Music Theory Society of New York State

25th Anniversary Meeting

Eastman School of Music of the University of Rochester
April 12-13, 1997

PRELIMINARY PROGRAM

Saturday, April 12

9:00-9:45 -- Registration (Cominsky Promenade - 2nd floor main building)

9:45-10:00 -- Welcome and Announcements (Kilbourn Hall)

Douglas Dempster, Acting Associate Director, Eastman School of Music
Mary I. Arlin, President
Elizabeth West Marvin, Program Chair
Steve Laitz, Local Arrangements

10:00-12:30 -- Invited Special Session: PEDAGOGY (Kilbourn Hall)

12:30-1:00 -- Main Hall Concert - The Eastman School of Music's Balinese Gamelan Anklung, Lila Muni

12:30-1:45 -- LUNCH

1:45-5:00 -- AMBIGUITY (Kilbourn Hall)

1:45-3:15 -- Short Session: ANALYTICAL INTERPRETATION (Howard Hanson Hall)

3:15-3:30 -- Coffee Break (Cominsky Promenade)

3:30-5:00 -- Short Session: TRANSFORMATIONS & EXTENSIONS (Howard Hanson Hall)

5:00-5:30 -- Business Meeting (Kilbourn Hall)

5:30 -- Cocktails (cash bar)

6:00 -- Banquet (L'Operta at the Brasserie)

John Hanson, "Be Apt; Tap Your Resources; Stand Pat"
(Musics on the 25th Anniversary: Past, Present, and Future)

8:00 -- Opera: Verdi, Falstaff (Eastman Theatre) - $9.00
8:00 -- Chamber Music: Eastman Virtuosi (Kilbourn Hall) - Admission free

Sunday, April 13

8:00-8:30 -- Coffee & Bagels (Kilbourn Lobby)

8:30-10:30 -- OPERA (Kilbourn Hall)
8:39-10:30 -- **SPACES & PARTITIONING** (Howard Hanson Hall)

10:30-10:45 -- Coffee & Bagel Break

10:45-11:20 -- Mini-Concert (Kilbourn Hall)

   Bartók, Violin Sonata No. 1

       Sylvia Rosenberg, violin
       Barry Snyder, piano

11:30-1:30 -- **ANALYSIS SYMPOSIUM: Bartók, Violin Sonata No. 1** *(Howard Hanson Hall)*

11:30-1:30 -- **SIMILARITY RELATIONS** *(ESM 404)*

1:30-3:15 Executive Board Luncheon Meeting (Faculty Lounge)

MTSNYS Home Page
Saturday, 1:45-5:00
Kilbourne Hall

**Ambiguity**

**Joseph Dubiel (Columbia University), Chair**

- **Oscillation and Undecidability Mozart's Sonata in F Major (KV 280), Adagio: A Double Reading (Line Rhythm Motive),** Martin Scherzinger (Columbia University)
- **Poetic and Musical Permutation in Mallarmé, Debussy and Boulez**, Marianne Wheeldon (Yale University)
- **The Play Behind the Scenes: On Segmentation and Instrumental Interaction in Elliott Carter's String Quartet No. 2**, Dora A. Hanninen (University of Michigan)

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**Program**
Three distinct analytic readings (linear, hypermetric and motivic) of the Adagio from Mozart's K.218 are presented alongside one another in order to sustain and elaborate different kinds of ambiguity in the piece. The first and second analyses (sketched in large-scale graphs) illustrate a sense of voice leading that across durational units (set up by pacing of the flow) and, through this disjuncture, bring to perception those features of the movement that maybe regarded as unique. Thus a failure to align rhythmic and tonal events signifies as pertinently as success; and even constitutes the very particularity of the movement. The third (motivic) analysis defines its 'motives' as much by what they fail to bring about as by what they bring about; and thus less as a strictly contiguous series of tones that can be identified as a unit and more as a 'functioning' assemblage that guides some of the piece's movements. Taken together, instead of settling on the simpler or the more salient analysis, this reading prefers to articulate various possible readings (and the types of salience that pertain to these readings) that are provoked by undecidable moments. Various interpretative speculations are scattered throughout.
The Ambiguity Principle: A New Paradigm for Tonality

Deborah Stein
New England Conservatory of Music

Studies of tonal ambiguity have tended to consider such ambiguity as an anomaly or a digression from tonal norms. Using a theoretical paradigm called the Ambiguity Principle (AP), I argue that 19th-century European tonal ambiguity resulted instead in new structural designs that were commensurate with traditional tonal structures. Tonal ambiguity comes in several guises, from initial ambiguity clarified over time to sustained ambiguity that remains unresolved, including several double-tonal designs. The two forms examined here are Tonal Pairing, where two keys create tonal flux as they vie for tonal supremacy, and Implicit Tonality, where a key is invoked but never is fully realized, thereby remaining an unresolved tonal force.

