 55ff. & 145, respectively.

Perhaps the most interesting feature of audiation is the fact that it is supposed to be *measurable*. Gordon designed a so called *Advanced Measures of Music Audiation* (AMMA) which is a recorded test of stabilised musical aptitude. Here thirty pairs of musical phrases are given and for each pair subjects are asked whether the two performances are the same, differ tonally or differ rhythmically. The evaluation of the AMMA test then gives a tonal as well as a rhythm score. Much research on the external validity of the AMMA test has been done; i.e. subjects' musical aptitudes have been assessed in many different ways (performance, examination marks etc.) and then compared to their AMMA scores, where always a high correlation was found.⁴⁴ Thus, the AMMA test really measures the subject's musical aptitude. In particular certain features of the test ensure that it is not a measure of musical *training*.⁴⁵ The latter would be distorted by the amount of practice in playing the piano etc., whilst the AMMA test measures the subject's musical *aptitude*, i.e. his or her general talent, which is assumed to be independent of practice and musical education.

The AMMA test is a psychometric discrimination test. However, the claim that this test measures audiation taken as the 'comprehension of music' or the 'understanding of the flow of music', seems a bit rash. First, it is unclear exactly what 'musical understanding' means and in how far it must perhaps be distinguished from 'understanding' with respect to language (we will come back to this in section 5). Second, even without knowing the exact meaning of 'musical understanding', we all agree that it should not be ascribed to computer software, I take it. However, some program which analysed and saved the first performance in each AMMA test pair and then compared it to the analysis of the second performance, would be easy to write; and it would pass the test without making any mistakes.

Thus, since we are not tempted to ascribe 'an excellent understanding of the flow of music' to some cheap software, we should be careful in maintaining the AMMA test to measure 'musical understanding' or 'comprehension' without any further qualification. However, according to its external validity the AMMA test, when performed by some person, obviously does evaluate her ability to audiate or her musical aptitude. Hence, rather than the test itself, it is this tension between 'audiation', 'musical understanding' and 'computer performance' that must be subject to further analysis. In section 5 I will provide such an analysis.

The fact that audiation is measured by a psychometric discrimination test is indeed good news for us. For it tightens up the connection between Gordon's account and those of Husserl and Levinson. Remember that the low cognitive level at which the 'Zeithof' and to some extent quasi-hearing are located first seemed to be different from the level at which audiation (the 'comprehension of music' or the 'understanding of the flow of music') was claimed to take place. However, as we have just seen, taking the AMMA test (i.e. the 'Advanced Measures of Music Audiation') as a basis, this

44 See Gordon (1997), pp. 111-115, for investigations on the test's validity and for further references.

45 See Gordon (1998), p. 111.

difference seems blurred. For audiation *as measured* also seems to occur on a cognitively more basic level.

However, before speculating any further about the cognitive level at which ‘musical understanding’ occurs, or to what extent our sound analysing software really ‘audiates’ or ‘quasi-hears’, we should turn to providing some evidence that the commonalities between Husserl’s, Levinson’s and Gordon’s approach are indeed conceptual and not merely terminological.

4. Common Theoretical Frameworks

The fact that Levinson, Gordon and Bartholomew entertain similar concepts is not very surprising. For the concepts of quasi-hearing, of audiation and of a ‘felt awareness of musical contexts’ are all meant to defeat one and the same opponent: the tenet of music theory that tracing the architectonic structure of a musical work is a precondition for musical understanding. Thus, they all have to make sure that at least basic musical understanding can do without tracing musical structures of long duration. On the other hand a simply ongoing instantaneous perception would not do, either. For some kind of - either conscious or unconscious - expectation and retrieval processes seems to be involved while listening to music. Thus, the ‘compromise’ between tracing architectonic structure on the one hand and separated moment-by-moment perceptions on the other is a concept of ‘small scale expectations and retrievals’. And this is what Levinson, Gordon and Bartholomew advocate.

