A RESPONSE

My Contour, Their Contour

Michael L. Friedmann

Although the subject of contour has been relatively neglected by theorists, two systematic articles with differing terminology and somewhat differing underlying concepts have appeared in this journal during the past year and a half.[1] For readers who wish to grapple with the applicability of the concepts to both analysis and composition, it seems appropriate to summarize and briefly discuss both situations where different names for the same phenomenon are being used and where different, even irreconcilable concepts are involved. To a great extent, analysts may want to piece together different aspects of the two methodologies, depending on the music under discussion, or the type of composition being generated.

Different Names for Similar Ideas. Marvin and Laprade's *cseg,* in which pitches of a melodic segment are numbered from 0 to n − 1 (n = number of pitches) appears to be identical to Friedmann's *Contour Class* (CC) (see Figure and Glossary reprinted here following text). These concepts are the core of both authors' descriptive methodology. Marvin and Laprade generate the *COM-matrix* from the *cseg.* This matrix becomes in turn the basis of equivalence relations and similarity relations, and it generates both detailed investigation of a contour via similarity relations, and a more general category for *csegs,* the *csegclass.* Friedmann uses the *CC* as the basis for describing aggregate properties of the contour, the *CIA, CCV I and II,* and for investigation of subset relations, a point of emphasis in both articles. (Marvin and Laprade's term is *csubseg,* and Friedmann articulates two types of "preferred" or manifest subsets.) Marvin and Laprade, using the *Com-matrix* also bring into play a *Csim-Com* similarity measurement which is a useful application of their matrix, and describes positional similarities between two *csegs.*

In Marvin and Laprade's *COM-matrix,* INT_1, INT_2, and so forth, are used to describe the contour relations between pitches one note apart, two notes apart, and so on, in a *cseg.* In fact, the *Com-matrix* could well be described as a collection of all possible *INTs.* INT_1, in fact, is identical to Friedmann's *Contour Adjacency Series* (CAS). However, whereas Friedmann treats the *CAS* as a more general category for *CCs,* Marvin and Laprade view it simply as one among n − 1 possible *INTs.* The separate *INTs* have little autonomous significance in Marvin-Laprade's theory. (In their chart of *csegclasses,* Marvin and Laprade emphasize that they list INT_2 simply for referential purposes.) Friedmann's emphasis on the significance of the *CAS* grows out of the similarity between equivalent *CASs* with non-equivalent *CCs,* (See Ex. 1a and 1b) a similarity not apparent between two equivalent INT_2*'s* with non-equivalent *csegs.*

− CAS < +, +, −, +, −, +, −, −, +, −, −, >
CC < 2-8-9-4-7-0-11-5-3-10-6-1 >

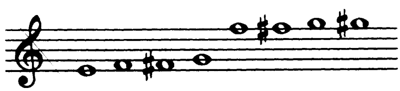
Ex. 1a. Schönberg: String Quartet No. 4, II (viola, mm. 1–3).

CC < 3-10-11-7-9-2-6-5-1-8-4-0 >
− CAS < +, +, −, +, −, +, −, −, +, −, −, >

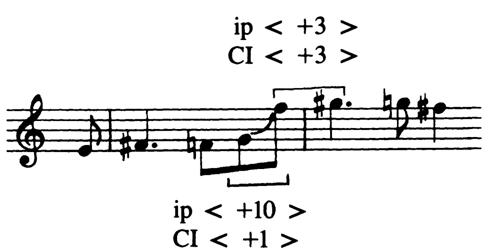
Ex. 1b. Schönberg: String Quartet No. 4, II (violin I, mm. 8–10).

Marvin and Laprade's motivations in creating the *COM-matrix* are similar to Friedmann's in creating the *CIA, CCV I and CCV II.* All of these present aggregate measures of the relative "up-and-down" of the musical unit. In fact, Friedmann's *CCV II* could be extracted from the *COM-matrix* by summing the totals of the pluses and minuses in the upper triangle of the matrix.

