

Rita Aiello, ed., *Musical Perceptions*. New York: Oxford University Press, 1994.

*Reviewed by Clair L. Sellars*

For the musician seeking a greater understanding of the musical experience, the field of music cognition is a logical source. Becoming familiar with this field, however, is a daunting task. A proliferation of literature must be read, which often contains terms, measurements, and concepts that are foreign to the musician. But perhaps the most overwhelming aspect of the literature is its diversity—a diversity that permeates methodology, goals, activities to be studied, responses to be observed, application of results, etc. Consequently, an initial foray into the field may yield an impression of fragmentation. Only after the investment of a substantial amount of time and reading do these “fragments” emerge as diverse philosophies and approaches that influence each other in a multitude of ways. This grasp of the field is prerequisite to an in-depth understanding of individual contributions to research in music cognition.

This situation has special import for the educator teaching a course in music cognition. Whether afforded a full semester or just a few weeks, whether providing an overview or merely limited coverage, the instructor is faced with finding the means to convey a wealth of knowledge in a short amount of time. In a case such as this, where no “textbook” exists, a structured set of readings is the common means of information transmission: the instructor collects individual essays and places them in a context.

Such an organized collection of readings is offered by Rita Aiello, who teaches music perception courses at various New York universities. *Musical Perceptions* is intended as a sourcebook for “. . . psychology of music courses (be they offered in music or in psychology departments) . . .” as well as for “. . . courses in the philosophy and aesthetics of music, music education, and music theory . . .” (vii). She

divides the field of music cognition into broad topics,<sup>1</sup> within which are represented a wide variety of philosophies and approaches. By supplying a taste of the various activities within the field, the book realizes one of its stated functions: "It presents a spectrum of the current research . . ." (vii). After a brief overview of its contents, I will examine the organization of the book, with the aim of providing a guide for the use of this potentially valuable teaching source for a survey course in music cognition.<sup>2</sup>

The initial section, "Philosophical Perspectives," includes essays by Leonard B. Meyer, Aiello, and Nicholas Cook. The Meyer contribution is a reprint of the first chapter of his *Emotion and Meaning in Music*,<sup>3</sup> understood to be the seminal publication in the field. It provides historical context for some of the issues involved in the interaction between music analysis and music cognition. The Aiello chapter, "Music and Language: Parallels and Contrasts," identifies influences of linguistics on the cognitive study of music. Although her coverage is limited,<sup>4</sup> she provides citations of research in musical phonology (the perception of minimal sound units), musical syntax (the

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<sup>1</sup>Her divisions are philosophical perspectives, developmental perspectives, the perception of melody, tonality, rhythm and timing, and the perception of musical compositions.

<sup>2</sup>A pedagogical perspective may seem limited, but the information thus portrayed will also serve anyone researching the field without benefit of a structured course.

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

<sup>4</sup>That a mere outline of the field of linguistics is presented, with little in-depth explanation or discussion, is a problem that can be overcome if students are given additional information. I would suggest the chapter "Music, Language, and Meaning" from John Sloboda's *The Musical Mind* (Oxford: Clarendon Press, 1985); Eric F. Clarke's essay from *Contemporary Music Review* 4 (1989): 9-22, entitled "Issues in Language and Music"; and *Language, Music and Mind* (Cambridge, MA: MIT Press, 1993) by Diana Raffman, especially the second chapter. Shortcomings of a more serious nature are found in the brief section on information theory (57-58), which—besides being rather out of place in this chapter—is quite misleading. First, the appearance of a mutated "Frère Jacques" in Mahler's First Symphony is *not* an example of Meyer's implication/realization model of meaning, and second, the classification of Meyer's model as "rooted in information theory" (57) is questionable.

perception of grouping), and musical grammar (as applied to the study of musical meaning). Cook's "Perception: A Perspective from Music Theory" is a commentary on the interaction between the fields of music cognition and music theory that questions the validity of interdisciplinary work by researchers in both fields. Cook challenges the success of cross-fertilization between music psychology, which he describes as devoted to explaining the act of listening, and music theory, a critical and interpretive action that goes "beyond perception" (89). While one may question the rather restrictive boundaries for these two fields on which his argument depends, he raises several thought-provoking issues along the way, including: (1) What is the value of analyzing a score (an activity for which he borrows a term from linguistics—*scriptism*)? (2) How do factors of a social origin shape the listening experience? and (3) How can experimental research address music listening without reducing both the stimulus and the activity to something on the level of ear-training exercises?

