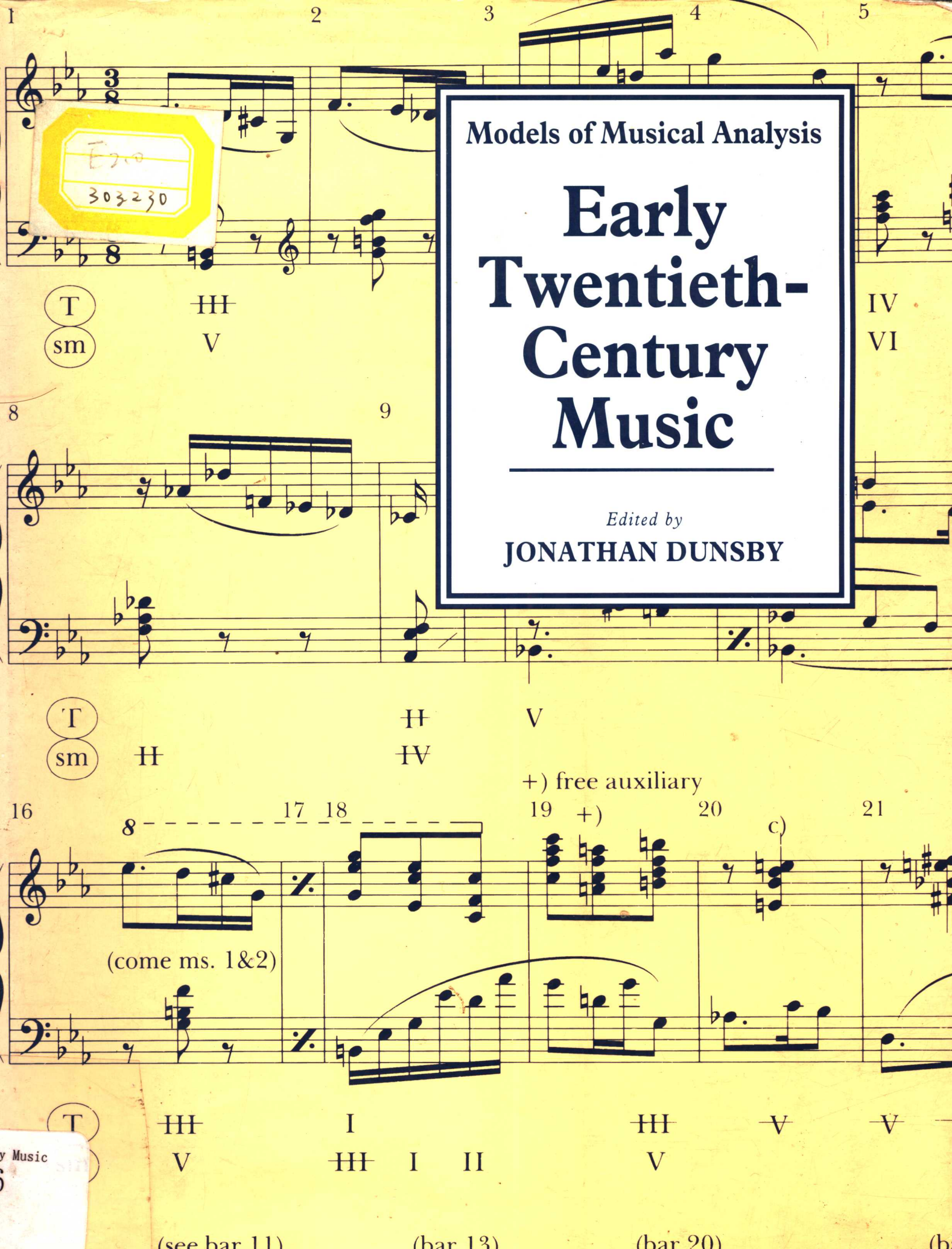
Models of Musical Analysis
Early Twentieth-Century Music
Edited by
JONATHAN DUNSBY
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Early Twentieth-Century Music

edited by

Jonathan Dunsby

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Jonathan Dunsby
Reading, 1993

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Introduction

The editor of this volume is far from being alone in his sense of awe at the achievement of the best composers in the early years of our century; and early twentieth-century music still conveys an effect of contemporaneity, confronting us with the mystery of what we are still learning to assimilate. There are analysts who believe that thinking about the music of this period is – apart from the special challenge of absorbing the music of our own age – the most important analytical thinking to be done. What the student needs is direct influence in the shaping of approaches to the repertory, 'models', if not of how it is essential to proceed, then at least of how others have proceeded with knowledge and conviction. Assimilation is one trend, but it is also true that composers are turning more and more towards a neo-Romantic, and certainly a neo-tonal attitude in their work. It cannot be long until the former preoccupations will seem to represent a past age that we can begin to see much more clearly in its historical context than at the time when it was still possible to call the composers who figure here 'modern'. Some would claim that this is already the case. They will perhaps be fascinated to see how, to the extent that there is a consistent thread running through the arguments below of seven distinguished commentators, it is a concern with how music is organized, a concern that was kept alive in the early twentieth century as a lifeline between the late Romantic and the early 'postmodern' composer.

The format of the 'Aspects' in this volume is designed to enhance the student's appreciation of the complexity involved in any study of the early twentieth-century repertory. Orientation/Method/Model/Summary is the template, though each author treats it with flexibility in the interests of each topic. The common intention of the seven chapters is twofold: to provide a thorough exegesis which can satisfy the undergraduate that the essence of an analytical issue is learnable to a realistic depth; and to provide the framework – in ideas, repertory and bibliography – of further investigation for those who specialize in analysis or, indeed, in the history of the period. Although this is intended as a textbook on which teachers can base modules of courses in theory and analysis, it should also serve as an adjunct to the courses in the history of twentieth-century music that are now considered obligatory in virtually all tertiary music education – courses in which the question 'how do I actually deal with these scores?' is often articulated by students and, I suspect, well-nigh universally thought.

