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***The Contribution of Immanent and Performed Accents to Emotional Expression in Short Tone Sequences* by Erik Lindström (2003)**

Lindström begins by comparing the use of accents for expression in both language and music. He presents the idea of tonal value assignment based on stability in tonal space. He then leads into his hypotheses by discussing the idea of immanent versus performed accents, which he likens to speech. Lindström's seven hypotheses are all related, and grouped around a general principle presented in his first hypothesis: certain tones in a melody are more important than others for emotional expression. Lindström next describes his two experiments and provides results and discussion for each. Experiment 1 involved eleven subjects (all nonmusicians, though four had had some form of formal musical training) listening to three-note tone sequences, each preceded by a C major or C minor chord. The target notes were placed as the highest notes in the four progressions, which were played "dead-pan" on a midi-equipped grand piano in a lecture hall setting in one-hour-long sessions. Subjects were asked to rate the progressions on two separate scales (happy-sad, tender-angry). Experiment 2 involved eighteen subjects (six with some form of formal musical training) listening to different versions of progressions 1, 3, and 4, with added accents (purely in dynamic level). The target notes were either the lowest or highest pitches in the sequences. Lindström views his experimental results as statistically significant support for six of his seven hypotheses; one regarding the expression of tenderness was discarded after Experiment 1 due to lack of empirical support.

Though Lindström's experiments are certainly interesting, there are aspects of his experimental design that call into question his results, and thus his conclusions. Lindström chose not to use the natural minor, but the harmonic minor mode, a point that he does not mention. The harmonic minor has been used relatively frequently in classical literature, but its usage has come in and out of fad. It seems odd to choose that particular version of the minor mode, and then to place such emphasis on the one note that makes it harmonic (B-natural); a note which it in fact shares with the major mode. Lindström's choices of target notes in general are odd. Progression 1 in C major has a target note of A, the 6th of the scale. Progression 2 in the same key has a target note of F, the 4th. It would have made more sense to pick notes like the 3rd and 5th, which root the listener firmly in major mode. Progression 3 in C minor has a target note of A-flat, which makes some logical sense as the flat-6th is unique to the minor mode (in comparison with the major mode), though its presentation as the implied 7th of the 7th chord is truly odd. Progression 4 in the same key has a target note of B-natural, which as aforementioned is the raised seventh in the harmonic minor, a note that is shared with C major. It would

have made more sense to pick target notes like the flat 3rd, or perhaps the flat 7th, rather than the natural 7th.

Yet another issue with Lindström's design is his insistence upon placing the target notes as the highest pitch in the progressions. He recognizes this potential shortcoming after Experiment 1 and adjusts Experiment 2 by making half the progressions have the target note as the lowest, and half as the highest, pitch in the progressions. It would have been smarter to place the target notes in many positions in the progressions, as both the highest and lowest pitches become naturally emphasized.

One final criticism is that Lindström feels the need to continually draw connections between language and music, even when those connections are relatively vague, or at least not well substantiated. His ideas are very intriguing, but they require better packaging for his results to be believable.