

von Hippel, Paul and David Huron. "Why Do Skips Precede Reversals? The Effect of Tessitura On Melodic Structure."

The main focus of this paper is to voice a reason for post-skip reversals, the tendency of a large melodic interval to be followed by a change of direction. There are two main categories of accounts of post-skip reversal discussed; accounts based on expectation and accounts based on melodic tessitura. Of the accounts based on expectation, two major theories that explain why expectation arises are established: 1) Leonard Meyer's theory of "gap-fill" – that a skip creates a "structural gap" which listeners expect to hear "filled" – which relies on four cognitive hypothesis that listeners infer the scale from which a melody's pitch are drawn, listeners find a melody most "satisfactory" when it uses every degree of its scale, listeners' dissatisfaction persists for some time when a melody's use of its scale is incomplete, and this dissatisfaction is relieved when the missing scale degrees finally occur; and, 2) Eugene Narmour's theory of "implication and realization" – post-skip reversals are attributed to two distinct principles of registral direction and registral return – in which the principle of registral direction has been attributed to the Gestalt rules of similarity and proximity and the principle of registral return has been attributed to the Gestalt rules of good continuation and symmetry. The account based on tessitura by Henry J. Watt suggests that when an interval is large in comparison to a melody's tessitura, that interval is more likely to move toward the tessitura's extremes in which a melody is nearly obliged to retreat by changing direction and hence, post-skip reversals arise quite naturally from constraints on tessitura.

Hippel and Huron then propose two hypotheses to test Watt's claim: 1) When tessitura constraints are statistically controlled, the tendency toward post-skip reversals will disappear; and, 2) When tessitura constraints are imposed on any melody – even if the melody is otherwise random – skips in that melody will tend to precede reversals, implying that post-skip reversals in a random melody will be just as common as in a comparable melody of non-random origin. Three studies were performed to test these hypotheses. The first used skip-classification into four types with a test set of five repertoires of music. The results from this test were that "the results fit best with the claim that post-skip reversals arise from constraints on tessitura" (p.13). The second study treated the individual melody as the unit of analysis and avoided skip thresholds which proved problematic in the first study while using a unit of measure called the pitch extremity. Multiple regression analysis was used to measure the unique contribution of the extremity of the interval's starting pitch and the size of the previous interval with results that suggested that the previous interval made little or no unique contribution to the accuracy of the prediction. This analysis revealed no tendency toward post-skip reversals, even with the allowance of the tendency changing with interval direction. The third study

was used to test how melodies would look if Meyer's and Narmour's claims were false. The Markov twins produced did not seem to display reliable differences from the original melodies and since no rule was needed to generate post-skip reversals in the Markov twins, it would seem that no rule is needed to explain them in the originals.

Though the authors admit that there seems to be no accurate algorithm to predicting post-skip reversals, it seems that the authors use the idea of tessitura as the "default" reasoning behind post-skip reversals occurring. For example, "this failure corroborates our earlier results suggesting that post-skip reversals are a mere side effect of constraints on tessitura" (p. 19), an irritating assumption that is repeated over and over again; "we have already seen a number of results suggesting that tessitura constraints are the cause of post-skip reversals" (p. 24) and "an explanation that relies on tessitura constraints is largely sufficient" (p. 26). There is one positive quote from this paper that I really do appreciate though, "although any limits we set will be arbitrary, there is some merit in defining plausible limits a priori," (p. 25) and though they do not divulge any further, at least they voiced a point that I have criticized many times over in previous analyses.