In the second section, "Developmental Perspectives," the essays by Lyle Davidson, "Songsinging by Young and Old: A Developmental Approach to Music," and Jeanne Bamberger, "Coming to Hear in a New Way," illustrate different perspectives on the study of the development of music cognitive skills. Davidson, connected with Harvard's Project Zero, has followed the six-year progression of 78 children via recordings of their singing collected at different developmental stages. In examining the children's ability to control pitch while attempting to reproduce melodies, Davidson presents as a model of mental organization the *contour scheme*: a contour approximates the melody within a limited pitch space, a space that gradually expands (from a third to an octave) as the child develops. Bamberger, examining the rhythmic "notation" of a group of fourth-graders, analyzes different ways of *hearing* rhythm (i.e., perceiving rhythm): metrically (attending to hierarchical beat organization) and motivically (attending to figural function). She concludes that we are each capable of *multiple hearings* (that is, we can hear the same thing in different ways) and that the way(s) we choose to listen depend(s) on

our listening context.<sup>5</sup> The third essay of this group, “Music Performance: Expression and the Development of Excellence,” by John A. Sloboda, examines the role of practice in the development of musicians of various levels of performance ability. Regardless of ability, the impetus for practice identifies each stage of musical learning: practice at the first stage is sustained primarily through pleasure, at the second through external forces (such as school and parents), and at the third through internal forces (coinciding with the decision to pursue a musical career).

The section “The Perception of Melody, Tonality, Rhythm and Timing” is populated by experimental studies. “Perception, Production, and Imitation of Time Ratios by Skilled Musicians,” by Saul Sternberg and Ronald L. Knoll, and “The Interpretive Component in Musical Performance,” by L. H. Shaffer and Neil P. McAngus Todd, are typical of journal articles in the field: a single experiment or set of experiments is described. Sternberg and Knoll find that even highly trained musicians have difficulty in perceiving and performing rhythms that involve very small fractions of the beat.<sup>6</sup> Preliminary observations regarding the use of rubato in performance are offered by Shaffer and Todd, who find that (1) pianists’ use of interpretive rubato is not arbitrary and (2) style and form are factors in the hierarchical phenomenon of *slowing at a boundary*.

The chapters by W. Jay Dowling, David Butler and Helen Brown, and Jamshed Bharucha are more comprehensive than those

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<sup>5</sup>This chapter is a “cut-and-paste” of the prologue and first two chapters of Bamberger’s *The Mind Behind the Musical Ear* (Cambridge, MA: Harvard University Press, 1991); as such it suffers from a lack of continuity. For instance, her concept of “felt paths” is mentioned only once (134) and is never discussed. Students should be guided to the original version for a more complete coverage of her ideas.

<sup>6</sup>An issue of great import to music cognition is the implications of methodological decisions. If a discussion of this issue arises in the introduction to music cognition course, the five chapters from this section could provide examples of a wide array of methodological approaches. For instance, the stimuli in the Sternberg and Knoll experiment typify what Cook was referring to earlier in this book as “. . . test materials which are so musically impoverished that they do not really provide a context for *musical* perception at all” (67).

described in the previous paragraph. After summarizing earlier work on contour and related issues, Dowling's essay, "Melodic Contour in Hearing and Remembering Melodies," concludes that in memory for melody, contour (as opposed to intervallic patterns) is most useful "for novel melodies tested after brief delays" (188) (as opposed to familiar melodies and novel melodies tested after relatively longer delays). Melody length is also a factor; in general, the longer the melody, the less effective contour is for melodic memory. In "Describing the Mental Representation of Tonality in Music," Butler and Brown provide a synopsis of research pertinent to the use of *rare-interval patterns* for the identification of tonality as music unfolds (i.e., the most distinct intervals of a key, which for a major key are the tritone and the minor second, serve as tonal indicators during the diachronic listening experience). Bharucha's contribution, "Tonality and Expectation," pulls together various topics, linking schema theory with (Meyer-influenced) musical expectation and expectation with tonal hierarchy (as described by Carol Krumhansl). Finally, he offers the neural net as a model for the learning of musical expectations.

The last essay is Aiello's "Can Listening to Music Be Experimentally Studied?" which delves into methodological issues such as reductionism and subject response. In her own experimental work, Aiello attempts to bridge the gap between laboratory studies and "the actual experience" (276) of listening by investigating "how listeners listen to music *as the music [is] unfolded*" (277). In addition, she prefers trained musicians as subjects, since an extensive musical vocabulary enables more precise description of the listening experience. This article constitutes the final section of the book, entitled "The Perception of Musical Compositions."

