

David Lewin's Transformation Graphs and Networks

(excerpt) Ken Morrison

In his recent book, *Musical Form and Transformation: Four Analytic Essays*, David Lewin analyzes four complete pieces using theoretical principles described in Chapters 7 to 10 of his 1987 work, *Generalized Musical Intervals and Transformations*. These four essays demonstrate some of the potential of Lewin's theoretical ideas and analytical expertise.

Some readers might have been disappointed that he treats only pitch and pitch class parameters in these essays, but there are sufficient examples of transformation networks of other parameters in the final chapters of the 1987 book. The virtues and originality of Lewin's analytical thinking are many, but primarily:

1. the analyses are context-specific, requiring the discovery of processes within the given piece;
2. the transformational orientation is often more interesting than the more anecdotal, chronological description of events of much conventional analysis.

I carefully read each of the four analyses and then analyzed each of the four pieces using more standard analytical techniques, and then worked through each of Lewin's analyses again. For the most part, any dissatisfaction with one of Lewin's analyses dissipated after my own analysis and my subsequent review of Lewin's—even though Lewin focuses on usually one aspect of a piece in each of these analyses, he engages important considerations that are not readily accessible via more traditional analytical procedures.

While Lewin insists that the transformational networks are not "'Ur' structures,' but only " metaphorical pictures of certain things that happen over their pieces as wholes," [p. xiii] I find the ideas presented to be very provocative and can well imagine compositional applications of such a theoretical orientation.

Chapter 2 - Making and Using a PCset Network for Stockhausen's *Klavierstück III*

In this analysis, Lewin expands conceptually to engage issues of how abstract networks can better represent the form and temporal structure of a piece of music than a mere "narrative" analysis.

In this analysis, Lewin asserts a spatially compact transformational network that accounts for all of the pitches in the piece as members of a single pentachord type [01236]. He conceives of the form of the piece as four "passes" through the abstract space of the network. The only methodological problem I have is with some of the asserted pentachords of non-contiguous material (order number skips of 2 or more—particularly in mm. 9-11). However, his thoughtful caveats in this regard and the "ear-training exercise" [Fig. 2.7, p. 42] are very convincing arguments for the network of pentachords. The chromatic tetrachord subset of the pentachord type is very audible throughout the piece.

Only two operations are required to connect any 2 adjacent nodes in the piece: transposition (T_n) or a contextually defined inversion, called "J" which inverts a given P and preserves the chromatic tetrachord.

Lewin presents a chronological, "narrative" network of these transformations, but points out that such a description of the piece exaggerates

the importance of some of the connections between adjacent nodes and conversely does not demonstrate the "proportional relations involving pentachord forms that led to our developing the T-and J-group in the first place." [p. 33] He proposes instead an abstract space of P-form transformations. In this abstract space [Ex. 2.5, p. 34] there are only 3 possible transformations within each box (the horizontal, vertical, and diagonal lines), and only 3 possible between the boxes. He then digrams the piece as consisting of four "passes" through this abstract space [Ex. 2.6, pp. 38-39]. This allows him to assert that P1 is subsidiary to P2 in "Pass 4" (mm. 9-16) and that the importance of P2 has been established by the relationships in the 3 previous passes through the network. As noted above, the passage in mm. 9-11—the beginning of Pass 4—is the least convincing with regard to order skips in the pentachord forms.

This potential of the spatial network to engage temporality is extremely interesting. It is also important to remember Lewin's assertion that Examples 2.5 and 2.6 are "mixed-mode constructions" that are biased toward formal layout, but still make significant concessions to figural layout." [p. 49]

A theory or theoretical orientation with this much flexibility and general applicability should be vague or forced, but Lewin's Transformational Networks find context-dependent relationships with a minimum of *a priori* theoretical assumptions. Any of Lewin's analyses is *a* network and *an* analysis of the piece. Such a network for a piece finds a "through-line " for the piece—certainly not the only way of hearing a piece of music but perhaps one of the most rewarding ways.