The 19th-century increase in tonal ambiguity was prompted in part by several recurring German Romantic themes: extending beyond what was known, luxuriating in irresolution, and celebrating the dichotomous and paradoxical, including the irony of romantische Sehnsucht. In creating musical correspondences to these literary and philosophical ideas, new tonal designs were forged that challenged the norms of monotonality, tonal coherence, and tonal closure. I explore tonal ambiguity within the Lieder of Schubert and Robert Schumann in part to highlight the impact of Romantic literature upon 19th-century composers. My analytical approach is to juxtapose Schenker's analytical norms of tonal clarity and cohesion with alternative AP readings that highlight double tonality, chronic tonal vacillation and lingering tonal irresolution.

Ultimately, these tonal ambiguities can only be understood within a new tonal paradigm, one that searches beyond what is known, willfully opposes irreconcilable elements, and thrives in suspended irresolution.
Poetic and Musical Permutation in Mallarmé, Debussy, and Boulez

Marianne Wheeldon
Yale University

Mallarmé’s poetry often introduces such fragmented syntax that an understanding of the text depends upon a non-linear reading. In moments of syntactic ambiguity, for example, the reader must cast forward and back for possible associations in meaning and syntax, and then is often required to reread previous material in light of these newly-acquired associations. Whereas in Un coup de dés (Mallarmé’s last-published work) the non-linear reading is made explicit by the non linear presentation of the text, in the more traditional forms of Mallarmé’s earlier poems, the same result is achieved by studiously-fragmented syntax.

Both Boulez and Debussy worked with Mallarmé’s refractory syntax: Debussy in his setting of Mallarmé’s *Soupir* and Boulez with his creation of permutational forms, which are directly influenced by Mallarmé’s *Un coup de dés*. Whereas Boulez was able to go much further in his imitation of *Un coup de dés* with the various permutations of the piano Sonata no. 3, Debussy's static and non-teleological harmonies perhaps inherently possess the free-associating, non-linear strategies of Mallarmé's *Soupir*. With harmonic motion that is slow-moving and non-teleological, and voice-leading that is closely-knit, the harmonies of Debussy's *Soupir* present a densely-woven network of association among the six sections of the song. Thus, the sections of *Soupir* are capable of being performed in different permutations due to an overwhelming surfeit of linear connections.

The musical analyses of *Soupir* attempt to show that both Mallarmé's poem and Debussy's setting are motivated by similar principles of formal flexibility and potential multiple readings. Just as in Mallarmé's poem -- where the reader must cast about for all possible associations in meaning and syntax -- so in the harmonic and linear fabric of the song, connections are multiple, tenuous, and not necessarily successive. By pushing the connection between *Soupir* and Boulez's Piano Sonata no. 3 to its analytic extreme, the permutational possibilities of Debussy's *Soupir* invoke the "atmosphere of multiple potentiality" created by the fragmented syntax of Mallarmé’s *Soupir*.
As in many chamber works, the quartet of players in Elliott Carter's String Quartet No. 2 (1959) is an evolving paradox. At times a collection of individual voices clearly distinguished by characteristic rhythms, articulations, and intervals; at others, an integrated ensemble in which significant harmonic and motivic features emerge only in the totality of the instruments' interaction, it has been characterized by Carter himself as a dialogue that develops among four instrumental persona. Drawing upon Carter's own comments on pitch structure in the Quartet that suggest a dialectic between discrete intervalvic vocabularies and concerted associations via all interval tetrachords, this paper explores connections between subtle changes in the substructure of musical segmentation and their manifestations in changing modes of instrumental interaction.

