

José Oliveira Martins\*<sup>1</sup>*\*Centro de Investigação em Ciência e Tecnologia das Artes /  
Universidade Católica Portuguesa, Portugal*<sup>1</sup>jomartins@porto.ucp.pt

## Reframing Music Theorizing and Analytical Acts on Twentieth-Century Multi-Layered Harmony

### ABSTRACT

#### Background

For about a century, *polytonality* has been an illusive and contested term that fuelled a fascinating and at times intense music-theoretical debate, which has re-emerged in recent years. The reception of its analytical, historical, and perceptual implications led to the sense of a contradictory and deeply paradoxical concept, attributed to significant passages or movements in music of Milhaud, Casella, Bartók, Stravinsky, Falla, Britten, and others, and described both as the consolidation and destruction of tonality, the expression of conservatism and the avant-garde, the act of mere imagination and actual perceivable musical phenomena (Delaere 2012).

A recognized central ‘problem’ of the debate on polytonality is the enduring inconsistent use of the term since the 1920s up to the present, as attested by remarks regarding the lack of a proper definition, terminological discrepancies, and insufficient understanding of the conditions for polytonality by Jean Deroux (1921, 251) and eight decades later by Peter Kaminsky (2004, 238). In addition, in face of the dominant reception by detractors of polytonality throughout the century, the analysis of the ‘effects and results’ of polytonal procedure has been ‘something rarely investigated’, and by the end of the last century was still assessed as ‘under-theorized’ (Harrison 1997, 394).

#### Aims and Repertoire Studied

Why is the practice of polytonality in the early twentieth-century still poorly understood despite a century-long held debate about its significance? And, why have polytonal configurations afforded divergent assessments on the nature of the constituent layers and the operative principles regulating musical structure? Given the dialectical relationship between the experience of musical configurations that might constitute polytonal phenomena and the models we use to both describe and conceptualize those pitch relations, the paper surveys representative pronouncements on the subject, along two sets of theoretical tensions: 1) *constructionist* vs. *interpretative* claims about the nature of the layered harmony or pitch space, i.e., between compositional procedure and analytical (or perceptual) significance of the combined result; and 2) *exclusive* vs. *inclusive* views about the principles regulating polytonal phenomena, i.e., between a literal view of polytonality which requires the combination of full-fledged keys (and associated tonal centres) versus a more loosely defined notion comprising the combination of tonally resonant (but not necessarily tonally complete) layers, which can be explained by a multitude of principles, listening strategies, and procedures.

I argue that detractors of polytonality — both in critical reception in the first half of the century and in formalized accounts of post-Schenkerian and set-theoretical models of the second half — rejected the perceived potential for summoning multiples simultaneous keys or scale identities into a composition by holding mostly exclusive views. This reception relied on aesthetic ideas of unity of tonal or contextuality of atonal space, musical system, and ultimately seen as threatening the notion of organic ‘work’. (The debate also assumed nationalistic, political and racial aspects, see de Médicis 2005; Wheeldon 2012.)

I also propose we reframe inclusive early twentieth-century accounts of the subject (Milhaud 1923; Casella 1924; Koechlin 1925) by attending to their theoretical explanations, invoked historical traces and multiple compositional impulses. These approaches aimed at capturing the richness of the phenomena triggered by the layering of chordal and scalar materials (harmonic and contrapuntal polytonality), and which I see as opening up new perspectives of listening, explorations of operative principles of harmonic layering, and implications for musical syntax. Accordingly, I propose an analytical model of scalar interaction (*scalar dissonance*) that measures the degree of friction or mismatch between layers — distinct from other measurements such as parsimonious voice leading or perfect-fifth harmonic distance —, grounds a listening strategy for reorientation across layers, and forms the basis for understanding aspects of syntax in ‘contrapuntal polytonality’ (in the music of Milhaud and Bartók), and finally, extends to aspects of ‘harmonic polytonality’ that are probed in the music of Lutoslawski, thus suggesting that polytonal principles cast a wider net on compositional practices than traditionally granted.

#### Methods

A brief inventory of representative constructionist approaches to polytonality in the 1920s and 1930s, in what Delaere referred to as the ‘collective pursuit of a theory of polytonality’ (2012, 163), coalesces into a number of procedures and advice for effective polytonal writing, such as: the emphasis on the diatonic (scalar or triadic) character or integrity of superimposed melodies or harmonies; the relative registral differentiation of combined layers, with chromatic relations appearing in distinct octaves; preference for bitonality and the successive entrance of distinct layers; and the use of contrasting parameters (texture, rhythm, instrumentation, register) to better project layer differentiation. Later in the century, constructionist approaches to polytonality became a mere optional tool in the box of compositional precepts — for instance, in the treatments of Persichetti 1961 and Ulehla 1966.

