A Speculation in Theory and Practice, III

Ebenezer Prout (1835-1909): Toward a Re-examination of His Ideas and Influence, with reference to the 16th Edition of *Harmony: its Theory and Practice*

Frank Wilhoit

It has always been customary and expected for books on music theory to include – usually, quite near the beginning – mathematical derivations of scales, intervals, and (at least since Rameau) chords. Many books, especially many of the books on "harmony" written in the Jean-Philippian era, seem to perform this sacred duty in a perfunctory manner, largely quoting from their predecessors, who in turn quoted from theirs. Once the mathematics is done with, the rest of the material, on chord functions and progressions, voice-leading, or whatever, seems to have little or no connection with, or need for, the putative mathematical basis. In the case of those rare authors whose treatment of the mathematics is at all original, it is interesting to see if the mathematics is really integrated with the rest of their theories. Usually it is not; but Ebenezer Prout is an exception.

Prout wrote nine textbooks on various aspects of music theory and composition. *Harmony: its Theory and Practice* was first published in 1889. It went through twenty printings, fifteen of which incorporated at least some revisions, over the following twelve years. The 21st "impression" or 16th "edition", described on the title page as "revised and largely rewritten", appeared in 1901[1] and forms the basis of this discussion.

Like most of his contemporaries, Prout is an annoying writer. He is capable of ellipticality and verbosity, not only by turns, but simultaneously. The premises and conclusion of a syllogism may be expressed with the utmost concision, yet separated from each other by many pages. He likes to develop his arguments slowly; phrases like "as will be explained later" abound. All of this has led Prout's critics – notably Matthew Shirlaw[2] – to pounce upon numerous inconsistencies that may be more apparent than real. As seen here, Prout's *Harmony* embodies an original argument of unusual richness and elaboration, to which justice has not hitherto been done in print. Whether Prout's argument is also taken to be consistent depends upon the degree to which his premises are accepted. This discussion proceeds from a standpoint of disagreement with Prout's basic assumptions and therefore most of his conclusions.

Prout allowed the preface to the first edition of *Harmony* to stand in later editions. It contains this remarkable passage, which is crucial to understanding Prout's view of his own role as a theorist:

> *Most intelligent students of harmony have at times been perplexed by their inability to reconcile passages they have found in the works of the great masters with the rules given in the textbooks. If they ask the help of their teacher in their difficulty, they are probably told, "Bach is wrong" or "Beethoven is wrong", or, at best, "This is a licence". …[T]he principle must surely be wrong which places the rules of an early stage of musical development above the inspirations of genius! …[W]hen we find that*

[1] London: Augener

[2] *The Theory of Harmony* (London: Novello, 1917; reprint: New York, Da Capo, 1969), pp. 442-452

in our own time Wagner, or Brahms, or Dvořák breaks some rule given in old textbooks there is, to say the least, a very strong presumption, not that the composer is wrong, but that the rule needs modifying. In other words, practice must precede theory. The inspired composer goes first…it is the business of the theorist…to follow modestly behind, and make his rules conform to the practice of the master. …[N]othing has yet been written by any composer of eminence which a sound theoretical system cannot satisfactorily account for…[3]

This is sound and refreshing, and quite exceptional among harmony books of any era (perhaps particularly so for the 19th century) in its emphasis on the actual practice of composers, not merely recent, but still living and working.

Most of the rest of the first-edition preface is superseded by the new preface to the 16th edition, in which Prout rather exaggerates the shift in his theoretical perspective. He refers to the "virtual abandonment of the harmonic series as the basis on which the system in founded" in the new edition; this is quite simply not true. The reduced importance of the harmonic series, compared to earlier editions, is primarily in two areas. The 16th edition drops the derivation of the fourth and sixth degrees of the major scale from the 11th and 13th harmonics, respectively; Prout had originally borrowed this from Alfred Day[4]. Also new to the 16th edition is the extent to which Prout is content to live simultaneously in the world of just intonation and that of equal temperament. Just intonation is still his theoretical bedrock, but there are many musical situations in which he feels free to neglect, say, the difference between a chromatic and a diatonic semitone, or the fact that enharmonically equivalent pitches are ideally not quite the same. However, when a situation arises that hinges on such minutiae, it is to the harmonic series that Prout goes for his answers.

Before plunging into the essentials of Prout's theories, it is necessary to clarify his terminology and symbology.