Analytic observations stem from a fundamental distinction I draw between two types of segments--genosegments and phenosegments--that model the individual and cumulative influence of various musical dimensions, respectively. After defining some essential theoretic concepts, a series of analytic excerpts demonstrates how changes in segmentation substructure give rise to various modes of instrumental interaction along the continua from instrumental individualism to integrated ensemble, from contrapuntal to harmonic textures which, in turn, impinges on the study of form. In closing, I place the genosegment-phenosegment theory in a broader context to consider some of its implications for analytic process and product.
Saturday, 1:45-3:15
Howard Hanson Hall

Analytical Interpretation

Mark Anson-Cartwright (CUNY), chair

- Inter-Movement Parody in Beethoven, L. Poundie Burstein (Mannes College of Music and Hunter College/CUNY)
- Schubert's Allusions to the Descending Tetrachord, Su Yin Mak (Eastman School of Music)
Inter-movement Parody in Beethoven

L. Poundie Burstein  
Mannes College of Music and Hunter College (CUNY)

In a number of Beethoven's compositions, the structural connections between the separate movements are so strong that one movement will seem to present a type of commentary on another. Often this interplay between movements takes the form of a parody. In such cases, one movement recalls and subverts an element of an earlier movement. Such inter-movement parody is a significant facet of Beethoven's style.

One example of such inter-movement parody can be found Beethoven's Piano Trio Op. 11, where the unusual key structure of the finale seems to "mock" a crucial harmonic feature of the first movement. Parody also appears in his Piano Sonata Op. 10, No. 3, where the underlying structure of the first movement's development section returns in a contorted fashion within the final movement. Likewise, in the "Spring" Sonata for Violin and Piano, a harmonic twist of the last movement wittily plays against analogous progressions in the previous movements. And in the String Quintet Op. 29, the finale playfully revisits a number of harmonic, rhythmic, and formal elements that were handled in a serious manner within the first movement. Examining these and similar pieces not only reveals much about Beethoven's comedic skill, but also gives insight into the expressive possibilities of multi-movement structures in general.
Schubert's Allusions to the Descending Tetrachord

Su Yin Mak
Eastman School of Music

While the investigation of relationships between structure and expression is, arguably, the ultimate goal for music analysis in general, such an approach is especially suggestive with regard to Schubert's music, which often contain formal and harmonic anomalies that draw attention to their rhetorical character. In this paper I explore the relationship between structure and expression in Schubert's music through focusing on composer's uses of the descending bass tetrachord 1-b7-b6-5, a figure that has traditional semantic associations with lament.

The paper is in three sections. In the first section I compare the rhetorical and syntactical roles played by the descending tetrachord in Baroque and Classical conventions, and argue that the descending tetrachord typically functions as a foreground rhetorical topos in the Classical style; Schubert's "Nachtstück", D. 672 uses the descending tetrachord in just this way, suggesting that the composer inherited much of his expressive vocabulary from his immediate predecessors. In the second section of the paper, I investigate the expressive implications of a "hidden" descending tetrachord structure found in the deep middleground of "Die Liebe hat gelogen", D. 751. By way of conclusion, I discuss briefly the theoretical ramifications of my analytical approach, as well as speculate on its applicability to music by other composers.
Transformations and Extensions

Robert Wason (Eastman School of Music), Chair

- Modeling Melodic Transformations in Balinese Angklung Gamelan Music, Kristin Taavola (University of Colorado at Boulder)
- A Little Bird Swang It in My Ear: A Counterpoint Lesson from Charlie Parker, Richard Hermann (University of New Mexico)
Modeling Melodic Transformations in Balinese Angklung Gamelan Music

Kristin Taavola
University of Colorado at Boulder

This paper examines various rhythmic and melodic transformations as musical processes in the Balinese angklung gamelan repertoire. After a detailed description of the instruments and music of the gamelan, I review the literature, documenting the relevant scholarship pertaining to gamelan musics. Next, I lay out a transformational methodology for use with the angklung repertoire, taking into account the limited pitch schema and the cyclic rhythmic structure. A representative analysis follows; this part of the study will examine the various "melodies" of gamelan music, showing transformational techniques on local levels, as well as across sections of pieces. The final part of the paper compares the results obtained through the use of the tools with the musical intuitions of a seasoned Balinese performer Depending upon time constraints, parts of the pieces will be demonstrated.
This essay seeks to establish more profitable methods for analysis and pedagogy of American jazz, in particular for the music called "bop" and for the music of the great alto saxophonist Charlie Parker, nicknamed "Bird." Bop is of particular importance because it is considered by some to be the first "movement" in jazz that provided a conscious aesthetic exploration of its material that moves beyond the realm of entertainment. In addition to defining new methods and concepts for jazz theory and pedagogy, this essay has as its central focus an in depth study of Charlie Parker and Benny Harris's composition "Ornithology" and of Parker's classic recorded solo on that composition of March 28, 1946.

