Introduction. The nature of the auditory object and its specific status as an object of perception

Elvira Di Bona and Vincenzo Santarcangelo
Introduction.
The nature of the auditory object and its specific status as an object of perception

Elvira Di Bona, Vincenzo Santarcangelo

The aim of this special issue of Rivista di Estetica is to investigate the nature of the auditory object and its specific status as an object of perception. The investigation was carried out using different methodologies: 1) focusing on the auditory object in relation to its metaphysical dimension; 2) working on the comparison between auditory and visual perception; 3) finding similarities and differences between auditory and musical objects; and, finally, 4) focusing exclusively on the specific manifestation of the auditory object as a musical phenomenon.

1. The auditory object in relation to its metaphysical dimension

The starting point of Santarcangelo’s paper is the acknowledgment that the concept of auditory object has recently attracted much attention among neuroscientists and neuropsychologists. In his essay, the author proposes a tentative definition of auditory objects based on a clear distinction between sounds (i.e. entities generally referred to as acoustic waves) generated by physical bodies (or sound sources), and auditory objects (i.e. entities conceived as perceptual constructs or mental representations of a sound or a series of sounds effectively perceived by a hearer). Auditory objects are conceived, from a metaphysical point of view, as Meinongian higher order objects, that is, partially mind-dependent objects based on inferiora – i.e. sounds conceived as acoustic waves generated by physical bodies and detected by an auditory system. As in Strawson’s well-known No-Space thought experiment – outlined in the second chapter of Individuals – auditory objects are characterized as objective individual entities that exist preeminently as temporal individuals. Shaped by boundaries detectable only on a time-pitch axis, auditory objects are investigated in their peculiar temporal
mode of existence, and are conceived as partly mind-dependent higher order objects linked with spatiotemporal entities such as bodies or physical objects.

2. The auditory object and the comparison between auditory and visual perception

Martina and Voltolini’s essay investigates the auditory object by analyzing the specific auditory properties of the grouping properties. Their paper is a contribution to the current debate on the admissible content of experience. The authors develop an analogy between visual grouping properties (i.e., the properties for a certain array of elements to be arranged in a certain order [...] along a certain dimension” (p. 22)) and auditory grouping properties (which plausibly go from simple sound streams to melodies, rhythmic and harmonic sequences, to the linguistically-relevant properties of speech sounds). Both are high-level properties, since they generically depend on some low-level visual properties. They are also perceivable. The experiences of visibly grouping properties are perceivable since they share some important features with experiences considered to be paradigmatically perceptual. On the other hand, in the case of auditory grouping properties, phenomenological and empirical considerations help to demonstrate that they are audible. It is crucial to stress the fact that another necessary condition for an experience of the high-level grouping properties to be perceptual, is that attention works holistically, namely by “by perceptually rearranging in an utterly different way the elements of the array one faces” (p. 26). In the concluding section of the paper, the authors focus on the experience of meaning when hearing someone talk, and conclude that, although meaning experiences depend on auditory experiences, they are non-perceptual «sui generis doubly high-level experiences» for they cannot be attended to holistically: they belong to cognitive (irreducibly non-perceptual) phenomenology.

3. The similarity and differences between an auditory and a musical object

All the authors included in this section elaborate on the different aspects of the auditory object in comparison with the musical object.

Arielli and Busechian’s link the discussion on the location of sound and its metaphysics as expressed in recent literature on the philosophy of sound to the music genre of sound art. They suggest that the different practices of sound art might be used freely, depending on the aesthetic goal. Therefore, those practices might exemplify the different metaphysical views of sound. That is to say that the proximal view, for example, claiming that sound is an item located where our ears are, finds its musical application in the theory of acousmatic listening – initiated by Pierre Schaeffer in the 1940s – and in some of the music
works of John Cage, Alvin Lucier and Lisa Park. The philosophical view which identifies sounds with sound waves might correspond to the compositions of artists in the field of electronic music working on the limits of sound audibility. The view seeing sound as an oscillatory event, but different from sound waves, is exemplified, amongst others, by the work of Michael Brewster, who creates auditory fields of different tonality by using the movement of space. Finally, the view of sound as a distal item located at the source, corresponds to 1) the music in which composers create a sounding sculpture, that is, when sound is meant to be a property of the source; 2) the music of field recordings or soundscape compositions namely, when sound is an event at the source; and 3) the sound installation which spread sounds in the public space (like in Susan Philipsz’ Lowlands, 2010), that is when sound is a relational event located at the source.

Lombardi Vallauri’s contribution is organized in twelve notes and two assertions. The objective of his paper is to provide a characterization of the notions of sound, the sound object, the auditory object and the musical object considered as the minimal unities that can be perceived. As a consequence, in order to reach his objective, he considers it important to answer the crucial question of: what is the atomic element of auditory perception and of musical experience? In order to answer to this question, Lombardi Vallauri, on the one hand, analyzes most of the actual definitions of sound and the auditory object as suggested in analytic philosophy as well as Pierre Schafer’s suggestions on the nature of the sound object, and, on the other, the developments of contemporary post-tonal music. Moreover, the distinction between the physical level of sound’s existence (with its physical dimensions of frequency, amplitude and space), and the phenomenal level of the existence of auditory objects, considered as mental representations (usually captured by the auditory properties of duration, pitch, intensity, timbre and space), is helpful in justifying the idea that certain musical styles (e.g. minimalism, drone music, spectralism) are based precisely on a minimal musical object, which is «the smallest difference perceptually salient in any of the five dimensions». The analyses of timbre and duration are particularly salient when characterizing the nature of the minimal musical object.