Prout uses Roman numerals – large, small, and with circles – in the same manner as Gottfried Weber, but he does not use the quasi-thoroughbass numerals for inversions. In their place he uses an alphabetical system in which a root position chord is 'a' (usually omitted), first inversion is 'b', etc. So his Vb is our V^6, his V^7b is our V^6_5 (the '7' is not a thoroughbass number but a chord-size descriptor), and so on up to his V^{13}g, which would be the seventh and last inversion of a dominant thirteenth. This is analogous to systems employed by Percy Goetschius[5] and Eduardo Gariel[6]; Prout credits his system to Ernst Friedrich Richter[7].

Prout's definition of "key" is unusual: "A collection of twelve notes within the compass of an octave, of which the first is called the Tonic, or Key-Note, to which the other eleven bear a fixed and definite relationship."[8] Thus a key is defined by its chromatic scale – and Prout is very concerned for the correct spelling of the chromatic scale; D♭ is chromatic in C major, but C♯ is not **in** C major at all. This is an

[3] Prout, *op. cit.*, p .iii
[4] *Theory of Harmony* (1845)
[5] *The Material Used in Musical Composition*, 14th ed. (New York: G. Schirmer, 1913)
[6] *A New System of Harmony* (New York: G. Schirmer, 1915)
[7] *Lehrbuch der Harmonie*; English trans. Franklin Taylor (London, 1864)
[8] Prout, *op. cit.*, p. 13

extremely important distinction, not only in Prout but in many theorists of his and a somewhat later period, including Schenker.

A "chord" is a combination of "not fewer than three notes, placed each at the distance of a major or minor third above the note next below it. The lowest note, upon which the chord is built, is called its Root." So far, so good; but Prout adds an obscure footnote, in which he introduces his concept of the Generator of a chord, which may or may not be the same as its Root. Prout is anxious to place "Common chords" (major and minor triads) in a privileged position; for these, their roots are their generators and their generators are their roots. But for un-Common chords, root and generator are not likely to coincide.

One of Prout's most difficult concepts is "borrowing". The chromatic material of a key (the five non-diatonic notes of its chromatic scale) is borrowed from its "nearly-related" keys, which are those whose tonics form perfect consonances (fifth or unison) with the home tonic – with the additional proviso that major may borrow from either major or minor, but minor may not borrow from major. Thus the borrowing keys of C major are C minor, F major, F minor, G major, and G minor; those of C minor are F minor and G minor only. Prout's explanations of why minor cannot borrow from major are empirical and evasive. The general idea seems to be that minor is less consistent and economical than major, more highly colored and less stable. Thus if elements of major and minor are mixed, major will predominate, because of its greater comprehensibility.

C major may thus borrow any of the diatonic material of any of its borrowing keys to make up its own chromatic material. The result is the chromatic scale of C (major or minor):

C D♭ D E♭ E F F♯ G A♭ A B♭ B

D♭, E♭, F♯, A♭, B♭, and chords containing them, may be chromatic in C; but C♯, D♯, G♭, G♯, A♯, or any other pitch-name not included in the chromatic scale of C, cannot be in C at all. If their context proves them nonetheless to be in C, then the composer has misspelled them. Prout has incurred a good deal of ridicule by this statement[9]; we shall return to it later and try to see what he really meant by it.

Prout applies the same perfect-consonance criteria to assert that, of the seven diatonic triads of a key, those built upon the first, fourth, and fifth scale degrees are privileged. He calls these the primary triads; the other four are the secondary triads. This is familiar terminology owing to its retention by nearly all subsequent writers, even those (such as the followers of Goetschius) who do not believe in it. Prout is, however, not at all interested in any theory of harmonic functions; although he states that the "simplest possible succession" of the three primary triads is IV V I,[10] a few pages later he says that "to make a full cadence, the tonic chord must be preceded by the root position of one of the other primary triads, IV or V. …[I]n modern music the authentic cadence (V I) is much the more frequently used."[11] This implies that that the choice of V I over IV I is not systematic but stylistic; Riemann could never accept that. The privileged position, in Prout's system, of I, IV, and V does not imply remotely the same things that the same privilege implies in Riemann, Hauptmann, and many others. Perhaps better said, Prout has no desire to exploit most of the implications of his primary/secondary classification.