It can be argued that in modern Western music there is no period less amenable to the idea of analytical models than this one; no period in which the very criteria for understanding any one piece have been more entailed in that particular piece; no period which was marked by such diversity of compositional practice, to the extent that the possibility of generalized analytical explanation may be doubted. Yet this also argues strongly for the establishment of some touchstones in what most musicians seek: explanation, interpretation, comparison. It argues for informed help in musical assimilation.

Equally important, there are methods of analysis both established and pioneering of which a clear exposition is needed. These methods have their origin in theorizing at the extreme of musical and intellectual achievement – in the concepts of Arnold Schoenberg, Heinrich Schenker and other more recent figures discussed in the following pages – and it is hardly surprising that the student often finds it difficult to understand the questions which have stimulated new methods and the technicalities inherent in some of the answers. While few analysts can ever have actually intended, by gratuitous complication and jargon, to block access to their thinking, theory and analysis have gained a reputation for being among the more perplexing options in a student's development. As an awareness of analytical matters is becoming more often a requirement than an option – which is much to be welcomed – it is all the more important that studies are available which are as clear to the student as they are to the teacher, without diluting either the musical or the theoretical content.

In the years since this volume was first conceived there has been a change in the intellectual climate which makes it – or so it seems to me – particularly interesting to see the publication of a kind of 'introversive musicology' where the authors confine themselves rather strictly within the boundaries of a music-theoretical tradition, to which they add significant new findings. They will appear to be, on this showing, as indeed will the editor, the 'formalists' who are nowadays under considerable pressure from postmodern critics to defend the narrow view. I remain to be convinced that any thorough *apologia* is necessary, for the seductive debates – about intertextuality, the anxiety of influence, and at the heart of it a deconstructionist

approach to criticism – are flurries from non-musical, philosophical and critical thinking, some of it twenty and more years old, that have some striking characteristics. First, they re-open the door to that kind of music-critical irresponsibility which seemed to some of the best musical commentators of the 1960s and 1970s to dog musicology. I can only agree with myself in the following conclusion from 'Music Analysis: Commentaries' in *Companion to Contemporary Musical Thought*, ed. John Paynter et al. (London: Routledge, 1992, pp. 634–49):

> Those who have contributed to analysis as a discipline conscious of its own developing history welcome it in no small measure because it forces criticism to be explicit in matters of musical structure and effect (pp. 647–8).

Secondly, these debates, when conducted at the highest level, are conducted by writers who have already absorbed the benefits of what they call formalism. Those brilliant 'new musicologists' such as Carolyn Abbate and Richard Taruskin show every sign of being well aware of the details, scope and intention of the practices they wish to supplant. It is not right to withhold that kind of knowledge from the eager student. Thirdly, and of course closely related to the second point, even if 'narrativity', indeed feminism and various other politically correct ideologies are not in play here overtly, I feel that the specialist reader will find some of the best impulses of the new musicology driving these acutely focused studies in any case. If that amounts to saying that the emperor's new clothes are suspiciously like his old ones, this is hardly a novel or controversial thought.

The limitations of a study such as this are so plain that they need not be celebrated in detail, but some must be recognized. First is the unintentional but inevitable implication of what constitutes an early twentieth-century repertory. Clearly, music is selected here on a somewhat fleeting basis. That said, there is a reasonable cross-section, with obvious perversion, in what follows. The emphasis is on music that is unlikely to be regarded, or come to be regarded in the near future, as peripheral, on a balance between the instrumental and vocal repertory (though there is no intention to try to cover the wide spectrum of topics which would fall under a 'music and text' heading), and on music which is simple enough for the student to be able to learn thoroughly within the constraints of time and attention that any educational programme involves. Secondly, the 'Aspects' in the title of this book should not be overlooked by student or teacher: the volume is not a statement about all that is important in the study of this repertory, but rather a statement about where and how such study might well begin. The reader who finishes the book thinking that 'there is so much more to be said' is, without doubt, quite right.

The book contains seven chapters grouped around three central considerations in the understanding of early twentieth-century music – extended tonality, twelve-tone tonality and post-tonality. And in this grouping the chapters fall into two types, those which offer the exposition of mainstream analytical methods (chapters 2, 4 and 6) and those which offer related approaches.

In 'Tonality and the Emancipated Dissonance', Arnold Whittall, without seeking to side-step the intricacies of chord classification (the history of which in the twentieth century is discussed by Bryan R. Simms in chapter 6), nevertheless recognizes the need for accessible procedures to help grasp harmonic constituents in some of the earliest music to challenge major-minor tonality (Stravinsky, No. 3 of Three Pieces for String Quartet; and Schoenberg 'Saget mir, auf welchem Pfade', op. 15, no. 5). Chapter 2 is a study of 'Post-Tonal Voice-Leading' in which James Baker guides the student through a double minefield: on the one hand, the ramified techniques (illustrated through Wolf) of voice-leading analysis, which was originally conceived if anything to subvert the music on which this book concentrates, and certainly not to lead to its better understanding, but which is now in widespread currency as an adapted technique; and on the other hand, the muscular but often seemingly imponderable tonal logic of pieces (an Ives song and piano music by Debussy and Bartók) which revel in the taut freedoms of the period. Chapter 3 provides an introduction to, as it were, dealing with the composer, showing how a close study of historical evidence, and especially of particular notations, stimulates analytical appreciation in various ways. The musical revolution which historians date informally but realistically from 1908 implied many forms of re-evaluation, and the composer considered by Malcolm Gillies in 'Pitch Notations and Tonality: Bartók' was exemplary in the deep thought he applied to the mechanics of how to write down new music.

