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# The Unifying Strands: Formalism and Gestalt Theory in the Musical Philosophies of Aristoxenus, Descartes, and Meyer

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# The Unifying Strands: Formalism and Gestalt Theory in the Musical Philosophies of Aristoxenus, Descartes, and Meyer

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## Abstract

In every age, philosophers deal with inquiries concerning musical meaning and the effect of music on the listener. Instead of answering the formidable question of musical meaning, this essay demonstrates the parallel aspects of three musical theories from ancient, Enlightenment, and modern times. Using the two criteria of musical formalism and Gestalt Theory, this essay systematically connects the philosophies of Aristoxenus of Tarentum, René Descartes, and Leonard Meyer. Musical formalism holds that music's nature is innate, self-evident, able to be systematically deduced, and rational. According to formalism, musical meaning is defined by things objectively 'there' in the music, musical experience relies on cognition, and music is less a matter of sense than of mind. Gestalt Theory asserts that music is a unified totality—the whole gives meaning to the parts. This project demonstrates that three seemingly dissimilar musical philosophies include and prefigure the same foundational principles, although the theories reach different conclusions about musical meaning. In the research process, this essay utilizes documentary evidence. This essay concludes that the philosophies of Aristoxenus, Descartes, and Meyer are united by tendencies toward musical formalism and strands of the Gestalt view of music.

## Keywords

Formalism, Gestalt Theory, Aristoxenus, Descartes, Meyer, Music Philosophy, Esthetics

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## The Unifying Strands: Formalism and Gestalt Theory Span Centuries of Music Philosophy

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Why do we call Beethoven’s Ninth a “symphony” but the creak of a chair “noise?” How do we know that certain perceived sounds are musical, while others are merely commonplace or accidental? What causes the ear to perceive, the brain to comprehend, and the senses to experience music? Specifically, what distinguishes music from noise? The branch of philosophy called musical aesthetics addresses these questions and more. Musical formalism and Gestalt theory—two theories of musical aesthetics—demonstrate that some aspects of musical perception and experience can be universal and timeless.

Strands of formalism or Gestalt surface in the theories of musical aesthetics by Aristoxenus, Descartes, and Meyer, philosophers from the ancient, Enlightenment, and modern eras, respectively. An ancient musician and philosopher, Aristoxenus of Tarentum presented his theory of music in *Harmonics (Elementa harmonica)* during the fourth century BC. During the Enlightenment, René Descartes meaningfully impacted history through his contributions to philosophy and mathematics. Descartes’s theories significantly altered the course of modern philosophy. His musical treatise, *Compendium musicae* (1618), presents important contributions to music philosophy. Leonard Meyer, a twentieth-century musicologist, distinguished himself as one of the most influential musical theorists of the modern era. Meyer published his musical philosophies in several written works, the most significant being *Emotion and Meaning in Music* (1956).

Aristoxenus, Descartes, and Meyer are important because they were key philosophers in their respective centuries who distinguished themselves through their noteworthy ideas. Most importantly, their theories

foreshadow or incorporate formalist or Gestalt principles. The three musical philosophies of Aristoxenus, Descartes, and Meyer are united by tendencies toward musical formalism, and Aristoxenus and Meyer incorporate strands of the Gestalt view of music. Ultimately, the strands of formalism and Gestalt theory in significant philosophies from ancient times to the present demonstrate that music perception and experience can be universal and timeless.

### **Musical Formalism and Gestalt Theory**

Musical formalism is the theory that music's nature is innate, self-evident, able to be systematically deduced, and rational. Essentially, a composition's meaning is entirely determined by its form. Additionally, music requires rational activity rather than sensory evocation and psychological response.<sup>1</sup> In principle, formalism existed long before it was named. Influential philosophers throughout history (including Aristoxenus of Tarentum and René Descartes) theorized that music's meaning was innate, self-contained, and determined by rational activity. Although the term "formalism" probably existed before Leonard Meyer, Meyer was one of the first philosophers to promote official musical formalism in the realm of musical aesthetics. Meyer applied the term "formalist" to Eduard Hanslick and Igor Stravinsky, among others.<sup>2</sup> Meyer also acknowledged his debt to Susanne Langer, a formalist aesthetic philosopher of the early twentieth century.<sup>3</sup>

Although Gestalt theory was not officially named until Christian von Ehrenfels's work *On Gestalt Qualities* (1890), Gestalt principles appear even in ancient musical philosophy. Originating in psychology, the term *Gestalt* refers to an organized whole or totality that transcends its constituent parts. In music, parts of a melody are given in temporal succession or sequence, but these parts are perceived as a whole, or a *Gestalt*. For example, "if ten listeners each hear one tone, the totality of their sensations is an *and-sum*," the product of simple arithmetic. However, "if one listener hears ten tones [in succession], the totality of

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<sup>1</sup> Wayne D. Bowman, *Philosophical Perspectives on Music* (New York: Oxford University Press, 1998), 133–135.

