

A Theory of Musical Analysis: On Segmentation and Associative Organization

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Review Essay

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A Theory of Musical Analysis: On Segmentation and Associative Organization

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Overview¹

Hanninen's book presents and exemplifies a 'theory of analysis', not a theory of musical structure *per se*—a premise that will be addressed in this overview and at the end of the entire review. *A Theory of Musical Analysis* consists of four parts: an introduction; a presentation of the theory of analysis; six analyses, each of which focuses on a specific work (by Beethoven, Debussy, Nancarrow, Riley, Feldman and Morris); and a final part that addresses Hanninen's theory in relation to other recent music theoretical trends and some implications for its further development.

Précis of Hanninen's Theory of Analysis

Hanninen's theory sets out 'criteria and mechanisms for object formation and the interrelations of objects of analytical interest' (p. 3)—or, in other words, it provides guidelines for determining musical segments and their associations. Hanninen argues that the theory is not a 'methodology' that lays out which musical features determine a segment but, rather, it is a 'multidimensional conceptual space' that 'supports' music analytical thought. Thus both 'objects' and 'interrelations' are analytical entities determined by an analyst. Hanninen's theory not only recognizes but further encourages analytical agency, 'supporting' an analyst's individual interpretation (p. 4).

While Hanninen's theory emphasizes analytical agency, the 'criteria and mechanisms' establish some constraints on analytical observation—these constraints forming the core of her theory of analysis.² She defines two dimensions for the space of music analytical thought.

1 This review grew out of a seminar at Stony Brook University during the Fall Term 2013 whose topic was recent trends in music theory. As a seminar we read the theoretical chapters of Hanninen's book and then individual members of the seminar studied in more detail one of the analyses. This review begins with an overview of the theory written by Lochhead and then includes discussion/critique of each of Hanninen's analyses—authorship is indicated in the text. While individual sections of this review have sole authors, the content of each of the sections was approved by all members of the seminar.

2 I return to the roles of these constraints and their relation to analytical outcome shortly.

One dimension consists of *domains* defined as the *sonic*, the *contextual* and the *structural*.³ Each of these domains is linked to a particular sort of criterion for segmentation. The sonic refers to musical events—‘individual notes and their attribute values’ (p. 5)—and organization in this domain arises from differences that establish segment boundaries. The contextual domain refers to collections of segments associated by ‘repetition, equivalence, or similarity’ (p. 32), and organization in this domain arises from relations of identity or similarity. The structural domain refers to segments defined by some pre-existing theory, and for the purposes of Hanninen’s book she relies primarily on Schenkerian and twelve-tone theories since they are well established, well known and well defined. However, in principle, the analyst could develop a theory, or could even leave this domain ‘dormant . . . [if] no systematizing principles obtain . . .’ (p. 8). Hanninen’s schematic of this theory of analysis, given here as Figure 1, provides a helpful representation. The three domains are shown across the top of the page, with the structural occupying the centre.⁴

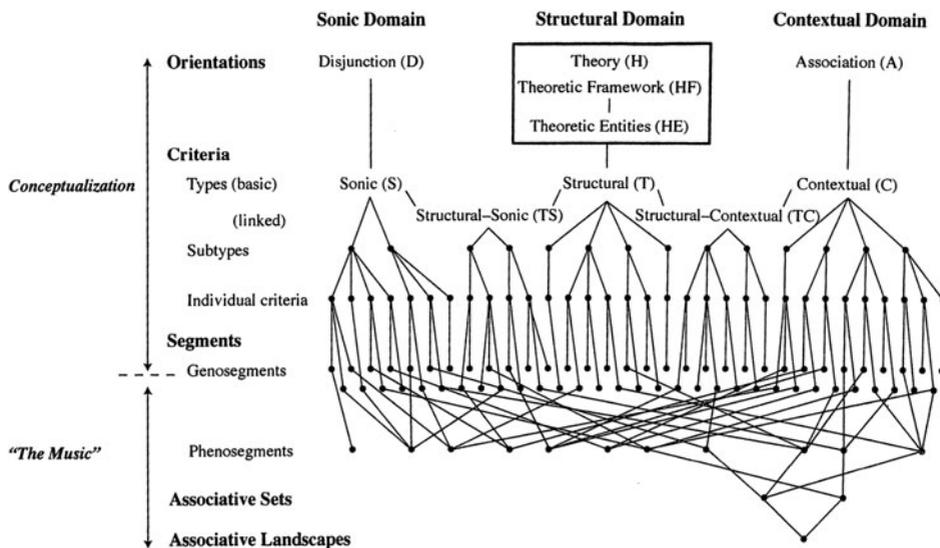
As the schematic shows, the theory also consists of five ‘conceptual prerequisites’ that are shown in a column to the left of the vertical arrows. Hanninen calls these prerequisites *levels* but does not conceive of them as hierarchic. Rather, each is linked to the particular domain invoked analytically. The five levels are: *orientations*, *criteria*, *segments*, *associative sets* and *associative landscapes*. An orientation is a ‘perceptual or cognitive strategy’ employed by the analyst and affiliated with one of the three domains. For instance, in focusing on differences that establish organization in the sonic domain, the analyst is oriented toward ‘disjunction’. The level of criteria refers to the analytical rationale for a particular segmentation, and the particular sort of criteria invoked may be the differences of the sonic domain, identities of the contextual domain or the concepts of existing theory. And for the latter, a structural criterion must be ‘realized by sonic or contextual criteria’ (p. 10). Orientations and criteria operate at a conceptual level, and while Hanninen conceives of them as ‘independent of the sound-world that is music’, the orientations and criteria serve as tools for articulating sounding segments.

The level of segments refers to a ‘grouping of notes (or other musical events) that constitutes a significant object in an analytical discourse’ (p. 11). For Hanninen these segments shape musical form in both its short and long-range temporal unfolding, and as such the determination of segments and their associations is the central focus of her theory of analysis. Hanninen defines two types of segments—*phenoseg* and *genoseg*. The former refers to a ‘readily perceptible segment’ (p. 65), and the latter to a ‘potentially perceptible grouping of notes (or sound events) supported by exactly one sonic or contextual criterion . . .’ (p. 63). Hanninen fashions this distinction from the biological concepts of phenotype and genotype where identical genetic structures may give rise to variable physical features of the individual. In Hanninen’s definition, the genoseg involves only a ‘single musical dimension’ (p. 71) and, as a conceptual entity, it allows the analyst to establish associations between phenosegs that may not be immediately apparent. In other words, the genoseg is a kind of deep structure that establishes relations between units that, on the musical surface, are different.

The two remaining levels, associative sets and associative landscapes, refer to different ways of establishing and conceptualizing associative relationships between segments.