It could be maintained that twelve-tone music is the least controversial aspect of our overall theme, so crucial and widely discussed has it been in the development of twentieth-century music. There is already an abundance of exegesis in this area – the reader is referred, among the most recent literature, to *A Guide to Musical Analysis* by Nicholas Cook (London: Dent, 1987) and *Music Analysis in Theory and Practice* by Jonathan Dunsby and Arnold Whittall (London: Faber and Faber, 1988). However, as Martha Hyde points out in chapter 4, 'Dodecaphony: Schoenberg', in the last decade there has in fact been an 'intense re-evaluation' of Schoenberg's music and it is only now that new contributions such as hers can begin to reflect fully the shifts in thought that are not to be found in most of the textbook literature that the student is likely to come upon. That dodecaphonic and tonal structures are not in fact opposites has been a claim of early dodecaphonic composers and, increasingly, of historians of twentieth-century music. Whether it will become a commonplace in the assumptions of analysts remains to be seen. Meanwhile, Craig Ayrey shows in chapter 5 how it may be investigated in what is called a 'tonal-serial' structure (Berg's second setting of the song 'Schliesse mir die Augen beide', which was that composer's

first twelve-tone composition), revealing along the way the rich variety of factors which any analyst of early dodecaphonic composition should take into account.

The third mainstream method, after voice-leading and twelve-note approaches, is pitch-class set analysis, discussed by Bryan R. Simms in chapter 6, with reference to various extracts from the repertory culminating in an overview of Webern's song 'So ich traurig bin', op. 4, no. 4. There is a strong conceptual link here with chapter 1, since again the issue is access to procedures which yield harmonic description, though Simms does not hide the fact that pitch-class set theory rests on descriptive assumptions the intuitive relevance of which it is for each practitioner to determine. Chapter 7 is an exposition of the rhythmic characteristics of a Bartók *Bagatelle* for piano. Allen Forte suggests here that such close study as can emerge from the lead he presents may reveal considerable insights into the contour and phrasing of a wider repertory. If within the context of this volume 'Foreground Rhythm in Early Twentieth-Century Music' stimulates the student to examine the pitch structure of the repertory through the perspective of other musical domains, much will have been achieved beyond the overt pedagogical intention of what is said.

Contents

I

Tonality and the Emancipated Dissonance: Schoenberg and Stravinsky

ARNOLD WHITTALL

I ORIENTATION

i Schoenberg

Theories of musical structure and techniques of music analysis may both be expected to give the highest priority to elements that can be defined with the minimum of ambiguity. For this reason, the very idea of 'emancipation', with its implications of freedom from constraints and from all contextual consistency, may appear profoundly anti-theoretical – something that could have been conceived only by a composer concerned above all to subvert the predictable and to challenge convention, if not positively to ridicule the whole concept of musical discourse as a system-based phenomenon. Moreover, now that Schenker's theory of tonality has gained such widespread support, many theorists are quite prepared to move onto the offensive, arguing that the 'principle' of 'emancipated dissonance' is a contradiction in terms, given the ultimate subordination of all tonal elements and events to the consonant major or minor triad. Emancipated dissonance was, after all, the particular concern of a composer whose progressive disposition might be expected to embrace a zeal for the unclassifiable; a composer who, although capable of arguing that he 'could provide rules for almost everything' (Schoenberg, 1964: p. 104), also asserted that 'musical logic does not answer to "if-, then-", but enjoys making use of the possibilities excluded by if-then-' (p. 210). How, the Schenkerian may ask, can any worthwhile rules be provided for such 'logic'? And the Schenkerian answer is likely to involve the drawing of a very clear distinction between the tonal logic illuminated by Schenker's own theory and an atonal logic requiring very different analytical methods to elucidate its foundations.

One of the purposes of this chapter is to explore an alternative to that kind of very clear distinction. It was in his *Theory of Harmony*, first published in 1911, that Schoenberg used the expression 'emancipated dissonance' (Schoenberg, 1978: p. 323), and proclaimed the principle that 'dissonances are the more remote consonances of the overtone series' (p. 329). Schoenberg did not actually invent the expression (for a discussion of its provenance, see Falck, 1982), but he made it very much his own, with his passionately proclaimed belief that the terms 'consonance' and 'dissonance' represent a false antithesis: 'It all simply depends on the growing ability of the analyzing ear to familiarize itself with the remote overtones, thereby expanding the conception of what is euphonious, suitable for art, so that it embraces the whole natural phenomenon' (p. 21). In an essay of 1926, also using the specific phrase 'emancipation of the dissonance', Schoenberg underlined his claim that 'consonance and dissonance differ not as opposites do, but only in point of *degree*; that consonances are the sounds closer to the fundamental, dissonances those farther away; that their comprehensibility is graduated accordingly, since the nearer ones are easier to comprehend than those farther off' (Schoenberg, 1975: pp. 260–1). In a later essay Schoenberg stressed what he saw as the historical, evolutionary basis for this view: 'The ear had gradually become acquainted with a great number of dissonances and so had lost the features of their "sense-interrupting" effect. One no longer expected preparations of Wagner's dissonances or resolutions of Strauss's discords ... and Reger's more remote dissonances' (pp. 216–17).