<sup>2</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago: University of Chicago Press, 1956), 3.

<sup>3</sup> *Ibid.*, 5.

his sensations is a *Gestalt*—a melody.”<sup>4</sup> According to Victor Zuckerkandl, a twentieth-century musicologist:

The individual form or color is no more confined to itself than is the individual tone. None is simply in its place and remains in its place; each points beyond itself, to other forms and colors. Each stands to each, in the whole of the work, in a definite relation. Indeed, it is only perforce of these relations that the work becomes a whole.<sup>5</sup>

The three philosophers will be evaluated in light of these two theories. As a musical theory, formalism holds to three cardinal principles. First, musical meaning is limited to and defined by what is objectively ‘there’ in the music. Second, musical experience is fundamentally reliant on the cognitive detection of musical patterns or form. Finally, music is less a matter of sense perception and more a matter of the mind.<sup>6</sup> In Gestalt theory, three significant principles also appear. First, music is a unified whole or totality, not merely separate notes. Second, a melody is the sum of its parts. Lastly, the whole gives meaning to the parts; the individual part does not acquire its meaning from itself but receives it from the whole.<sup>7</sup> The philosophies of Aristoxenus, Descartes, and Meyer contain underlying applications of and reference to either formalist or Gestalt principles.

### **The Musical Philosophy of Aristoxenus of Tarentum**

Aristoxenus of Tarentum studied music, ethics, and philosophy at Aristotle’s Lyceum in the fourth century BC. Aristoxenus proposed a system of music theory which was unique in his ancient era.<sup>8</sup> Two centuries before Aristoxenus, Pythagoras had risen to prominence as a mathematician, philosopher, and musical theorist. Building upon the Pythagorean foundation, Plato presented his musical theory in Book III of his *Republic* in the fifth century BC.<sup>9</sup> Born around 360 BC, Greek

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<sup>4</sup> Victor Zuckerkandl, *Sound and Symbol: Music and the External World*, trans. Willard R. Trask (New York: Pantheon Books, 1956), 229.

<sup>5</sup> Ibid.

<sup>6</sup> Bowman, *Philosophical Perspectives on Music*, 135.

<sup>7</sup> Zuckerkandl, *Sound and Symbol*, 229.

<sup>8</sup> Flora R. Levin, “Ἀπειρία in Aristoxenian Theory,” *Hermes* 135, no. 4 (2007): 406–407, accessed Oct. 27, 2017, <http://www.jstor.org/stable/40379139>.

<sup>9</sup> Bowman, *Philosophical Perspectives on Music*, 20–25.

musician and philosopher Aristoxenus critically examined the musical philosophies of his Pythagorean and Platonic predecessors, who based their theories on mathematical ratios and proportions. Aristoxenus sought to create an alternative philosophy about the meaning and nature of music.<sup>10</sup> Although most of Aristoxenus's writings have been lost, incomplete parts of his musical treatise, *Harmonics*, survive. The work provides the foremost source of information regarding ancient Greek music philosophy.<sup>11</sup> In his lifetime, Aristoxenus proposed a psychology and aesthetic of music as well as an ordering of its inner mechanics.

Unlike the Pythagorean and Platonic philosophers who argued that music was based in mathematical ratios, Aristoxenus presented “a theoretical account of music that was grounded in the way music was actually perceived.”<sup>12</sup> At the time of Aristoxenus, “Pythagoreans defined the interval of the whole tone as the difference between the ratios for the intervals of the fourth and fifth.” Because Pythagorean theorists asserted that pitch consisted in “certain numerical ratios and relative rates of vibration,” the Pythagorean system resulted in the unequal partitioning of the octave. In practice, the Pythagorean system divided whole tones into semitones, which resulted in irrational numbers and mismatched octaves.<sup>13</sup>

