

Charles Koechlin, *Traité de l'harmonie* (excerpts)
Translated, with a critical introduction, by

Malcolm Sailor

Charles Koechlin (1867–1950) was a noted composer and theorist in early twentieth-century France.¹ His compositions are remarkable for their eclecticism and openness, a spirit which imbues his writings as well. In this paper I offer translations of two excerpts from his most extensive work on harmony, the *Traité de l'harmonie* of 1928. The treatise is in three volumes. The first of these is a practically oriented harmony textbook intended for use by music students, while the third functions as an answer-key, containing Koechlin's realizations of the harmony exercises in the first volume. Of strongest theoretical interest is the second volume, which emphasizes then-recent harmonic developments in the context of a history of the development of Western harmony.

The format of the treatise is remarkable, with 8.5" by 12" pages that run seamlessly between text and plentiful musical examples (figure 1 gives a representative page for illustrative purposes). My translation of necessity confines itself to two brief excerpts, both drawn from volume two. The first of these excerpts is Chapter XV, "New conceptions; The relativity of dissonance; New ways of forming chords," in which Koechlin briefly describes what he sees as the main trends in modern harmony. The second excerpt is drawn from Chapter XVII. This chapter, 165 pages long, is titled "The evolution of harmony"; my excerpt, the subsection

¹For an account of Koechlin's life and works, see Robert Orledge, *Gabriel Fauré* (London: Eulenberg Books, 1979).

titled “Bitonality; Polytonality; Atonality,” is drawn from the end of the chapter’s sixth and longest section, “The French school in modern times.” Here, Koechlin gives us an idea of how the epochal harmonic shifts then under way looked to one of their participants.

These two excerpts by no means exhaust the appeal of this massive work. There is a great deal more material of considerable interest on early twentieth-century French harmony. Moreover, his account of earlier periods of music history is intriguing, often veering sharply away from our current views and pieties, but no less divergent from historical French dogmas (e.g., Fétis’s location of the origin of modern tonality with Monteverdi). In the remainder of this introduction, I offer a few remarks on Koechlin’s thought and what it has to offer us today.

Koechlin at times seems to imply that he takes it as his duty, as writer of a harmony textbook, to cover the full range of harmony as practiced in his time. We read, for instance, that “a treatise on the harmony of our time would not be able to *deny* [polytonal and atonal chords]” (95). I should not wish to exaggerate how far Koechlin proceeds toward equal coverage of recent developments—he does not, after all, provide the student with harmony exercises in the latest and most radical techniques, and is categorical that it would be inappropriate to do so (95). Nevertheless, the contrast with most present-day textbooks is clear (even if Koechlin, as an active and progressive composer himself, may not have been representative even in his own day).² I am reminded of a remark by Alfred Mann concerning counterpoint treatises, namely, that Albrechtsberger’s 1790 *Anweisung* “may be considered the last theoretical work in which the heritage of contrapuntal technique was successfully

²I do not mean to imply any criticism of recent textbook authors. The context in which they write has simply changed too much for them to aspire to the same sort of comprehensiveness Koechlin provided.

Plus hardie encore est la réalisation suivante :

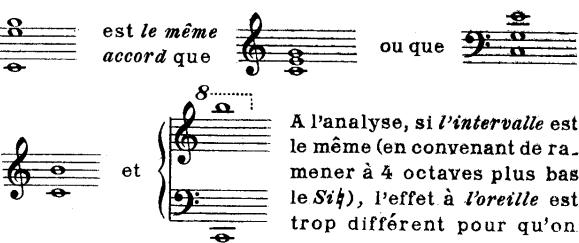


Je ne conteste pas que des amateurs inexpérimentés se croient *modernes*, d'harmoniser en Ré b un motif (d'ailleurs banal) en Ré ♯. C'est d'une bitonalité bien primaire... Ces mêmes amateurs, parfois, pensent devoir mépriser un simple accord parfait. J'ai dit mon avis là-dessus, je n'y reviendrai point. Mais, en ce qui concerne la polytonalité, on garde l'impression que ce domaine, *encore peu connu* malgré de hardies explorations, est extrêmement vaste et très fertile.

Si je le dis peu connu (les recherches n'y seront que plus fécondes), j'ajoute que — malgré certaines théories dont je parlerai plus loin — on n'a pas, jusqu'ici, classé réellement les combinaisons polytonales, comme le firent les Traités pour les accords parfaits, les 7es, les altérations, etc... Ce qui facilite beaucoup la classification des Traités, c'est qu'ils ne tiennent pas compte de la *disposition* de l'accord, mais seulement du genre de renversement. Ainsi (ce qu'en effet nous suggère l'oreille) :

Or, cette sorte de simplification, qui fut très utile à la théorie de l'harmonie "classique", n'est plus de mise avec les agrégations polytonales. Déjà j'ai fait observer la différence capitale entre :

puisse admettre ce transport théorique du Si ♯ suraigu, jusqu'à la 7e effective



D'ailleurs, il existe déjà certaine différence entre les deux 7es effectives :

Et ce qui sera bon dans un cas, à la tessiture élevée, risquera de ne l'être point dans le grave, — ou inversement.

Mais c'est bien autre chose encore, si nous considérons des agrégations polytonales formées d'accords distincts : on ne saurait, sans les défigurer, les transformer en *agrégations d'accords entremêlés*. Je m'explique. Voyez, par exemple, ces mesures :



(*Nuit de Walpurgis classique, Poème symphonique d'après P. Verlaine.*)
(Ch. Koechlin)

Une autre disposition changerait sensiblement leur caractère. Il est évident qu'on ne pourrait entremêler les accords (a) et (b) sans écrire, par là même, une autre harmonie, — parente peut-être de la première, mais différente à coup sûr :



(ainsi disposé, cet accord s'analyse à l'oreille : ♭ sur Sol ; Do ♯, appogiature, non résolue, de Si ♯ ; Fa ♯, appogiature, non résolue, de Fa ♯ ou de Sol ♯).

Et il serait encore plus risqué de modifier la disposition des accords (c) (d) (e), qui constituent un groupement plus complexe.

Figure 1: Volume two, page 256 of Koechlin's *Traité*.

reconciled with actual compositional needs of his day.”³ Perhaps Koechlin’s work sits at a similar inflection point in the progression of harmony treatises.

How is the student (or the mature musician, for that matter) to cope with this immense variety of material? One guide recurs throughout Koechlin’s treatise: “the ear” (*l’oreille*), which again and again is put forward as the ultimate arbiter of what is or is not “musical”—Koechlin’s highest superlative. Koechlin’s reliance on this metonym is reminiscent of Gottfried Weber⁴, which is not the only similarity between these two thinkers, as we will see below. But Koechlin’s “ear” goes beyond Weber’s in the following way: his note on page 93 implies that he recognized that the increasing historical (and, perhaps implicitly, cultural and geographical) variety of music consumption was leading to a new kind of ear, an ear capable of what we might term “multilingual” listening, in which, for example, the dissonance treatment heard as appropriate to one style (chains of “Gregorian” consonant triads) is inappropriate to another (the seventh chords of modern French harmony) and vice versa. (The irony of Koechlin’s chosen example is that *both* of these styles were in fact recent French innovations, the so-called “Gregorian” style of chant harmonization having been catalyzed by Louis Niedermeyer in the mid nineteenth century.⁵)

But what sort of a thing is Koechlin’s “ear?” In my reading, in using this term, Koechlin is referring to what today we might call “intuition.” The cognitive scientists Hugo Mercier and Dan Sperber have memorably compared intuitions to mental icebergs, where a vast and

³Alfred Mann, *The Study of Fugue* (New York: W.W. Norton, 1965), 58.

⁴Cf Ian Bent’s introduction to Gottfried Weber, “A Particularly Remarkable Passage in a String Quartet by Mozart,” in *Music Analysis in the 19th Century*, ed. and trans. Ian Bent (Cambridge: Cambridge University Press, 1994), 157–83.

⁵Malcolm Sailor, “Modality as the Negative Image of Tonality in Fauré’s Piano Trio, Op. 120,” (Society for Music Theory, San Antonio, November 2, 2018); Thomas Christensen, *Stories of Tonality in the Age of François-Joseph Fétis* (Chicago: The University of Chicago Press, 2020), Chapter two.

unconscious network of inference takes place below the level of awareness, and it is only the conclusion reached by this inference (e.g., “this chord works well following that chord”) that surfaces above the level of consciousness.⁶ Koechlin, I am suggesting (and Weber as well), takes for granted an inaccessible layer of musical perception, whose input (pitches, chords, rhythms, etc.) is accessible to us, as is likewise its output (the ear’s judgments—i.e., musical intuitions), but whose inner workings remain a black box.

The central role of an impenetrable black box in this view of musical hearing helps to explain another common thread between Koechlin and Weber: their distrust of systematizing. Several of Weber’s comments—like “my theory [...] in no way deals in *a priori* or dogmatic theoretical *demonstrations*,” or “the theorist can set no absolute limits” on “*how great* a demand [music] should make on the ear”⁷—could just as well have flowed from Koechlin’s pen. Koechlin, for his part, goes so far as to proclaim that “at bottom, an analysis does not explain much” (264–5). This view of theory and analysis as highly limited endeavors contrasts starkly with the attempts at universalizing explanation characteristic of some of the most preeminent music theorists of the period between Weber and Koechlin, such as Fétis or Riemann. (Koechlin’s warning that, with analysis, we risk “deluding ourselves beyond measure” (265n), may well be a jab at the hubris he surely perceived behind such thought.) I do wonder whether Koechlin’s modest conception of the bounds of musical theorizing stems from his own experience as composer and teacher of composition, a practice that, in my own humble experience, repeatedly forces one to confront the fact that no theory provides a reliable guide when we are faced with many of the questions that count most. Instead,

⁶Hugo Mercier and Dan Sperber, *The Enigma of Reason* (Cambridge: Harvard University Press, 2017), 7.

⁷Both quotes from Weber, “A Particularly Remarkable Passage in a String Quartet by Mozart,” 162.

we must merely try things out—experiment—and see how they sound—that is, inquire after the judgement of “the ear.”

The procedure I have just described is a species of empiricism, another word which recurs many times in Koechlin’s text. Reading between Koechlin’s lines, he at times appears to be debating a silent interlocutor concerning the validity of such “empiricism.” Indeed, we can imagine one of Koechlin’s more conservative colleagues at the *conservatoire* scoffing “these moderns are merely throwing things at the wall and seeing what sticks! How can that compare to the divine inspiration of the great masters?” To this imagined salvo, Koechlin responds with gusto: music *always* proceeds by empiricism; Monteverdi himself was an empiricist (95). (The same Monteverdi who, since the days of Choron and Fétis, French music history had cast as *the* seminal innovator in the emergence of modern tonality.) Koechlin’s enthusiastic defense of empiricism, however, should not lead us to suppose that he views music or its analysis as any kind of science, even if “empiricism” and “science” are two terms that are often viewed as in tight semantic orbit around one another. Koechlin is adamant that science and art (=music) are separate domains (non-overlapping magisteria, we might say), and that the one cannot presume to regulate the other (250). (Koechlin seems particularly wary of the pretensions of “scientific” acoustical arguments—perhaps he saw German dualism’s tangled attempt to provide an acoustic foundation to music theory as a cautionary tale.)