In the *Theory of Harmony*, Schoenberg vehemently rejected the possibility that dissonance might be a purely melodic phenomenon: 'there are no non-harmonic tones, for harmony means tones sounding together' (Schoenberg, 1975: p. 322). Everything in Schoenberg's understanding of the evolution of music up to his own time, and his own work, encouraged him to follow those aspects of nineteenth-century Viennese theory that supported the right of each and every dissonance to an independent harmonic existence. (For a full discussion of this historical context, see Wason, 1985: pp. 131–43.) And in brief

examples from Bach and Mozart to which Schenker took the greatest exception (see Kalib, 1973: II, p. 199) he claimed that unprepared vertical events which are, by any standards, highly dissonant, have as much right to be termed chords as do their resolutions (Schoenberg, 1978: p. 324). In Schoenberg's view, masters like Bach and Mozart used such chords as 'passing phenomena so that we can learn to use them freely'; they 'used a life-belt so that we learn to swim freely' (p. 328). The problem is not their right to exist as chords, but how they are to be defined: as Schoenberg admitted, 'I have not yet succeeded in finding a system nor in extending the old one to include these phenomena' (p. 329). A little later, however, he offered a clear indication of the difficulties of definition involved, when claiming that

> it would not in fact be too difficult to figure out all conceivable harmonies of from two to twelve tones in relation to a root, to connect them with one another, and to illustrate their potential use with examples. Even names could be found. For example, one could designate a C-major triad with a 'non-harmonic' D flat as a 'minor-two-one major triad', one with a non-harmonic D as a 'major-two-one major triad', one with E flat as a 'double-third triad', one with F as a 'minor-' and with F sharp as a 'major-four-three major triad'. One could apply the familiar rules of resolution to these chords and add to these rules the ones arising from the treatment of non-harmonic tones. But whether all that would amount to much is questionable, because without description and evaluation of effect we have no practical application. (p. 330)

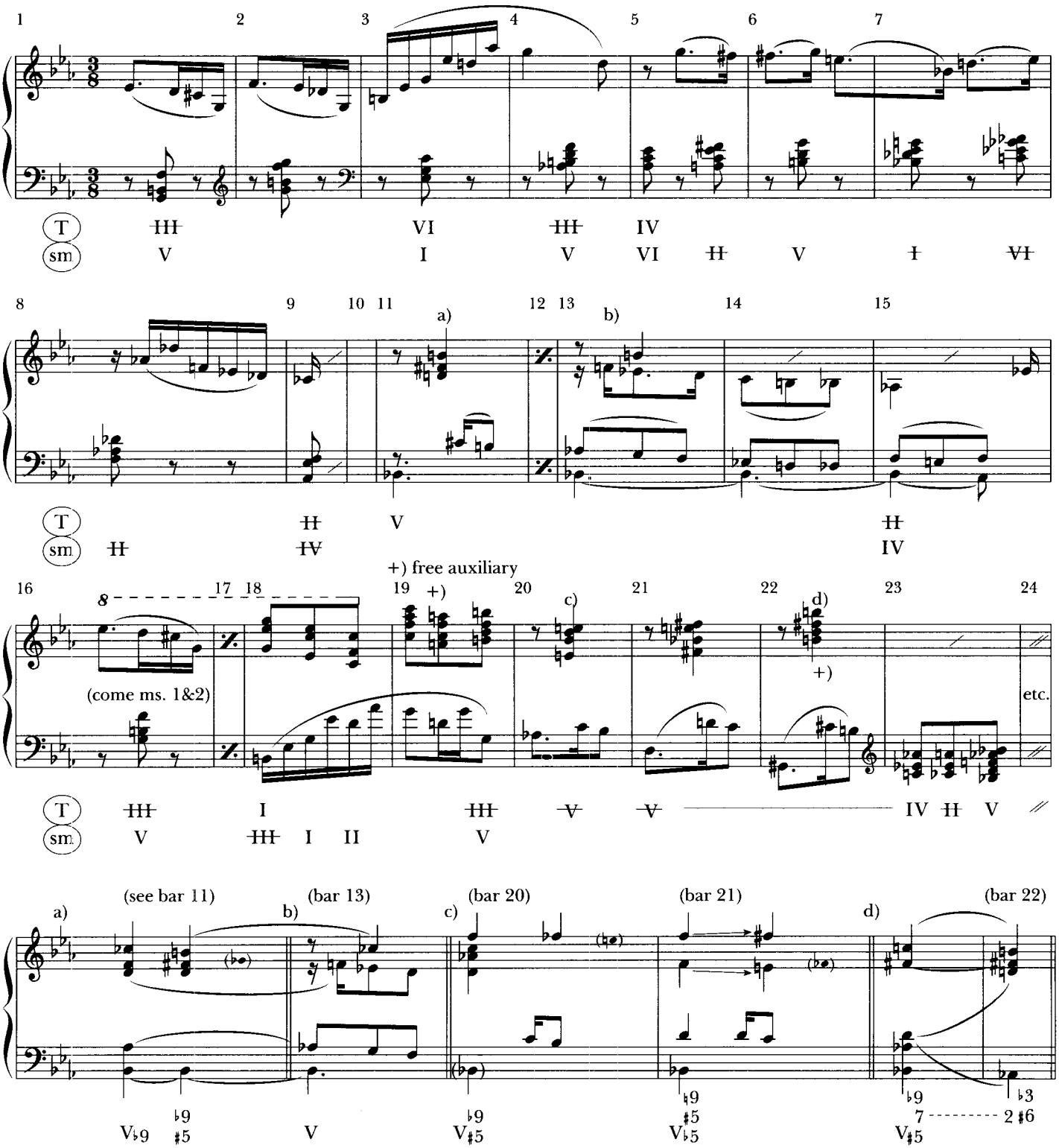
At the very least, these cumbersome verbal designations indicate the importance of retaining the principle of root progression in Schoenberg's harmonic theory. Nevertheless, towards the end of the *Theory of Harmony* the author acknowledges the difficulties of interpreting complex chords with reference to the principles of fundamental bass and root designation.