Aristoxenus thought that the Pythagorean system contained unnecessary theoretical baggage. To solve this, Aristoxenus developed his own musical theory called the “Greater Perfect System,” which was based on the relationship between sense perception and intellect. In the Greater Perfect System, Aristoxenus suggested that the semitone be derived simply from equally dividing the octave. According to Aristoxenus, musical notes are impartible and indivisible—that is, they are unable to be altered in pitch without their mathematical proportions becoming irrational, and their tone subsequently losing pitch.<sup>14</sup> Aristoxenus also suggested that each half step be made equal in ratio to every other half step in order to create proper tuning and perfect octaves. Essentially, Aristoxenus proposed a form of the equal temperament system in the fourth century BC.<sup>15</sup>

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<sup>10</sup> Bowman, *Philosophical Perspectives on Music*, 136.

<sup>11</sup> Levin, “Ἀπειρία in Aristoxenian Theory,” 406.

<sup>12</sup> Bowman, *Philosophical Perspectives on Music*, 136.

<sup>13</sup> *Ibid.*, 137.

<sup>14</sup> Levin, “Ἀπειρία in Aristoxenian Theory,” 407.

<sup>15</sup> Julius Portnoy, *Music in the Life of Man* (New York: Holt, Rinehart, and Winston, 1963), 73.

Far from unreasonable or irrational, Aristoxenus thought that music required more explanation than a merely rational and reasonable theory. Aristoxenus believed that there was more to the art of song than “certain numerical ratios and relative rates of vibration.”<sup>16</sup> Rather than promoting the Pythagoreans’ seemingly magical relationship between sound and number, Aristoxenus advocated for an empirical theory of music that was grounded firmly in aural perception and experience.<sup>17</sup> Mathematicians who treat music altogether as a science of acoustics go to the other extreme and fail to account for the necessity of aural perception and cognitive understanding in music.

Aristoxenus’s musical philosophy laid the ancient foundation for modern musical formalism. Although formalism did not truly arise until the emergence of absolute music in the eighteenth century, a few of its foundational concepts, including the relationship between musical perception and understanding, are evident in the philosophy of Aristoxenus.<sup>18</sup> According to Aristoxenus, the perception of music is necessarily dependent on the cooperation of sense perception and memory, “for we must perceive the sound that is present, and remember that which is past. In no other way can we follow the phenomena of music.”<sup>19</sup> Although Aristoxenus predated musical formalism by many centuries, his philosophy foreshadows formalist principles.

Aristoxenus contended that the ear was indispensable to comprehending music and that musical science required hearing and intellect. As Aristoxenus wrote in his *Harmonics*, music requires both perceptual and conceptual faculties; “by the former we judge the magnitudes of the intervals; by the latter we contemplate the functions of the notes.”<sup>20</sup> According to Aristoxenus’s philosophy, the nature and value of music lie in the conscious perception of its sonorous patterns, not in the sonorities themselves.<sup>21</sup> Aristoxenus’s belief in the existence of objective patterns and structure in music correlates with the formalist principle that musical meaning is defined by things objectively ‘there’ in the music. The requirement of cognitive perception and understanding in order to comprehend music shows that musical experience does rely on

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<sup>16</sup> Aristoxenus, *Harmonics*, ed. and trans. Henry S. Macran (Oxford: Clarendon Press, 1902), 188–189.

<sup>17</sup> Bowman, *Philosophical Perspectives on Music*, 138.

<sup>18</sup> *Ibid.*, 136.

<sup>19</sup> Aristoxenus, *Harmonics*, 193–194.

<sup>20</sup> *Ibid.*, 189.

<sup>21</sup> Bowman, *Philosophical Perspectives on Music*, 138.

the cognitive detection of musical patterns and that music is less a matter of sense than of mind.

