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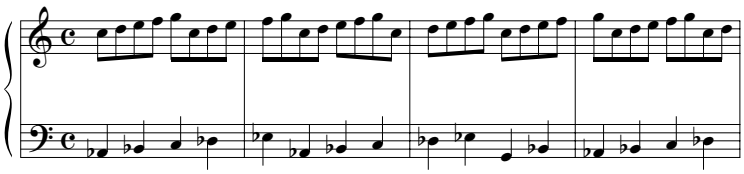
POLYTONALITY AND SUPERIMPOSITIONS

In “Stravinsky and the Octatonic: A Reconsideration,” I made three main claims about polytonality.

1. I pointed out that some music segregates itself into relatively independent auditory streams. In using this term, I meant to evoke the considerable empirical literature on auditory stream-segregation, in which it has been shown, for example, that pitches within the same stream tend to affiliate more strongly than pitches in separate streams.[1]

This point was meant to address a common complaint against the notion of “polytonality,” namely that we cannot hear a single note as having more than one tonal function. (That is, we cannot hear a single B♮ as being *both* a tonic and leading-tone simultaneously.) This may be true, but it is not an objection to the concept “polytonality.” For polytonality does not require us to hear one note as having two tonal functions. Rather, what is required is that we be able to hear two *different notes* (which may be instances of the same pitch class), in two different auditory streams, as having different tonal functions. In Example 1, for example, it is quite possible to hear the lower register C as the mediant of A♭ major scale, while still hearing the upper-register C as a tonic. That we cannot hear the upper register C as both tonic and mediant is beside the point. The sense of multiple tonal regions is created by our brain’s tendency to organize our auditory experience into relatively independent, non-interacting percepts.

Example 1. Independent musical streams



[1] See Bregman and Campbell 1971, Bregman 1990, and Wessel 1979.

2. I noted that there is a considerable amount of music that contains several relatively independent musical streams, each of which, would suggest a different tonal center if heard in isolation. In other words, this music is polytonal in *construction* if not actually perceived as such.

The point here was that, regardless of perceptual questions, "polytonality" may be perfectly useful as a description of how some music is put together: if a composer combines an E-major melody with a C-major bass line, then we have a passage of music that is "polytonal" in this merely constructional sense. Music theory regularly makes use of such "merely constructional" terms: an isorhythmic motet is an isorhythmic motet, whether or not we can hear the complex rhythmic structures it contains; likewise, a twelve-tone piece is still a twelve-tone piece, whether or not we can audibly grasp its pitch structure. It is therefore pointless to complain that the notion of "polytonality" is useless, just because we cannot hear multiple key-centers at once. That would be like asserting that there is no such thing as twelve-tone music, because we cannot follow serial transformations by ear.

This raises a further, and rather subtle, point. Let us suppose, for the sake of argument, that we cannot hear the presence of multiple key-centers at once. It may still be that music that is polytonal in construction is perceptually distinctive, even though we cannot hear that this distinctive quality is due to the superimposition of multiple keys. Suppose that the simultaneous combination of multiple keys produces a very particular type of musical experience (call it "Mysterious Sensation S"). We may be able to learn, through analysis and experience, that "Mysterious Sensation S" is typically produced by music that is constructed by combining multiple keys at once. In this way, we would be able to hear *that* a piece of music is "polytonal" without being able to distinguish the independent key areas that produce this "polytonal effect." I happen to think that something like this story is true: polytonal music tends to involve a very distinctive sort of "crunch," and it is much easier to hear this "crunch" than to separate out the underlying tonalities which produce it. But I raise the issue here mainly to point out that the

issue of the perceptibility of polytonality is by no means a simple one. For it may be that we can perceive polytonality without being able to perceive multiple keys as such.

3. I argued that in some polytonal music, we can *in fact* hear the presence of multiple tone-centers. In "Stravinsky and the Octatonic," I offered the example of an oboist playing "My Country 'Tis of Thee" in F, while across the room a pianist plays "The Star-Spangled Banner" in D♭.