> Modern music that uses chords of six or more parts seems to be at a stage corresponding to the first epoch of polyphonic music. Accordingly, one might reach conclusions concerning the constitution of chords through a procedure similar to figured bass more easily than one could clarify their function by the methods of reference to degrees. For it is apparent, and will probably become increasingly clear, that we are turning to a new epoch of polyphonic style, and as in the earlier epochs, harmonies will be a product of the voice-leading, justified solely by the melodic lines. (p. 389)

In his own, usually sketchy, analyses of music with complex harmony, Schoenberg nevertheless prefers to trace an outline of what he regards as essential progressions, using the plain and inflected Roman numerals of functional harmony, rather than to test the consequences of 'a procedure similar to figured bass'; that is, he illustrates the most appropriate context for emancipated dissonance – extended, floating or suspended tonality – rather than emancipated dissonance itself. For example, Schoenberg's analysis of the first two bars of his song *Lockung*, op. 6 no. 7, identifies only the dual or floating tonality of the basic harmony, as both altered mediant in E♭ major (T) and dominant of C minor (sm) (Schoenberg, 1969: p. 112; see example 1). The emancipated dissonances – the unprepared E♭, the unresolved C♯ (bar 1) – are not, with good reason, identified as explicitly harmonic events. And even when, later on, the dissonances do occur within chordal formations, Schoenberg regards those chords – for example, in bars 20–3 – not as a literal succession of increasingly chromatic dissonances which are called to order by the diatonic IV–V progression of bar 23, but as relating to a 'background', or implied statement of V, altered and inflected as his supplementary examples (see (c) and (d) in example 1) attempt to indicate.

It is indeed easier to identify the probably diatonic, consonant source for these chords than to describe, literally, their actual surface identity; and this very fact indicates a paradox in Schoenberg's position as theorist, proclaiming the emancipation of the dissonance while demonstrating, through the principles of extended or floating tonality, the ultimate subordination of all harmonic events to the minimum number of basic tonal regions. Of course, the essential creative consequence of the emancipation of the dissonance, as of ever-more-extended tonality, was atonality. But as long as tonal forces, however attenuated, continued to function, dissonances would either (eventually) resolve, or appear as substitutes for, or alterations of, triads or seventh chords on the diatonic scale degrees. And even though it would be mistaken to claim any great prescriptive force for examples like those in *Structural Functions of Harmony*, since their object is to illustrate particular compositional procedures, not to be part of 'complete' analyses, it appears that the possibility of any harmonic event being 'prolonged' – linearly extended in time by melodic processes not involving the establishment of new or different chords – is one that Schoenberg accepts. Indeed, his discussion of *Lockung* reinforces the sense of extended or floating tonality as, in effect, emancipated tonality (just as emancipated dissonance is extended consonance) – a tonality in which diatonic essentials need no longer occupy the central structural position in a work. Such music is inevitably ambiguous and elusive, and much more challenging to the analyst than music more explicitly diatonic, or atonal. The elusiveness also relates in no small measure to the sense in which, while Schoenberg's pedagogy remained faithful to chordal and harmonic factors, his compositional thinking gave linear, motivic elements the central role. This paradox may reinforce the reluctance of most theorists today to treat emancipated dissonance as a useful basis for analysis. And yet the fact remains that Schoenberg himself, with his comments about figured bass, has given a clue as to how such usefulness (or otherwise) may at least be tested.

Example 1.1 Schoenberg: *Lockung*, op.6, no. 7



ii Stravinsky

> For over a century music has provided repeated examples of a style in which dissonance has emancipated itself. It is no longer tied down to its former function. Having become an entity in itself, it frequently happens that dissonance neither prepares nor anticipates anything. Dissonance is thus no more an agent of disorder than consonance is a guarantee of security. The music of yesterday and of today unhesitatingly unites parallel dissonant chords that thereby lose their functional value, and our ear quite naturally accepts their juxtaposition (Stravinsky, 1947: pp. 36–7).

These remarks of Stravinsky's, or of his 'ghost' for the *Poetics* lectures, Roland-Manuel, could well be taken from any of the Schoenberg writings cited in Section 1. Yet Stravinsky, unlike Schoenberg, never taught composition and never compiled a theory text; nor did he ever feel it necessary to confront the specific analytical consequences, with respect to his own music, of this new freedom. For him, the results of the emancipation of the dissonance were perfectly capable of general definition: the traditional diatonic system was replaced by a music recognizing 'the polar attraction of sound, of an interval, or even a complex of tones. ... This general law of attraction is satisfied in only a limited way by the traditional diatonic system' (pp. 38–9). It follows that those sounds, intervals or complexes of tones with which a composition's pole or poles of attraction can be identified may not easily be definable in terms of 'the traditional diatonic system': that is, as a statement of, or substitute for, a tonic triad.

As a composer Stravinsky followed a broadly similar path to Schoenberg, from late Romantic tonality, through extended tonality, to atonal serialism. As is well known, however, the nature of those paths could hardly have been more different. Schoenberg, eight years Stravinsky's senior, had moved decisively beyond essential tonal procedures by 1909, at a time when Stravinsky had composed little of consequence. Schoenberg produced a significant number of non-twelve-tone atonal works between 1908 and the early 1920s, and then, during the last thirty years of his life, wrote mainly twelve-tone compositions, which can often plausibly be termed 'neo-classical' in their adaptations of traditional musical forms. For the first forty years or so of his composing career – up to the early 1950s – Stravinsky remained, in essence, a tonal composer, even though the nature of the tonality in his works from *Petrushka* to *The Rake's Progress* (that is, works from both his 'nationalist' and 'neo-classical' periods) is more extended than conventional – the kind of harmony to which the comments quoted earlier refer. For about the last fifteen years of his composing life, Stravinsky used a personal but systematic form of twelve-tone technique, and, at least from *Threni* (1957–8) onwards, his compositions are essentially atonal. With two such important and influential composers, it is scarcely surprising that a great deal of searching technical study of their music has been undertaken, exploring matters of pitch organization, rhythmic structure and formal procedures in great and varied detail. It remains to be seen whether studies from the angle of emancipated dissonance can add much of substance to this technical exploration and understanding. Nevertheless, in view of the fact that the term itself was actually accepted by both composers, it is surely a valid exercise at least to outline what the elements of such a study might be.