As stated earlier, knowing the context for individual contributions is necessary for a fuller understanding of how these "fragments" fit into (and make up) the whole. In the music cognition course (and in collections of readings such as this), this is communicated by organization: perceived against a background of interrelated activities and philosophies, the complex nature of each contribution can be assessed. This basic assumption is at the heart of the following

discussion, which examines the organization of *Music Perceptions*.

This analysis relies to some degree on inference; Aiello gives the reader some idea of her intent, but strategy is not discussed. At the highest level of organization, Aiello does not state her reasons for the division of the field into these four topics. That these are four important categories is certain; that there are other important categories is also true. Why are the contents thus limited? Are they the topics in which students show the most interest? Or with which educators are most familiar? Are these the most-researched topics, and thus representative of a "mainstream" for the field of music cognition? At a second level of organization, no explanation is provided for how these four topics relate to each other. It may be apparent that the categories are not of equal weight, but what is their association? Are the last two categories ("The Perception of Melody, Tonality, Rhythm and Timing" and "The Perception of Musical Compositions") most closely related because of the mutual focus on perception studies? Is the last unit to serve as a summary of the previous units? Is the first unit to serve as an introduction to the succeeding ones? How do the studies under "Developmental Perspectives" compare to those in the last two sections? Finally, although Aiello intends to provide context for the individual essays with the chapter introductions,<sup>7</sup> she falls short in two manners: (1) the coverage is uneven,<sup>8</sup> and (2) no attempts at comparison are made. Due to the latter fact, explicit associative context is absent for the individual essays as much as for the four topics. In order to supplement the lack of this type of context, the remainder of this review is devoted to a comparative analysis of the topics and essays

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<sup>7</sup>As Aiello states, "I have prefaced each chapter with an introduction to provide a general background in which to place the significance of the contributor's research . . ." (vii).

<sup>8</sup>While the introductions to the Dowling, Sternberg and Knoll, and Shaffer and Todd essays are fairly successful in providing the reader with a sense of how one particular article fits into the broader topic, other introductions (especially those for the Aiello and Bharucha essays), though supplying some important bibliographical information for the topic, provide only a vague impression of the context for the reader.

in this book.<sup>9</sup>

The following discussion examines the three levels of organization mentioned in the last paragraph and uses as a starting point some of the questions posed there. First, on the choice of limiting the contents of the book to the four topics, perhaps the most intriguing possibility is that these categories represent a “mainstream” of research activity in the field.<sup>10</sup> Most of the authors contributing to this volume are well-represented in the literature. In addition, the topics are established in the field and summarize work from the last 25 years (at times, reaching back even further); certainly, a mainstream is defined more by “classic” studies than by the “cutting edge” of research. As a pedagogue, Aiello is probably aware of the advantage of organizing material according to an identified mainstream, with those issues and components that fall outside the mainstream considered in relation to it.<sup>11</sup>

Second, in considering the interrelationships of the four topics, a good starting point is to clarify the levels on which these topics operate. Judging from its title, the topic “Philosophical Perspectives” would appear to be on a higher level than the ensuing sections; one

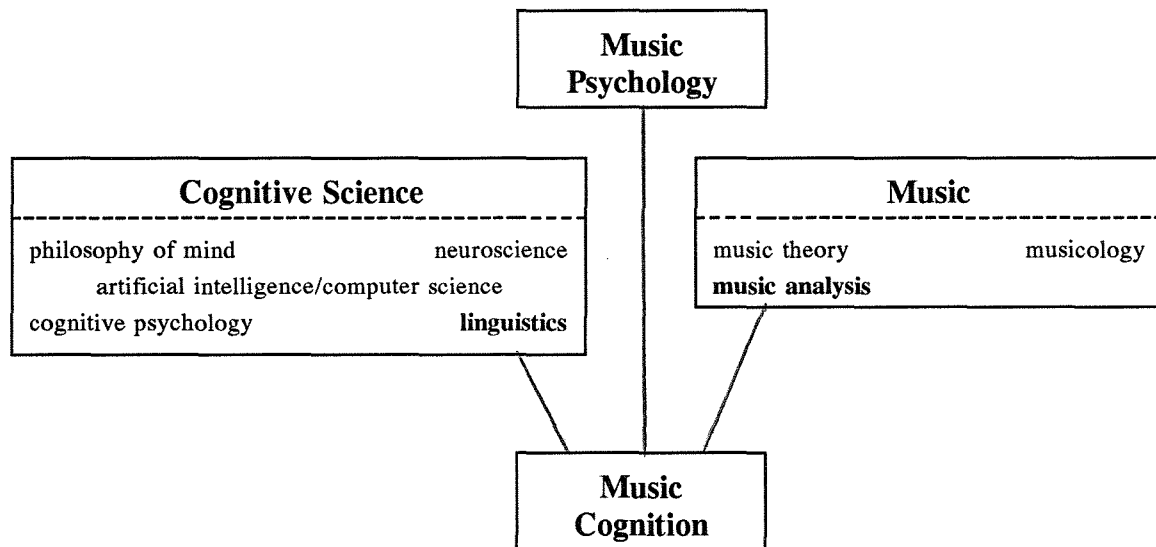
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<sup>9</sup>The following discussion is limited to the contents of this book. I hope to publish an article that presents a taxonomy for the field of music cognition designed to encompass all aspects thereof.