3 Hanninen uses several terms with meanings specific to the theory. When I first refer to and define these terms here they will be italicized.

4 The interested reader may enjoy comparing Hanninen’s schematic with recent humorous accounts of organizational structures at major US technology companies. See <http://www.bonkersworld.net/organizational-charts/>



Example 1.1. Schematic representation of the general theory of music analysis

Figure 1. Hanninen's Schematic of the General Theory of Music Analysis, p. 6.

Associative sets establish relations apart from any consideration of chronology or becoming. Associative landscapes take account of the chronology of segments for a musical passage or work. Sets then serve a synchronic understanding, and landscapes serve a diachronic understanding of music; both delineate relations of identity and similarity within the contextual domain.⁵

This *précis* outlines only the main concepts of the theory. Hanninen makes even finer distinctions within these broad concepts, defining multiple types of segments, interactions among domains and levels, and relations within associative sets and landscapes. The goal of the theory, then, is to establish a large set of conceptual tools and distinctions that the analyst can use to craft a descriptive account of segments and their associations for part or all of a musical work. Hanninen's claim is that the descriptive tools afforded by the domains and levels 'offer a means to develop and express the analyst's own interpretation' (p. 4). But one question explored throughout this review is the extent of analytical freedoms that Hanninen's theory enables. For instance, Hanninen expressly excludes from analytical consideration 'critical or cultural perspectives on music' since these assume a "music" already constituted' (p. 8).⁶ I will return to the question of analytical agency at the end of this review.

The Analytical Problem of Segmentation: Identity and Difference

Hanninen's theory focuses on a long-standing challenge for music analytical thought: what are the criteria defining the temporal units—or segments—of music and how do the

⁵ Hanninen also defines 'associative configurations' that are relations between segments of an associative set reflecting an analytical determination of 'associative adjacency'.

⁶ Hanninen refers to this aspect of music as a 'node "P"' that could be represented on her schematic (Figure 1 here) as 'attach[ed] to the arrow embracing all of "the music"' (p. 8). We return to node P later in the review.

relationships between them constitute the overall organizational strategies of a musical work or passage? Segmentation became a particular problem in the twentieth century when musical compositions in the western art tradition ventured into music structural and expressive territories that left existing music theories and analytical approaches mostly mute. And while new challenges have arisen with the myriad styles and procedures of music in the twentieth and twenty-first centuries, the issues of segmentation—or grouping, phrasing and other such terms of temporal ‘chunking’—have long been a challenge for establishing the boundaries of musical units in all music. Indeed, questions of segmentation are centrally implicated in our understanding of music as a temporal art, not only for music theorists and analysts but also for composers and performers.

In the middle years of the twentieth century, as musical style changed and the need for new descriptive and theoretical concepts arose, segmentation became an important focus of thought about music. For instance, in his essays of 1950, Roger Sessions generalizes issues of segmentation in order to address a wide array of musical styles. He refers to these as the form-building processes of progression (which establishes ‘cumulative movement’), association (which establishes continuity) and contrast (which ‘throws ideas into relief’).⁷ Such issues of temporal relationships also figure in Ian Bent’s *Grove Music Online* article on analysis. He writes:

The central analytical act is thus the test for identity. And out of this arises the measurement of amount of difference, or degree of similarity. These two operations serve together to illuminate the three fundamental form-building processes: recurrence, contrast and variation.⁸

Both Sessions and Bent rely on concepts of identity and difference and, in Bent’s case, a determination of degree, but neither provides a means for determining how segments are formed in the music. Rather, they seem to leave such determinations up to the analyst—assuming that she/he is a knowledgeable and sensitive musician.

On the other hand, Christopher Hasty, in ‘Segmentation and Process in Post-tonal Music’, presents an approach to segmentation for twentieth-century music that defines a method for tracing identity and difference through the various musical parameters.⁹ Hasty claims that segmentation is a process of music, a musical process producing structure: ‘Segmentation is the process of structural formation, the action of structures producing formal articulations’.¹⁰ Hanninen’s approach builds upon the kind of analytical process Hasty defines here, but extends it in significant ways.¹¹ Most significantly, it is notable that while Hasty argues that segmentation is a musical process defining structures, Hanninen defines her theory of analysis as a tool for analysts to develop an interpretation of a musical

7 Roger Sessions, *The Musical Experience of Composer, Performer, and Listener* (Princeton, N.J.: Princeton University Press, [1950] 1974), 62–3.

8 These sentences have remained through the various iterations of Bent’s ‘Analysis’ article for *Grove*, from its earliest version in *New Grove* of ca. 1980 through its current online version. See Ian D. Bent and Anthony Pople, ‘Analysis’, *Grove Music Online. Oxford Music Online*, Oxford University Press (Accessed 8 March 2014), <http://www.oxfordmusiconline.com/subscriber/article/grove/music/41862>

9 Christopher Hasty, ‘Segmentation and Process in Post-Tonal Music’, *Music Theory Spectrum* 3 (1981), 54–73. 10 *Ibid.*, 59.

11 Hanninen cites other authors as important contributors to current thought about segmentation—in particular, Lidov, Lerdahl and Jackendoff, and Zbikowski (p. 3); but Hasty’s work is most relevant for our purposes here.

work. Not focused on the becoming of musical structures, Hanninen's theory imports structural concepts from pre-existing theories.

While both Hasty and Hanninen employ a concept of 'domain', they use the term differently. For Hasty, domain is roughly equivalent to parameter. But for Hanninen, domain has multiple references: the process by which phenomenal units are determined on the basis of difference; the process by which units are established on the basis of contextually defined identity; and the process by which units are defined according to existing theoretical discourse. In the sonic domain, the analyst approaches the 'notes' almost as if they were uninterpreted sounding events and identifies moments of disjunction—or difference. One group of notes differs from another on the basis of some disjunction; for example, silence, timbre, contour, and so forth. In the contextual domain, the analyst articulates segments on the basis of similarities among units and shows associations amongst units based on other types of similarity. In this domain, the analyst employs basic music theoretical terms and concepts as part of an 'observation language' (p. 34). In the theoretical domain, the analyst imports an existing music theory. The imported theory 'recommends segments and guides or confers interpretations for musical events' (p. 7). In the process of analyzing a work, the analyst engages music utilizing these three modes of address, specifying differences and identities in the service of interpreting segments and their association.