Husserl’s line of reasoning on the other hand is not against claims of classic music theory but is meant to give a reconstruction of mental processes such as judging or remembering starting from elementary perceptual processes. His account on the perception of a melody is particularly meant as a criticism of Brentano’s view. As I briefly discussed in section 1, Husserl is suspicious of Brentano’s phantasy representations. According to Husserl such representational processes are too complex to be going on ‘in the background all the time’ and they lead to notorious trouble with respect to temporal characters. Thus, what Husserl is searching for is a theory which (1) can do without higher mental activities like phantasy representations and (2) which (seemingly) avoids the problem concerning temporal characters.

To cover (2), perception cannot be an instantaneous process but must involve some window in time. This together with claiming (1) leaves Husserl with his concepts of cognitively low-level retentions and protensions.

Thus, the reason why Gordon’s and Levinson’s concepts resemble Husserl’s is this: in both cases their opponents assume high-level mental processes at the core of their theories, namely the awareness of the architectonic structure of a piece of music and phantasy representations, respectively. In the case of Levinson, Gordon and Bartholomew as well as in the case of Husserl the aim is to provide an account which does without such mental acts. However, merely instantaneous processing is not sufficient, for no sensible account of melody perception and temporal awareness would follow. Therefore, they end up entertaining similar concepts.

Altogether this shows that Husserl's, Levinson's and Gordon's approach are not just terminologically similar but indeed do show *conceptual parallels*.

Moreover it becomes obvious, why Husserl - other than Levinson, Gordon and Bartholomew - is so eager to deal with purely attention-independent processes happening on a low cognitive level. This is because Husserl's retentions and protensions are the building blocks for his reconstruction of mental processes in general and attentional ones in particular. Having retentions and protensions is a precondition for cognitively higher processes to take place, but they do not belong to the latter class themselves. To give a brief idea of how retentions and protensions are prerequisites for higher mental processes an example might be helpful. To comprehend an utterance like 'The cup is empty' retentions and protensions are necessary. While I hear the word 'empty' I must have retentions of the primal impressions I had when 'the', 'cup' and 'is' was uttered etc. For otherwise I cannot get any temporal order into those four words. I would even fail to recognise the fact that they belong together as parts of a single utterance, let alone that I could pay any attention to the utterance. Thus, it is retentions and protensions that render 'understanding' and attention possible and hence - as already seen in section 2 - they cannot be attentional or cognitively high level phenomena themselves.

Levinson, Gordon and Bartholomew on the other hand employ their concepts for arguing against music theory. For their approaches are meant to be more elementary and more important than tracing the architectural structure of a piece of music, the cognitive level at which quasi-hearing or audiation takes place should not be 'too high'. However, since it is not central to their accounts, they are not engaged in the question whether quasi-hearing or audiation take place on a completely elementary cognitive level or whether they are fully independent of attention.

This can be seen explicitly from what has been said in section 3. There a theoretical gap between Gordon's written definition of 'audiation' and its empirical measure was found. For audiation is assumed to be the 'understanding of the flow of music', while it gets measured by a psychometric discriminatory test (AMMA test). As shown above, some simple computer program could perform this test without making any mistakes; but this would not lead us to claim that the program had musical understanding. In this paper's last section I shall address this issue as well as some others which are of recent interest in the analytic philosophy of music. Thereby it will be demonstrated that advantageous use can be made of the conceptual confluence in the thought of Husserl, Levinson and Gordon.

5. Applying the Conceptual Confluence

Let us start with the relation between 'audiation', 'musical understanding' and our cheap computer software. Here Husserl is of great help to resolve the supposed tension amongst the three.

On the one hand Husserl emphasised that retentions are '*fresh* memory' which means that they are presentations but not *re*-presentations, i.e. they have nothing to do

with processes of mental retrieval. On the other hand, Gordon's AMMA test was - among a lot of other things - checked against memory tests; i.e. it was demonstrated that no significant correlations between subjects' performance in the AMMA test and in standard memory tests was found. Thus, the AMMA test does not - at least in humans - measure high cognitive abilities concerning memory or retrieval, but rather presentative abilities having to do with the subject's 'Zeithof'. However, this is different from what the AMMA test does with respect to our computer program. For during the first performance of each test melody the program saves information on the sound pressure with a certain very high sampling rate. During the second performance it then compares this stored information with the presently incoming one. Thus, in case of the computer program, the AMMA test measures a memory process and nothing like the 'Zeithof'. Thanks to Husserl we therefore have good reason to maintain what first seemed the quadrature of the circle; namely that both (1) the AMMA test - when performed by humans - really measures the presentative 'Zeithof'-abilities and hence the ability to quasi-hear or audiate, and that (2) the computer software due to its 're-presentative memory strategy' lacks the ability to audiate - notwithstanding its high AMMA score.