2 METHOD

In exploring the possibilities inherent in Schoenberg's verbal description of emancipated dissonance for devising a means of describing dissonant formations with maximum consistency and completeness, it should be borne in mind throughout that any such descriptive method is itself very unlikely to be adequate for the 'complete' analysis of the chosen music. Nevertheless, if it can provide significant interpretations of particular passages not achievable in any other way, it may have some value.

Our starting point is Schoenberg's comment, already quoted, that 'one might reach conclusions concerning the constitution of chords through a procedure similar to figured bass more easily than one could clarify their function by the methods of reference to degrees'. It is indeed perfectly possible to translate his cumbersome verbal formulations into figures: a 'minor-two-one major triad' becomes, under 5, $\flat\frac{3}{2}$, a 'major-two-one major triad' $\frac{3}{2}$, a 'double-third triad' $\flat\frac{3}{\flat 3}$, a 'minor-four-three major triad' $\frac{4}{3}$, and a 'major-four-three major triad' $\sharp\frac{4}{3}$. In general, however, the more extended or ambiguous the tonality of a composition, and the more dependent its harmony on non-traditional dissonances, the most difficult it becomes to use figured bass designations in the conventional manner. After all, the use of figures normally enables a performer and analyst to distinguish between consonance and dissonance with reference to the tonality in question: the '6' of a $\frac{6}{3}$ or $\frac{6}{4}$ will be major or minor, depending on whether the key at that point is major or minor (see Bach, 1974: p. 182). Figures can obviously be modified by accidentals, yet such modifications do not alter the fact that the interval above the bass is calculated with reference to the functions and terminology of tonality. '6' is not six times a single, uniform entity, but six degrees of the scale (containing both major and minor seconds) from which the bass note takes its own identity and function. It follows that, in music which touches, or straddles, the borderline between tonal and atonal, traditionally based scale-degree figuring may well oversimplify, if not positively misrepresent, the true nature of chord-identity. However, in music without key signatures, and a much greater degree of chromatic variety, it becomes essential to use a qualifying accidental for every figure, and to have an inflected figure available for every possible interval above a given bass note. The complete set of figures proposed here is given in figure 1.1. It will be noted at once that it is not ideally consistent: certain diminished intervals are represented by single flats, others by double. It is, however,

comprehensive; other aspects of its design will be commented on in the context of examples of its use.

Figure 1.1

augmented unison	♯1
minor second	♭2
major second	♮2
augmented second	♯2
diminished third	𝄫3
minor third	♭3
major third	♮3
augmented third	♯3
diminished fourth	♭4
perfect fourth	♮4
augmented fourth	♯4
diminished fifth	♭5
perfect fifth	♮5
augmented fifth	♯5
diminished sixth	𝄫6
minor sixth	♭6
major sixth	♮6
augmented sixth	♯6
diminished seventh	𝄫7
minor seventh	♭7
major seventh	♮7
augmented seventh	♯7
diminished octave	♭8

First, let us take the last two bars of Schoenberg's song op. 15 no. 10 (see example 1.2). This cadence takes its character from the fact that what, from the bass alone, could support a full close on and in G is not confirmed diatonically by the upper voices. As a chordal analysis, therefore, a simple 'G: V – I' will not do, unless we have no interest whatever in the type of dissonant harmony involved, and the differences between this cadence and those which really do comprise the unadulterated dominant and tonic triads of G major or minor. The fact remains, however, that these bars do contain a D major triad, and a final chord on G which includes the augmented second above the bass, the enharmonic equivalent of the minor third. It is these diatonic features that are preserved alongside the less orthodox harmonic elements in the analysis below:

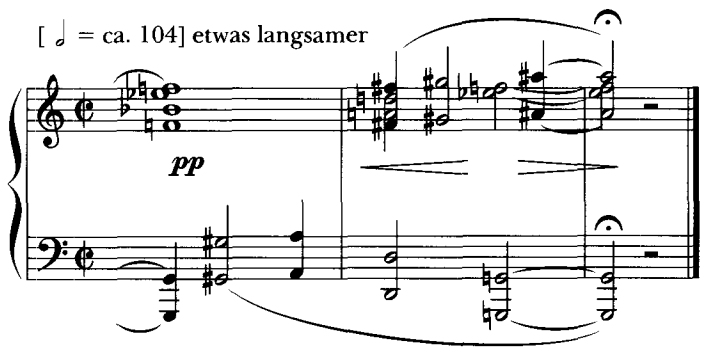
Figure 1.2

	♮5	♮5	♭7	♭7
		♯4	♭6	♭6
	♮3	♮3	♯1	♯2
Bass	D	D	G	G

(It will be noted that no distinction is made between simple and compound intervals – sharp 9 is shown as sharp 2 – with the exception, in later examples, of notes which are doubled as the result of independent voice-leading rather than textural filling-out.)