The five levels that Hanninen defines as conceptual prerequisites also refer to multiple types of things. Orientation refers to the kinds of distinctions the analyst may employ; criteria to a rationale for a segmentation; segments are actual groupings; association sets are groups of segments related synchronically; and association landscapes are groups of segments related diachronically. The levels then define some procedures and basic concepts to guide the analyst in making segmentations and for interpreting those segments into 'higher' sorts of musical organization.¹²

Like Sessions, Bent and Hasty, Hanninen defines segmentation through the observation of differences and identities. For Hanninen, difference operates as the basis for segmentation in the sonic domain. Segments are marked analytically by 'disjunction', or more broadly as some sort of change in one or more parameter—what Hanninen calls 'attribute-values' of notes (p. 23). Identity operates as the basis for both segmentation and higher-level relations between segments in both the contextual and structural domains. Associations between 'groupings of notes' are marked analytically by 'repetition, equivalence, or similarity', thus allowing for degrees of similarity (p. 32). While both identity and difference operate in her theory, identity plays a more defining role in the determination of higher levels of organization. And while Hanninen claims that the 'relational' focus of her theory might require some 'mental rearrangement', the emphasis on types of identity relations places her theory squarely in the mainstream of theories of musical structure—from Schenkerian theory to set theory (pp. 33–4)

Selected Topics

In the remainder of this overview, I turn to selected topics that arose from our study of Hanninen's *Theory of Analysis*. These topics are: interaction of domains; interpretive

¹² Hanninen refers to the associative sets and landscapes as operating at 'higher levels of organization' (p. 12), using a hierarchic concept of level. This reference to hierarchic level occurs during a presentation of the five levels of the theory that are defined as a non-hierarchic 'chain of conceptual prerequisites' (p. 9). Such contradictory usage of the term level is confusing.

freedom and constraints; using the theory and the space of analytical thought; and taxonomy and function.

Interaction of Domains

Hanninen's *Theory of Analysis* takes great care to distinguish the three domains from one another, characterizing each by types of orientations (disjunction, association, theory) and types of criteria (sonic, contextual, theoretical), but these domains and their distinctions are qualified as 'conceptual' and 'not phenomenally independent'. Rather, she points out that the domains are 'interdependent, integrated through conflict and coincidence in segmentation that has a cumulative effect at higher levels of organization' (p. 13). Hanninen's observation raises the question of the purpose and value of making the distinctions in the first place. If it is better to think of the domains 'holistically', as she suggests, then might it be preferable to begin analytical investigation with segmentations as phenomenally holistic and then probe the domains for the roles they play in shaping these holistic segmentations? Perhaps this is how Hanninen wants her theory to be used, but the processes by which the analyst would engage these interactions are not explicit in the theory. Hanninen does worry the relation between different types of segmentation criteria in a short passage in Chapter 2 (pp. 42–3), emphasizing the criterion of difference in the sonic domain and the criterion of identity in the contextual domain. And she requires that segmentations suggested by a particular theory must be 'realized' by segmentations in either the sonic and contextual domains (p. 43). We would welcome further elaboration of how the interactions between domains operates in analytical interpretations using the theory of analysis and how the 'conflict and coincidence' between domains affect 'higher levels of organization'.

Interpretive Freedom and Constraints

Hanninen defines her theory as an 'interpretive tool' to guide the analyst's own interpretation of a musical work and to provide a 'conceptual space' for analytical and musical thinking (p. 4). But, at the same time, Hanninen is 'committed to precise language', in an echo of Milton Babbitt's dictum some fifty years ago. Therefore, the interpretive freedom of the analyst is constrained. It is constrained by both what is included and what is excluded.

Included is the focus on segmentation—the 'objects of analytical interest'—and their associational relationships (p. 4). The theory allows for great variability in what may constitute a segment and the types of relationships that may exist between these segments. But the criteria for designating contextual and theoretical segments and relations are constrained in two ways: first, contextual criteria assume 'basic concepts in music theory such as pitch contour, pitch content, pitch-class set, scale degree, set class, and rhythm . . .' (p. 32); and, second, criteria must specify 'determinate, predicable properties' (p. 34). The nomenclature Hanninen employs for specification of these criteria builds upon prior set-theoretical approaches in music studies, which itself is based in mathematical logic. [Figure 2](#) cites a table from Hanninen's book that shows this nomenclature for designating some contextual criteria. The example shows the kinds of existing music theoretical concepts that may be employed to establish determinate and predicable properties. These vary between the more theoretical (contour reduction) and the more descriptive (segment

C subtype	Description and comments	Sample individual criterion
Cse _g	Pitch contour	Cse _g <0132>
CCR	Contour reduction	CCR <0132>
Cpitch	Pitch set (unordered); pitch segment (ordered)	Cpitch {C#3, A2}; Cpitch<C#3, A2>
Cpitch R	Pitch segment retrograde	Cpitch R<C#3, A2> pairs with Cpitch R<A2, C#3>
Cip	Pitch interval (+/- indicates directed interval)	Cip 8; Cip <81>; Cip <+8, -1>
Cip I	Pitch interval ordering under inversion	Cip I <+9, -8, +7> pairs with Cip I <-9, +8, -7>
Cip R	Pitch interval ordering under retrograde	Cip R <+9, -8, +7> pairs with Cip R <+7, -8, +9>
Cip RI	Pitch interval ordering under retrograde inversion	Cip RI <+9, -8, +7> pairs with Cip RI <-7, +8, -9>
Cipspc	Pitch interval spacing, read from low to high	Cipspc <81>
Cpc	Pcset (unordered); psegment (ordered)	Cpc {9A10}; Cpc <9A10>
Cpc R	Psegment retrograde	Cpc R<9A10> pairs with Cpc R<01A9>
Cint	Pc interval	Cint 5
Cint I	Pc interval inversion	Cint I<14A> pairs with Cint I<B82>
Cint R	Pc interval retrograde	Cint R<14A> pairs with Cint R<A41>
Cint RI	Pc interval retrograde inversion	Cint RI<14A> pairs with Cint RI<28B>
Cic	Interval class	Cic 5
CSC	Set class	CSC 3-4[015]
Cdseg	Duration contour	Cdseg <0132>
Cdurseg	Duration segment (commas separate beats)	Cdurseg <4, 211, 211>
Cdyseg	Dynamics contour	Cdyseg <0132>
Cdynseg	Segment of dynamics	Cdynseg < <i>ff</i> , <i>p</i> >

Example 2.8. Some contextual (C) subtypes for analysis of post-tonal and twelve-tone music with examples of individual criteria

Figure 2. Hanninen's 'Example 2.8 Some Contextual (C) Subtypes for Analysis of Post-tonal and Twelve-tone Music with Examples of Individual Criteria', p. 37.

of dynamics). Included then—either explicitly or implicitly—are those musical phenomena that are most easily quantifiable in some way.