One consequence of Koechlin’s empiricism is, I believe, a keen awareness that many musical phenomena are *continuous*, rather than categorical, phenomena. Particularly relevant in this connection is Koechlin’s discussion of what he calls “the relativity of dissonance” (92–93)—that is, the fact that the perceived dissonance of a given sonority is not fixed in advance,

but varies according to each of the manner of its presentation, the stylistically based expectations of the listener, and the soundworld established by the individual piece. Koechlin states that there is no *a priori* rule that can establish whether a given dissonance is appropriate. In fact, there could not be, because there is not even “a dividing line between dissonance and consonance”—there being, instead, a continuum of intervals varying according to the manner and context of their presentation.

Personally, I find Koechlin’s epistemic humility—recognizable both in his deference to intuition and his robust sense of the limits of music theory—refreshing. And yet, the practical result of this humility is that it is not obvious, practically speaking, what, if anything, the aspiring composer can take away from Koechlin’s treatise, other than a bevy of interesting examples and the permission to experiment and write whatever he or she pleases. (One can imagine Koechlin’s riposte: “What more could one want or need?”) Whatever the intellectual merits of such a reserved view of the prospects for the music-analytic project, however, it seems unlikely that it would be able to do service as lodestar to an academic discipline, and it may be something more than a coincidence that, as analytic music theory grabbed a toehold in North American universities over the latter half of the twentieth-century, it turned to paradigms that made claims to rigor and theoretically founded authority—namely, Schenkerian analysis and Fortean pitch-class set theory.

Since Koechlin is especially concerned with twentieth-century music, it is particularly instructive to compare his project with that of the latter of these paradigms, set theory, since it constituted and surely remains the hegemonic means of analyzing post-tonal music in the North American academy. Set theory essentially functions to reduce the manifold universe of harmonic entities into a small number of analytical categories. Koechlin, in contrast, is at

pains to establish and emphasize the incredible variety of harmonic combinations polytonal techniques make available (257); he also regularly calls attention to the polyvalence of particular harmonies (see, for instance, the Ravel analyses on p. 254). This emphasis on variety is emblematic of the broader tendency of Koechlin’s investigations: to enrich and multiply musical elements. This tendency situates him in clear opposition to the usual set-theoretic mode of analysis, which tends to flatten out the many nuances of meaning called attention to by Koechlin’s analyses.

If we could distill a single theme from Koechlin’s varied and perhaps rambling exposition, it might be this: a single musical object (a chord, say) can appear in a kaleidoscopic variety of guises. Which of these guises it adopts depends on how our perception of it is shaped by its context, and there is ultimately no way to judge the result, other than to listen to it—whether we wish to judge it “good” or “bad,” or “appoggiatura” or “chord tone,” etc. As an example of how subtle this contextual shaping of our musical perceptions can be, consider figure 2. Here, Koechlin’s first parenthetical aside notes that the chord that he has analyzed as an inversion of a stacked-fourth chord can also be analyzed as an inversion of a stacked-fifth chord; his second parenthetical aside notes the reverse for the chord he has analyzed in stacked-fifths. Koechlin is thus plainly aware that stacked-fourth and stacked-fifth chords have the same pitch-class content (this fact may have seemed to him too obvious for comment, since he nowhere notes it explicitly). And yet he does not consider these two chord types simply equivalent. Nor is it the case that these two chord types depend on the literal presentation of stacked fourths or fifths for their identification, since neither of the chords in figure 2 fulfills this criterion. Instead, Koechlin’s exposition implies that there must be some further contextual element that calls attention to a chord’s “fourthness” or

“fifthness,” and it is this further context that decides which analysis (or perhaps neither) is appropriate.⁸



Figure 2: A figure from Koechlin’s *Traité*, p. 94.

Renversement de means “inversion of.” The text after figure A reads “or of F–C–G–D” [i.e., a stacked-fifths chord]. The text after figure B reads “or of D–G–C” [i.e., a stacked-fourths chord].

Recently, as music theory has broadened its theoretical toolkit (perhaps further than it has truly broadened its repertorial purview), Fortean set-class theory, like Schenkerian analysis, has retreated somewhat from its hegemonic position in music theory departments. The question naturally arises, then: is Koechlin’s thought of the sort likely to be useful to music theorists today? I encourage the reader of this translation to answer this question for him- or herself. For myself, I believe that the answer is both yes and no. On the one hand, Koechlin’s openness and epistemic humility are laudable, and these intellectual virtues are always worthwhile as a model. But on the other hand, it is not obvious whether Koechlin’s deference to intuition, however commendable it may be, can be responsive to the incentives shaping an academic discipline, which tend to require and propagate more concrete forms of knowledge—“knowledge that” rather than “knowledge how.” What works best in the composer’s studio may be different from what gets published in a learned journal.

⁸Although he briefly mentions the possibility of chords formed from superposed seconds and sevenths (94), Koechlin does not acknowledge the possibility of superposed sixth chords, implicitly subsuming these into the category of standard stacked-third chords, as is usually done. But, to play devil’s advocate for a moment, are stacked-sixth chords really “the same” as stacked-third chords? Two stacked sixths in “root position” do after all make a $\frac{6}{4}$ chord, whose interpretation as an inversion of a tertian triad is famously fraught.

Traité de l'harmonie, 1928

Excerpts

Charles Koechlin, trans. Malcolm Sailor

[p. 91]

Chapter XV. New conceptions; The relativity of dissonance; New ways of forming chords

I. New ways of hearing, new musical conceptions

It is clear that, with modern music, and especially through the resurrection of the Greek modes,¹ the ear has gotten used to *hearing* certain cadences *differently*. When we lived with the almost exclusive use of the tonic, dominant, and subdominant (that is to say, the triads on the first, fourth, and fifth degrees, including their inversions—and $\frac{7}{+}$ [dominant sevenths] as well as $\flat 7$ [diminished sevenths]²), we did not have such extended ideas as the conception of the third degree as *Hypodorian* [Aeolian] dominant, or of the second degree as *Hypophrygien* [Mixolydian] dominant.

¹**Translator's note:** Koechlin's use of Greek names for the modes is, from a contemporary American perspective at least, idiosyncratic. It is explained, with examples, in Chapter I of the second volume of the treatise. I will attempt to summarize here:

Modes without the *Hypo-* prefix end on the dominant scale degree. Modes with the *Hypo-* prefix end on the tonic scale degree. It is not clear whether these terms carry, for Koechlin, any implication concerning ambitus (i.e., authentic or plagal).

Modal correspondances are as follows:

- Koechlin's *Locrien* is our Dorian (i.e., with final D)
- Koechlin's *Mode de mi* is our Phrygian (i.e., with final E)
- Koechlin's *Lydien* is our Lydian (i.e., with final F)
- Koechlin's *Phrygien* is our Mixolydian (i.e., with final G)
- Koechlin's *Dorien* is our Aeolian (i.e., with final A)

(Note that the two modal naming systems are like reflections of one another around an F Lydian axis.)

Each time Koechlin uses a Greek name, I leave it untranslated, and then give its modern English equivalent as I understand it in brackets.

²**Translator's note:** Koechlin indicates this chord with the digit "7" with a diagonal slash through it.

In reality, there exist at least two ways of hearing the chord in figure 1 (within a passage without sharps or flats):

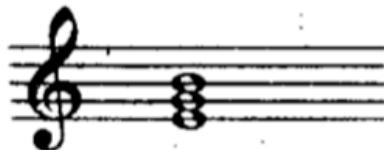


Figure 1

It can, clearly, be the the 3rd degree of the key of C; it can also be a dominant, concluding on the tonic of A (figure 2):



Figure 2

I already discussed this subject in the chapter on the Gregorian modes. It is obvious that, for our ears today, a passage such as figure 3 moves towards the tonality of A *Hypodorian* [Aeolian]:



Figure 3

Moreover, the context could bring us immediately back to the key of C; if we continued for example as in figure 4, the return to C would be unambiguous:



Figure 4

I have shown that *Hypodorian* [Aeolian] cadences are quite intelligible; I will not return to this subject here. To the modern ear, it is an accepted fact.

Similarly, we sometimes remain in [the key of] E-flat even with a D-flat, in certain passages of a *Hypophrygian* [Mixolydian] character, such as in my choral song *Sous bois* [op. 2, no. 4], for example.

And B-natural, in F major, has become quite permissible, thereby giving the *Hypolydien* [Lydian] scale.

But new conceptions are not limited to the above.

I will return below (cf., *The evolution of harmony* [Chapter XVII of this treatise]) to various means of ending a piece of music, or even of leaving it in suspense. Today, many cadences other than the perfect cadence are accepted. Moreover, we permit unresolved appoggiaturas; Chabrier sometimes ends with the chord in figure 5:



Figure 5

This leads us to consider what we might call *dissonances of stable character*.³

³Pointing back to the etymology of the word *dissonance*, one might object that a “dissonance” cannot have a “stable character”: this character of stability, and of homogeneity of sound, is opposed to the character implied by the prefix *dis-*. But, as an abbreviation, and to simplify my terminology, I here take “dissonance” in the general sense of: chords containing intervals called dissonant, such as 7ths, 9ths, etc.

The $\begin{smallmatrix} 7 \\ + \end{smallmatrix}$ [dominant seventh chord] does not have this character—even if it can be acceptable to end a piece with this chord (see, for example, *Semeur*, by Bourgault-Ducoudray, cited above in the chapter on the Gregorian modes).

But it is in the natural character of the dominant seventh on G, to call for the movement of F and B to E and C, respectively (figure 6). (Although many exceptional resolutions are today in common use.)



Figure 6

Wholly different is the character of the chord in figure 7:



Figure 7

Already, the $\begin{smallmatrix} 6 \\ 5 \end{smallmatrix}$ chord on the tonic was being written without the least idea of resolution (figure 8):

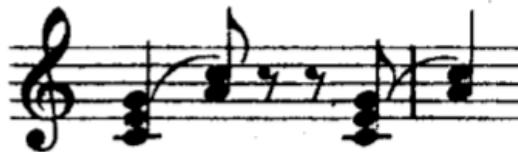


Figure 8: Ravel, *La Valse*, in the manner of J. Strauss.

[p. 92] This chord (figure 9) has become accepted as stable:



Figure 9

But similar is the tonic seventh, whether in minor or in major (figures 10 and 11, respectively):

Figure 10: Koechlin, *Epiphanie*, minor seventh

Figure 11: Ravel, *Sainte*, major seventh.