Example 1.2 Schoenberg: op.15, no. 10

Voice omitted

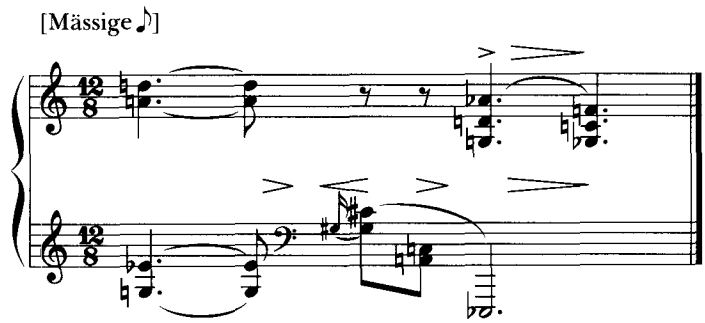


Of course, the mere possibility of translating one form of notation (staff) into another (figures) does not automatically or inevitably make the exercise worthwhile. Perhaps the most commonly recognized index of analytical value is the revelation of unexpected underlying similarities or even identities. Another Schoenberg piece from this period – the second piano piece from op. 11 – ends with a chordal motion whose voice-leading disguises the way in which the three upper parts may each be shown to descend by one whole step (see figure 1.3 and example 1.3).

Figure 1.3

♮7	𝄫6
♮4	♭3
♮3	♮2
E♭	E♭

Example 1.3 Schoenberg: op.11, no. 2



With this music, however, it is much more difficult to argue realistically for a still-surviving degree of association with a tonal background – of E♭, or of any other tonality – and I believe that there must always be an element of *progression* for such an association to be justified, not merely occasional, isolated, 'traditional-sounding' chords. If chords like those which end op. 11 no. 2 are atonal constructs whose identity is determined more by motivic or textural criteria (Schoenberg's 'product of the voice-leading justified solely by the melodic

lines') than by any other, there may well be a case for representing them less as dissonances whose intervals above the bass can be compared and contrasted with the 'ideal' $\frac{5}{3}$ consonance, and more as selections from the total chromatic representable by figures which indicate the constituent pitches as pitch-classes in terms of the number of semitones between them and the bottom note. On this basis a major triad would appear as $\frac{7}{4}$, and the two final chords of op. 11 no. 2 as, under 11, $\frac{5}{4}$ and, under 9, $\frac{3}{2}$ respectively.

Such a procedure inevitably brings the figuring of atonal chords into the domain of pitch-class set theory, and it becomes increasingly important to reinforce the distinction between emancipated dissonance, whose ultimate point of reference is always consonance, and therefore tonality – diatonic, extended, floating, suspended – and atonal harmony, in which Schoenberg's ideal elimination of the distinction between consonance and dissonance is – ideally – attained. Another important factor is that, while the concept of a bass line, and the value of calculating entities upwards from that bass line, retain their relevance (if only intermittently) in music retaining some ultimate association with tonality, bottom-upwards calculations may well be misleading in atonal music, where the composer might be working with a 'centre-outwards' symmetrical scheme. It is for these reasons, in particular, that the method of figuring proposed here does not use a 0–11 scale, but one that inflects diatonic scale degrees *in such a way that no assumption need be made about the mode of tonality present.* Extended tonality may well be neither major nor minor, but a rich blend of both. As will emerge in subsequent sections, however, the use of these figures does not automatically confer on the bass note of any particular chord the identity of a scale degree within a particular tonality. The figures demonstrate the relative closeness to, or distance from, a basic triad or seventh chord: but there is no attempt to argue that it is possible to reveal a 'background' of such chords, forming a logical and consistent linear sequence, and 'against' which the music is actually composed and heard. What these analyses illustrate is not the prolongation of scale-degree rooted harmonies, but the succession (linearly motivated) of chords whose character resides in their degree of dissonance (relative to the bass note). It will nevertheless be possible to identify those occasional chords – the 'focused' dissonances – that are most strongly associated with a relevant functional harmony, and it is those chords that tend to give the composition such tonal character and identity as it has.

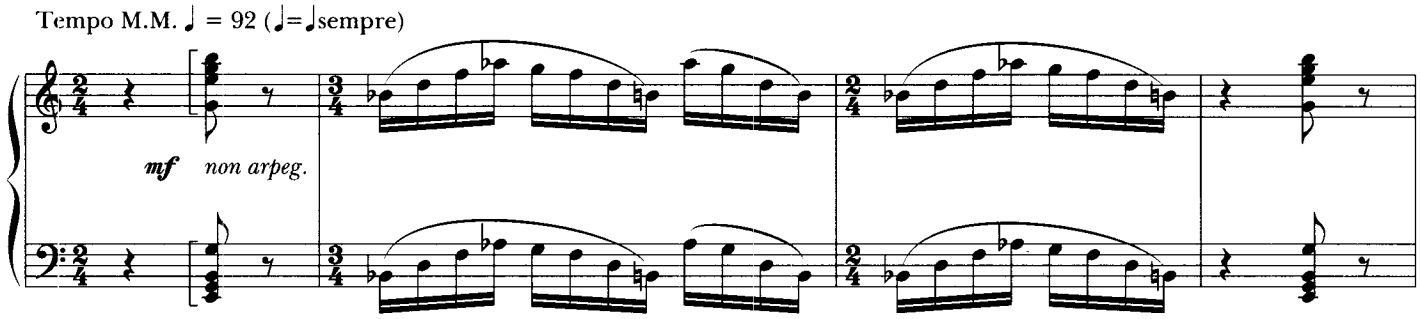
Some further general points should be made here. Since (unlike pitch-class sets) emancipated dissonances are 'ordered collections' – there is no inversional equivalence in this scheme – the total number of possible chords is very large: for example, there are 55 different three-note chords on any given pitch-class, as opposed to a mere 12 pitch-class sets of three elements. (For this reason I have not attempted to provide a single listing of all possible chords against which both the models discussed below, and all other suitable pieces, could be measured.) Of course, not all 55 are dissonances. But the sheer variety of material provided by this method of chord identification emphasizes that its usefulness is likely to be most immediately evident in statistical, distributional areas of analysis – areas where subsequent interpretation of accumulated data is as essential as it is problematic. As with set theory, the analyst may well conclude that what this theory requires for its fullest justification is a compositional repertory created in the full knowledge of and admiration for the theory itself!