Before that analysis is presented, the harmonic model for "Ornithology," "How High the Moon," is examined. Typical jazz theory and pedagogy techniques of studying improvised solos are considered next along with relevant topics from European "classical" music theory of the mid-eighteenth century. A new "tonally adjusted combined species counterpoint model" derived from these 18th century ideas and ideas set forth by Heinrich Schenker and his followers is presented. That model will be used in the analysis of Bird's famed "Ornithology" solo.

This essay's scrutiny of the voice-leading structures of "How High the Moon," "Ornithology," and Parker's improvisation on "Ornithology" will show that the relatively pure voice-leading of Renaissance counterpoint, as tonally adjusted in this essay, seems a more powerful explanatory tool than conventional notions of jazz harmony. These results are unexpected--ad perhaps to some controversial--and this essay should be a goad to reexamine jazz theory and to test these concepts on other works of the early bop repertoire.
Sunday, 8:45-10:45
Kilbourn Hall

**Opera**

Elizabeth West Marvin, (Eastman School of Music) chair

- *Isolde's Transfiguration and Wagner's Second Thoughts*, Robert Gauldin (Eastman School of Music)
- *Urlinie and Urigel: Tonal and Dramatic Closure in Britten's Peter Grimes*, Edward D. Latham (Yale University)
- *I's, V's and Expressive Modulations: Stravinsky's Use of Tonal Conventions to Project Theatrical Distance*, Chandler Carter (Mannes College/Hofstra University)

Program
Our familiarity with the succession of events in many masterworks of music often produces such a pronounced sense of inevitability that we find it difficult to imagine the possibility of alternate versions. One such instance occurs in Isolde's Transfiguration that concludes *Tristan und Isolde*. Although the Ab and B-major sections in the Transfiguration constitute musical reprises of the two corresponding portions in Act II Scene 2, several of its passages underwent considerable reworking in Wagner's Preliminary Draft. Yet in his complete score the composer swept these revisions aside and instead opted for a literal repetition of the Love Duet Music. this talk will address the possible rationale behind his eventual rejection of these reworked portions of the Draft.Robert Bailey goes to great length in detailing the nature of the changes in the Preliminary Draft of the Transfiguration. Nevertheless, his discussion fails to address the essential question underlying these radical modifications--why did Wagner go to all the trouble to sketch out a draft that he would later discard in favor of a literal reprise of the Love Duet music? The reason lies, not surprisingly, in the text for the Transfiguration, which existed in finalized form prior to the composition of the Preliminary Draft.

Following a detailed voice-leading analysis of the Final Version of the Transfiguration, I will outline the changes in the Preliminary Draft, and then attempt to demonstrate that although they originated from the new text setting, they proved unsatisfactory from a musical standpoint. Therefore Wagner subsequently scrapped the draft in favor of his original Love Duet music and adjusted the text to fit it as best he could. His eventual solution shows the happy result. Not only is the music still intact, but the various stanzas and refrains were now conveniently accommodated within the previous thematic and tonal framework. In the final analysis, it is the *music* that proved to be the master and not the hand servant to the text, yet another vindication of Schopenhauer's principle.

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Session | Program
This paper presents a new two-part model for the analysis of opera. Beginning with a brief discussion of the history and challenges of opera analysis, and focusing on the conspicuous dearth of opera analyses by Heinrich Schenker in particular, the paper posits a broad and flexible application of Schenkerian analytical techniques based on a synthesis of the two approaches outlined by Patrick McCreless in his article "Schenker and Chromatic Tonality." A second element is then introduced: the application of Constantin Stanislavsky's system of dramatic analysis to the libretto. Stanislavsky's system, which is hierarchical, linear, and musical in conception, is concerned with the "score" of each role in the drama: an outline of each character's "objectives" for the opera, both overall and scene by scene. To unify these two techniques, the concept of closure is discussed in both musical and dramatic terms: the first in terms of the closure of the Urlinie, or fundamental line, the second in terms of the attainment of the Stanislavskian Urziel, or "superobjective."