[9] *cf*. note 16, *infra*
[10] Prout, *op*. *cit*., p. 42
[11] *ibid*., p. 44

As yet, Prout has said nothing that is contingent on his mathematics. He has not even derived the major triad from harmonics 4, 5, and 6; he has only defined it as a stack of thirds within a collection (the "major scale") that is essentially assumed as a given. He proceeds next to discuss "discords", *i.e*. all chords other than common chords; here his harmonic-series/just-intonation bias, and his continuing debt to Day, come into focus.

"We here meet for the first time with a 'fundamental discord', that is, a discord composed of the harmonics of [its] fundamental tone or **generator**. The upper notes of a fundamental discord are in some cases variable; but every such discord always contains as its thirds next above the generator the notes which make [a major third, prefect fifth, and minor seventh]."[12] This statement refers proximately to the dominant seventh chord, but it contains the entire basis of Prout's theory of chromatic harmony.

The "harmonics" that Prout refers to are, of course, 4, 5, 6, and 7. Number seven is a little off the mark, but Prout is happy enough with equal temperament not to be bothered by a few cents either way: the basic idea of stacking thirds, and more thirds, is there, and he likes it. Day liked it too, but only in the specific context of harmonics 4, 5, 6, 7, 9, 11, and 13; Prout stacks up the same number of thirds (resulting in a "thirteenth chord"), but not for the same reason. He simply bends harmonics 7 and 11 into line, accepts the greater deviation of harmonic 13 as a clue that the notes on either side of it can represent it equally well, and gets his minor ninth by reaching all the way up to harmonic 17.

The result is a stack of seven thirds, containing (above the generator) a major third, perfect fifth, minor seventh, major or minor ninth, perfect eleventh, and major or minor thirteenth. The ninth and thirteenth are the "upper notes" that "are in some cases variable"; they are independently variable, as Prout allows any of the four possible combinations of quality among them. This stack is the exhaustive compendium of dissonance in tonal music; Prout allows any subset of its members to be instanced and any member to appear in the bass. Its nomenclature varies according to whether any of the outside members at either end are omitted: if the 13^{th} is not present, then it is an eleventh chord; if both the 13^{th} and 11^{th} are omitted, it is a ninth chord, and so on. If the generator is not present, the third is taken as the root, the Roman numeral chosen accordingly, and the "complete" analysis supplied in parentheses, so: vii°^{7} (V^9). Chords lacking the generator are called "derivatives".

No matter how many members are omitted, the remaining members are taken as implying the missing ones, especially the generator; and, since those stacks are all ultimately based on a dominant-seventh sonority, Prout winds up asserting (at least implicitly) that all non-common chords have a dominant function. He makes this explicit in reference to the diatonic seventh chords, which he calls "secondary discords" or "diatonic discords": "Every diatonic discord is either a dominant discord, or a derivative of one."[13] He extends this to dissonant triads: vii° is a derivative of V^7 (that is scarcely original with Prout); ii° in minor is a derivative of V^9, lacking the generator and the third; III$^+$ in minor, in root position, would receive from Prout the supplemental analysis (V^{13}g).

Prout accounts for chromatic dissonance by building his thirteenths on three degrees: tonic, dominant, and supertonic. This procedure has created much confusion, due to its apparent resemblances to Day on the one hand and to Goetschius on the other. Day gets the same three thirteenths, but explains them as being based on a chain of fifths rising from the tonic; this is analogous to Goetschius's

[12] *ibid*., pp. 94-95
[13] *ibid*., p. 181

derivation of his "first-class" and "second-class" chords. That is not what Prout is doing at all. He defends the choice of these three generators and no others by pointing out that only these remain entirely within his chromatic scale, but the real clue lies in his continual insistence on the dominant function of these chords: the three generators, tonic, dominant, and supertonic, are the dominants of the borrowing keys.

Augmented-sixth chords are a special case. Prout has to derive them from two generators, the flat sixth degree being the minor ninth above the dominant generator and the rest of the chord (of whatever flavor) deriving from the supertonic.

By these devices, Prout is able to account for all **essential** dissonance, whether diatonic or chromatic. Having forged these tools, he is understandably proud of them, and proceeds to damage his argument by overextending them.

The greatest stumbling-block in following Prout's analyses is his extreme reluctance to accept as unessential any dissonances of beat-level (or greater) duration. He would rather come up with a chord symbol, no matter how far-fetched, than explain a simultaneity as resulting from an appoggiatura, or passing motion, lasting a beat or more. It can be argued that he also succumbs to the opposite temptation, that of taking consonance as essential dissonance. This is where Prout's notorious theory of "false triads" comes up for scrutiny; but first it is necessary to review his theory of modulation.