There are also many other chords on the tonic [i.e., with the tonic pitch in the bass], to which this tonic—as base of the chord—gives a feeling of stability that a dominant in the bass would not confer at all, for example figure 12:

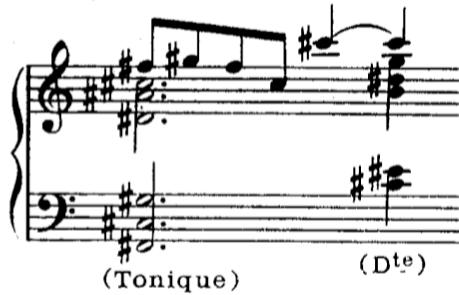


Figure 12: Koechlin, *Sonate pour Hautbois et Piano*.

We thus see an evolution in the feeling of dissonance. Besides, our era has, in general, become accustomed to intervals that not long ago were considered impossible.

And this brings us to the study of what I call...

II. The relativity of dissonance

To begin, it is important to consider the *fact* itself. Let me explain. To the ear, the interval of figure 13A does not at all give the same sensation as that of figure 13B.

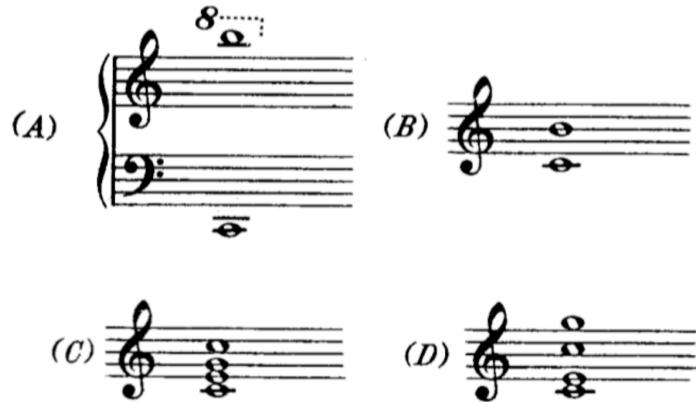


Figure 13

Treatises on harmony do not take this into account. They simplify the study of chords, in assuming *a priori* that dispositions such as those in figures 13C and 13D are synonyms.

This convention is logical: at least for most chords studied in these treatises.⁴ But I will state straight away that this convention cannot be extended to bitonal harmonies, nor to many other aggregations based on 7ths or 9ths. (I will return to this subject in more detail in the last chapter of this treatise.)

The *indisputable fact*, is that figure 13A seems, to the ear, much softer, much more *consonant*, than figure 13B. Besides, the interval in figure 13A more closely resembles the octave.⁵



Figure 14: (referenced by footnote 5)

Translator's note: figure d is missing a treble clef before the second note

[p. 93] These remarks also apply to much more complicated combinations.

1. Dissonance is thus relative to the way the chord is *written* [*à l'écriture de l'accord*], and especially to the distance separating the two dissonant notes.
2. Dissonance is also relative to the *musical meaning* [*la signification musicale*] of the chord, to its *feeling*. Thus, in a chord containing C and B, the B can be a suspension—or an unprepared dissonance. In this latter case, depending on the circumstances, it will either be one of the notes of a +7 [leading-tone triad over tonic pedal]⁶ on C, or of a $\begin{pmatrix} 7 \\ 3 \end{pmatrix}$ [major-seventh chord] on C, or of a $\begin{pmatrix} 7 \\ 3 \\ \sharp 5 \end{pmatrix}$ [augmented major-seventh chord] on C, or even

⁴Because all in all, to the ear, figures 13C and 13D present the same chord.

⁵The interval of a diatonic semitone that, in figure 13B, separates figure 14a from figure 14b is a twelfth of the octave of figure 14b (assuming equal temperament). In contrast, the interval of a diatonic semitone that, in figure 13A, separates figure 14c from figure 14d is a much smaller fraction of the interval in figure 14d, which explains why, *to the ear*, figure 14c differs so little from figure 14d—and much less than figure 14a differs from figure 14b.

⁶Translator's note: see Volume 3, p. 165, for several uses of this chord.

an unresolved appoggiatura, upon the +2 [third-inversion diminished seventh] chord on C. And in each case, the effect is different.

Besides, we must also consider the *tonal role* of the chord. $\begin{pmatrix} 7 \\ 5 \\ 3 \end{pmatrix}$ [major-

seventh chord]⁷ on F, *in F*, does not have the same character as $\begin{pmatrix} 7 \\ 5 \\ 3 \end{pmatrix}$ [major-seventh chord] on F, *in C* (where the F is then subdominant).

But dissonance is still relative to many other things.

3. Dissonance is, without doubt, relative to *custom [habitude]*.⁸ And this custom can be:

a. The custom of the *time*. The $\begin{pmatrix} 7 \\ 5 \\ 3 \end{pmatrix}$ [major-seventh chord] chord

(with major 7th), which we already find in Monteverdi—albeit exceptionally—was still in 1830 considered unbearably harsh. Today, it seems ordinary. The ear has changed. The old beauty remains, imperishable in true masterpieces; but *another beauty* has come to join the old. New domains have been annexed. If we do not become accustomed, if we will *never* become accustomed, to anti-musical ugliness, we nevertheless accept as legitimate [*licite*] those new dissonances which are in their proper place—and natural and expressive, in the given piece. Thus, the custom of dissonance also concerns:

b. The *style of the piece*. A $\begin{pmatrix} 7 \\ + \end{pmatrix}$ [dominant seventh] clashes with the triads

⁷**Translator's note:** I believe Koechlin is simply being inconsistent in using both $\begin{pmatrix} 7 \\ 5 \\ 3 \end{pmatrix}$ and

$\begin{pmatrix} 7 \\ 3 \\ 5 \end{pmatrix}$, and that there is no difference between the chords indicated.

⁸Let us say immediately that this custom of the ear, in accepting and *understanding* dissonances, must not be confused with the custom of a dulled palate whose nearly atrophied taste can only sense barbarian spices [*barbares épices*]. The fact, for the moderns, of having understood that certain sevenths *are*, in certain cases, *very gentle*, is simply a more expansive and *more just* understanding of musical art: a more enlightened taste, a more penetrating manner of discerning beauty. The habit of the ear, in such a case, is nothing but the necessary familiarization: it is what is required to get to know the material means used by the artist. And if dissonance becomes familiar to us, if we perceive that it belongs in such-and-such a place in such-and-such a piece, this perception in no way invalidates the finesse of our ear—on the contrary. I would even go further: a musician who possesses the sense of the “Gregorian beauty” of root-position triads, will find him- or herself shocked by the intrusion of a $\begin{pmatrix} 7 \\ + \end{pmatrix}$ [dominant seventh] in the midst of these serene sequences—and their appreciation of the dissonance (*here, too vivid*) of the dominant seventh will in no way stop them from accepting, elsewhere, much sharper aggregations of dissonance.

with which one is accompanying a Gregorian chant; a $\frac{5}{3}$ triad would sometimes be dull, in a work by Schoenberg. Dissonance in a piece can be *prepared bit-by-bit*; it can also be brusquely affirmed, to attain a certain expression. Being in this way *in its place*, it will not shock. And there is also the writing of passing notes (even bitonal passing notes), which can legitimize the dissonance to such a point that this dissonance will not lack sweetness [*douceur*].

In sum, there is thus also relativity to the *feeling of the piece*, as there is to the sensibility (or insensibility) of the time. (Certain moderns today require a certain harshness.)

4. Finally, and this is not in doubt, dissonance is relative to the timbres of the instruments, to the nature of the attack, to the intensity of the sound. (See, below, the example taken from my *Sonata for Two Flutes*.⁹)

Also, there exists no *a priori* theoretical rule, nor any *scientific criterion* forbidding or permitting the usage of a certain dissonance.

There does not even exist a dividing line [*point de scission*] between dissonance and consonance; instead, for each interval, there is a different *quality*—which varies, moreover, according to the many factors we have listed.

This overview suffices for now. We will complete it in the last chapter with a number of examples.

[p. 94]

III. New ways of forming chords

When it comes to dissonances, the process of harmonic evolution is generally as follows:

1. Passing note on a weak beat; the dissonance is almost imperceptible.
2. Suspension, or prepared dissonance.
3. Appoggiatura (or passing note on a strong beat).
4. Unresolved appoggiatura—which becomes a stable chord, without the idea of resolution.

(We might also mention here the aggregation formed from both *suspension suspended note*.)

However, in modern music, it sometimes occurs that the analysis of a chord in terms of superposed thirds no longer conforms to the impression felt by the ear.

Very often, the chord in figure 15a implies no E, nor any B. *It is therefore no longer a ninth-chord formed from superposed thirds.*

⁹**Translator's note:** Koechlin may be referring to figure 81, although this example is monophonic and thus presumably not the best illustration of dissonance.



Figure 15

Similarly, the chord in figure 15b, which we might be tempted to analyze as in figure 15c, *never* implies the E, the B, or the D.

Sometimes this chord is not even presented as if the F was a suspension or appoggiatura to E.

The result is that we have the right, the *duty* even, to analyze this chord in another manner.

Rather than considering superposed thirds, consider fifths as in figure 16a. The chord and its feeling will be totally different.



Figure 16

And yet these chords play an important role in modern music; they originate with a chord from the *Finale* of the *Pastoral Symphony* (figure 16b), where, I believe, such chords were first encountered in music.

Similarly, superposed fourths give the chord in figure 16c. And we can form inversions from these chords (figure 17).



Figure 17: Translator's note: *renversement de* means "inversion of." The text after figure A reads "or of F-C-G-D" [i.e., a chord of superposed fifths]. The text after figure B reads "or of D-G-C" [i.e., a chord of superposed fourths].

The analyses in the figure apply to those cases where the seconds do not suppose any resolution.

Of course, in the case of figure 18, we have returned to the conception of superposed thirds



Figure 18

Finally, superposed seconds or sevenths would also give new chords. Further on, we will cite some examples, as well as examples of chords formed by fourths or by fifths.

[p. 95]

IV. Other new chords

There exist a large number of other new chords—we will see these in our last chapter. Some are very difficult to analyze. Often, the conception of an *unresolved appoggiatura* remains logical (for example, with Ravel). Also sometimes, these are superpositions above a *pedal that itself forms a chord* (and this pedal can last no longer than the chord as a whole [*l'accord multiple*]). Often, the *pedal* is of *melodic design*. We will give our views at greater length when we speak of the evolution of harmony. It is useless to dwell longer on this subject here, because, without *musical examples*,¹⁰ these discussions will remain somewhat abstract, and we reserve a deeper study for when we will be able to comment with examples.

Nevertheless, it is impossible here to pass over in silence and thus appear ignorant of methods which are today in common usage.

These sorts of chords lead to bitonality, to atonality, and even to atonality; many *good musicians* write them. A treatise on the harmony of our time would not be able to *deny* them. Without doubt, their usage in the works of inexperienced or untalented composers would be discussed. Because nothing is more difficult than the practice of these new methods. The vulgar imagine that anything can be written, and that besides, what is written is more-or-less by chance; that a wrong note, in this art, has no importance. *Absolute error!* No art demands

¹⁰Which we will give only in the last chapter.

a *more* perfectly exact intonation [*justesse d'exécution*],¹¹—and, naturally, the absence of “wrong notes.” It proceeds by empiricism—of course! (Besides, this is always the case. Monteverdi was also an empiricist.) However, among the really gifted composers, those who possess some genius, this empiricism is at once bold and reliable, because it is guided by musical instinct.