Conceptual Differences. "Contour Interval." Although the COM-matrix shows the relations of all the elements of a *cseg* just as Friedmann's *CCVI and II* do, it encourages a view of all of the relations between the elements of the *cseg* without requiring the notion of contour interval. Friedmann's heavy use of the contour interval concept for his descriptive mechanisms, rejected by Marvin-Laprade,[2] is based on a Renaissance-like concept of line and mode, in which leaps within the mode must be filled in, therefore in a mode made up of pitches 0-1-2-3-13-14-15-16 (see Ex. 2a.) with a melody composed of pitch series < 0-2-1-3-13-16-15-14 > = CC < 0-2-1-3-4-7-6-5 >, (see Ex. 2b.) the space of the musical unit is characterized so that the leap from CC elements < 4 > to < 7 >, pitch interval < +3 > is CI < +3 >, because two mode degrees are needed to "fill it in." Although the pitch interval from CC elements < 3 > to < 4 > is < +10 >, the corresponding contour interval is only CI < + 1 > because no "mode steps" are needed to fill it in. Thus, under contour space, the pitch interval < + 3 > can correspond to a larger contour interval than pitch interval < + 10 > does, because of the mode-like flattening of pitch space that occurs in contour space. Marvin and Laprade's rejection of contour interval because of its somewhat counter-intuitive contradiction of pitch space is understandable if the authors do not attribute the same kind of pitch interval-flattening power to contour space that Friedmann imputes to it.



Ex. 2a. Pitch mode = < 0-1-2-3-13-14-15-16 >.



Ex. 2b. Melodic line = < 0-2-1-3-13-16-15-14> = CC < 0-2-1-3-4-7-6-5 >.

"Csegclass." Marvin and Laprade's creation of an equivalence class for all *csegs* related by identity, retrograde, inversion and retrograde-inversion is reminiscent of the recognition of a master 12-note row (set): the succession of pitch classes that forms a "prime" form of the row, an entity that encompasses all of the operationally related pitch class manifestations. The *csegclasses* of cardinality 1-6 are listed at the end of their article. The *csegclass,* then, is a class of contours that are related by canonical operations rather than by internal structure.[3] Friedmann's hesitancy to create a similar class of this type is based on a commitment to contour interval structure as the primary defining characteristic of contour class. It is therefore no accident that in creating a higher level of generality than the *CC* he resorted to the + and − relations between *adjacent elements* rather than an operationally oriented class of contours, just as he generated one type of preferred contour subset out of adjacent elements. It should be noted, though, that Friedmann's *CIA, CCV I* and *CCV II* respond in a transparent way to Marvin and Laprade's canonical operations: retrograde and inversion operations on a CC invert the *CIA, CCV I* and *CCV II,* and retrograde inversion makes them identical. Friedmann's *CC,* then, is an entity based primarily on internal structure, whereas Marvin and Laprade's *csegclass* uses the canonical operations as a basis of class definition. Although Marvin and Laprade's list of *csegclasses* suggests that these are entities analogous or comparable to Forte's pitch class set, it is notable that Forte's pitch class entities, though unordered, are based on subset and superset properties (for example, interval class content) more than on operational equivalence. Friedmann's treatment of *CC* and its associated vectors has more in common with Forte's pc set. Of course, any comparisons between contour segments and pitch class sets are moot because order is a central aspect of contour and a secondary if not irrelevant aspect of unordered pitch class sets.

In integrating the contour concepts with a more general analytical approach, there are three major choices in dealing with these two methodologies: 1) Does one accept Friedmann's concept of Contour Interval? (This question might be answered differently in the context of Bartok's and Schönberg's music.) 2) Does one accept Friedmann's priority for adjacent elements as expressed both in his *CAS,* and in his preferred subset? 3) Does one wish to embrace the operationally defined *csegclass* of Marvin and Laprade?

In other respects, the two articles complement each other nicely. Friedmann's *CCV II* grows naturally out of Marvin and Laprade's *COM-matrix,* and Marvin and Laprade's *C-sim* is a worthy contribution to a theory of contour similarity. More significant even than the considerable differences between the two approaches is the attempt to deal with both analytical and compositional issues of pitch relations in a multi-dimensional perspective, in which contour relations can either reinforce or undercut pitch class set relations.

Number of Pitches	2	3	4	5	6
CASV types	2	3	4	5	6
CAS types	2	4	6	16	32
CC types	2	6	24	120	720
CIA types	2	4	12	48	240
CCV I types	2	4	11	21	36
CCV II types	2	4	7	11	16

Contour Types

GLOSSARY OF TECHNICAL TERMS

CAS (Contour Adjacency Series): An ordered series of +s and –s corresponding to moves upward and downward in a musical unit. For example, the theme of the finale of Mozart's "Jupiter" Symphony has a CAS of ⟨+,+,–⟩.

CASV (Contour Adjacency Series Vector): A two digit summation of the +s and –s in the CAS of a musical unit. The first digit signifies the number of upward moves in a musical unit; the second digit signifies the number of downward moves in a musical unit. For example, CAS⟨+, +,–⟩ has a CASV of ⟨2,1⟩.

