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Minimal Voice-leading.

This paper uses ideas from scale theory to determine the minimal voice-leading between arbitrary chords. Its central claim is that minimal voice-leading preserve scalar ordering. This is equivalent to asserting that such voice-leading have no "voice-crossings" in pitch-class space. Minimal voice-leading are therefore closely related to "scalar transpositions," or transposition by "scale steps" rather than semitones. The minimal one-to-one voice-leading between transpositionally related sets can be expressed as combinations of scalar and chromatic transpositions. The minimal one-to-one voice-leading between transpositionally-distinct sets are what I will call "interscalar" transpositions, since they send scale degree x in collection A to scale degree $x + c$ in collection B , for some c . Minimal voice-leading involving doublings can be described as "generalized scalar (or interscalar) transpositions" since they map each ascending scale-step in one collection to either an ascending scale-step or a unison in the other. I conclude by showing how these results allow us to reinterpret and generalize several core ideas of recent music theory. (Received August 23, 2004)