As a specific example of the correlation of musical and dramatic closure, the character of Ellen Orford is subjected to dramatic-linear analysis. The score of her role reveals a dual superobjective: to marry Peter Grimes and to save John, his apprentice. This dualism is musically reflected by a double background structure, consisting of interrupted 3-lines in E-major and Eb-major. Recent interpretations of the character of Ellen by Philip Brett and Ellen McDonald are contested in light of the new information this reading reveals about Ellen Orford.
"I"s, "V7"s, and "Expressive" Modulations: Stravinsky's Use of Tonal Conventions to Project Theatrical Distance

Chandler Carter
Mannes College/Hofstra University

It has been observed (by Boulez and Louis Andriessen, among others) that Stravinsky's play with diverse styles and compositional procedures in his works for the theater achieve a Brechtian "alienation effect." Drawing on both tonal and post-tonal analytical techniques, I demonstrate how Stravinsky achieves such an effect by contrasting his post-tonal treatment of Russian folk melodies with his conventionally tonal (though still parodied) music for the organ grinder in the opening tableau of *Petrushka*. I conclude by examining Tom's death scene from *The Rake's Progress*. In this moving passage, Stravinsky achieves a more ambiguous expressiveness by relaxing his "play" with archaic conventions, and thereby dissipates the audience's sense of alienation - an effect not unlike that used by Mozart in *Cosi fan tutte*, an opera in which Stravinsky's was "deeply involved."
SPACES & PARTITIONING

Neil Minturn (Eastman School of Music), chair

- Graphic Representation of Trichord-Partition Symmetries in Hexachords, Jocelyn Neal (Eastman School of Music)
- Cross-partitions and voice-leading in twelve-tone music, Brian Alegant (Oberlin Conservatory of Music)
- Pitch-Space Ordering Types in the Recent Solo Music of Elliott Carter, Guy Capuzzo (Eastman School of Music)

Program
Graphic Representation of Trichord-Partition Symmetries in Hexachords

Jocelyn Neal
Eastman School of Music

The nature and intrinsic structure of the fifty hexachordal set classes has been investigated throughout the theoretical, analytical, and compositional literature. Many interrelationships are fully defined and explained mathematically; others are inferred. Yet these set classes contain implied geometric structures and interesting partition graphs that can illustrate visually those relationships already understood as well as those yet to be explored. Of particular interest are the trichord partitions of the hexachords, which capitalize both on the manageable size of the trichords and the symmetric nature of the partition.

This study examines the nature of the collection of all 50 hexachords according to their M- and Z- relations and patterns of their trichord partitioning. It includes an investigation of selected abstract (set-class) two-partition graphs, then the literal (pitch-class) realizations of some of those graphs. This approach is an extension of previous work by Robert Morris, James Boros, and Wayne Slawson.

The trichord two-partition graph of a hexachord shows the network of all its possible trichordal combinations. For that specific hexachord, the symmetric properties of literal two partition graphs define a mathematical group of operations, related to the internal nature of the hexachord. The properties of invariance and symmetry of the embedded trichords for the hexachord govern the structure of the graph. Applications of graph theory to trichord partitions of hexachords reveals intrinsic structures in the hexachords that provide rich compositional and analytical resources.

Session | Program
Cross-partitions and Voice-leading in Twelve-Tone Music

Brian Alegant
Oberlin Conservatory of Music

This study explores the voice-leading and motivic aspects of two-dimensional aggregate formations, or "cross-partitions," in twelve-tone music. Part I introduces the theoretical background. It defines cross-partitions and explores some of their properties. Part II examines cross-partitions in selected twelve-tone works. The analyses pay particular, attention to harmony, voice-leading, and motivic association among and between cross-partitions.
This paper discusses four pitch-space ordering types which appear in Elliott Carter's recent solo music: Frozen Register, CONVERGE, DIVERGE, and BOWTIE. These four pitch-space ordering types clarify passages of music whose pitches do not form primary set-classes. The primary set-classes of a work are contiguously and unambiguously presented at the piece's outset. A non-primary passage is any section of music whose contiguous pitches do not form members of the work's primary set-classes.

The primary set-classes of a given recent Carter work are typically few in number. As such, passages which abandon them are striking and might be heard as anomalous. This paper demonstrates, however, that many such passages utilize primary set-classes which Carter has reordered in pitch-space. Primary set-classes ordered in pitch-space thus underpin passages whose contiguous musical events form non-primary set-classes.