CC (Contour Class): An ordered series that indicates what registral position a pitch occupies in a musical unit. If n = the number of pitches in a musical unit, then the highest pitch in that unit is signified in the CC by n–1. The lowest pitch is signified by O. For example, the theme of the finale of Mozart's "Jupiter" Symphony has CC⟨0–1–3–2⟩.

CI (Contour Interval): The distance between one element in a CC and a later element as signified by the signs + or – and a number. For example, in CC⟨0–1–3–2⟩, the CI of 0 to 3 is +3, and the CI of 3 to 2 is –1.

CIS (Contour Interval Succession): A series which indicates the order of Contour Intervals in a given CC. For example, the CIS for CC⟨0–1–3–2⟩ is ⟨+1,+2,–1⟩.

CIA (Contour Interval Array): An ordered series of numbers that indicates the multiplicity of each Contour Interval type in a given CC. If there are n elements in the CC, then there are n–1 possible ascending (+) Contour Interval types and n–1 possible descending (–) interval types. Two ascending series separated by a slash (/) correspond to the positive and negative Contour Interval types. For CC⟨0–1–3–2⟩ there are two instances of CI type +1, two instances of CI type +2, and one instance of CI type +3; there is 1 instance of CI type –1, and 0 instances of CI types –2 and –3. In summary, the CIA for CC⟨0–1–3–2⟩ is ⟨2,2,1/1,0,0⟩.

CCV I (Contour Class Vector I): A two-digit summation of the degrees of ascent and descent expressed in a CIA. The first digit is the total of the products of the frequency and contour interval types found on the left side of the slash in the middle of a CIA. The second digit is the total of the products of the frequency and contour interval types found on the right side of the slash in the middle of a CIA. For example, the first digit of CCV I for CIA ⟨2,2,1/1,0,0⟩ is 2(1) + 2(2) + 1(3); the second digit is 1(1). CCV I in this case is ⟨9,1⟩.

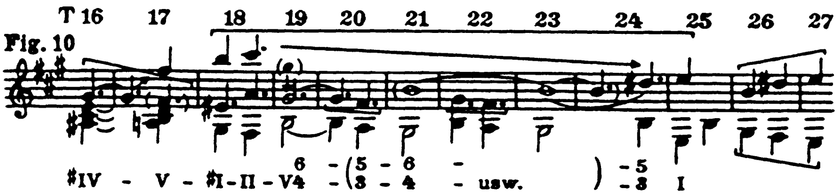
CCV II (Contour Class Vector II): A two-digit summation of the degrees of ascent and descent expressed in a CIA. The first digit is the total of the frequency of contour interval types on the left side of the slash in the middle of a CIA. The second digit is the total of the frequency of contour interval types on the right side of the slash in the middle of a CIA. For example, the first digit of CCV II for CIA⟨2,2,1/1,0,0⟩ is 2 + 2 + 1; the second digit is 1. CCV II in this case is ⟨5,1⟩.

The figure "Contour Types" and the Glossary which follows above are reprinted from the author's article in *Journal of Music Theory* 29 (1985), pps. 237 and 246–47.

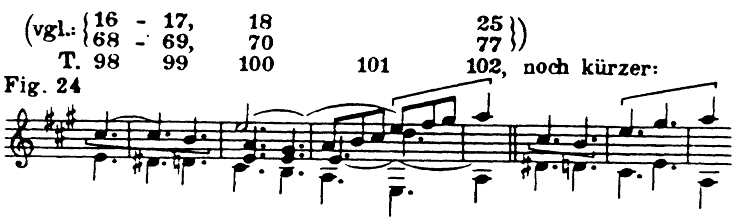
NOTES

1. Michael Friedmann, "A Methodology for the Discussion of Contour: Its Application to Schoenberg's Music," *Journal of Music Theory* 29 (1985): 223-248; and Elizabeth Marvin and Paul Laprade, "Relating Musical Contours: Extensions of a Theory for Contour," *Journal of Music Theory* 31 (1987): 225-267.
2. See Marvin and Laprade, "Relating Musical Contours," p. 265, n.12
3. For an interesting investigation of operational versus intervallic definition of pitch class set, see Christopher Hasty, "An Intervallic Definition of Set Class." *Journal of Music Theory* 31 (1987): 183-204.

a.



b.



Example 1: Schenker, *Beethoven, Op. 101,* Figs. 10 & 24