<sup>10</sup>No political implications are intended by the use of the term “mainstream.” It simply signifies activities that have held a central position in the field. I base my identification of the mainstream on music cognition literature of the last 15 years: articles in *Music Perception* and books by established researchers. Included in the latter are: David Butler, *The Musician’s Guide to Perception and Cognition* (New York: Schirmer Books, 1992); Diana Deutsch, ed., *The Psychology of Music* (Orlando: Academic Press, 1982); W. Jay Dowling and Dane L. Harwood, *Music Cognition* (Orlando: Academic Press, 1982); Carol L. Krumhansl, *Cognitive Foundations of Musical Pitch* (New York: Oxford University Press, 1990); John A. Sloboda, *The Musical Mind: The Cognitive Psychology of Music* (Oxford: Clarendon Press, 1988); and Thomas J. Tighe and W. Jay Dowling, eds., *Psychology and Music: The Understanding of Melody and Rhythm* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1993).

<sup>11</sup>From a pedagogical standpoint, *what* is designated as mainstream is not as important as the overall means of organization, a tool for establishing context.

Figure 1. High-level influences on music cognition



would expect here the presentation of ideas and principles that somehow govern more practical concerns. This might be the case for the Meyer and Cook essays, but Aiello's chapter is simply an introduction to the influence of linguistics on music cognition research. Is this in some sense *philosophical*? It is probable that Aiello's use of the term "philosophical" implies "broad," and that in this section she is concerned with fields of scholarship that bear a strong influence (often a mutual influence) on the field of music cognition. Thus, this chapter deals with topics that are in a sense external to the field proper, but which have exerted (and continue to exert) great influence in the shaping of the field. For while music cognition is defined as a branch of music psychology (as indicated in Figure 1), it has been influenced by the related disciplines of music and cognitive science, of which the topics of music analysis (Meyer and Cook) and linguistics (Aiello) are a part.<sup>12</sup>

Broadly speaking, music cognition is a multifaceted skill, hence the many perspectives from which researchers come. Two of these perspectives are represented by the last three sections of the book.

<sup>12</sup>Other facets of the disciplines are listed simply to provide a sense of bearing for the reader; the list is not intended to be exhaustive.



(Other perspectives are found within the individual essays and are discussed below.) The last two sections are concerned with the *nature* of this skill, examining cognition as a full-blown state. The *acquisition* of this skill, usually conceptualized in stages, is the focus of developmental studies.<sup>13</sup> This might appear to be a binary choice: a study examines either the nature of skill or the acquisition of skill. However, as is the case with all components of music cognition, these two perspectives are more akin to the poles of a spectrum. A study rarely is situated at a pole; more commonly, it is somewhere between two poles with strong leanings in one direction. (This visualization proves useful in the following comparative analysis.)

Third, the comparison of the individual essays depends on the identification of general categories of research issues. The many bits of information presented in the chapters can be conceptualized as instantiations of specific research choices concerning research paradigm, state of skill (mentioned above), activity to be studied, and methodological slant. The examination of these issues will include (1) the identification of a dichotomy for ease of conceptualization and (2) a consideration of where these issues fall within the mainstream of cognition research.<sup>14</sup>