Aristoxenus's theory also correlates with the Gestalt concept that musical data functions as an organized whole rather than in isolation. Aristoxenus argued that "music's significance must be explained in terms of these sounds, their relationships, their functions within a musical system—not extramusical affairs like mathematical proportions." According to Aristoxenus, "music consists...not in isolated acoustical 'data,' but in tendencies, connections, and functions within a musical system."<sup>22</sup> The idea that musical data functions as a connected whole, rather than in isolation, is distinctly Gestalt.<sup>23</sup> Also markedly Gestalt, Aristoxenus thought that musical theory cannot be built from mere acoustical information about tones or intervals. Instead, it must address the ways these tones and intervals function in musical practice.<sup>24</sup> According to Aristoxenus, the musical ear is the sole arbiter of correct musical pitches and functions.<sup>25</sup>

### **The Musical Philosophy of René Descartes**

Born in 1596, René Descartes earned renown as a French Enlightenment mathematician and philosopher. Known as the Father of Modern Philosophy, Descartes left a lasting impact on the philosophical world with his famous statement *Cogito, ergo sum*, "I think, therefore I am." He introduced Cartesian rationalism, which distinguishes between empirical knowledge and *a priori* knowledge. Empirical knowledge arises through the senses and depends upon the entities in the external universe. *A priori* knowledge, on the other hand, is knowledge that is derived from deductive reasoning or from self-evident propositions. Cartesian rationalism proposes that valid knowledge of the world comes only from innate ideas and human reason.<sup>26</sup>

During his early years, René Descartes served in the army of Prince Maurice of Nassau, who was one of the most important leaders of the French rebellion against Spain. When peace temporarily prevailed, Descartes found plenty of time for reflection and writing. During this lull

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<sup>22</sup> Bowman, *Philosophical Perspectives on Music*, 138.

<sup>23</sup> Zuckerkandl, *Sound and Symbol*, 345.

<sup>24</sup> Bowman, *Philosophical Perspectives on Music*, 138.

<sup>25</sup> *Ibid.*, 137.

<sup>26</sup> Lewis Rowell, *Thinking about Music: An Introduction to the Philosophy of Music* (Amherst: University of Massachusetts Press, 1983), 103.

in the war, he wrote his *Compendium musicae*. Descartes presented these ideas to his friend Isaac Beeckman (a well-known mathematician) in 1618, at the age of twenty-one.<sup>27</sup> In *Compendium musicae*, Descartes describes his preliminary observations about musical experience.

Descartes's observations align with the formalist principle that musical meaning is limited to and defined by things objectively 'there' in the music. In his preliminary observations in *Compendium musicae*, Descartes observed:

- 1) All senses are capable of experiencing pleasure.
- 2) For this pleasure a proportional relation of some kind between the object and the sense itself must be present.<sup>28</sup>

Essentially, this means that for an object to be found enjoyable, the object must not be harmful to the senses. Sensory perception of an object requires that the object must be objectively 'there.' Therefore, in music, the senses are limited to deriving meaning from the things that are objectively present in the music itself. Descartes's argument was that music is not a matter of blind pleasure and indulgence; rather, music is orderly, patterned, and systematic—the product of rules and principles.

In his *Compendium musicae*, Descartes continues:

- 3) The object must be such that it does not fall on the sense in too complicated or confused a fashion; therefore, a very complex design, even though it is regular, like the matrix on an astrolabe, is not as pleasing to the sight as another consisting of more equal lines, such as the net on the same astrolabe. The reason for this is that the sense finds more satisfaction in the latter than in the former, where there is much more that it cannot distinctly perceive.
- 4) An object is perceived more easily by the senses when the difference of the parts is smaller.<sup>29</sup>

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<sup>27</sup> Charles Kent, introduction to *Compendium musicae*, by René Descartes (N.p.: American Institute of Musicology, 1961), 8.

<sup>28</sup> *Ibid.*, 11.

<sup>29</sup> *Ibid.*, 12.

Essentially, Descartes proposed that music is better understood when the component parts are related and structured in a logical fashion. Descartes's philosophy that musical meaning is reliant on the detection of patterns and structure in music fits with the formalist principle that musical experience is fundamentally reliant on the cognitive detection of musical patterns or form.

Descartes believed that music contained an underlying "orderly and rational principle accessible to human logic and reason." As a rationalist, Descartes held that "mind rather than sense was the arbiter of trustworthy knowledge."<sup>30</sup> Descartes's belief in rationalism in music correlates to the formalist principle that music is less a matter of sense than of mind. As the research has demonstrated, although Descartes preceded the recognized development of musical formalism, his philosophy directly incorporated several distinctly formalist tenets.