Constraints on the interpretive freedom of the analyst also come from what is excluded. For instance, Hanninen conceives the basic concepts in music theory as an 'observation language' (pp. 33 and 43) as if it were a neutral, descriptive language. Suggesting a science-like empiricism, this observation language seems to serve as a basis for the interpretive freedom of the analyst. While the theory of analysis does not explicitly specify the kinds of segmentations and relations that may be observed analytically, the freedom of the analyst is nonetheless constrained by the types of entities included within basic music theoretical concepts.¹³ Far from being a neutral language, basic music theoretical concepts of the sort Hanninen employs are shot through with higher-level concepts of the nature of musical structure.

Another kind of constraint arises from exclusion of certain kinds of observational and interpretive perspectives that populate Hanninen's 'Node P' (the 'P' apparently from 'post-structuralist'). Hanninen excludes approaches to music 'inspired by semiotic, narrative, post-structuralism, feminism, or psychoanalysis' since these approaches do not refer to specific events on the 'musical surface' (p. 8). Hanninen claims that post-structuralist approaches to music do not address music at the cognitive level of segmentation and hence they are not relevant to her theory of analysis, which addresses how 'a listener constitutes a sonic surface as music *from the bottom up*' (p. 8; original emphasis). The claim, grounded in the belief that social structures are not embedded in musical structures, is hard to sustain in some of Hanninen's own analyses—as later parts of this review demonstrate.

¹³ Hanninen may be implying that an observation language is inherently theory-laden with her subjunctive and italicized qualifiers: '*as if* observation language' (p. 32). But she does not necessarily understand the 'theoretical' nature of an observation language as a constraint on interpretive freedom, probably because of the requirement that criteria must be based in predicable properties.

Using the Theory and the Space of Analytical Thought

Hanninen conceives of her theory of analysis as a ‘multidimensional conceptual space within which one does analysis and thinks about music analytically ...’ (p. 4). Her invocation of the space of analytical thought accords with recent thinking in music theory in which the metaphor of sounding space plays a significant role as well as in other humanistic and social science disciplines.¹⁴ Not a musical space, Hanninen’s is a space of music analytical thought. The theory of analysis does not provide a specific method or process for negotiating the various dimensions of the space. Rather, it lays out the dimensions of this space and leaves it to the analyst to put this conceptual space to the service of analysis. The individual analyses do exemplify how one might use the theory, and the last chapter reflects on the theory’s relation to other approaches and on various implications of the kinds of analytical thought it opens up.

In acquainting ourselves with the theory and the six analyses, we were confronted by the very high learning curve involved—a learning curve determined by the theory’s large toolkit. As a consequence, we wondered about the audience for the theory. The theory assumes high-level knowledge of existing theories and some prior experience with analysis. As such, the most appropriate audience seems to be professional music theorists/analysts and graduate students emphasizing theory and analysis. Advanced undergraduates are another potential audience, but given the already-full curricula for undergraduates, we wonder how much interest there would be in the theory—at least initially. So, while the idea of creating a conceptual space for analytical thinking is appealing, the practicalities of the theory pose some challenges.

Taxonomy and Function

Hanninen’s theory of analysis is not primarily a taxonomy, focused on defining the essence of segments. Rather, it focuses on associational relations between segments that shape musical organization. However, the book’s two theoretical chapters (Chapters 2 and 3) devote considerable time specifying the possible types of criteria that may be employed for analytical observation of segmentations and the possible types of associational relations between segments and sets of segments. Hanninen typically demonstrates these possibilities using a nomenclature like that shown in [Figure 2](#).¹⁵ As suggested earlier, the form and detail of the nomenclature is driven by the philosophical position that the theory should precisely refer to predicable properties of musical events. So, while the theory does not rest with a taxonomic listing of possible segmentation or relation types, it does require a significant engagement with a nomenclature that is ‘relatively neutral and

14 This includes Neo-Riemannian theory and other geometrical approaches: see Richard Cohn, ‘Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective’, *Journal of Music Theory* 42/2 (Autumn, 1998), 167–80; Edward Gollin and Alexander Rehding, *The Oxford Handbook of Neo-Riemannian Music Theories* (New York: Oxford University Press, 2011); and Dmitri Tymoczko, *A Geometry of Music Harmony and Counterpoint in the Extended Common Practice* (New York: Oxford University Press, 2011); and for transformation theory, see David Lewin, *Generalized Musical Intervals and Transformations* (New Haven, Conn. and London: Yale University Press, 1987; reprinted Oxford University Press, 2007). Holly Watkins has offered high-level critical commentary on this recent trend in music theoretical thought: see Holly Watkins, *Metaphors of Depth in German Musical Thought: From E. T. A. Hoffmann to Arnold Schoenberg* (Cambridge and New York: Cambridge University Press, 2011).

15 Sometimes the criteria for segmentations are shown as annotations on musical examples and sometimes they are given in the text.

precise' (p. 4). As such, the analyst must be well versed in the nomenclature and its use. The nomenclature serves as a descriptive tool that analysts use to 'develop and express' their own interpretations (p. 4). The theory does not define musical functions, nor does it specify how analysts should go about developing an interpretation of functions. Discussion of the six analyses addresses the question of how the analyst develops an interpretation.

The next sections of this review consider each of the six analyses; individual authors listed. (*Judy Lochhead*)

Chapter 4: Ludwig van Beethoven, Piano Sonata No. 2 in A-Major, Op. 2, No. 2, Movement I

Hanninen's analysis takes two passes through the exposition and development sections. On the first pass, Hanninen establishes the segments and associative landscape by describing the properties, recurrences and interactions; on the second pass, Hanninen shifts her attention to the 'relative priority, and interactions among, associative organization, sonic organization, and structural voice-leading ...', employing a Schenkerian voice-leading theoretical paradigm for the latter (p. 241). In the first pass, the element that primarily determines the form is the associative landscape, with a secondary emphasis on hypermeter. In the second pass, traditional elements of harmony and the Schenkerian voice-leading graphs serve to support the claims of the first pass.

Hanninen identifies bars 1 to 8 as the 'inaugural theme' and bars 9 to 20 as the 'primary theme' (p. 241), which repeat before the transition (bars 32 to 57). The second tonal area is bars 58 to 103, followed by a codetta (bars 109 to 121). She divides the development into five roughly equal sections, Part I (bars 123 to 161, spanning the first two sections), Part II (1) (bars 162 to 182), Part II(2) (bars 182 to 203), and the retransition (bars 203 to 225). All of these formal sections are supported by the associative sets and harmonies. There are seven associative sets (labeled *A* to *G*), which are unevenly distributed in the exposition. There are more in the first tonal area, sets *A* and *B* comprising the inaugural theme and sets *C* to *E* the primary theme. Set *F* appears only in the transition, and set *G* (divided into subsets *G/a* to *G/d*) dominates the second tonal area. A variety of criteria from the sonic, contextual and structural domains are used to define these seven associative sets, and only set *F* is not clearly defined by her analysis. While the exposition is characterized by an uneven distribution of the associative sets, the development is more balanced: sets *A* and *B* play a larger role, set *C* plays a central role (against its mainly ancillary function in the exposition), and set *G* is virtually absent.