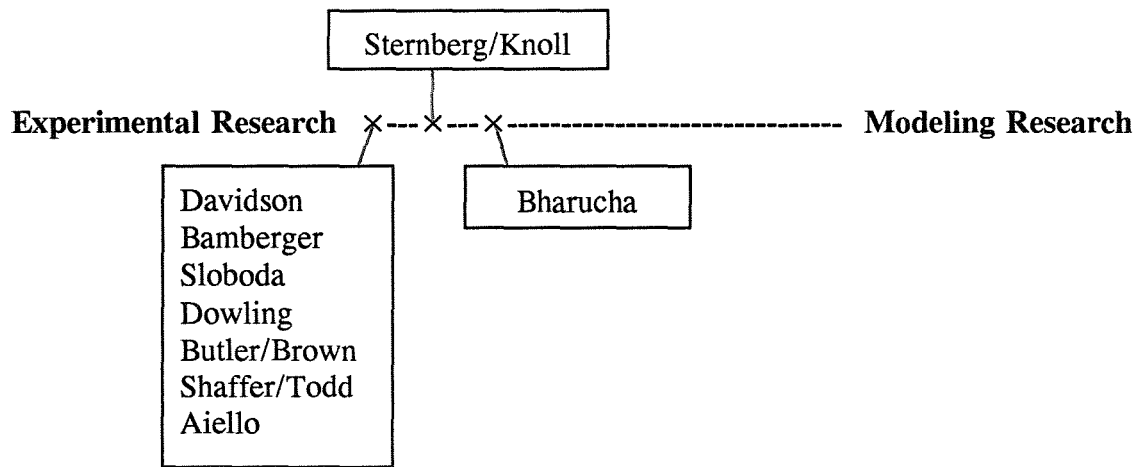
The two major paradigms for research in music cognition are experimental research and modeling research. In either paradigm the researcher can move from empirical evidence to theory or from theory

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<sup>13</sup>Here Aiello's terms hinder direct comparison, implying that studies of the nature of skill equate with "perception" studies and that studies of acquisition equate with "developmental" studies. However, studies of the nature and of the acquisition of skill can both be perceptual, just as they both can be of another type. Perception is but one musical activity that is studied; others include performance, composition, and improvisation. This should become clear in the next section. (I am borrowing the terms "the nature of skill" and "the acquisition of skill" from Sloboda's essay in this collection [152].)

<sup>14</sup>Separate articles could be written on each of these topics; the coverage offered here is an introduction. This suffices to achieve the goal stated earlier: a means of organization that aids in defining context for the individual essays of this book. It should be noted that the articles in the first unit, "Philosophical Perspectives," are not discussed in this comparative analysis. I consider these essays too broad in scope to bear association with the experimental studies.

Figure 2. Research paradigm

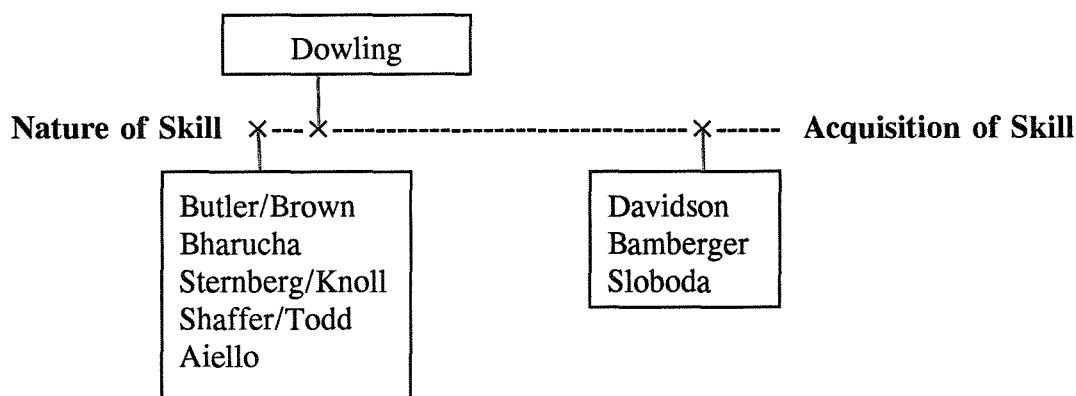


to empirical evidence. The major difference between the two is the source of the evidence: experimental research tests human response; modeling research is conducted on computers. While the modeling paradigm has recently become quite popular, experimental studies remain at the heart of the field; the mainstream research paradigm is experimental research. The essays in the Aiello book are overwhelmingly in this mainstream. Only two essays include the modeling approach. The Bharucha essay concludes with a summary of modeling studies; his discussion of neural net modeling (230-35) serves as an introduction to the topic. The Sternberg and Knoll essay presents an information-flow model of perception (as well as of production and imitation) obviously influenced by computer modeling. However, both of these essays depend much more on experimental research than on modeling research, and therefore fall close to the left end of the spectrum in Figure 2.