For the remainder of this section I shall discuss some recent arguments on Levinson's *Music in the Moment*. For apart of its present intrinsic interest this enables us to see once more the philosophical relevance of the parallels drawn out in this paper. The conceptual confluence in the thought of Husserl, Levinson and Gordon will provide us with some elaborated and detailed answers, notably on questions concerning musical understanding.

In a recent symposium on Levinson's book Fred Maus has emphasised the individual differences to be found between 'quasi-hearers'.⁴⁶ The kind of difference Maus assumes is one of the extension of the 'Zeithof', i.e. of the length of the interval that can be quasi-heard. He argues for a vivid musical experience extending towards greater structures and intervals which is had by trained listeners as compared to non-musicians.

According to Levinson quasi-hearing is meant to account for 'the bulk of musical understanding tout court', but he also allows for higher levels of musical understanding.⁴⁷ Thus, in some sense Maus' comment, which is meant as a critique on Levinson, grasps at thin air. For Levinson is not opposed to there being musical experiences that extend towards greater structures or intervals, rather that *basic* musical understanding is due to what is quasi-heard and that the interval of quasi-hearing is rather limited. Remembering that the AMMA test measures the individual degree of the ability to audiate, i.e. to quasi-hear, Levinson's claim can now be empirically underpinned. For all AMMA test items are melodies enduring for about six to ten seconds. This means that the AMMA test, which according to its external validity really measures 'the bulk of musical understanding', does not check for large-scale awareness.

46 See Repp et al. (1999), pp. 477-480.

47 Personal communication, May 2003. See Levinson (1997), ch. 7-9.

Therefore, general or basic musical understanding can indeed be tested within the domain of a few seconds, i.e. within the domain of what can be quasi-heard.

Admittedly, this fails to fully decide whether people differ in the extension of their ‘Zeithof’. However, it follows that, if there is such a difference, then it must be below the maximal time range checked by the AMMA test, i.e. in the domain of less than ten seconds.

Having dismissed Maus’ position and given that there obviously are differences between musically gifted and untalented people, I would like to suggest a difference in terms of quality rather than quantity; the idea being that people with a high musical aptitude quasi-hear more accurately than people lacking such a talent. Now, of course, the notion of ‘more accurately’ has to be specified.

A first idea would be that accurateness refers to ‘temporal resolution’. Then good quasi-hearers, so to speak, would have a more fine-grained ‘Zeithof’. However, we already emphasised that memory processes are not at issue and thus it is *prima facie* not clear what such a ‘computer-like higher sampling rate of retentions and protensions’ could be good for. To see what ‘more fine-grained Zeithof’ might mean and how it can explain a difference in musical aptitude and understanding, I have to add two comments on Husserl’s approach and the notion of intentionality.

First, according to what has become a kind of standard interpretation of Husserl within analytic philosophy and the philosophy of language, the essential ingredient of the intentionality of a mental act is its noema which mimics the Fregean ‘Sinn’ (‘sense’ or ‘meaning’).⁴⁸ The comparison is quite straightforward: just as there is a linguistic expression which has sense and reference, a mental act has a noema and its intended object; and just as the referent is determined by the sense, the intended object is determined by the noema.