As for giving students basses or melodies [i.e., as harmony exercises] that use such chords, this is inadvisable. It will be, perhaps, the work of future treatises. For the time being, this domain is still too little known, and young musicians will profit better by accustoming their ear to these chords by studying the best works of the masters who use them. Let us say only, for the public and for the traditionally-minded, that *these chords [réunions] can be musical*. If they do not always seem to be so, this results from the uneven inspiration of those who write them. But it is not the means *themselves* which we must blame, because certain composers really do get music out of them (see, for example, *Le sacre du printemps*).

Finally, quarter-tones have begun to appear. Shyly, and infrequently! I will speak of them again towards the end of this work. For now, we lack the practical means of *hearing* intervals so unfamiliar to our Western ears.¹² Almost everything is still to be done by the makers of instruments. Nothing says that this domain will be truly fertile. But nothing says that it will not be, either. Between these two hypotheses, we favor *a priori* that which is more favorable to quarter-tones.

[p. 250]

¹¹At least, exact in *equal temperament*. “Absolute” harmonic justness (that is, with the $\frac{3}{2}$ fifth, the $\frac{5}{4}$ third, etc.) would be, most of the time, too complicated to obtain, because of the many modulations of this art. But we will return later to these questions of equal temperament and of untempered scales. Let us now say only that *absolute* justness can not be extended to all the chords of a given key at the same time, and that if we modulate, certain corrections to certain degrees of the new tonality must be effected.

¹²That said, we are beginning to use pianos with two keyboards, permitting the use of quarter tones, or simply of *commas*.

Chapter XVII. The evolution of harmony (excerpt)

Section VI. The French school in modern times (excerpt)

XIV. Bitonality; Polytonality; Atonality

I hope it is not “too late to speak of it again.”¹³ However, between when I wrote the “Study of Modern Harmony” that appeared in 1924 in the *Encyclopedia of music*,¹⁴ and today, as I finish this analogous chapter on the evolution of harmony, bitonality—so common now—has at times become formulaic. It could have been foreseen that certain bitonal aggregations would share the fate of augmented fifths, becoming all too often monotonous, after having once seemed so “new.”

Thanks to this habit that has taken hold of the ears of composers, instrumentalists, and the public, we need not dwell for long on the legitimacy of this sort of writing. A few years ago, many serious (albeit somewhat timid) people maintained that it [i.e., bitonality] was anarchist, anti-musical, impossible; today, it is not so much new chords that risk provoking protest, but only aggressive orchestral timbres. There has been a change in the opinion of the public. Intransigent partisans of the old language will say something is rotten in the kingdom of music. I do not believe it, but, in any case, I will abbreviate the case for the defense that runs the length of my “Study” (in the *Encyclopedia*). It will be enough to recall what nearly everyone accepts: first, that this movement towards bitonality is widespread, and of incontestable strength; second, that those musicians who have been converted to this art need not be jokers [*farceurs*] and, on the contrary, the great majority of them are sincerely convinced; third;, that we can, in this manner, succeed in making *music* [*arriver à la musique*], and not simply in joining together many separate conversations, without connection, heard all at once, at great damage to the ear.

I add that there is no *a priori* reason, whether theoretical or scientific, forbidding bitonal writing, nor polytonal writing, nor any other type of writing besides. Science and art are two different things and the one cannot regulate the other.

¹³**Translator’s note:** originally “*trop tard pour parler encor d’elles.*” Since Koechlin places this entire phrase in quotes, and it features an archaic spelling of “encore,” it may be a literary reference.

¹⁴**Translator’s note:** although neither of them have precisely the same title, Koechlin appears to be referring to either Charles Koechlin, “Les Tendances de La Musique Moderne Française,” in *Encyclopédie de La Musique et Dictionnaire Du Conservatoire, Deuxième Partie*, ed. Albert Lavignac and Lionel de La Laurencie, vol. 1 (Paris: Delgrave, 1925) or Charles Koechlin, “Évolution de L’harmonie : Période Contemporaine, Depuis Bizet Jusqu’à Nos Jours,” in *Encyclopédie de La Musique et Dictionnaire Du Conservatoire, Deuxième Partie*, ed. Albert Lavignac and Lionel de La Laurencie, vol. 1 (Paris: Delgrave, 1925).

Finally, if at times musicians use a type of bitonality that is too facilely systematic, and which seems rather “à la manière” [i.e., in self-conscious imitation] of the first polytonal adepts, it does not matter.

The resources of such a language [i.e., bi- and polytonality] are extraordinarily rich. And, even if this language is not destined to make us forget the consonant style, or the style of the period of Fauré and Debussy, it need not become any more formulaic than the language of consonant triads or of dominant 7ths.

I will pass over the various theoretical objections thrown up against bitonality: “illogicality, impossibility of combining two different keys.”¹⁵ The notion of tonality is not an “innate idea” of the [p. 251] mind, it is a result of habit, and experience, and the conditions in which sound occurs. *A priori*, nothing determines that, given these conditions (whose foundations human science does not even completely know), we cannot join two different keys together. Even if we wish to invoke acoustical arguments, it would be easy to demonstrate that, if we take account its harmonics, a simple consonant triad is bitonal. Take, for instance, the chord C–E–G: the 5th harmonic of C is E, while the 5th harmonic of E is G-sharp, and the 5th harmonic of G is B. But let us remain in the proper domain of music, and separate science from art.

We will study these questions from a purely musical point of view, from which they are already sufficiently complicated.

1. Origins of bitonality

Analyzing *without taking into account the musical effect* (which is, I recognize, a bit contrived), we would think we had already found bitonality with any simultaneity of C and C-sharp, for example figure 19.



Figure 19: Mozart, *Don Juan*, Overture.

The real key is D major, and not C, but this is without importance

But it is too clear that the C-sharp at (1) has the character of a passing note for the ear to get the impression of a foreign tonality to the key of C-natural (it is, moreover, a question of the particular case, by which I mean it depends on the pace of the melody, on its rhythm, and also on its tempo [*mouvement*]

¹⁵Which were already made, quite mistakenly besides, to the use of parallel fifths.

*au métronome]. In the Don Juan overture (*Allegro*, cut time), the raised note is relatively quick. If it were slow and, above all, if it had the rhythm in figure 20, the effect would be different.)*



Figure 20

The case of a chord above a pedal will be quite different, such as the chord from the first *Prose lyrique* of Claude Debussy already cited above [this figure occurs on p. 241 of Koechlin's treatise; it has been reproduced below as figure 21]. This chord is best considered the result of appoggiaturas; to the ear, the bitonality of the passage is not in doubt. Moreover, this bitonality fulfills the feeling of distance [*lointain*] the composer was seeking. Nevertheless, the passage as realized obviously does not go beyond the limits of music.



Figure 21: Debussy, *Proses lyriques*, “De rêve...”

Between these two effects, so different (the effect of the passing note of the Don Juan overture, and that of the bitonal Debussy chord) there is a whole range of nuances, given by neighbor notes, passing notes, appoggiaturas, or simply by imitations at the fifth. In certain cases, bitonality does not cross our mind; in others, bitonality is nearly established already. Thus, in the minor mode, the combination of sharp and natural remains tonal (figures 22 and 23).



Figure 22: Haydn, *Symphony in G major*.



Figure 23: Beethoven, *Sonata*, op. 106

But certain neighbor notes or appoggiaturas have a strange character that borders on bitonality (figures 24 and 25).



Figure 24: An excerpt of a Haydn string quartet



Figure 25: J.S. Bach, *Mass in B minor*

[p. 252] Figure 26, which is much older, and for which I am grateful to Mr. H. Expert, shows that bitonality is not as new as might be believed. And it cannot be argued that it is a matter here of musical experiments, of a random invention by musical instinct in an unknown forest (as happened in the fourteenth century with Machaut). Sixteenth-century musicians were well aware of what they were doing... The passage in figure 26 sets a text by Ronsard: “the morning caress of her roses...”—pianissimo, obviously, and perfectly *dolce [dans la douceur]*.



Figure 26: Anth. de Bertrand, *Ah, Seigneur Dieu, que de grâces encloses....* Date: 1576.¹⁶

But let us continue the sequence of bitonal examples.

By passing notes (figure 27).

¹⁶See also the example taken from Monteverdi’s *Orfeo*, with the simultaneous G-sharp and G-natural.



Figure 27: R. Schumann, *Mondnacht*

And by appoggiaturas (figures 28 and 29).



Figure 28: Mozart, *Symphony in G minor*



Figure 29: Saint-Saëns, *Déjanire*

(It is a question here of the agonizing impression that the pain of Hercules must convey, when he is burnt by the tunic of Nessus. This passage is, by the way, exceptional among the works of Saint-Saëns, who detested every sort of bitonality.)

Or by imitations (figure 30 as well as, further on, figure 31).



Figure 30: J.S. Bach, *Duetto*



Figure 31: Ibid.

The bitonal feeling gets still stronger in certain more recent examples (figures 32 and 33).



Figure 32: Wagner, *Rêves* (Dreams)



Figure 33: Fauré, *Prométhée*

[p. 253] The implication of all these examples—given the authority borne by the names of these musical masters (Bach, Mozart, Haydn, etc.)—is that the simultaneity of a natural and a flat, or of a sharp and a natural, is not a bad thing *in itself*, and *everything depends on the particular case*. But there is better still, because it seems clear that in some of the preceding examples, the ear has a sensation of bitonality, however fleeting—and if the masters who realized this sensation approved of it, we must accept that they were right to do so! Thus, passing notes, neighbor notes, and appoggiaturas can be found at the origin of bitonality. As for pedals, does it not appear that the case is closed? By this means [i.e., by the use of pedals] bitonality becomes more legitimate, more “excusable,” even to strictly traditional musicians.

As regards bold pedals, figure 34 (by Bizet) is quite old.



Figure 34: Bizet, *Djamileh*

(See also the more recent *Chanson bohème* from *Carmen*.) Here, the rhythmic persistence of the pedal underlines the bitonal character of the passage, given by the simultaneity of the C-sharp-major chord with the fifth-pedal in D major. I certainly admit that it [i.e., the C-sharp-major chord] is only a passing chord, but it is both accented, and prolonged for an entire measure. Whatever one might say about it, as far as the ear is concerned, it is bitonality. From there, to figure 35, it is not very far.



Figure 35: R. Strauss, *Ein Heldenleben*

And if the pedal is in the form of a pattern [*dessin*], even a simple one, it can result in bitonal counterpoint. (Cf. the passage by Erik Satie cited above [reproduced here as figure 36], as well as that from my song “le Vaisseau” [figure 37].)