The point was that we clearly can hear multiple tone-centers at once. In the scenario I proposed, most skilled listeners would be able to hear that the Oboe melody "centers" on F♮, while the pianist's music centers on the pitch D♭. This is a rudimentary, but widely-accepted, meaning of the word "tonality."[2] In this sense of the term, "tonality" embraces not just Western functional tonality of the sort that developed around 1600, but a broad range of music—including much modal music, contemporary rock music, and much non-Western music—in which a single pitch is heard as having priority over the others. Since we can hear multiple tonalities in this rudimentary sense of the term, it seems perfectly reasonable to use the notion "polytonality" to describe the phenomenon in question.

Furthermore, I think it is possible to hear multiple tonalities in the narrower sense appropriate to Western functional harmony. Consider Example 2. I have no difficulty hearing this music as composed of multiple I-IV-I-V-I progressions. True, my sense of each chord's functional weight is severely compromised by interference from chords in the other stream. The feeling that each V chord "wants" to go to its respective I is much less strong than it would be, were I to listen to each independent stream in isolation. But these functional implications are by no means completely destroyed. Here again, it seems perfectly appropriate to use the word "polytonality." After all, we are hearing multiple, independent, tonally-functional streams.

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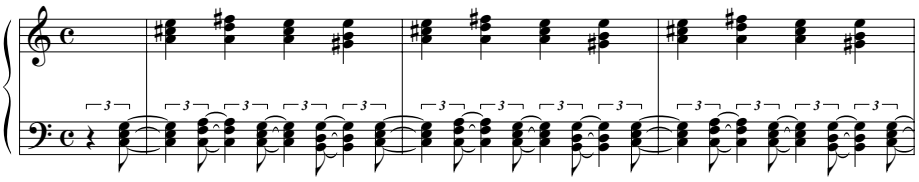
[2] It was just this sense of the term that led Schoenberg to develop the twelve-tone system. Repeated or emphasized notes, he felt, would naturally acquire a kind of "tonicity." Thus the avoidance of tonality required a wholehearted avoidance of pitch emphasis. See Schoenberg [1941] 1984, 218-20.

Example 2. Independent tonally-functional musical streams



It is true that Example 2, like much "polytonal" music, involves a fairly primitive sort of functional tonality. The independent tonal regions in Example 2 do not undergo long-term development; they do not give rise to prolongations of subordinate tonal areas; nor do they support the sorts of *Urlinie* structures that Schenkerians sometimes take to be definitive of tonality. In short, the music of Example 2 does not use the full range of tonal procedures found in Bach's or Mozart's music. But I think we do ourselves a disservice by linking the notion of "tonality" too closely to these specific procedures. For functional tonality is an evolving tradition: Mahler, Debussy, and Shostakovich wrote tonal music that is structurally very different from the music of the eighteenth and nineteenth centuries. Likewise, rock music often manages to be functionally tonal without long-term prolongation of subordinate tonal regions. Tonal jazz abandons many of the central principles of eighteenth-century voice-leading. Yet all of this music is continuous with, and invokes many of the same expectations as, the tonal music of the classical period. For these reasons, I prefer to use the word "tonality" in an expansive and inclusive manner.

It is not clear which of these points van den Toorn disagrees with, or why he attributes such importance to the issue. In his response, he treats this important subject only in passing:

> Briefly for the record: the "abuse" to which the term "polytonality" has been subject in recent years (something Tymoczko bemoans, pp. 84-85) is entirely deserved, in my view, and the more general terms are in no way equivalent: "independent auditory streams" or "independent tone centers" (p. 84). There is little reason why an analysis of *The Rite of*

> *Spring* or *Petrouchka* should have to saddle itself with "polytonality" when "the fullest and most robust sense of tonality" (p. 84) is impossible to shake.

I am puzzled about what van den Toorn is trying to say here. He seems to concede the substantive claims I have made. But in that case, our disagreement is a fairly simple one about usage, and it is hard to see why van den Toorn would attribute such importance to it. (It is, after all, up to us theorists whether we use "polytonality" to mean one thing or another.) Furthermore, van den Toorn seems to be left in the uncomfortable position of asserting that there is only *one* legitimate meaning of "polytonality," and that this meaning is an illogical and incoherent one. This should prompt us to ask how it is that so many intelligent composers and music theorists have used the word "polytonality," convinced that they knew what they were talking about.