After defining the associative sets, Hanninen's analysis in the first pass next establishes their presence and texture. She demonstrates a pattern of transition between 'associative monophony' and 'associative polyphony' that occurs at both the level of themes and larger sections (pp. 248–9). Taking just one of her examples, the inaugural theme moves from implied associative polyphony between sets *A* and *B* to associative monophony of set *A* in bars 1 to 8. In bars 76 to 88, set *B* alternates with subset *G/d* (a set that already bears rhythmic resemblance to *A*), creating plots of parallel organization at roughly opposite points in the exposition (bars 1 to 8 open up the first tonal area, bars 76 to 88 close the second tonal area). Part I of the development is also modeled on the inaugural theme, with a larger scale structure of associative polyphony between sets *A* and *B* transitioning to just set *A*.

Hanninen represents this patchwork associative design and the resulting shifts between associative monophony and associative polyphony with: a cutaway score association map of

the first tonal area; association maps of the exposition and development, showing all associative sets' duration, and, where relevant, registral disposition; and a summary map of both the exposition and development, whose vertical alignment depicts the parallel structure of the two sections' associative landscape composition. The cutaway score map has an intuitive design and is immediately clear. The duration maps can be initially confusing, as the durations are notated in hypermeter with rhythm, but once one understands that these represent an associative set's presence but *not* its rhythm, they are clear. In other parts of the book these duration maps are represented with horizontal lines rather than notated rhythm, a method that seems more immediately clear. The rationale for the use of hypermetric rhythms here is not clear. The summary map (Example 4.15, p. 260) visually represents concisely a huge amount of information presented in the chapter. This is clear, although I wonder whether the use of different lines or shading may have been a valuable tool to bring out connections at a glance rather than relying solely on text.

The second pass of Hanninen's analysis examines which of the domains is most important at any given moment. Shifts between different domains are used to support Hanninen's formal divisions. For example, the inaugural theme is associatively active, distinguishing it from the primary theme that has a more stable sonic domain and less active surface. Schenkerian theory is employed to support various formal designations. Hanninen supports her claim that bars 9 to 20 are the primary theme with the observation that the *Kopfton* first appears in bar 12. And in another instance, Hanninen argues that during patches of great surface activity and associative polyphony the structural voice-leading tends to be fairly static, and that during transitions to less active surface design and associative monophony there is increased activity in structural voice-leading. An example of this is in Part II of the development. Part II(1) inherits a fairly unified associative landscape from the corresponding primary theme, and in this section voice-leading is active (although near the surface). In Part II(2) the associative landscape is the most active of the entire movement, with sets *C* and *F* interacting and creating an irregular hypermeter. In inverse relation to the active surface design, the structural voice-leading in this section is the least active.

Through its examination of the associative landscape, landscape design, and changes and interactions of sonic, contextual and structural domains, Hanninen's theory of analysis offers a highly flexible and comprehensive approach to form, in which the organization, nature and disposition of the musical material brings out the intrinsic form rather than seeing form as set in convention. At the same time, she cites established theories—by Schenker, by Caplin, and by Hepokoski and Darcy—both to support and to contrast with her parsing of the form.¹⁶ The application of the theory to Beethoven's op. 2 no. 2 is convincing, although sometimes the language was difficult to decipher, and it required repeated review of the theory as developed in Chapters 2 and 3. While this application was successful, Hanninen states at the outset that this movement was selected because the general characteristics and sonic contrasts lend it to being understood in terms of associative sets, themes and textures. One wonders, then, how well the theory would apply

16 Heinrich Schenker, *Five Graphic Analyses* (New York: Dover, 1969); Schenker, *Free Composition*, trans. Ernst Oster (New York and London: Longman, 1979); William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York: Oxford University Press, 1998); and James Hepokoski and Warren Darcy, *Elements of Sonata Theory: Norms, Types, and Deformations in the Late-Eighteenth-Century Sonata* (New York and Oxford: Oxford University Press, 2006).

generally to other works in the tonal canon. Assuming the theory is broadly applicable, I think the most exciting aspect of the theory are: its significant engagement in the sonic domain and, as such, heard experience; and its use of static concepts to support claims made about dynamic processes. (*Hayley Roud*)

Chapter 5: Claude Debussy, 'Harmonie du Soir', *Cinq poemes de Baudelaire*, No. 2

Debussy's 'Harmonie du Soir' is a musical setting of Baudelaire's poem of the same name. Hanninen's well-thought and convincing analysis illustrates Debussy's compositional efforts to create a musically coherent work based on the problematic structure of Baudelaire's poem. It also demonstrates how Hanninen's theory can be used for motivic analysis, as well as its potential to provide a language common to both textual and musical analysis. It is an open question, however, whether the same analytical observations about 'Harmonie du Soir' could have been made without specific use of the concepts of Hanninen's theory of analysis.

Baudelaire's 'Harmonie du Soir' is a four-quatrains poem based on a pantoum, a poetic form in which the second and fourth lines of every quatrain are repeated in the first and third lines of the next. Hanninen demonstrates that every quatrain depicts a different realm: the first quatrain depicts scents, the second sounds, the third Catholic symbolism, and the fourth depicts the human realm. Interestingly, the author analyzes the poem's internal rhymes using the labels of her musical theory, demonstrating the theory's flexibility and suggesting its potential use as a mediator between musical and textual analysis.

According to Hanninen, Debussy outlines the structure of the poem in several ways. First, he creates a melodic correspondence between repeated lines of text. Second, he marks the poem's two end rhymes with contrasting rhythmic motives. Third, he ascribes textual lines with a characteristic harmonic signature. Finally, he crafts several instances of text painting; most importantly, the flamboyant piano accompaniment of the lines beginning with the words *valse mélancholique* [melancholy waltz].

Hanninen explains that basing a musical work on a pantoum's structure is problematic since musical coherence requires adjacent repetitions and references that are unavailable in the pantoum's dispersed structure. Hanninen argues that Debussy solves this problem by creating purely musical associations, particularly melodic connections between adjacent lines, and local and long-range motivic associations. Hanninen's theory plays a central role in the analysis of these motivic associations, as it is used to define the essential components of two recurring motives that appear throughout the song. Yet the theory does not seem to be crucial for defining these components. In fact, these could be defined by traditional means and without reference to the elaborate concepts of Hanninen's theory.