Figure 36: Satie, *Idylle*



Figure 37: Koechlin, *le Vaisseau*

Sometimes it happens that the pedal has the same duration as the chord placed above it, even when this chord belongs to a different tonality. Figure 38 gives an example.



Figure 38: Unattributed example¹⁷

We can also arrive at bitonality by *other formations*. For instance, the bitonality that results from the chord in figure 39; this chord is none other than $\begin{smallmatrix} 9 \\ + \end{smallmatrix}$ [dominant flat-ninth] with the lowered fifth (G-flat) and the true (*réelle*) fifth (G-natural). (This is the passage, already cited¹⁸, from Ravel's *l'Heure espagnole*.¹⁹)

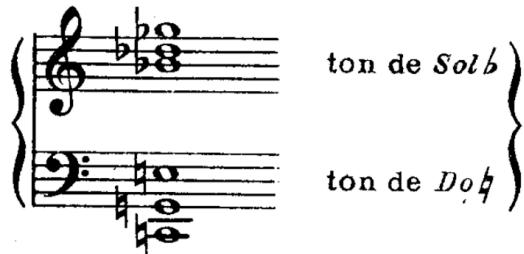


Figure 39

¹⁷**Translator's note:** this example, unattributed in the source, is drawn from Koechlin's song "Rhodante," op. 35, no. 3, with text by Albert Victor Samain.

¹⁸ Let us also note the beginning of Roussel's symphonic poem, *Pour une fête de printemps* (figure 40), and further on, in figure 41, the clearly bitonal simultaneity (*ensemble*) on the downbeat of the measure. (Although this simultaneity can perhaps be reduced to a single tonality, if we consider the chord E-G-C-sharp as an appoggiatura to D-A-flat-D, and E-B-E as an appoggiatura to F-C-F. Given the usual style of Roussel's writing, this sort of analysis is, I believe, in line with his manner of thinking.)

This series of examples concerning polytonality will without doubt be judged quite incomplete, but a deeper study would demand its own volume. I remind the reader that more details will be found in my study on *Harmonie moderne*, in the *Encyclopédie de la musique*. (**Translator's note:** Koechlin appears to be referring to either or both of the works cited in footnote 14 above.)

¹⁹**Translator's note:** I was unable to locate an example from *l'Heure espagnole* making use of this harmony anywhere in the treatise.



Figure 40: Roussel, *Pour une fête de printemps*, referenced by footnote 18



Figure 41: Roussel, *Pour une fête de printemps*, referenced by footnote 18

[p. 254] *Appoggiaturas* (whether resolved or unresolved) can also produce a bitonal result. A large number of these can be found in the works of Ravel (figure 42, figure 43).



Figure 42: Ravel. “Surgi de la croupe et du bond,” *Poèmes de Mallarmé*

- (a) I would analyze as follows: the B-flat is an appoggiatura to A. The chord is a $\begin{smallmatrix} +6 \\ \flat 5 \end{smallmatrix}$ [first-inversion diminished seventh]²⁰ on A, with resolution of the B-flat (although this resolution only occurs at the following chord). There is also, as an upper pedal, the dominant D.
- But enharmonically, however, we have the tonalities of E-flat minor and of D (or of G)

Figure 43: Ravel. “Surgi de la croupe et du bond,” *Poèmes de Mallarmé*

- (a) $+2$ [third-inversion diminished seventh] with the dominant C added
- (b) An inversion of a $\begin{smallmatrix} + \\ \flat 9 \end{smallmatrix}$ [dominant minor ninth] chord with lowered fifth, and with the sixth as an appoggiatura (figure 44). We already studied these chords in the paragraph on Russian harmony.
- (b) can also be analyzed enharmonically, as an inversion of a $\begin{smallmatrix} + \\ \sharp 9 \end{smallmatrix}$ [dominant ninth] on A, with the lowered fifth E-flat (and where D-flat = C-sharp).
- (c) is a bitonal chord uniting the keys of A-flat and F (or C). The 3 highest notes (Sol, Do, E-natural) can be analyzed as unresolved appoggiaturas of A-flat, D-flat, and F.

²⁰**Translator’s note:** in Koechlin’s notation for this chord, the digit “5” has a diagonal slash, rather than a flat sign.

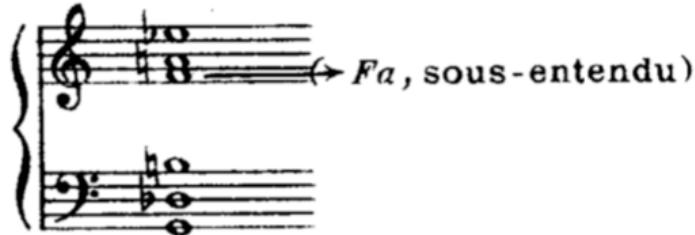


Figure 44: The F-natural is implied.

I will not provide too many examples of unresolved appoggiaturas, in spite of the interest they present. The bitonal combinations thereby produced remain generally very musical (above all when written by Ravel or Delage), and they have a highly particular flavor: we have the feeling of remaining, more or less, in the [main] tonality, and yet at the same time subtly escaping from it.²¹

However, the bitonal writing of some other composers cannot be so logically analyzed by this means. Often, among these others, there is a very clear alliance of two different keys, which form *new chords* in the process.

From this, comes Darius Milhaud's analytical procedure in his article on polytonality in the *Revue musicale*. For example, figure 45 is the adding together of the major triad (*accord parfait*) of C and that of D-flat.



Figure 45

Finally, the combination of passing notes and brief pedal-points (which we might also call “passing pedals”) can also result in bitonal aggregations (figure 46).

²¹On this subject, study [*lisez*] attentively Delage's *Poèmes hindous* and Ravel's *Poèmes de Mallarmé* (above all the third, from which we have taken the above extracts).



Figure 46: Koechlin, *Chant funèbre*
 (a), (b) passing chords
 (c) passing pedal

2. Harmonic bitonality (or polytonality)

When we study works written between 1900 and 1910, in particular, and we find therein notes foreign to the tonality, we discern an expressive, evocative reason for these notes—and, definitively, we discern that the musician *could have not done otherwise* than to write these notes. It was not from a puerile or vain desire for originality²² that they made recourse to such means, but because these means were *necessary to the intimate rapport between the realization and the idea*.

[p. 255] Here are some examples (figure 47, figure 48, figure 49)

Figure 47: Koechlin, *Accompagnement*.

²²**Translator's note:** the source contains a presumed error here, reading *Ce n'est point sans un pueril et vaniteux désir d'originalité*, i.e., “It is not without a puerile and vain desire for originality...”



Figure 48: Koechlin, “Chant du Chevrier,” from *Paysages et Marines*.

(a) The accent upon this A-natural results in large part from the A-flat heard earlier, and which remains sounding (at a distance of 3 octaves) below the A-natural.



Figure 49: Koechlin, “Matin frais dans la haute vallée,” from *Heures Persanes*.

Because, however, everything has its precursors, and because a chord or a technique is never as new as would be believed, expressive bitonality is an older phenomenon.

We find, in Bruneau’s *le Rêve* (1891), a strange feeling of distress ([portraying] the pain of the bishop), due to the simultaneous use of the notes of F-sharp minor and A minor (figure 50).



Figure 50: Bruneau, *le Rêve*.

In the same character, let us also cite figure 51 and figure 52.

Figure 51: Ravel, "Surgi de la croupe et du bond"

Here, an analysis in terms of unresolved appoggiaturas does not seem appropriate to me. We have the combination of a D major chord with the fifth E-flat-B-flat—with, moreover, the impression of a dominant-seventh on D given by the C-natural in the voice. If we wanted an analysis using unresolved appoggiaturas, it would be: 4th inversion of a D dominant minor 9th chord—that is to say, the inversion with the 9th E-flat in the bass, and with an (unresolved) appoggiatura B-flat to A.

Figure 52: Paul Martineau, *Chants hébraïques*, 1914.

[p. 256] More audacious still is the passage in (figure 53).



Figure 53: Paul Martineau, *Chants hébraïques*, 1914.

These few extracts already show the considerable diversity found in the realization of bitonal music. It would be quite unjust to speak of a *system* in view of such varied combinations, especially coming from musicians like Ravel, Stravinsky, Paul Martineau, Darius Milhaud, etc.

I do not dispute that some inexperienced amateurs believe themselves *modern*, by harmonizing in D-flat a (banal, moreover) motive in D-natural. This is a very elementary sort of bitonality... These same amateurs sometimes think themselves obliged to scorn a simple triad. I already gave my opinion on this subject, and I will not return to it. But, as far as polytonality is concerned, the feeling remains that this domain, *still little known* in spite of some bold explorations, is extremely vast and highly fertile.

If I call it (i.e., the polytonal domain) little known (further searches will be only more fruitful), I add that—in spite of certain theories about which I will speak below—we have not, until now, really *classified* polytonal combinations, in the manner which treatises do for consonant triads, seventh chords, altered chords, etc. What greatly facilitates the classifications of these treatises is the fact that they do not take into account the voicing (*disposition*) of each chord, but only its inversion. Thus, (as the ear indeed suggests to us), figure 54 is the *same chord* as figure 55 or figure 56.



Figure 54



Figure 55



Figure 56

However, this sort of simplification, which was so useful to the “classical” theory of harmony, is no longer appropriate when it comes to polytonal aggregations. Already, I remarked on the important difference between the intervals in figure 57.



Figure 57

To analysis, even if the *interval* is the same (in accepting to displace the B-natural 4 octaves lower), the effect to the *ear* is too different for us to accept this *theoretical* transposition of the high B-natural to the true seventh (figure 58) of the low C.

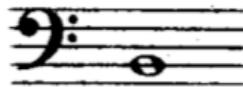


Figure 58

Besides, there exists already a certain difference between the two real sevenths in figure 59.

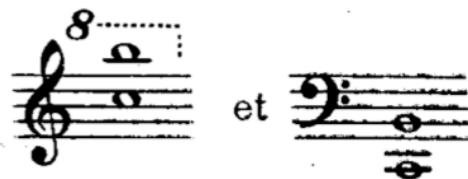


Figure 59

And what would work well in one case, at the high tessitura, might not do so at the low tessitura—or vice versa.

But the situation is still more different, when we consider polytonal aggregations formed from distinct chords: we can not transform them into *aggregations of intermixed chords* without distorting them. See, for example, these measures (figure 60):

Figure 60: Koechlin, *Nuit de Walpurgis classique*, symphonic poem after Verlaine

Another voicing would palpably change the character of these chords. It is obvious that we cannot intermix the chords (a) and (b) without writing, in the

process, a *different* harmony—related, perhaps, to the first, but clearly different (figure 61):



Figure 61: In this voicing, the second chord will be analyzed by the ear as: dominant minor 9th on G; C-sharp, unresolved appoggiatura to B-natural; F-sharp, unresolved appoggiatura to F-natural or G-natural

And it would be even more hazardous to modify the voicing of the chords (c), (d), and (e), which constitute a more complex grouping.