Prout comes very close to giving the modern distinction between tonicization and modulation (a distinction that is usually credited to Schenker, in his *Harmonielehre* of 1906). "If the modulation be the shortest possible, and consist of only two chords, it is called a Transition…or "transient" modulation. …[T]he chord of A major might be regarded as the **dominant of the supertonic** of C. …Such dominants we term Transitional Dominants."[14] The really important question here, though, is why the "shortest possible" modulation consists of two chords. "No single chord can ever define a key"[15]; but two will do it if they make a cadence. Thus any chord must be in the same key as either the one before it, or the one after it, or both. If the chords on both sides of a given chord are both in the same key, **then the given chord must also be in that key** – even though it may contain one or more notes outside the diatonic collection of that key, in which case it is a **chromatic** chord **in** that key. "A chromatic chord in a key is one which contains one or more notes foreign to the signature of that key, but which induces no modulation."[16] (This formulation, taken literally, neglects the leading tone in minor, but we know what he means.)

The chord of A major might be regarded as the dominant of the supertonic of C, ***if*** it goes to the supertonic of C, thereby completing a transient modulation. If it goes to anything else in C, then it is a false triad, because the composer has misspelled it. It cannot be A C♯ E, because there is no C♯ in C. It must, instead, be A D♭ E: third, minor ninth, and major thirteenth of a tonic thirteenth. Shirlaw finds this ridiculous[17] and, at first blush, it is hard not to agree; but let us give Prout the benefit of the doubt, and probe a little further.

[14] *ibid*., p. 115, p. 124
[15] *ibid*., p. 117
[16] *ibid*., p. 199
[17] Shirlaw, *op*. *cit*., pp. 451-452

Correcting composers' orthography is a fairly bold business. It smacks of that "Beethoven is wrong" line that Prout himself so roundly and rightly condemned in his original preface. If we are going to do it at all, we must do it systematically, not arbitrarily; we must have the law on our side. The law that we must have on our side is the "Law of the Sharpest Note": "Whenever false notation occurs, it is always **the sharpest note** which needs to be changed."[18] Prout's example here is what Walter Piston would call a ♯ii°^{7} : D♯ F♯ A C resolving onto E G G C. His reasoning runs:

- in the composer's spelling, this is an incomplete dominant minor ninth on B;
- it should go to an E chord, but it goes to a C chord;
- something is off, because E is not a borrowing key for C;
- the D♯ must be the wrong note, because it is the sharpest note;
- make it an E♭ and we're in good shape, because now the chord is an incomplete dominant minor ninth on D, which is the dominant of G, which is a borrowing key for C.

Now, by anyone's standards other than Prout's, we have a new problem, in that the minor ninth resolves upward by a chromatic semitone; but Prout is perfectly happy with that. Here it becomes necessary to read between Prout's lines. It appears that the reason why he is happy is tied up with his just-intonation bias, and also shows the essential falsity of that bias. Prout's just E♭ is higher than his D♯; in fact, it is only two cents below a Pythagorean D♯. Prout's misspelling composer wrote D♯ in order to get a higher pitch, which would have an acoustical as well as a contextual tendency to rise to E. **Prout wants the same high pitch, but he doesn't want to call it by the same name.**

Similar examples could be multiplied, given space and time, but enough has been said to show that Prout is a more original and rigorous theorist than he is usually given credit for. His influence upon later generations of theorists has been described as negligible, but that is belied by the mere fact that *Harmony* went through at least 37 printings. Some instances of the persistence of Prout's concepts and/or terminology have already been described; two more are worth special mention. One is that his first exercises in four-part writing restrict the student to the three primary triads in root position. This device, under the name of "minimal harmonization", re-appears in Allen Forte's *Tonal Harmony in Concept and Practice*.[19] The other is the unexplored connection between Prout's (and Day's) thirteenth chords and the bizarrely complicated, but efficient, system of chord nomenclature used in jazz. Simply extend the variability of the ninth and thirteenth to the fifth and eleventh, and many suggestive parallels emerge.

1986

[18] Prout, *op. cit.*, pp. 235-236

[19] 3d ed. (New York: Holt, Rinehart, Winston, 1979), pp. 227*ff*