By focusing on how Carter reifies unordered pitch-class sets, the four pitch-space ordering types accommodate and acknowledge the simultaneous multiple modes of organization which impart so much richness to Carter's recent solo music, a repertoire about which no full length studies presently exist. They thus reflect ways in which Carter draws a listener's attention to primary set classes, a focal aspect of the audition, coherence, and analysis of these works.
ANALYSIS SYMPOSIUM
Bartók, Violin Sonata No. 1

Marie Rolf (Eastman School of Music), chair

- **Formal and Structural Functions in the First Movement of Bartók's Violin Sonata No. 1**, Charles Morrison (Wilfred Laurier University)
- **Modified-Dominants in Bartók's First Violin Sonata: Compositional and Historical Evidence**, Paul Buechler (Yale University)
- **Bartók's Sonata No. 1 for Violin and Piano: An Intertextual Reading**, Michael Klein (University of Texas, Austin)
Formal and Structural Functions in the First Movement of Bartók's Violin Sonata No. 1 (1921)

Charles Morrison
Wilfred Laurier University

In his analysis of the first movement of Bartók's Violin Sonata No. 1, Paul Wilson suggests that Bartók draws on a nineteenth-century model in which the character and function of the development section are radically changed, leaving the latter as more of an A' than a true development. Further, he notes that the recapitulation "loses a good deal of its dramatic force as a return and a release of large-scale tension" as it "becomes a third statement of the exposition material in yet another version."¹

In this paper, I use the first movement of the Violin Sonata to demonstrate how and why we might explore a conception of sonata design that employs traditional "formal functions"--typical components such as principal theme, subordinate theme, etc.--but also, and perhaps more importantly, what I and others have termed "structural functions." While the former are components of objective status with relatively fixed identity, the latter are more fluid qualities and, consequently, are more accurate in reflecting the rhetorical quality at any given time during a formal component and especially in reflecting changes of rhetorical properties over time. By exploring the dynamic shape of the movement from the perspective of structural functions, I think we will find ample reasons for understanding and hearing the Bartók as a truly dynamic sonata design, rather than the theme and variations suggested by Wilson's A-A'-A" characterization.

Modified-Dominants in Bartók's First Violin Sonata: Compositional and Historical Evidence

Paul Buechler
Yale University

In a recent discussion of Bartók's First Violin Sonata, Paul Wilson rejects the composer's key ascription of C# minor because "the (opening) chord seems too complex for such a simple designation..." His position, supported by Joseph Straus and others who question the relevance of common-practice harmony in such densely chromatic contexts, confines tonality to a strict triadicism based on Schenkerian principles.

In this paper I argue that the harmonic foundation of the first movement must be understood in reference to traditional tonality and that Bartók conceived of it in these terms. To support these claims I follow the development through the composer's career of a particular 'modified dominant': a triad built on bV with an added major-seventh. It's characteristic dissonance can be traced back to Bartók's experiments with the Hungarian gypsy idioms of the 'verbunkos' style, especially during the years 1902-04 when his interest in Hungarian nationalism was at its height. The tritone root relationship derives from Richard Strauss, Bartók's most important western influence during this period.

Two analytical themes in particular are featured: one, the use of bV to organize deeper levels of the tonal hierarchy, and, two, the ability or inability of the modified-dominant to project a sense of harmonic function within the work's highly chromatic foreground. This type of analytical approach helps to explain why Bartók assigns C#-minor to the work and illuminates the motivation behind other key assignments that he provides for those people "who like to label all music they do not understand atonal."
Bartók's Sonata No. 1 for Violin and Piano: An Intertextual Reading

Michael Kline  
University of Texas, Austin

Recent criticism has adapted the work of Harold Bloom to a study of intertextuality in music (J. Straus, K. Korsyn). Such studies take as their point of departure Bloom's contention that the "meaning of a poem can only be another poem" (The Anxiety of Influence). Although a study of intertextuality may give us clues to meaning in music, I prefer to read "structure" for "meaning" when applying Bloom's theory to music analysis. Under such a reading, I contend that the structure of a later composition is a transformation of the structure of a precursor composition. The precursor may be by the same composer, an earlier composer, or a rival composer.