[p. 257] In polytonal art, we find ourselves confronted with extremely numerous combinations, just by writing superpositions (and not intermixtures) of various chords. Because, in this way, we have already:

1. The combinations of two or three major or minor triads.
2. The combinations of a triad with any seventh chord or diminished seventh chord.
3. The combinations resulting from a simultaneous triad, a seventh chord, and another type of chord (for example, a quartal chord).

And then, by voicing each of these combinations in a different way, we will most often obtain a new chord.

A harmonic analysis that confines itself to only consider combinations of two consonant triads, such as in figure 62, does not seem to me inexact; such analysis remains quite logical (at least for the study of the simplest cases). But it is *entirely insufficient* when it comes to the aggregations of another style, notably that of Schoenberg. In short, it is quite incomplete because it considers only a small portion of the total number of possible *musical* cases [or perhaps “*musically* possible cases”]. We have indeed seen that polytonal music combines not only consonant triads, but also seventh chords, ninth chords, and so on. If, on the other hand, we agree to consider such polytonality as a purely *contrapuntal* art (a debatable postulate, since very often it is clearly harmonic), then there would remain almost no theory: we would, in principle, accept complete freedom of motion, as in the *simultaneous* execution of any two *random* pieces (I will return to this shortly).



Figure 62

In reality, if it is certain that the independent motion of the parts plays a large role in polytonal art, this contrapuntal sense is nevertheless not the whole story, far from it: vertical hearing—*harmony*—asserts its rights. It asserts them so well that the ear perfectly discerns unwelcome passages: those where the sonority becomes uselessly hollow, or less rich, or too clearly based upon $\begin{smallmatrix} 7 \\ + \end{smallmatrix}$ [dominant seventh] or $\begin{smallmatrix} 9 \\ + \end{smallmatrix}$ [dominant flat-ninth] chords, etc... A curious fact is that, in spite of any bitonal combinations, we understand very well *whether the tonality works*: that is to say, given the subtle problem of *the tonality of the whole*, whether the piece languishes, or develops with sufficient vigor. But in such a matter, how can we accept rules, or even give advice when, even for the language of consonance, it is an infinitely delicate matter to judge whether a certain modulation is “good” after another, and when *ultimately, it depends on the case!* Here, even more so than with triads, these questions depend on the particular instance. And this is why one should not expect me to propose [firm] *critieria*.²³ Nevertheless, the least false note is noticeable; the least weakness, the least platitude in sonority or idea, is as apparent as in the consonant style. But *musical instinct*, happily, can guide us in this mysterious forest. Besides, it is the only guide—it is always the only guide. It will point out to us any needless repetitions, overlong passages, illogicisms, anything dull or unnecessarily harsh.

When the voice-leading [*mouvements de parties*] is not of great importance and the language is more harmonic than contrapuntal, the ear will, I believe, apprehend the musicality or anti-musicality of a passage without much hesitation. It is only necessary that it familiarize itself little by little to these new combinations, perceptions to which it is not habituated. But the young will manage this quite quickly, since such chords are “in the air” and we hear them here and there. Once the ear has gotten used to this sort of vocabulary, it will know how to discern that which is really *music*, and the musical instinct will be in working order.

²³I would certainly say that, most often, it is perilous to write a simple triad, immediately after a much more complex polytonal combination. But, even there, certain exceptions would prove me wrong if I tried to generalize. Note above all that it is the presence of thirds that can cause soppiness (*mièvrerie*) in such cases; a chord of fifth and ninth only, or of only a fifth, would be much less dangerous. As for the dominant seventh, *almost certainly*, it will not go well preceded by bitonal aggregations. I would not risk saying, however, that it should be absolutely avoided in this style.

But when the ear is presented with contrapuntal parts that each affirm a different key, without being able to distinguish any *harmonic reference points*, any *vertical markers*,²⁴ the feeling is then different: it seems that one has entered into a different domain of art. This is not always the case with polytonal counterpoint: sometimes, we can feel the harmonic reference points well, and it all depends [p. 258] on the nature of the composer. In consonant art, we likewise have counterpoint where we perceive a clear harmony—that of J.S. Bach, for example—and, on the other hand, there exist fugues (by inept students) where the harmony is so vague and so poorly established that we do not understand what it means [*signifie*]. The same differences present themselves in the art of polytonal counterpoint. But there, thanks to this new language and the unknown places it takes us, some works give the impression that anything goes—that, moreover, anything would go, when it comes to counterpoint in dissociated tonalities, and that we are thus definitively beyond the musical domain within which any harmonic feeling persists. The hearing is then purely horizontal: simultaneous melodies that cross and criss-cross—and, concerning which, we say to ourselves that they could be mixed together in any manner at all: it will always work out, because the interest will always be in the life of each part [*partie chantante*], or in the distribution of rhythms and timbres. Again, perhaps this is just an illusion, for nothing proves that vertical hearing does not still occur.

But if there really exists a polytonal art of pure counterpoint—in that case, we find ourselves in the presence of a wholly different art, not founded on the same auditory perceptions. It would be as far from harmony as would be pure percussion (snare drum, bass drum, cymbals, drum [*tambour*], etc.), where amplitudes [*intensités*] still occur, rhythms, relative heights [*hauteurs*] (of noises),²⁵ but nothing that evokes chords.

In this *Treatise of Harmony*, we will not deal with this “purely contrapuntal” art (supposing that it is possible to use notes without our immediately trying to hear them “vertically”). In not taking account of harmonic effects, such an art is obviously beyond the scope of this work. But we will examine certain cases of polytonality by means of counterpoint, which will not seem to be foreign to that conception of music where harmony still plays a role.

3. Contrapuntal Polytonality

To give a good sense of what we mean by this [i.e., by “contrapuntal tonality”], and of that which differs from it, and of that which leads to it, consider the following examples (figures 63, 64, 65, 66, 67, 68, 69, 70, and 71):

²⁴Of similar significance to that of *purely harmonic* polytonal groupings.

²⁵**Translator’s note:** the french word *hauteur*, in a musical context, ordinarily means “pitch,” but in this context, where Koechlin appears to be trying to describe *unpitched* sounds, it seemed more appropriate to translate it in its more general sense of “height.”



Figure 63: Milhaud, *Ténèbres*



Figure 64: Stravinsky, *Le Sacre du Printemps*



Figure 65: Milhaud, *Sonate pour piano*



Figure 66: Stravinsky, *Le Sacre du Printemps*

Musical score for voice and piano. The lyrics are: "aux cent cloches de la Né - va". The piano part features four numbered chords: (1), (2), (3), and (4). The vocal line consists of sustained notes and eighth-note chords.

Figure 67: Milhaud, *Soirées de Pétrograd*, “La Limousine”

[p. 259]

Musical score for piano. It shows a continuous sequence of eighth-note chords, primarily consisting of eighth-note pairs.

Figure 68: Milhaud, *Soirées de Pétrograd*, “Monsieur Protopopoff”



Figure 69: Koechlin, *Chant de pêcheur*

A musical score for piano or organ. It features three staves: a treble staff, a middle staff, and a bass staff. The music includes various note values, rests, and dynamic markings like '5' and '3'. The bass staff shows a prominent bass note at the end of the measure.

Figure 70: Stravinsky, *Rossignol*

A musical score for piano or organ. The top staff uses a treble clef and the bottom staff uses a bass clef. The music features eighth-note patterns and sixteenth-note chords, with a prominent bass note in the bass staff.

Figure 71: Koechlin, “Arabesques” from *les Heures Persanes*

Figures 63, 64, 65, and 66 are clear cases of *harmonic* bitonality or polytonality. There is no motion of the parts other than that which is determined by the choice of chords itself.

In figure 67, we observe more active lines (that of the voice, as well as that of the chords marked 1, 2, and 3). Nevertheless, the *conception* [*idée*] of these chords 1, 2, and 3 is mostly harmonic, and intended to evoke the impression of a *volley of bells*. There is a melodic movement in sixteenth-notes at 4, but, on the whole, the passage remains harmonic.

Figure 68 is already counterpoint, set above a sort of pedal (this pedal being formed by the seconds F-sharp–G-sharp and C-sharp–D-sharp). The harmony, as sometimes occurs with Milhaud, is very simple: a series of $\frac{6}{3}$ chords above a pedal that is foreign to the tonality. And, in this contrapuntal example, the ear easily perceives the harmonic element [*la donnée harmonique*].

Figure 69: in the right hand, a succession of $\frac{9}{5}$ chords, written in parallel, and rising by intervals of a third, while the left hand (which has the main motive of the piece, which has been already stated and *already known to the ear*) presents conjunct motion. The result is simply figure 72. The basis [*fond*] of the harmony remains at bottom $\frac{9}{5}$ chords; the feeling is at once contrapuntal and harmonic.



Figure 72

Figure 70 is much more complex; this bitonal combination is composed of the parts shown in figure 73. But these patterns are not haphazardly chosen [*n'est pas quelconque*]; they are written so as to realize the particular vertical sonorities desired by the musician (Stravinsky leaves nothing to chance, and no one is more precise than he). The passage is contrapuntal bitonality whose harmonic analysis is not easy, obviously, but from which (if I am not mistaken) the harmonic element has not been banished.



Figure 73

It is the same with figure 71: the right-hand's melody is not written in a haphazard manner in relation to the left hand. Sometimes this chromaticism is of the character of passing notes, and sometimes it connects with the melody, *through the perception of certain chords thereby realized*.

[p. 260] It should be noted that, in certain sorts of combinations, the ear does not forget to hear vertically, and will ably notice any harmonic banality,²⁶ even if only in passing, even if formed from supple and logical contrapuntal motions.

The writing of bitonal or polytonal counterpoint seems to have come after that of harmony in two or more keys. This is, at least, the case for the French school, and with Alfredo Casella, who was also an ardent advocate of polytonally-based chords. Nevertheless, we will cite some relatively *old* examples.²⁷ Béla Bartok's *Bagatelles* date to 1908. In these, we find figure 74.



Figure 74

It must be noted that, at the beginning of this phrase the bitonality is only apparent, because the ear hears instead figure 75.

²⁶For example, certain stray chords, such as $\begin{smallmatrix} 7 \\ + \end{smallmatrix}$ [dominant seventh] or even $\begin{smallmatrix} 5 \\ 3 \end{smallmatrix}$ chords occurring out of place after much sharper and more complex aggregations.

²⁷Relatively, that is, in comparison with these last few years.



Figure 75

And this is no more “free” than the passage from the string quartet by Mozart where E-flat is combined with E-natural.²⁸ But further on, the tonality of C-sharp minor takes shape in the right hand.

We often find, with young composers, pieces featuring two patterns that start in the same key, if only barely, and only definitively split into two keys a little later.²⁹ But there is no rule to this effect: we can just as well begin with two simultaneous melodies that are firmly in different tonalities.

In Strauss's *Ein Heldenleben*, the passing chords create a moment of bitonality (figure 76).