Second, in his investigation on Husserl’s ‘Zeithof’ Izchak Miller discusses the problem whether *single* retentions, primal impressions and protensions have intentionality.⁴⁹ Since we do not perceive instantaneous tone tokens, he claims that they lack such an intentionality. On the other hand Husserl explicitly states that retentions and protensions have intentionality. Miller unifies these claims by stating that only the ‘Zeithof’ as the whole, i.e. the *manifold* of retentions, primal impression and protensions has intentionality. However, I would like to suggest a (though only slightly) different interpretation. Rather than only the ‘Zeithof’ as a whole I maintain that already submanifolds of retentions, primal impressions and protensions have intentionality. For Husserl’s separate claims about the intentionality of retentions and protensions can only be accounted for by allowing parts of the ‘Zeithof’ (i.e. submanifolds of retentions etc.) to have an act-like character.

With these two comments in mind we are now able to explain the difference between the ‘Zeithof’ of a gifted musicians and an average person. Remember that my

48 See, for instance, Miller (1984), ch. 1. I have chosen this ‘standard interpretation’ for it is an economic way to introduce the relevant ideas. Whether it is a full and completely accurate interpretation of Husserl is a controversial question and not at issue here. See, e.g., Hintikka (1995).

49 Miller (1984), pp. 137-139.

claim was that musicians have a more fine-grained ‘Zeithof’. This, however, is equivalent to having a ‘Zeithof’ with more intentional submanifolds, i.e. more noema. Thus, when listening to a melody a gifted musician gets more information about his intentional objects (i.e. the tones of that melody) than a non-musician. *Ceteris paribus* this should lead to an increased ability to deal with the melody, i.e. to a higher musical aptitude. The fact that this ‘to deal with the melody’ in particular refers to the ability to speak about the melody, can be seen directly from the standard interpretation of Husserlian intentionality. For if a gifted musician gets more noemas out of his ‘Zeithof’ than an average person, he thus grasps more Fregean senses when listening to a melody and should thus be able to give a more precise linguistic description of the melody than an average person.

This interpretation leads us directly towards a more general discussion of musical meaning and understanding. For now we can say in how far music has meaning; namely in so far as the listener’s submanifolds of the ‘Zeithof’ are intentional and are thus associated with a noema. Further, as already emphasised when discussing the utterance ‘The cup is empty’ (cf. section 4) Husserl’s concept of the ‘Zeithof’ is a very general and basic one. Both musical understanding and understanding a sentence is based upon the intentional structure of the ‘Zeithof’. Thus, Husserl’s account allows to immediately see the parallels between musical understanding and understanding a sentence.

An example of a recent paper which assumes such parallels between understanding language and music is one on Levinson by Roy Perrett. According to Perrett the truth about understanding a sentence lies somewhere in between word-atomism and sentence-holism.⁵⁰ Only the meaning of the separate words together with their context in the sentence render understanding possible. And the same is then supposed to hold for musical understanding - a claim for which, thanks to Husserl, we now have some conceptual foundation.

Though largely sympathetic to Levinson, Perrett accuses him of being too much a ‘musical-atomist’ and defends something he calls relationalism:

Levinson’s concatenationism insists that the musical parts which are concatenated are themselves independently meaningful [...] Relationalism instead acknowledges both that meaningfulness comes in degrees and that smaller-scale musical parts also can be incompletely meaningful.⁵¹

It should be stated once more that Levinson allows for higher degrees of musical understanding and that thus this critique might miss its target. However, the interesting point is the claim about the incomplete rather than complete meaning of small-scale musical parts. If we compare this to our ‘Zeithof’ submanifolds, the question becomes whether they have full intentionality or something Husserl calls a ‘partial intention’. The latter fails to have an intended complete object, but is directed towards some part or

⁵⁰ See Perrett (1999).

⁵¹ Perrett (1999), p. 110.

aspect of an object. Thus, given our standard interpretation of Husserl, a ‘partial intention’ is indeed the equivalent of what Frege and Perrett call ‘incomplete meaning’.

The question whether smaller-scale parts of music and language have complete or incomplete meaning, i.e. partial or full intentionality, is also directly connected to the difference between musically gifted and untalented people. By claiming that a musician ‘gets more information about his intentional objects’ rather than saying that he has *more* intentional objects, I implicitly concurred with the partial intentionality interpretation. A straightforward argument for this interpretation is the fact that musicians when listening to a melody do not hear more tones than average people. However, they hear some more aspects of them than others. For instance, they might hear certain tones as a full cadence, as a variation of the original theme, as a chromatic counterpoint etc. (without necessarily being able to express it in those terms).