Hanninen also carries out a formal analysis of the work. She explains that the music follows the structure of the poem: there is a clear harmonic division between the second and third quatrains that mimics the division created by the poem's textual imagery. Yet the motivic elements of the music, particularly the flamboyant accompaniment of the *valse mélancholique* lines, obscure the textual division between the first and second quatrains and the third and fourth quatrains. The alternating correspondence and conflict between the musical and the textual structures create, according to Hanninen, an original form that 'extends the prismatic quality of the text to new dimensions' (p. 290).

Hanninen's analysis makes evident the delicate balance between textual representation and musical coherence in 'Harmonie du Soir'. It also illustrates the pragmatic use of

Hanninen's theory for motivic and textual analysis. Yet the chapter does not convincingly establish the theory as essential to its observations. In fact, the analysis of motivic associations could have been carried out without reference to the concepts introduced in previous chapters, and the use of the theory for textual analysis does not seem to have much relevance for the musical analysis. The chapter does, however, illustrate well how the theory can provide very dissimilar events with a common language. (*Felipe Ledesma-Núñez*)

Chapter 6: Conlon Nancarrow, Study No. 37 (for player piano)

Hanninen's analysis demonstrates how form is created as a byproduct of the interaction of the twelve-voice tempo canons and the pitch levels of entrances, and how segmentations arising from differences in the sonic domain and similarities in the contextual domain delineate formal sections and create associational networks between them.

The analysis begins by presenting the more or less inarguable aspects of musical structure. These include: tempi increases, mathematical relationships between tempi, and the pitch relations between successive canonic entrances. Hanninen's Example 6.1 (p. 292) does an excellent job of relating tempi and pitch levels, of outlining the canonic structures and of directing the reader to both the score and recording for reference. The example shows the twelve sections of the *Study*, each with a different canonic structure determined by differing tempo sequences and registral sequences.¹⁷

The second stage of Hanninen's analysis addresses overall formal processes of Study No. 37 in terms of its 'Changeable Landscapes' (p. 294). While Hanninen discusses most of the twelve sections in the *Study*, she focuses more attention on sections II, IV, VI and VIII. The primary topics Hanninen considers in this second stage are: how the increasing or decreasing of tempi in the rhythmic canon affects how many voices are in play throughout each section, suggesting that texture plays a role in form in this piece; how the number of voices in play affects whether or not the falling fifths in individual voices are heard, or whether we hear instead ascending fourths across voices; whether sections either cohere or dissolve based on the tempo canon; whether pitch entrances are ever-increasing/decreasing or are spaced by 'thirds' in the 'scale' that each section holds unique to itself; and how sections differ from each other at their boundaries according to sonic criteria.

In Hanninen's account of section VI (p. 299ff) the contextual domain becomes most important in conjunction with her discussion of its associative monophony and polyphony. Unlike the preceding ones, this section employs four subjects that occur in each of the canonic voices. This discussion maps out the polyphony created between the four subjects, or the monophony if only one subject occurs. Hanninen's discussion of section VIII establishes an associative network between associative Set C ('[relatively] longer, isolated major triads') and Set D ('semitone neighbor figures in staccato eighth-notes') (p. 304). Further, Hanninen relates Set C and D to eight of the twelve sections of the *Study* with a synchronic association graph (see Example 6.9, p. 307). This is the most original contribution of the analysis and a logical culmination of the work of the analysis up to that point.

Hanninen chose a challenging piece with very little scholarship addressing pitch, and successfully applied her theory to account for coherence and formal demarcations.

¹⁷ Hanninen represents relative registral relations of the canonic voices using the standard set-theoretical approach to contour.

Proceeding in a logical way, the analysis employs terminology and concepts from the earlier theoretical chapters but without bogging down the analysis. I was especially impressed with the associative graph relating several of the Study's sections (Example 6.8), but I wish some time was spent accounting for the four sections that do not appear on it, or explaining how the theory would consider those outliers. Overall I was impressed by the flexibility of the theory and gained a better understanding of the piece. (*Laura Smith*)

Chapter 7: Terry Riley, *In C*

Because of the indeterminate score of Terry Riley's seminal minimalist work *In C*, where any instrumental group can cycle through the fifty-three figures in ways varied by repetition, timing, timbres, textures and slight transformations, performances of the work tend also to vary greatly. Hanninen's analysis focuses first on the associative relations between the fifty-three musical figures and then demonstrates how various performances of *In C* highlight different aspects of these associative relations. She examines five performances (focusing the greatest attention on three), comparing how each realizes and emphasizes potential associative relations between the figures. Because Riley's *In C* contains such limited musical materials—fifty-three short cells of melodic/rhythmic material, without accompaniment, fully notated—it is an excellent example of how associative organization can be illuminated or emphasized in performances and also a useful demonstration of how associative organization can be a beneficial tool for performance studies.

Before proceeding to the analysis, Hanninen defines some terms as they are used specifically in this chapter, including associative sets, subsets, and supersets. Associative sets refer to one of the fifty-three figures of the piece along with its multiple statements. She defines associative subsets as two or more figures associated through performance-related aural elements, such as instrumentation, timbre, register, transformations and more; and associative supersets are two or more figures associated through contextual criteria. Despite their definition by sonic criteria, associative subsets in Hanninen's analysis describe temporally distant relationships, which can be seen in the score but only heard if highlighted through performance decisions. The contextual relations of similarity that define associational supersets play a dominant role in Hanninen's analysis.

Hanninen's analysis then considers the possible relations between the associative supersets. The contextual criteria she locates in the fifty-three musical figures include gradual transformations of pitch, rhythm and texture—transformations that Hanninen calls 'recalibrations' (p. 312)—and similarities in contour. Associative supersets operate not only in temporally proximate, linear figures, but also in non-linear, temporally distant figures. While supersets of figures are based in contextual criteria of similarity, some associative subsets may also be formed from sharply contrasting non-linear figures depending on their realization in performance.

A comparative analysis chart (Example 7.6, pp. 318–19) tabulates some of the major differences between the five performances. The recordings of these performances include Terry Riley's at the Center of Creative and Performing Arts at SUNY Buffalo from 1968 (referred to here as *1968*), and more recent performances such as the 25th Anniversary Concert, and recordings by Ictus, Bang on a Can, and Ars Nova Copenhagen/Percurama Percussion Ensemble led by Paul Hillier (referred to here as *Hillier*). The chart shows differences in the number of performers, instrumentation, the length of the performance and the number of active figures that overlap—what Hanninen defines as a 'figural

window' (p. 320). Hanninen uses these differences to make observations about the degree of heterogeneity and homogeneity in the performances and about the kind of associative connections they generate. Further, Hanninen also uses the information about the figural windows in the performances to observe differences in large-scale design—or landscape design.