Figure 76

4. Atonality

Soon after Bartok's *Bagatelles*, Schoenberg wrote his astonishing *Pierrot Lunaire*, in which utterly new things are found. A contrapuntal art, if you will, because it is not easy to disentangle the *chords* (or, at least, not with our usual methods of analysis), and because the parts therein sing in a highly expressive manner. We are dealing here with what, for better or worse, we now call *atonality*. This atonality generally results from a chromatic feeling, and if, in spite of everything, we prefer to call it tonal, we must then accept a tonality that changes very rapidly. By means of much simpler chords, the musicians of the sixteenth century gave these examples of an "instantaneous" tonality, so to speak, which changed with somewhat disconcerting speed.³⁰ The following

²⁸Translator's note: pages 165–166 of the treatise feature a selection of examples of cross-relations in the works of Haydn and Mozart, but I was unable to locate the specific example that Koechlin speaks of here.

²⁹For example, in *Saudades do Brazil*, by Darius Milhaud.

³⁰Translator's note: it is not clear what Koechlin means by "these examples." He may be referring to figure 26, or he may be referring to his earlier discussions of sixteenth-century

examples (figures 77 and 78), taken from *Pierrot lunaire*, will give an idea of Schoenberg's conception, so free and so strange [*curieux*]:



Figure 77: Schoenberg, *Pierrot lunaire*, "Lune malade"



Figure 78: Schoenberg, *Pierrot lunaire*, "Madonna"

[p. 261] Note the expressive character of these melodies, whose effect and the value we can only really judge in their *instrumental execution*, which gives a wholly different result from that which would be obtained on the piano with a less-than-perfect legato. Such a legato is clearly what Schoenberg demands in his piano pieces—which are, above all, sensitively made.



Figure 79: Schoenberg, *Drei Klavierstücke*, op. 11, no. 1

[Figure 79:] A harmony based on major sevenths and minor ninths, with the persistent use of intervals that appear strange even to modern ears, but which certainly have their expressive and musical *raison d'être*. No art seems to leave less to chance than that, so refined, of Schoenberg.

tonality and chromatic license (pp. 127–134).

Be that as it may, we should take care not to judge a body of work too quickly [“*en cinq secs*”]. On the contrary, we should suppose that so thoughtful a master, so sensible and so learned moreover, knows what he is doing... After these examples from Schoenberg, I have qualms about expecting the same spirit of good will and understanding towards a passage taken from my *Quintet*. I will nevertheless give it, for informational purposes (figure 80).

Figure 80: Koechlin, *Quintette pour piano et instruments à cordes*, 1st movement

Could this feeling of painful uncertainty and of distant extremes³¹ be satisfied with less dissonant aggregations? Possibly, but the author of this *Quintet* felt compelled to make recourse to them [i.e., the dissonant aggregations]—not from the intention of “doing something different from his neighbor,” and not from the intention of “doing the same thing [as his neighbor]” either. (In any case, I do not advise *students* to approach these novel shores if they do not know well the lands that they are leaving behind.)

But *atonality* can be still more real (figure 81):

³¹Also, this passage is found near the end of the movement, and is prepared by the preceding harmonies.



Figure 81: Koechlin, *Sonate pour deux flûtes*

The group of six eighth-notes followed by D-flat is not in any well-defined key.

[p. 262]

Similarly, figures 82 and 83:



Figure 82: Koechlin, *Arabesques*

(a): If this chord (C-F-B-flat) had been placed under the E, it would have seemed too tonal because of the resulting feeling of a $\frac{7}{+}$ [dominant seventh]. For this reason, the use of an eighth-note, rather than a quarter-note.



Figure 83: Koechlin, *Arabesques*

Here, the atonality results from the rapid succession of sevenths, none of which establishes a clear tonality.

I have spoken of *tonal clarity* too often not to be trusted when I now say: "I

acknowledge that it becomes at times useful to avoid this [clarity of] tonality”—or, at least, to affirm the tonality so fleetingly and so vaguely that it is as though it had not been. For expressing certain sentiments, for evoking certain passages [*passages*], these novel means prove precious. And they prove the existence of tonality by their very contrast with it: because if tonality did not exist, we would not have to [expressly] avoid it to render musical ideas opposed to the feeling of clarity obtained by tonal music (even Gregorian music).

Certain polytonal groupings, with diminished sevenths, already have an almost tonal character. For example, figures 84 and 85:



Figure 84: Koechlin, *Les heures persanes*, “Clair de lune sur les terrasses”



Figure 85: Koechlin, *Sonata pour Piano et Hautbois*, Scherzo

[Concerning figure 85:] Bit by bit, the whole-tone ascent and the difference in tonality between the bass and the arpeggios of the right hand, together with the tonal remoteness of the oboe part, almost completely take away the impression of a well-defined key. And yet the passage still seems to *march towards a goal*.

Finally, let us cite the beginning of “*le Caravane*” (taken from *Les heures persanes*), another work written by the author of this treatise (figure 86):



Figure 86

[p. 263] This passage, which can be harmonized (and analyzed) in F-sharp minor, is in reality *atonal* because of the persistent bass C-natural–G-natural, and the remoteness of the parts, further augmented by the vagueness of the harmony. We see here that we must always return to the *musical effect*, because analysis, pure and simple, would indicate a perfectly clear tonality for this upper part, whereas *to the ear*, the feeling of tonality disappears entirely.

Some musicians have observed that chromaticism is at the base of the atonal style; this is often so. But not always. Here, as elsewhere, theory is narrow, rather than entirely rigorous. As Bergson says, *reality overflows any frame* [*la réalité déborde des cadres*]. On the one hand, it would not be difficult to give clearly tonal examples of chromaticism; on the other hand, the preceding passages, from the *Sonate pour Hautbois* and *la Caravane*, are not chromatic. One interval proves to be particularly *atonal*: the augmented fourth. This is understandable due to the absence of a direct relation between C and F-sharp, *if we envisage, moreover, no resolution in G*³² (which depends on the context). The vagueness that results from the augmented fourth can be seen already in older diminished sevenths; it encourages their irregular resolutions to distant tonalities. We find it again later in the $\frac{7}{+}$ [dominant seventh] and $\frac{9}{+}$ [dominant flat-ninth] chords with lowered fifth. Finally, we come across it once more in the above examples of bitonality, as we do so often in the works of Schoenberg as well. But once more, do not conclude that it [i.e., the augmented fourth] is *necessary or sufficient to the feeling of atonality*. This feeling is too complex, too subtle, and too diverse to be confined to the usage of a particular chord or interval.

There is, in Alfredo Casella's symphonic poem *Notte di Maggio* (1913, premiered soon afterwards at *Concerts-Colonne*), an occurrence of a complex chord, whose author calls it *synthetic*, and whose meaning is evidently not tonal. We could hardly call it polytonal (because of the vagueness that results). It is certainly situated at the boundary of atonality (figure 87):

³²In a $\frac{7}{+}$ [dominant seventh] on D, C and F-sharp naturally give a tonal effect. In certain cases, however, the ear will suppose this chord or one of its inversions, even if it hears only C and F-sharp [i.e., and not the entire chord]; in other cases it will be put more in mind of the whole-tone scale, etc.

réunion des tonalités suivantes:

<i>Si mineur.</i>
<i>Sol majeur.</i>
<i>Do\sharp majeur.</i>
<i>Si majeur.</i>

Figure 87: The text reads: combination of the following tonalities: B minor, G major, C-sharp major, B major.

I do not attach great significance to the *chord itself*, because (as I repeat once more) *everything depends on what the author does with it*. The relation to the context, to the *melody* (which remains the essence of all music), to the *harmony* of a passage (whether tonal or atonal is of little consequence), that is the main matter. Otherwise, any epigone could, in choosing the “expressive chords” used by one master or another, write *living music*, and the facts abundantly show that this is not how it goes.

As for an intermediate tonality functioning as a sort of mortar, *joining together* two more distant tonalities, a few examples are certainly known. But I will not assert that such a method is obligatory; in some cases, the harmony would be more effective [*aurait davantage d'accent*] if it were not weighed down by any intermediate tonality. For instance, the key of C and that of D-flat or G-flat can be combined without recourse to the key of A to link them together. On the other hand, in the following passage, the pizzicato chords give a kind of harmonic meaning [or “harmonic significance”; *signification harmonique*] to the arpeggios of the first violin, and the tonal sense is less distant (figure 88; see also the previously cited example from the end of this Scherzo [given here as figure 89]):

Figure 88: Koechlin, 3e quatuor à cordes, Scherzo

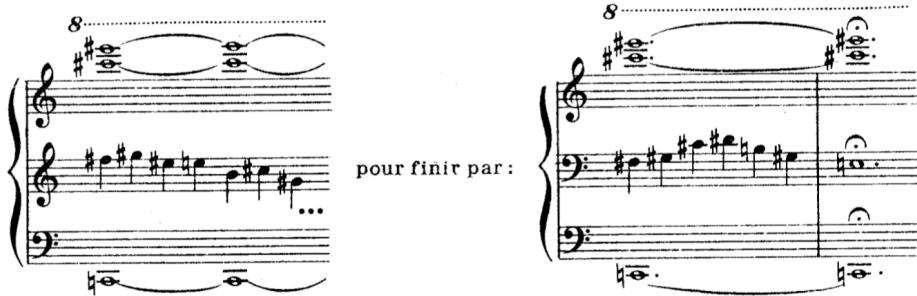


Figure 89: Koechlin, *3e quatuor à cordes*, Scherzo

Translator's note: this example is from page 246 of the treatise.

[p. 264] Finally, I will say that the epithet *atonal* is sometimes contested, even when applied to Schoenberg. An article by his colleague Wellesz in *la Revue Musicale* is quite definite on this subject. For Wellesz, “atonality” is only a *provisional* term, serving to designate those passages where our ear has not yet understood the true tonality.³³ This would certainly apply to Schoenberg. I like this idea well enough (although it is not very important, since the main thing is the beauty of his music—when it *is* beautiful); in that case, it would without doubt be necessary for the ear, in the difficult cases, to *hear* unresolved appoggiaturas, that supreme and endlessly rich resource for analysis. Then simple-seeming polytonal combinations, if clearly formed from superposed triads [*accords parfaits*], could also be analyzed by means of unresolved appoggiaturas. For example (figure 90):

³³There may of course be some truth in this way of seeing things. What remains to be confirmed is first, whether the ear will get used to knowing how to hear certain harmonies, to understanding their tonal (or atonal, who knows?) role. When, for example, on first hearing, certain works of Stravinsky appeared to be of a disorienting or even uncertain tonality, while on the contrary this musician—who knows them [his works?] well, and knows what he wants—declares that he detests atonality, and claims never to have stopped being tonal. It could then be, that *Pierrot lunaire* will prove to be less atonal than we believed. But I will still think that, in certain cases, the ear and the mind seek to evade all tonality, and I do not affirm whether this would be, in an absolute sense, a quality or defect. Once again, it all depends on the worth of the music that has been created and, above all, on the *worth [valeur]* of your *sensibility*, o composer.