The issue of which state of skill is to be studied was introduced above and helped define a difference between those essays located in the section entitled “Developmental Perspectives” and those in the following sections. Finer distinctions will now be made under this category. All three essays in “Developmental Perspectives” (those by Davidson, Bamberger, and Sloboda) include a consideration of the “Nature of Skill” end of the spectrum shown in Figure 3; the authors

are concerned that their theories of skill acquisition benefit the study of the nature of skill and explicitly link those two aspects of music cognition. Therefore, the essays in the section devoted to the study of the acquisition of skill would not be situated on the extreme right pole of Figure 3, but close to that end. In addition, the Dowling article includes a section on skills acquisition;<sup>15</sup> this puts it slightly to the right of the remaining five essays, which are located at the left pole. Such studies of the nature of skill are located in the mainstream of music cognition research.

Figure 3. State of skill

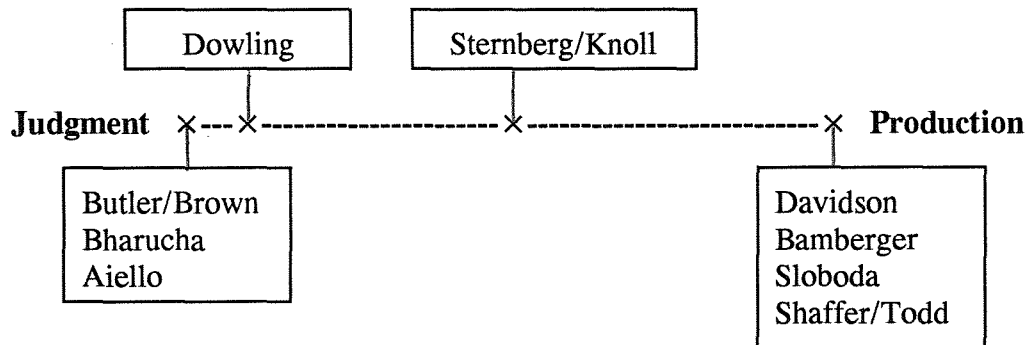


The dichotomy for the activity to be studied is represented by the terms “judgment” and “production.” The latter refers to generative actions, including performance, composition, and improvisation. While production requires the combination of mental and physical activity—indeed, it assumes the two cannot be separated, actions of judgment focus on mental activity. Most commonly, this means perception, but analysis and memory also fall under this category. Interestingly enough, all three essays in “Developmental Perspectives” study performance and are situated at the right pole of Figure 4. The Shaffer and Todd essay also is at this pole. Two other essays fall somewhere between: Dowling makes a reference to studies of

<sup>15</sup>Interestingly, Dowling’s reference to the use of contour by the developing child alludes to the same observations on which Davidson bases his theory of contour scheme.

performance in an essay otherwise devoted to judgment activities, and Sternberg and Knoll study both judgment and production activities, seeking to relate the two. The remaining three essays are concerned solely with judgment activities<sup>16</sup> and represent the mainstream.

Figure 4. Activity to be studied



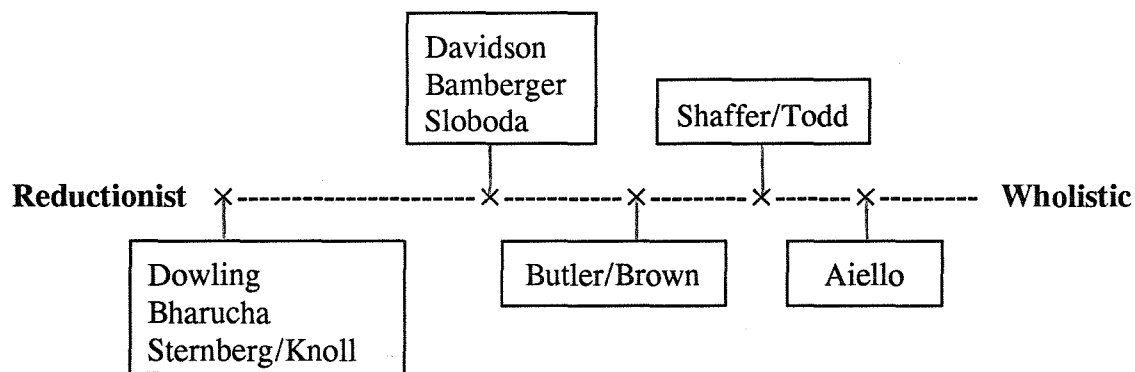
The final category to be used for comparative analysis is methodological slant. A wealth of issues are contained in this category. Cook and Aiello (in her last chapter) examine some of these issues in their essays. This discussion is limited to those issues directly related to the contents of *Musical Perceptions*.<sup>17</sup> The two poles of methodology are identified as reductionist and wholistic. (See Figure 5.) The reductionist approach has been essential to the development of the field of music cognition; it is employed in mainstream research. A more recent trend is the investigation of theories and data through a more wholistic approach, characterized by a sensitivity to the “natural” in