Lastly, Hanninen's 'landscape studies' aim to show how performances realize potential associative connections (pp. 322–30). The landscapes of performances use bar graphs where the horizontal bars indicate the different figures sounding over a period of time. Shadings of the bars—gradients from light to dark—represent the prominence of each figure within the texture and the speed of its transition in and out of the texture. Focusing only on three recorded performances—1968, *Bang on a Can* and *Hillier*—the first landscape study focuses on linear, temporally proximate associations by comparing the timing, content, continuity, and design for figures 4 to 9 of the fifty-three.

The second and third landscape studies (Examples 7.8 and 7.9, p. 327–329) take on the more challenging task of demonstrating that temporally distant associations can be detected in particular performances. Comparing these three performances, Hanninen makes the case that the *Hillier* performance brings out more long-range associations by connecting events of figure 6 with those of figure 30 of the fifty-three. She also maintains that neither the 1968 nor *Bang on a Can* performances take advantage of this potential, or they simply cloud that potential in other performance details.

Not all of the recordings were available for this review, and hence it is difficult to assess the results of Hanninen's analysis. But there are some general issues that arose in my study of this analysis. First, Hanninen does not discuss the difficulties of aurally parsing out each of the fifty-three figures in the performances. Given that Riley instructs performers to make entrances as inaudible as possible, aural determination of when figures enter and leave poses a considerable challenge. And in some performances, the sheer number of performers (sometimes twenty or more) can make aural detection of figures a daunting task. Second, the landscape graphs have certain limitations that affect analytical precision. For instance, it can be hard to tell the difference in shading density of the black-and-white horizontal bars, and they offer limited or no information on the aural prominence each figure has in the texture and its instrumentation. But to be fair, Hanninen sometimes addresses these matters in her text. Third, the analysis would have been easier to understand with the addition of some examples showing the connections between the landscape graphs and the score.

Despite these issues, Hanninen's analysis of associative sets holds a lot of promise for analysts interested in performance studies. She does offer a methodology for comparative analysis that, with some improvement in graphing techniques, demonstrates how performance decisions can influence the small and large-scale design of indeterminate works. (*Anna Reguero*)

Chapter 8: Morton Feldman, *Palais de Marie*

Study of the analyses in Hanninen's *Theory of Analysis* suggests that her lexicon and methods of segmentation are more apt for some musical styles than others. One particularly good example is her account of Morton Feldman's piano work *Palais de Marie*, in which Hanninen offers a convincing analysis based in her typology of associative sets and landscapes. One of Feldman's shorter works, *Palais de Marie* exhibits all of the stylistic elements we have come to associate with his music: expansive structures, isolated motivic

elements and a meandering, through-composed form. Hanninen suggests both that these features make Feldman's music resistant to traditional formal analytical methods and that her more pliable theory of segmentation offers an effective alternative. Her analysis of Feldman's *Palais* confirms this claim: it allows for analytical observation of the nuance and complexity that characterize the ambiguous and drawn out segments and their associative relationships.

Hanninen's analysis concerns two major associative landscapes (a grouping of associative sets) within two large sections of *Palais de Marie*: the 'opening passage' (bars 1 to 73) and the extended closing passage (bars 287 to 437.) Each passage's boundaries are determined both by sonic criteria and by associative relations between segments and sets, and across associative landscapes. Hanninen refers to the opening passage as 'high profile', because it exhibits a 'heterogeneous associative landscape' in which segments and sets are clearly defined (p. 340). In opposition, the extended closing passage is 'low profile', because it is 'an extended monologue on a single associative set' (p. 343). She claims that it is this fundamental juxtaposition that frames the complex surface of *Palais*, with its 'glancing repetition and constant change' (p. 331).

One interesting theme Hanninen tackles in her discussion of *Palais de Marie* is the difference between 'notational images' and aural effect of segments (p. 330). She claims that this theory of analysis leaves room for these distinctions and allows the analyst to consider notational images that appear to be literal repetitions as different segments distinguished by contextual criteria. Hanninen shows this clearly with the associative landscapes of the opening passage, when associative set *C* emerges from its similar neighbors, sets *A* and *B*.

Such analytical observations are sometimes obscured by prose heavy with hyper-specific abbreviations and, more often than not, frequent glossary consultation is needed to decipher even the simplest of ideas. Furthermore, many of her examples include confusing labels such as 'E/b' or 'A/a5'. While true that Hanninen defines these terms in the theory chapters, their similarity to other common musicological labels (Eb and A5 respectively) makes for, at times, messy reading.

Overall Hanninen's theory of analysis lends itself quite well to Feldman's music as it allows for pliable interpretations of form not in terms of 'convention' and 'sectionalization' but rather as 'the intermingling of diverse musical materials and change . . .' (p. 359). The analysis is convincing, enlightening and shows the potential for considering segmentation as the primary force of musical organization. However, the many avoidable challenges presented by the terminology pose a challenge to clarity. (*Matt Brounley*)

Chapter 9: Robert Morris, *Nine Piano Pieces*

Hanninen applies her theory to the most recent work of the book, Morris's *Nine Piano Pieces* (1999). Explicit about her goals, Hanninen claims that she will 'examine the relationship between structural origins and realization in shaping some of the *Nine*'s diverse associative landscapes', as well as 'investigate the compositional underpinnings of a few characteristic resonances among the pieces' (p. 360).

Hanninen's process begins with the latter, and a short but dense passage introduces terminology from contemporary twelve-tone theory as pertaining to Morris's compositional practices, as well as concepts particular to this set of piano pieces. This introductory passage lays out that each of the movements share a common set of order positions (ordered pitches, not unlike a tone-row), running from 1 to 35. These rows of

order positions (ops) are then arranged according to Morris's compositional design in the form of a pitch-class array. From this array, Morris can control the number of 'lynes' and columns (vertical and horizontal slices of the array, respectively). What gives him creative control in determining the unity (or disunity) of the movements is how he manipulates these slices, creating string segments (a run of consecutive ops within a lyne) or partitions (a specific set of pc sets within a column). Hanninen also introduces a number of other terms that deal with the organization of the piece; blocks coordinate beginnings and endings of strings in different lynes, and sections are defined by a passage of music that realizes a single block of an array.