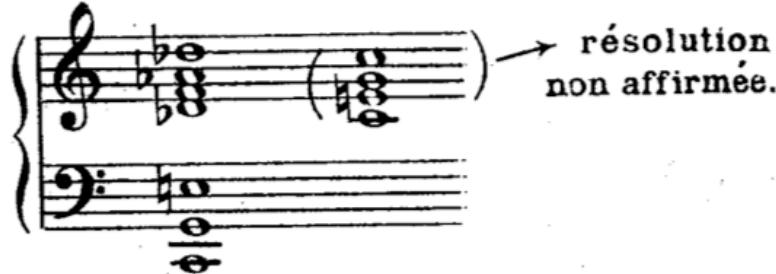


Figure 90: The text reads: unrealized resolution.

Theoretically, given a bit of ingenuity, we can analyze whatever we want, (almost) however we want. But most often, such analysis will not represent *what the music presents to the ear*. This is why I wish to warn students against those contrived interpretations by means of which everything is explained, with the exception of the music that has actually been heard.

Certainly, analysis into 13th chords, 15th chords, 17th chords, etc. is possible *in theory*. *Musically, such analysis nearly always appears false to me.* First, because it neither takes into account nor corresponds to the musical effect. Second, because it implies notes [*elle sous-entend des notes*] that the ear manifestly does not infer [*ne sous-entend pas*].

Thus, the chord in figure 91 may sound³⁴ like:



Figure 91

- A. A sort of tritone on C, with an inner pedal on the tonic (G), and with E as 9th of the root D. (Fourth inversion of a $\frac{9}{+}$ [dominant flat-ninth].)
- B. We can also analyze it (as Darius Milhaud would) as a bitonal chord formed from two triads, joining the feeling of the tonality of C to that of G (or of D).
- C. It could also be a chord belonging to C *Hypolydien* [Lydian] (which contains F-sharp).

³⁴It depends on the case, that is, on the presentation of the chord.

- D. However, in most cases, interpreting A–F-sharp–D as (unresolved) appoggiaturas to G–E–C would produce a highly artificial analysis.
- E. Finally, making recourse to the chord in figure 92, a dominant thirteenth chord with diminished fifth³⁵ (F-sharp–G-flat) and an implied B-flat, the analysis would seem even more questionable to me. (And likewise, if we supposed an implied B-natural.)



Figure 92

This analysis is questionable because the presence of B-flat absolutely changes the nature of this harmony, unless an isolated triad (figure 93) sounds, to the ears that hear it, like a $\begin{smallmatrix} 7 \\ + \end{smallmatrix}$ dominant seventh, and a single note (figure 94), like a dominant.



Figure 93



Figure 94

It is said that such is Honegger's conception.³⁶ It [the chord?] can be accepted

³⁵**Translator's note:** the original translated exactly would read "thirteenth chord with augmented fifth (F-sharp–G-flat)", a presumed misprint.

³⁶It is a question of the type of musical feeling [*genre de sentiment musical*], much more

as a substitute for the preponderance of $\frac{7}{+}$ [dominant sevenths] in the “classical” German music that Honegger knows so well, and to which (in spite of a more dissonant language) he remains close.

Be this as it may, we will not dwell any longer on all these theories about the diverse methods of analysis by which we might “explain” polytonality.³⁷ At bottom, an analysis [p. 265] does not explain much, and in any case cannot prove that a work is beautiful. When it comes to new [musical] languages, this manner of study would have drawback of being extremely incomplete—because of the extreme diversity of particular cases—and of leading, sometimes, to formula.³⁸ Musical ideas precede systems and analyses—which latter epigones make use of, to little effect. A detailed dissection is sometimes harmful, if it is the *anatomy* thus revealed that draws our attention, to the detriment of the living *physiology* of a work of art.

Besides, on this subject it seems almost as if there are as many different theories as there are *individual* [personnels] musicians. And each theory is not so important, because it is preceded by the music, for which it is only a substitute. Regarding polytonality, I do not think that a *single theory* can apply to its diverse manifestations, whereas in contrast that was *at the start* possible with chords of 5, 7, and 9 (construction by superposed thirds, suspensions, etc.). But we will soon need to complete the old theory, introducing the idea of *disjoint* passing tones, *unresolved* appoggiaturas and suspensions, chords formed from superposed fourths or fifths. As for bitonal aggregations, many methods of analysis are available. It is probable that one or the other will have to be

than of *objective reality*, despite B-flat being among the natural harmonics (we hardly hear it [i.e., the natural harmonic]).

³⁷The main methods are:

1. distant pedal chords.
2. combination of two markedly different tonalities, branching off from one another.
3. harmony realizing a *homogenous whole* [it is not clear what Koechlin means here. Perhaps he is referring to atonality, as opposed to polytonality, in which different parts can be separated from one another and attributed to various keys?]
4. unresolved appoggiaturas—which brings us perhaps back to (3)

³⁸I am speaking here of the relation between *harmonic analysis* and *composition*. It is certain that the creators of polytonality were writing instinctively, and not ingeniously combining ready-made aggregations, following a recipe given by “experiments in musical chemistry.” At least, even those who could be supposed to have a method bordering on a system nevertheless always gave pride of place to the musical idea, and knew how to vary their method. Because nothing is created out of nothing, it is useful to the student to know the music composed before him or her. It is, in part, to engage him or her with such music that we have written this expansive chapter on the *evolution of harmony*, with its plentiful examples. As for the analysis of works simpler than bitonal works, it can be helpful to the *student of harmony* who is not yet fully familiar with these methods (pedals, resolved and unresolved appoggiaturas, passing notes, transferred [*par échange*] resolutions or preparations, etc.). *Such analysis will not help the student better to grasp beauty*, except in calling his or her attention to the qualities of writing, which have their price. On the condition that we do not draw ready-made formulas from it, analysis can remain useful in harmony classes, without our having to delude ourselves beyond measure...

chosen according to the case: implied $\frac{7}{4}$ [dominant sevenths] (where they are not explicit) with Honegger, double or triple triads in the works of Milhaud, unresolved appoggiaturas in Ravel, etc. The important thing for the composer is to keep the “harmony” between the desired feeling and its sonic realization; and also, that his or her music lives—and, especially, that *it sings*. This venerable principle remains the basis of our art as it was at that long ago (perhaps prehistoric) time when the *human voice* gave birth to music, when someone first let out *a melody*.

While it is not desirable for polytonality to become a simple game of chance, or that “completely free” contrapuntal realizations should definitively prove to resemble those drawings that we obtain in folding up a piece of paper on an ink blot, it would be still more dangerous, I believe, to obey preconceived theories. Besides, empiricism does not necessarily imply a blind and random search. We are heading into virgin forest. There are no paths, barely even a few trails, but we have musical instinct as our guide. As for knowing, *through theory*, what works and what does not, how to tell the good from the bad? Impossible. It was already thus for the consonant art; it is only more so for polytonality. Style, besides, remains a delicate practice. It cannot be trusted to chance; the ear must monitor it attentively, and musical instinct must be ever on guard. There are a thousand traps of sonority in this forest; though in it, we find extraordinary flowers (poisonous? not necessarily), picking them is not easy. What I mean is that we have much to do to sustain the interest and activity of a piece, to present therein a *series of tonal* (or polytonal, or atonal, whatever) *feelings that really lives*. There are many elements in play: they should help, rather than hinder. The sense of rhythm—which is not itself a sufficient creator of life—should not impede the sense of melody; the successive or simultaneous tonalities should be just those that suit such a stage of development... We thus glimpse that polytonality is an art too subtle to content itself (as simpletons and amateurs suppose) with providing a melody in C with an accompaniment in D—or with writing random parts for [p. 266] a string quartet, who listen only to their spirited optimism, and dash forward to meet one another at the word “go!”³⁹

³⁹ It is extremely difficult to determine the limits of contrapuntal independence! Obviously, the principle where figure 95 is accepted as *not producing a seventh, a true dissonance*, but a *passing note* (D), with the feeling of a triad signified by C and E, this principle is today completely customary and undisputed. We have often made use of it. But it seems to me that the idea of D as *passing note* is linked in this case with the idea of the *consonant notes* of the triad; and if counterpoint exercises only feature one chord per measure, the ear understands this chord perfectly well. It is the point of departure of passing notes—the very name “passing” suggesting *real notes* linked by the conjunct motion of foreign notes. But what will happen if we suppose instead autonomous parts, four melodies having *no tonal rapport*, no harmonic connection? Will the ear accept these aggregations? In the past, it would have rejected them in horror. But today, it appears to be so used to combinations of 9ths, of 7ths, etc., that the reaction might prove to be quite different... Now, I have in fact tried this experiment. During a rehearsal of my *3rd string quartet*, I proposed that each of the players play simultaneously the following: 1st violin, the opening *Adagio*; 2nd violin, the *Scherzo*; viola, the *Andante*; cello, the *Finale*. Then I gave the order: “go.” The result, in terms of “harshness to the ear,”



Figure 95: (referenced by footnote 39)

was analogous to that which we sometimes hear in certain modern pieces. Grayer, [*plus gris*] I would even say; and without doubt, there were rhythmic weaknesses, the parts not having been combined to match one another [or perhaps: to answer one another (*se répondre*)], as in a chorale [or: choir (*choral*)]. What was most curious was that such an ensemble, beyond any harmonic domain, was not shocking. But it could not be accorded much interest, either. The melodies of each movement, having become simultaneous, merely detracted from one another, as could have been foreseen. In brief, if it was still *music* (?), it was music that quickly became tiresome.

And we thus distinctly perceive that, even for the musician who devotes him- or herself to contrapuntal polytonality, it is not a question of superimposing motives whose only value is their individual worth. Relative [i.e., relational] worth is still required: the rhythms, timbres, and tessituras should combine such that (if possible) this superposition of motives becomes more than the sum of its parts—even if you remain outside of any harmonic idea. And, moreover, that may not suffice: it is not certain that the ear will not still hear *harmonies*. Thus, we return as always to the double conception, *both vertical and horizontal at once*, as well as to the importance of those markers [*repères*], *harmonic effects of simultaneity*, which will likely remain necessary to musical action.

This experiment shows that, if we want to leave the domain of music as we conceive of it, the result, to the ear, will not be impossible (less harsh, even, than that of some harmonic combinations quite appropriate to the *dissonant effect*). But one of its elements will be lacking, the harmonic element; from this absence, as I just wrote, results a completely different sort of art. To ask *Is it still music?* is just a word game. If we agree to thus extend the definition of the term “music,” we could also extend it to a simple percussion rhythm without determinate pitch, having only noises that are more or less high. I do not claim that it is impossible to thus realize something artistic: consider, notably, the end of Stravinsky’s *l’Histoire du Soldat*, with only the “three drums.” But this is another art. In contrast, as for those who employ intervals that are still today unused [*Translator’s note*: Koechlin is referring to quarter-tones, the subject of the brief sixteenth and final chapter of the treatise], there is nothing that says they must leave the domain of harmony.

But before turning to these intervals, let us summarize the preceding chapters.