Early analytical accounts of polytonality (Koechlin, Casella, and Milhaud) negotiated the contemporaneous compositional

diversity with the notions of tonality and atonality, and attributed its manifestation to a multitude of processes and operating principles, such as transpositional imitative relations, the combination of distinct scales or segments, the free handling of dissonances (especially interpreted as non-resolved appoggiaturas), extended tertian and quartal/quintal harmonies, and the notions of ‘modulation in simultaneity’ (Casella 1924) or ‘interior modulation’ (Koechlin 1925, 749).

While the attribution of polytonal traces to certain pre-twentieth-century chromatic practices (namely, real transpositional imitations, movement over pedal points, and contrapuntal cross relations) by Koechlin and others has been seen as anachronistic (Malhaire 2013, 215–23), it also suggests that the underlying interpretations of twentieth-century polytonality expanded the listening possibilities towards the interaction of layers in response to or as the sustaining of compositional impulses in contemporary emancipated practices. In particular, we consider a heuristic distinction between three listening stages of layer emancipation: 1) tonal resolution, where the centripetal feeling of a dissonant ‘foreign’ chromatic note is nevertheless counteracted by its stronger tendency to ‘resolve’ to a diatonic/chordal framework; 2) harmonic polytonal coexistence, where dissonant notes tend to be at rest, forming dissonant layers in ‘repose’; and 3) contrapuntal polytonal autonomy, where dissonances tend to associate linearly, coalescing into coherent (scalar) layers or tonal regions.

In the 1930s and 1940s, however, composers such as Hindemith (1937) and Bartók (1943), whose music was often labelled as polytonal, use a strict (exclusive) formulation of combined full-fledged keys/tonalities to reject polytonality on perceptual and interpretative grounds, asserting somewhat uncritically that layers are necessarily integrated through a single root or fundamental — interestingly, Bartók also proposes the more inclusive notion of polymodal chromaticism, as the combination of integral scales or scale-segments, projecting a single fundamental.

While perceptual contentions to the combination of full-fledged keys have gone a long way to undermine the credibility of polytonality as a viable musical system, perhaps a larger contention has been raised by Second Viennese School aesthetic attitudes about organicism, unity, and comprehensibility of the musical space, especially concerning polytonality’s failure to provide a germinal outgrowth of the thematic material (Schoenberg quoted in Stein 1975, 167), and later the positivist notions of ‘contextuality’, and ‘organicism’ by considering polytonality a ‘self-contradictory expression’ (Babbitt 1949, 380).

In the 1970s and 1980s, in the height of musical structuralism, when twentieth-century art music was analysed either through the lenses of post-Schenkerian prolongational structures or the ‘kaleidoscopic’ segmentations of set theory, the polytonal repertoire fell in the cracks between the pitch space of monotonicity and the atonal chromatic flat space. In this view, the ‘independent functionalities’ of polytonality could not ‘integrate with another’, thus failing to assert ‘tonality’s true, unitary nature’ (Dunsby and Whittall 1988, 112–3).

More recently, the assessment of harmonic practice in the music of Stravinsky (especially the role of octatonic collections as coordinators of layer activity) led to the debate about strict or loose conceptions of pitch space summoned by the term polytonality, and whether musical structure be seen under

more unitary readings or rather better explained by interactions of polyscalar configurations (van den Toorn 2003; Tymoczko 2002, 85).

### Implications

Casella’s notion of ‘modulation in simultaneity’ has intriguing analytical and perceptual implications, suggesting that the harmonic distance between superimposed or combined layers of activity can be captured. I propose a model of *scalar dissonance* that measures the tension, mismatch, or friction between contrapuntal polytonal layers, and that characterizes the resulting multi-layered harmony. The paper develops a graphic representation for scalar dissonance in which scales are superimposed aligning maximally by their common-tones, such that two measurements arise: the degree of *porosity*, which measures the number of (possibly enharmonic) common-tones between layers, and the degree of *mismatch* which measures the number of notes intersecting conflicting scale steps (in a distinct layer), divided by the total number of layers. Given certain layered configurations, the analytical model of scalar dissonance is distinct from other measurements of distance such as voice leading and common-tone preservation, and builds on the analytical framework for graphic representation and measurement of harmonic distance in polymodality developed in Martins 2015. The paper analyses a number of pieces of Millhaud (*Saudades do Brazil* and *Une Journée*) and Bartók (*Bagatelle* Op. 6 No. 1 and *First String Quartet*). In addition, it expands the model to capture aspects of harmonic polytonality in the music of Lutoslawski (*Five Songs*). The listening possibilities opened up by the multitude of polytonal practices allow for a view of the twentieth-century repertoire in which layered interactions are crucial for the understanding of post-tonal pitch space.

### Keywords

Polytonality, Listening to Post-Tonal Music, Scale Theory, Modelling of Musical Systems, Chromaticism.

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