Hanninen then proceeds to make some general observations about compositional properties of the string and how its realization within the *Nine* plays out in a broader analytical scheme. Successively overlapping strings yield thirty of the thirty-five z-related hexachords, ensuring harmonic diversity. The z-related hexachords that are omitted are the all-combinatorial hexachords and SC 6 to 27, which is self-complementary. The second feature of the string she highlights is how the order at the beginning and end of the string (1 to 5, 35 to 31) are related by RT_2 . This relationship generates 'patches of close imitative counterpoint that help create a sense of cadence around block boundaries and audibly relate array blocks to sections of music' (p. 362). The final property she points out is that strings, regardless of transposition, inversion, retrograde or retrograde-inversion, will omit one of the twelve pcs. Her generalized formula for determining the omitted pitches are as follows: T_nP and RT_nP omit $pc\ n + 5$ and T_nIP and RT_nIP omit $pc\ n + 7$.

Before moving on to the actual analysis of five of the nine movements, Hanninen also makes a few statements about 'aspects of realization' (p. 363). Each of the movements has its own specific pc array that differs in the number of lynes, blocks, harmonic consistency, partitioning and aspects of realization. She also introduces the idea of a 'lyne-to-register' rule, where 'each string within a block [follows] its own pitch range for the duration of the corresponding section' (p. 363). Another rule she introduces involves the temporal domain, where each of the pieces are rhythmically free, in large-scale form as well as in the surface details. However, Hanninen's description of Morris's 'column-to-measure' rule affects the musical form over long spans, where each measure contains the pitches contained within a single column. This tends to align ops near the beginning and endings of blocks, shaping block boundaries within each movement (p. 363).

After all this exposition of Morris-particular terminology, we reach Hanninen's application of her theory to a number of the movements. The lengthiest analysis belongs to 'Between', in which Hanninen identifies four associative sets (A to D) and their reoccurrence throughout the movement. Each of these associative sets seems to be determined by relations between interval classes, set classes, rhythmic motives, contour segments, string segments and pitch inversion. These associative sets are not 'motives' or 'themes', but rather are conglomerations of particular criteria. As part of the analysis, Hanninen provides diagrams of the pitch-class array, and in the accompanying score for the movement she circles each instance of the associative sets, labeling them in order of appearance and in kind (A1, A2, B1, B2, etc.). She then abstracts these associative sets and arranges rhythmically reduced versions of them, creating an associative map. Using this map in tandem with prior observations about 'lyne-to-register' and 'column-to-measure' rules, she proposes an overall associative landscape for the movement. This map (Example 9.6, pp. 373–4) provides a compelling explanation of the familiarity of particular points within the piece without resorting to labeling of set classes and intervallic motives. She repeats this analytical process for an additional four movements ('Kids', 'Rising Early',

'Loose Canon' and 'Glimpse'), each of which contains its own particular arrangement of lines, columns, and blocks. Hanninen then extrapolates the associative sets from 'Between' to make associations with other movements in the piece.

I now consider Hanninen's claim that hers is a new analytical approach, an approach meant to highlight details and associations obscured by conventional analytical methods, and also her claimed goals for this analysis of the *Nine*. First, I believe her means of deconstructing and breaking down a work into its smallest segments and drawing associations based on these criteria for segmentation is not necessarily a new idea. But what makes her analysis (and the techniques behind it) novel is the extreme level of specificity at which it operates. She also leaves a certain amount of openness and ambiguity to the process, allowing analysts to modify and apply her theory in ways that would allow it to serve as a strong analytical tool for diverse repertoires. Although her theory allows for study in extreme detail and depth that most methods take for granted, she seems to emphasize pitch-related criteria above those of rhythm, timbre and texture. She does not neglect them entirely: on the contrary she spends a great deal of time in the Morris analysis discussing how pitch register and lyne realization determine particular textures; but this seems to be a secondary result of the alignment of various criteria and compositional practices.

Additionally, as a reader it sometimes takes a moment to retrace some of the analytical steps that are not included in the analyses themselves, and it seems to be presumed that we should trust those omitted analytical steps—perhaps the omissions are meant to streamline the presentation. However, in the Morris analysis it is not always clear what is given as an explicit compositional system for the work (the order positions) and what process she used to determine her associative sets (for instance, why were the criteria $S_{1\text{-pitch}}$, $S_{2\text{-pitch}}$, and C_{ip-3} chosen to define her associative set A ?). On the one hand this does lead to a rather intimate and personal reading of the work she chooses to analyze, but at moments it seems necessary to question her particular hearing of a piece. She also does not pay much attention, at least within this chapter, to the role that performance plays in constructing associative landscapes. Her theory at the outset proposed a means of taking account of psychoacoustic associations experienced by a listener. But in the analyses of the Morris pieces, Hanninen only makes fleeting reference to her personal hearing of a passage—references that typically are used to support a segmentation based on her reading of the score.

Overall, Hanninen's theory of analysis does prove to be revealing beyond drawing simple distinctions between what might be similar or different. It connects these associations in a way that can create meaning out of pieces that might resist other means of analysis, and provides us with a new vocabulary with which to make these distinctions and ultimately relate them in a way that is not specific to any theoretical ontology. This seems to be the true strength of Hanninen's theory: that it remains open and may be applied to a wide range of musics, where it may prove to be as illuminating as this particular example was. (*Michael Boerner*)

Concluding Remarks

In proposing a 'theory of analysis', Hanninen places greater emphasis on analysis as a project of musical knowing and also raises the broader issue of the circular relation between theory and analysis. To do analysis, one needs theoretical tools as a basis for observation, from the so-called 'basic' descriptive to the higher conceptual theories. And in order to develop theories, one must analytically observe musical phenomena. This circularity has

been the subject of much debate in twentieth-century philosophy, and a useful articulation of this issue for music was given by John Rahn in 1979.¹⁸ Hanninen's theory of analysis puts another twist on this question of the circularity between analysis and theory. The theory of analysis takes pre-existing theories—basic and higher level—as prior to analytical engagement. Observation of segments generated by pre-existing theories is combined with observation of segments generated by identity and difference occurring in the sonic and contextual domains. Together these observed segments are utilized by the analyst to arrive at an interpretive explanation of a musical work. This combination of types of observations seems to promise a kind of freedom from the circularity of theory and analysis, but at the same time, Hanninen's theory of analysis is guided by a number of constraints—either explicitly or implicitly. This tension between the possibility of analytical freedom and analytical constraint runs through the analyses themselves in both productive and non-productive ways. It remains to be seen how other music scholars realize these tensions utilizing Hanninen's theory, and we look forward to reading the analyses the theory generates. (*Judy Lochhead*)

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18 John Rahn, 'Aspects of Musical Explanation', *Perspectives of New Music* 17/2 (1979), 204–24.