After our book was published, we found a couple of examples of connections between Stravinsky's music and the *Tonnetz.*

Example 1. ***The Rite of Spring*****.** In his book on music and language,[1] Leonard Bernstein discusses some harmonic aspects of Igor Stravinsky's *The Rite of Spring.* He describes the famous dissonant chords with their striking rhythmic intensity that occur in its opening movement. Here is the relevant passage from Bernstein's book (pp. 341–342):

> For instance, what are those primitive boom-booms in *The Rite of Spring?* . . . that repeated chord is carefully devised and structured through bitonality. Look at how clearly divisible it is into two separate but equal subsidiary chords, one superimposed on the other. And each of them, mind you, is perfectly consonant in itself. The lower one spells out a pure E-major triad . . . And the upper chord is a plain old dominant seventh on E-flat. Each one by itself, couldn't be more clearly tonal, but together — wild dissonance. . . . He then plunges directly into a new bitonality, this time pitting notes of the same E-flat seventh chord against notes belonging to C-major. But there's something else going on at the same time: the cellos are plucking notes that outline the old E-major triad, so that there are now *three* simultaneous harmonic entities sounding together. This is now the sound of polytonality . . .

The three chords described here are E, $E^{\flat 7}$, and C. It is interesting to see these chords connected on the *Tonnetz* (where we treat $E^{\flat 7}$ as an embellishment of $E^\flat$). See the left side of Figure 1. The *Tonnetz* diagram shows how these chords form a triangle with sides formed by pairings of chords using (self-inversive) *Tonnetz* transformations: $E \overset{\mathcal{T}\mathcal{T}}{\longleftrightarrow} E^\flat \overset{\mathcal{T}}{\longleftrightarrow} C \overset{\mathcal{T}}{\longleftrightarrow} E$. The location of the three chords on three different chordal spines, is also evident in the figure.

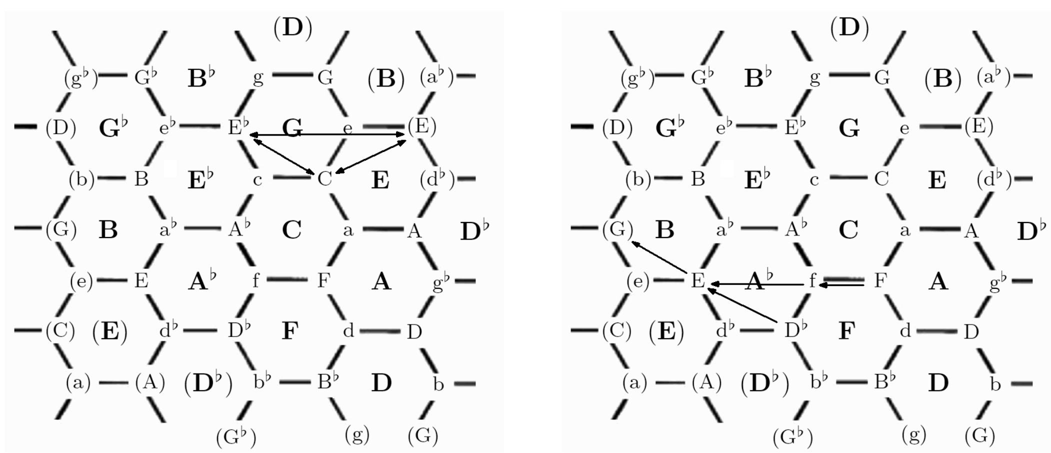

Figure 1. Left: Connected chords in *The Rite of Spring.* Right: Connected chords in *L'Histoire du Soldat.*

Example 2. ***L'Histoire du Soldat*****.** In his book, Bernstein also discusses the opening of Stravinsky's *L'Histoire du Soldat.* Here is how Bernstein describes it (*ibid.,* p. 343):

> There are two instruments playing: a cornet and a trombone. The cornet by itself is playing a tune that seems to start in F-major, suddenly switches to F-minor, and cadences abruptly in a totally unexpected E-major. So, F-major, F-minor, E-major, all in the space of four seconds. Now let's see what the trombone is doing . . . D-flat major, of all things, with its abrupt cadence in G-major, without so much as a by-your-leave.

[1] L. Bernstein, *The Unanswered Question: Six Talks at Harvard,* Harvard University Press, 1976, pp. 341–345. These lectures are also available on DVD; the beginning of Lecture 6 contains the passages quoted here.

On the right side of Figure 1, we show these chord changes on the *Tonnetz.* They can be expressed as *Tonnetz* transformations in this way:

$$\begin{aligned} &\mathrm{F} \xrightarrow{\mathcal{T}} \mathrm{f} \xrightarrow{\mathcal{T}} \mathrm{E} \\ &\mathrm{D}^\flat \xrightarrow{\mathcal{T}} \mathrm{E} \xrightarrow{\mathcal{T}} \mathrm{G}. \end{aligned} \tag{1}$$

The second sequence of mappings, $\mathrm{D}^\flat \xrightarrow{\mathcal{T}} \mathrm{E} \xrightarrow{\mathcal{T}} \mathrm{G}$, includes the chord E because that chord is being played by the cornet while the trombone is arpeggiating the chord G. It is also worth noting that the chords f and $\mathrm{D}^\flat$, which are also outlined simultaneously by cornet and trombone, are connected by a *Tonnetz* transformation as well. Although the chord progressions in (1) are not typical ones within any fixed key, our *Tonnetz* description makes it clear that they do obey a clear tonal logic—a tonal logic that is captured concisely and geometrically by the *Tonnetz* diagram in Figure 1.

Remark 1. At the book's web site you will find links for listening to portions of *The Rite of Spring* and *L'Histoire du Soldat,* relating to Examples 1 and 2. They can be found under the link What's New.

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