Oliva’s paper provides a description of the evolution of sound from being the object of audition to becoming the object of musical listening. Starting from the common conception of sound as an event, Oliva, through the discussion of Antonia Soulez’s auditory qualia (i.e. qualia without substance), develops a conception of the musical phenomenon also as an event. Soulez characterizes it as a process which changes over time. Similarly to Scruton’s characterization of musical sound as pure events which are perceived as detached from their physical sources, the author suggests that music is a concatenation of auditory events connected by an autonomous logic, independent from any physical cause: the causes of musical sounds are sounds themselves. When listening to music, we are
aware of certain virtual happenings which cannot be attributed to any specific object. Moreover, the conception of a musical world constituted by auditory qualia and pure events allows us to reject the impression of skepticism about musical reality, since this conception characterizes the musical phenomenon as a complex, dynamic process which relates to the interaction of auditory material with forces of different origins, both belonging to the real world. In order for it to be grasped in its constant dynamism, the musical phenomenon requires listeners to be actively engaged in the process of listening.

Di Bona compares the auditory object and the musical for the purpose of investigating whether they generate two different spatial experiences. She starts with the distinction between hearing space metaphorically, that is, when we experience the space evoked by the musical features of a music composition; and hearing physical space in music, which refers to the perception of spatial information relating to sound sources and the spatial region where they are located. By analyzing the way in which we perceive space when hearing musical sources, she focuses on the experience of physical space. She applies a model of the way in which we experience non-musical (or environmental) sound sources to the perception of musical sound sources, and concludes that the spatial experience of non-musical sound sources and the spatial experience of musical sound sources are similar with regard to the perception of the spatial properties of sound sources, at least when applied to the specific musical compositions which exemplify the different roles of space as an aesthetic tool. Moreover, her analysis shows that, if we want to capture the differences between the musical and auditory experience of non-musical sounds in relation to space, we should probably focus on the experience of metaphorical space.

4. The manifestation of the auditory object as a musical phenomenon

The interplay between music and space plays a crucial role also in Forlè’s contribution. The hypothesis presented in Forlè’s paper is that an enactive account of music perception should take into account two different kinds of movement. Actions, such as grasping a ball, opening a door, cleaning an apartment are practical-oriented actions, comprising movements directed by their practical goals – they are «goal-directed movements»; and movements, such as tapping fingers, swaying back and forth, bobbing one’s head or dancing, on the other hand, have no practical aims and are not limited by a strict system of directions and distances to follow – they are labelled, according to Straus’ terminology, «expressive movements». It should be noted that an enactive approach to music perception should focus on goal-directed movements that, at certain conditions, can turn into expressive ones. Movements elicited by music become a vehicle to study music and sound in itself and, still, are interesting in themselves, insofar they acquire new properties and shape listener’s perceptual
experiences. So far, enactivism has been rarely employed to study sound and music perception; the attempts have been more or less successful. Forlè gives us a good reason to believe that, as Noë showed the constitutive dependence of visual experience on our embodied nature and practical sensorimotor knowledge, musical experience can be said to be actively constituted in our embodied encounter with music itself.

Serra’s contribution reconstructs a possible history of the relationship between hearing and imagination starting from the metaphorical conceptions of musical hearing in Aristotle’s philosophy and finally embracing an unorthodox phenomenological perspective. The topic of analogical relationship between hearing and meaning has strong repercussions in the history of musical understanding. The high-and-low couple is taken into account as one of the musical metaphors that better can ground a philosophical discourse about the spatial dimension of music. The path leading from perceptual data to imaginative values is thus riddled with challenges stemming from phenomenological intriguing puzzles about hearing and from the history of music. Both ethnomusicological and musicological methodologies are employed to walk that path. The examples of swimming pygmy children developing an intricate rhythm by beating the water with cupped hands (Simha Arom) and of water music spontaneously performed by women in Ciad (Jean Dybowsky) are the case-studies analyzed by the author. Also in 20th-century classical music the relationship between hearing and imagination has been investigated via metaphorical significations. Bernard Mâche’s Ianassa and Steve Reich’s Four Organs and Ligeti’s Poème Symphonique pour 100 metronomes become the starting point of a fascinating reflection on music temporality.

D’Orazio and Garai’s paper provides a valuable insight into the perceived effectiveness of the auditory object notion in the scientific community. The authors, both working in the field of acoustical engineering, present a review of applications of the effective duration of the autocorrelation models of acoustic perception, autocorrelation being the degree of similarity between a signal with itself delayed in time. Such models have been often employed to evaluate the acoustic environment. Recent algorithms allow to extend the use of the autocorrelation function to cover a wider range of acoustic signals. Consequently, D’Orazio and Garai extend the autocorrelation analysis from music to other typologies of sound. The algorithm can thence become a potential tool to analyze auditory objects formal structure, assuming that we accept as valid the room acoustics model – that is, starting from the assumption that a sound is a convolution between an anechoic sound and an impulse response of the environment.¹

¹ Although this Introduction has been jointly conceived and discussed, Elvira Di Bona is specifically responsible for §§ 2-3, Vincenzo Santarcangelo is specifically responsible for §§ 1, 4.