<sup>16</sup>Again, Aiello’s use of the term “perceptual” studies for these last two units implies an opposing relationship to “developmental” studies and therefore is a source of confusion. Identifying these concepts as belonging to different issues in the organization of the field (developmental studies are at a pole of the *state of skill* to be studied; perceptual studies are at a pole of the *activity to be studied*) is intended to clarify the use of these terms.

<sup>17</sup>These issues are the basis of a paper entitled “An Evaluation of ‘Scientific’ Inquiry for Music Cognition,” which I presented at the 1994 Music Theory Midwest conference in Bloomington, Indiana.

music and in music listening. Theories investigated in this way might include the following: (1) musical parameters occur together and influence each other; (2) music occurs “in time”; (3) listening to music bears multiple responses; and (4) the only natural context for musical material is music. On the other hand, reductionist methodology serves an objective analysis of musical material and cognition, allowing for a more scientific inquiry. Its main characteristic is that it studies the smallest identifiable components of an object or activity and synthesizes the information thus gained to explain the whole.

Figure 5. Methodological slant



Examination of the methodological choices in the individual essays follows, moving from the most reductionist to the most wholistic approach.<sup>18</sup> Those essays that stand firmly in the reductionist tradition are those by Dowling, Bharucha, and Sternberg and Knoll. Dowling's reductionism is evident in his conceptualization of contour and in the musical stimuli for experiments cited: contour is defined as one component of melody, which is itself an isolated parameter; the examples of contour are arhythmic. In addition, he relies on Gestalt principles for the synthesis of the parts. Bharucha presents a theory of tonal expectation that depends on experiments of his own and of Krumhansl. Reductionist characteristics of cited studies include (1)

<sup>18</sup>As Aiello points out in the last chapter, because the wholistic approach is a new methodology, researchers are still grappling with problems in its realization. It is for this reason that none of the studies from this book are completely wholistic.

binary response, (2) stimuli consisting of theoretical constructs (as opposed to music),<sup>19</sup> and (3) arhythmic pitch stimuli. Coming from the tradition of psychoacoustics, the Sternberg and Knoll study epitomizes the reductionist methodology.<sup>20</sup> Although they attempt to provide a musical context for their rhythmic stimuli with a stream of “beat clicks,” there is nothing musical about the stimuli, the terms used for judgment response, or the authors’ conceptualization of “beat fractions.”

The three developmental-learning essays have about the same mixture of reductionist and wholistic factors. In his focus on expressive performance, Sloboda considers many contributing factors from various musical parameters, but his insights depend on experimental evidence from both reductionist and wholistic studies. The setting for data collection in both the Bamberger and Davidson essays—the music classroom and the home—is more natural than the laboratory (considered the appropriate setting in the reductionist approach). At the same time, both authors concentrate on a single component: Davidson attends only to the pitch of the children’s songs, and Bamberger deals with a rhythmic figure that has no pitch component.

The remaining two essays lie the closest to the wholistic pole. Expressive performance is defined by Shaffer and Todd much as it was by Sloboda: according to a network of contributing factors. Shaffer and Todd employ a more wholistic approach, analyzing the interpretive use of rubato according to the in-time interaction of intentional pitch and rhythmic manipulations by the performer. This is in contrast to the synthesis of various individual studies on which Sloboda depends. Finally, the experiments cited by Aiello represent a conscious effort to study music listening using the most wholistic means feasible: (1) stimuli are recordings of entire works; (2) listeners are asked to respond *as* they listen; (3) listeners are given some freedom as to their type of response, which is an attempt to study a “natural” listening

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<sup>19</sup>Cook’s claim that music perception has been the study of ear-training instead of the study of music listening is relevant here.