A brief survey of actual usage suggests that musicians use the terms "bitonality" and "polytonality" in ways consistent with the points I have been making. The *New Harvard Dictionary of Music*, for example, begins by defining "bitonality" in a merely constructional sense:

> **Bitonality, polytonality.** The simultaneous *use* of two or more tonalities or keys [my italics]. This may occur briefly or over an extended span. (When two tonal triads or other chords are combined, the result is said to be a bichord or polychord.) The device was widely used in the first half of the 20th century, Ex. 1 from Richard Strauss's *Salome* being a passage to which he later applied the term himself. It was employed by Stravinsky, Prokofiev, and many others but is particularly characteristic of the music of Darius Milhaud.[3]

[3] *The New Harvard Dictionary of Music*, s.v. "polytonality." The definition goes on to cites two common complaints against the notion of "polytonality."

Charles Ives used the term in what can be interpreted as a merely constructional sense, though he probably meant it to have perceptual implications as well:

> For instance, Father thought that man as a rule did not use the faculties that the Creator had given him hard enough. I could not have been over ten years old when he would occasionally have us sing a tune like *Swanee River* in E-flat while he accompanied us in the key of C. This was to stretch our ears and strengthen our musical minds, so that they could learn to use and translate things that might be used and translated in the art of music more than they had been. In this instance, I do not think he had the possibility of polytonality in composition in mind, particularly; he rather wanted to encourage the use of the ears and mind to think for themselves and be more independent—in other words, to be less dependent on customs and habits.[4]

Alfredo Casella, writing the first quarter of the century, defined the perceptual effects of polytonality in terms that are strikingly minimal, and theoretically unobjectionable:

> Polytonality, atonality—these are terms *à la mode*. But, among all the persons who employ them daily, very few know, in reality, precisely what they mean. And not seldom one may note some critic (shaky in matters theoretical) who actually thinks these two vocables identical in meaning.
>
> Now, a modicum of etymological acumen should suffice to avoid this error. "Polytonality" signifies, to be sure, the interpenetration of diverse scales; *but it likewise assumes—in the very nature of things, the survival of the original scales* [my italics] … Contrariwise, "atonality" signifies the destruction of the several diatonic scales (of seven tones), substituting therefore the chromatic scale, either tempered or Pythagorean.

[4] Cited in Cowell and Cowell 1969, 30.

> They mean, therefore, two totally different things.
>
> DEFINITIONS:
>
> *Polytonality,* as understood today, is nothing more than *modulation in simultaneity.*
>
> *Atonality* is the *negation of the diatonic scale and the common chord.* […][5]

Stravinsky himself explicitly described the Petrouchka chord as being "in two keys," a phrase which implies the notion of "polytonality."[6] Donald J. Grout and Claude V. Palisca agree with Stravinsky, suggesting that even if we accept van den Toorn's analysis, we still need to account for the distinctive "bitonal" quality of Petrouchka's signature chord.

> The notorious *Petrushka* chord … near the opening of the second scene (Petrushka's room) can be explained as a juxtaposition of two tonalities, an interpretation Stravinsky once offered himself. More recently the passage has been acknowledged as one of the many applications in his music of the octatonic scale that alternates whole tones and semitones—C–C♯–D♯–E–F♯–G–A–A♯—with the D♯ and A omitted. The two-key effect remains, however, on the musical surface.[7]

Faced with all of this, we have two choices. We can follow van den Toorn in dismissing the notion of "polytonality" out of hand, deciding that Ives, Casella, Stravinsky, the staff of the *New Harvard Dictionary,* and dozens of other writers were speaking nonsense when they employed this "fantastic" and "illogical" notion. Or we can ask whether these qualms about polytonality are misplaced, whether there might not be some perfectly reasonable alternative

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[5] Casella 1924, 159-60.
[6] Stravinsky and Craft 1962.
[7] Grout and Palisca 1996, 720-1.

definition of the term. I have offered numerous arguments in favor of the latter choice. Van den Toorn, by contrast, has not provided a single argument in favor of his position. Under the circumstances, I have a hard time convincing myself that there is a genuine issue here.

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