Applying this reading of Bloom to the music of Bartók, I begin by considering the music that Bartók was studying and performing just prior to composing his Violin Sonata No. 1. Such precursor compositions include Debussy's Préludes, Szymanowski's Mythes, and Schoenberg's Klavierstücke, Op. 11. The paper illustrates how Bartók transformed structures in these earlier works to become central to the structure of his violin sonata. By defining clearly the nature of these transformations, the paper focuses on that which individuates the sonata from the precursor compositions.

Session | Program
SIMILARITY RELATIONS

Robert Morris (Eastman School of Music), chair

- **A Cycle-based System for Relating Pitch-class Sets**, Michael Buchler (University of Iowa)
- **The Interval Angle: A Similarity Measure for Pitch Class Sets**, Damon Scott (Eastman School of Music, presenter) and Eric Isaacson (Indiana University)
- **Evolution a Forte-Iori: On Similarity, Relations, Similarity Relations, and the Taxonomy of the Harmonic Menagerie**, Ian Quinn (Eastman School of Music)

Program
A Cycle-based System for Relating Pitch-class Sets

Michael Buchler
University of Iowa

Most similarity measures for pitch-class sets (pcsets) have utilized a comparison of either interval class vectors (ICVs) or total abstract subset content. In this paper, I will begin by describing some of the criticisms that have been leveled against both traditional approaches, and I will posit a fundamentally different methodology that examines the way a pcset is partitioned with respect to the six distinct interval-cycles. (Because interval 7- through 11-cycles may be understood as retrogrades of interval 5- through 1-cycles, they are not considered distinct.)

This information serves as the basis for a new weighted six-argument vector that resembles the interval-class vector (ICV) in function (at least in its function as data for similarity indices), but not in design. Each argument of the vector represents the degree to which instances of corresponding interval-class $i$ are found in unbroken $i$-cyclic adjacencies. The assumption behind the weighting process is that, for any SC $X$, the more that instances of interval-class $i$ form a particular $i$-cycle, the more likely that realizations of $X$ will project interval-class $i$. This new vector class and its associated similarity index will be explained methodically, and their usefulness will be illustrated through a series of analytic vignettes.
The Interval Angle: A Similarity Measure for Pitch Class Sets

Damon Scott (Eastman School of Music, presenter) and
Eric J. Isaacson (Indiana University)

Over the years, many measures have been proposed to gauge the difference in sound of pitch class-sets. We propose here that a very simple measure be adopted: take the angle between the interval-class vectors in six-dimensional space as the measure of the difference in sound of the original pitch-class-sets. We call this function ANGLE. The measure has essentially been proposed before: a variant called cos-theta was first mentioned in a seminar paper of 1992. Apparently unnoticed, however, were the striking features of ANGLE which in our opinion indicate that it is a particularly useful similarity measure.

ANGLE looks and feels very much like a measure taken from physics; in fact, a measure identical in spirit is used throughout Astronomy to measure the dissimilarity of apparent positions of stars when they are viewed from earth. It also has a very high correlation with Castren's %Rel and RECREL. The function ANGLE is not very hard to calculate, and the metric space from which the formula for ANGLE comes, called L_2, is the same metric space from which come nearly all formulas from physics. ANGLE not only can measure the difference in sound of pitch-class-sets of different cardinality, but a readily obtainable generalization of it can measure the difference in sound of music taking into account octave doublings, note repetitions and chord inversions. Finally, it can be altered to produce variant measures which will conform to the fact that some pairs of intervals themselves sound more similar to each other than other pairs.
Evolution a Forte-Iori: On Similarity, Relations, Similarity Relations, and the Taxonomy of the Harmonic Menagerie

Ian Quinn
Eastman School of Music

The music theory community has borne witness over the last decade to a proliferation of "similarity relations," tools designed to measure the similarity of pairs of pitch-class sets. It should be noted that most of these similarity relations are (a) fuzzy relations, not crisp ones, and (b) not similarity relations at all, since they lack the property of fuzzy transitivity required of similarity relations. A technique called "cluster analysis," borrowed from mathematical taxonomy, can be used to transform these "similarity relations" into similarity relations and to facilitate comparison of the relations to one another. As it turns out, most of these measures agree with one another about the basic topography of the world of pitch-class sets, in practice if not in theory; and what is more, they agree to a large extent with Allen Forte's theory of pitch-class set genera.