<sup>20</sup>As Aiello notes in her last chapter, psychoacoustics has been influential in shaping the reductionist mainstream of music cognition.

experience, not one that might be guided by the requested response;<sup>21</sup> and (4) broad musical issues, such as boundary identification, thematic recognition, and general listening strategies, are studied.

Up to this point, the content of the mainstream has received limited consideration. In this final section, I will explicitly express the relationship of the individual essays to the mainstream. Note that for the most part, the essays lie on the left sides of Figures 2 through 5. This indicates their placement in the mainstream; the few diversions are easily recognized. A clearer picture of the individual essays emerges with the rearrangement of the information from these figures, provided in Figure 6 (located at the end of this review).

With these essay profiles, it is possible not only to compare these contributions to each other, but also to place them within the broader context of the field of music cognition. Half of the elements of the three developmental essays (Davidson, Bamberger, and Sloboda) fall outside of the mainstream; the emphases on acquisition and production result in these essays being less in the mainstream than others in this book. At the same time, the parallel profiles exhibited by the developmental essays may indicate that this subfield of music cognition has its own mainstream, in which the poles labelled “acquisition” and “production” would be situated. The Shaffer and Todd essay also has one foot in and one foot out of the mainstream, due to its wholistic approach to the study of performance. Other than the emphasis on wholistic methodology, the Aiello essay is rooted in the mainstream. The Butler and Brown article is similar in profile. This illustrates a natural tendency when attempting to alter a tradition: extensions are often limited to one issue at a time.<sup>22</sup> The remaining essays (Dowling,

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<sup>21</sup>As Aiello notes in her final chapter, trained musicians are better suited to this type of experiment, for they have better descriptive tools.

<sup>22</sup>Obviously, Aiello has a sense of what is in the mainstream. At the same time, she seems to be interested in studies with important divergences from that stream. From this fact, one can infer that it is her opinion that the mainstream has been too narrow and is in need of some widening via the exploration of issues traditionally considered to be outside the mainstream. Her discussion of methodological issues in the last chapter supports this assumption.

Bharucha, and Sternberg and Knoll) are solidly in the mainstream; only the combination of judgment and production responses in the Sternberg and Knoll contribution shows any significant divergence from that left node.

The introductory music cognition course is a relatively new genre. Its tools and pedagogical methods are in the process of being formed. In response to the need for a collected set of readings appropriate to an introductory level, Aiello presents *Musical Perceptions*, an attempt not only to bring readings into one sourcebook, but also to provide the kind of background information essential to someone new to the field. However, the limited context given in the chapter introductions does little to aid in the conceptualization of the bigger picture. To put it another way, it is probable that a student will not be able to see the forest for the trees. The supplemental information presented in this review is suggested as a means of recognizing how those trees are situated in their forest.



Figure 6. Placement of the essays in the mainstream

	Mainstream	
<b>Davidson</b>		
Experimental	×-----	Modeling
Nature of Skill	-----×-----	Acquisition
Judgment	-----×	Production
Reductionist	-----×-----	Wholistic
<b>Bamberger</b>		
Experimental	×-----	Modeling
Nature of Skill	-----×-----	Acquisition
Judgment	-----×	Production
Reductionist	-----×-----	Wholistic
<b>Sloboda</b>		
Experimental	×-----	Modeling
Nature of Skill	-----×-----	Acquisition
Judgment	-----×	Production
Reductionist	-----×-----	Wholistic
<b>Dowling</b>		
Experimental	×-----	Modeling
Nature of Skill	-----×-----	Acquisition
Judgment	-----×-----	Production
Reductionist	×-----	Wholistic
<b>Butler/Brown</b>		
Experimental	×-----	Modeling
Nature of Skill	×-----	Acquisition
Judgment	×-----	Production
Reductionist	-----×-----	Wholistic

Figure 6. (continued)

**Bharucha**

Experimental	----- × -----	Modeling
Nature of Skill	× -----	Acquisition
Judgment	× -----	Production
Reductionist	× -----	Wholistic

**Sternberg/Knoll**

Experimental	----- × -----	Modeling
Nature of Skill	× -----	Acquisition
Judgment	----- × -----	Production
Reductionist	× -----	Wholistic

**Shaffer/Todd**

Experimental	× -----	Modeling
Nature of Skill	× -----	Acquisition
Judgment	----- ×	Production
Reductionist	----- × -----	Wholistic

**Aiello**

Experimental	× -----	Modeling
Nature of Skill	× -----	Acquisition
Judgment	× -----	Production
Reductionist	----- × -----	Wholistic