Compare this to the case of understanding language where - in accordance with Husserl - the same considerations arise. If, for instance, ‘jua linang’ara’ is uttered, both Swahili and non-Swahili speaking people will have retentions, primal impressions and protentions while hearing the utterance. Assuming that the intentional objects are the uttered phenomena, both groups of people do not differ in the number of intentional objects. However, a Swahili speaking person obviously grasps more aspects of the (groups of) phonemes. This is not to say that the difference between people with high and low musical aptitude is exactly the same as the difference between Swahili and non-Swahili speaking people. Hearing a musical phrase as a variation of the original theme is different from understanding the Swahilian phrase as claiming that ‘the sun is shining’. For understanding the latter, so the notorious argument goes, involves grasping the meaning of the sentence, which tells us something about the external world. Musical phrases, on the other hand, lack such a meaning, i.e. do not tell us something about the way the world is. However, although understanding music and understanding language is not exactly the same, the important similarity we found is that in both cases people with high and low abilities differ in their partial intentions towards the relevant sounds (tones and phonemes, respectively).

Let me round off this paper by briefly discussing a comment brought forward by Bruno Repp in the aforementioned symposium on Levinson’s book.⁵² According to him Levinson’s book ‘should perhaps have been called *Listening to Music in the Moment*’. For it mainly deals with perceptual issues and lacks a thorough analysis of performing music. Thus, Repp awaits ‘a future book entitled *Playing Music in the Moment*’. Looking at the external validity of AMMA test once more, we are able to comment on this. In one of the validity tests the performance of more than 100 music students has been rated by a professional musician and two professors of music education. These ratings highly correlated with the students’ AMMA scores. This means that - as a first approximation - the ability to perform music and to audiate are quite similar. This, of course, does not invalidate the philosophical project ‘playing music in the moment’. But it suggests that either its outcome should be quite similar to Levinson’s or that it must

52 Repp et al. (1999), pp. 480-485.

account for the empirical fact that measured performative and receptive abilities are nearly the same.

Conclusion

In this essay I brought out the conceptual confluence in Husserl's early account on the perception of music, Levinson's notion of quasi-hearing, and Gordon's concept of audiation. They all ascribe a central role to our capability of integrating acoustic information spread out over some time and take it to render musical understanding possible. The interval of this integration process, i.e. the extension of the 'Zeithof' or the 'temporal window of quasi-hearing', was found to be on the order of ten seconds. It also turned out that all three approaches describe rather low level auditory processes.

Being very sympathetic to the work of Levinson I would like to suggest that an adequate account of basic musical understanding - i.e. quasi-hearing - cannot do without empirical research (here exemplarily presented by data on the AMMA test) and a detailed investigation of time consciousness or temporal awareness. The latter is indeed the reason why the work of Husserl might still be valuable for people engaging in musical theory and research, although his writings lack music theoretical expertise as well as illustrative examples to match, for instance, Levinson's discussion of piano sonatas by Mozart, Beethoven or Schubert. Husserl's account on the 'Zeithof' is still of interest because it is a detailed analysis of the general synthetic work of our temporal awareness. It is this very investigation of the fine-structure of integrating sensual information over some time interval which leads Husserl to a very general 'theory of meaning'; namely one which is applicable not only to music but also to language and which certainly has commonsense on its side.

Presumably - and this is the good news for those of us who entertain a certain hostility against the notion of intentionality - such a general 'theory of meaning' does not depend on that notion. For, as far as I can see, no claims have been made about the 'Zeithof' which might not be fleshed out with the help of a very broad notion of Fregean 'sense' (no applying not only to language but to all sensual information extended in time).

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Acknowledgements: *I am grateful to Michael Hampe, Martin Kusch, Peter Lamarque, Jerrold Levinson and Derek Matravers for their kind advice on earlier drafts of this paper.*

This postprint was prepared by Hannah Mahé Crüsemann.