### **The Musical Philosophy of Leonard Meyer**

A twentieth-century philosopher, composer, and author, Leonard Meyer discussed not only musical perception, but also musical communication. In 1956, Meyer's most well-known book, *Emotion and Meaning in Music*, emerged as an important milestone in the history of music theory. Perhaps the first major treatise on music in Western music history, *Emotion and Meaning in Music* relies extensively on psychological arguments and insights. Leonard Meyer draws from formalist principles and Gestalt psychology, even directly mentioning Koffka (one of the main proponents of Gestalt psychology) in the preface to *Emotion and Meaning in Music*.<sup>31</sup>

To better understand Meyer's philosophy, a few key definitions must be made. Formalism contends that the meaning of music rests in the cognitive perception of musical relationships. Contrary to formalism, expressionism argues that the meaning of music rests in the listener's feelings and emotions caused by their own perceptions of musical relationships.<sup>32</sup> Absolutism is the theory that music has only abstract, intellectual meaning, contained within the music itself. Contrarily, referentialism insists that "in addition to these abstract, intellectual meanings, music also communicates meanings which in some way refer to the extramusical world of concepts, actions, emotional states, and

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<sup>30</sup> Bowman, *Philosophical Perspectives on Music*, 72.

<sup>31</sup> Meyer, *Emotion and Meaning in Music*, x.

<sup>32</sup> *Ibid.*, 2–3.

character.”<sup>33</sup> According to Meyer, “absolute meanings and referential meanings are not mutually exclusive,” meaning “that they can and do coexist in one and the same piece of music, just as they do in a poem or a painting.”<sup>34</sup> Thus, the referential expressionist asserts that emotional meaning depends on the listener’s understanding of the referential content of music. The absolute expressionist claims that emotional meanings arise from the listener’s understanding of music’s abstract, intellectual meaning.<sup>35</sup>

Leonard Meyer openly acknowledged his theory’s formalist underpinnings. In his own words, Meyer stated that his position actually “admits both formalist and absolute expressionist viewpoints.”<sup>36</sup> The basic premise of Meyer’s theory is that, “for listeners conversant in a musical style, musical patterns or ‘events’ tend to suggest or imply...modes of continuation and elaboration.” Musical events ‘mean,’ or ‘refer to’ these anticipated modes of continuation.<sup>37</sup> This premise correlates to all three formalist principles, especially asserting that musical meaning is limited to and defined by things objectively ‘there’ in the music.

Meyer’s theory necessitates that listeners are familiar with and knowledgeable of music. According to Leonard Meyer, “mental satisfaction of a purely musical nature...comes of following or anticipating the music’s designs and of having those anticipations variously confirmed or ‘agreeably led astray.’”<sup>38</sup> The belief that musical meaning requires cognitive anticipation directly correlates to formalism in that musical experience is fundamentally reliant on the cognitive detection of musical patterns or form and that music is less a matter of sense perception than of mind.

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<sup>33</sup> Meyer, *Emotion and Meaning in Music*, 1.

<sup>34</sup> *Ibid.*, 1.

<sup>35</sup> *Ibid.*, 3.

<sup>36</sup> *Ibid.*

<sup>37</sup> Bowman, *Philosophical Perspectives on Music*, 135.

<sup>38</sup> *Ibid.*, 166.

As for Gestalt theory, Meyer asserts that music “is not a kind of musical banana split, a matter of purely sensuous enjoyment.”<sup>39</sup> Rather, music functions as a totality—a connected whole. This perspective directly correlates with the Gestalt principle that music is a unified whole or a totality, not merely separate notes. Meyer proceeds to write that

the work of Gestalt psychologists has shown beyond a doubt that understanding is not a matter of perceiving single stimuli, or simple sound combinations in isolation, but is rather a matter of grouping stimuli into patterns and relating these patterns to one another.<sup>40</sup>

This idea parallels the Gestalt principles which state that a melody is the sum of its parts and that the whole gives meaning to the parts; the individual part does not acquire its meaning from itself but receives it from the whole.

As the research has demonstrated, musical formalism and Gestalt theory unite musical philosophies from the past to the present. The theories of formalism and Gestalt are useful for understanding musical perception and experience because they are overarching principles that are not dependent on a particular era. Although Aristoxenus, Descartes, and Meyer lived centuries apart, studied different concepts, and formed different opinions, their philosophies bear the evidence of musical formalism or Gestalt theory. As the leading voices of music philosophy in their eras, Aristoxenus, Descartes, and Meyer demonstrate a universal human response to music, regardless of civilization or era.

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<sup>39</sup> Meyer, *Emotion and Meaning in Music*, 6.

<sup>40</sup> Ibid.

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