3 MODEL

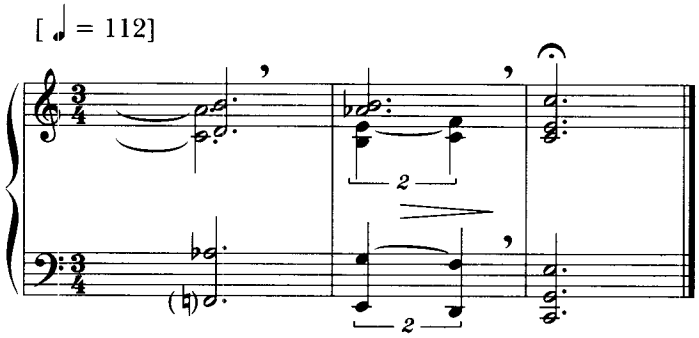
i Stravinsky: No. 3 of Three Pieces for Sting Quartet (1914)

An analyst wishing to focus on the nature and function of emancipated dissonance may attempt one of two initial strategies: either the identification and interpretation of dissonant formations which are in themselves traditional, and only emancipated in their behaviour; or the identification and interpretation of dissonant formations which are emancipated in their own actual content, to the extent of escaping plausible codification by traditional criteria. The first strategy is not my prime concern in this study, but one brief example may serve to indicate that it is by no means necessarily an easier exercise than the second. For example, the 'dominant sevenths' of bars 2 and 3 of the first movement of the Symphony of Psalms (see example 1.4) may be deemed emancipated in that they are not prepared from within their parent tonalities of E♭ and C, nor do they resolve within those tonalities. There is a problem, nevertheless, affecting interpretation of function rather than the identity of the dissonances themselves, for although E♭ and C are both strongly tonicized later in the symphony, the first movement is more concerned with the centres, or poles, of E and G. Should these sevenths therefore be defined in terms of the scale degrees of what appears to be the tonality at the outset, E minor? That possibility must in turn be considered in the light of the increasing conviction among analysts that Stravinsky was not working with the traditional diatonic system but with an 'octatonic' scale of alternate half and whole steps: in this case, E, F, G, A♭, B♭, B, C♯, D (see van den Toorn, 1983). This scale, or mode, has the powerful effect of extending tonality in such a way that the E♭ and C dominant sevenths can be shown to express rather than disrupt the 'octatonic tonality' (E migrating to G) of the movement as a whole. The problem is whether the degrees of the octatonic scale can be regarded as providing a series of roots for functional triads and sevenths, just like the degrees of a major or minor scale. Clearly, the two sevenths can be regarded as the wholly linear result of a prolongation of the E minor chord itself, and not as chords at all, but the theoretical context of this chapter demands that the possible consequences of interpreting them chordally be seriously considered. Fortunately, perhaps, a discussion of the possible nature of an 'octatonic tonality' is beyond the scope of the present enquiry.

Example 1.4 Stravinsky: Symphony of Psalms



Example 1.5 Stravinsky: Piano Sonata



A simpler case of emancipated dissonance in a context of extended tonality, where the process of extension does not render identification of the basic tonality itself problematic, is the cadence ending the first movement of Stravinsky's Piano Sonata (see example 1.5). Here the dissonances are not only prepared, but resolve, ultimately, by stepwise motion, in keeping with the music's neo-classical (neo-baroque?) style. And even if common sense seems to dictate an interpretation which describes the passage as a plagal cadence, with the IV altered – emancipated – by the addition of non-harmonic tones, and with two passing chords connecting the IV to the I, the power and quality of emancipated dissonance can be precisely rendered in figures:

Figure 1.4

			♭7	
	♮6		♮6	
	♮5	♮5	♭5	♮5
	♯4	♭4		
	♭3	♭3	♭3	♮3
Bass:	F	E	D	C
C:	IV	III	II	I

As emphasized earlier, the closer to a background in traditional tonal harmony and progression, the more practicable it is for the analysis to retain references to concepts of scale degree, chord root, chord inversion and so on. Much of Stravinsky's music is of this basic type. Nevertheless, for my principal model I have chosen an example of a more radical type, demonstrated in a composition where dissonances are consistently 'emancipated in their own actual content' and there are no conventional triads at all. It is of course rare for a single movement to be as consistently homophonic as this, the third of the pieces for string quartet. The example is therefore not a model in the sense of providing a 'typical' Stravinsky composition, if such a thing exists: rather it exemplifies in a particularly concentrated and consistent fashion the issues arising when chordal analysis is employed for music in which tonality, though not positively absent, is extended – possibly even to the point of seeming to be suspended.

The movement (see example 1.6) is in two principal parts: the first (bars 1–26) has a two-bar introduction followed by a succession of 'verses' and 'refrains' forming the sequence a – b – a^1 – b – a^2 – b – a^3: a^1 and a^2 are variants of a; a^3 is a partial restatement of a. The b sections recur unvaried. The second, shorter part subdivides into two sections: the first (bars 27–37) has material whose pitch structure evolves from, perhaps even develops, the introduction in ways which suggest points of contact with the 'verse' material (type 'a'). The closing section (bars 38–46) in turn alludes to the 'refrains' (type 'b'), and also confirms that the piece's principal tonal orientation is C. It is worth reiterating here that the ensuing chordal analysis in terms of emancipated dissonance ultimately derives its logic from the connection revealed by the figures and intervals with the extended tonality of C: but the figures themselves are concerned primarily with chord structure, not with tonal orientation, still less tonal function.

It should be obvious enough that no composition which, however homophonic, is also so plainly linear in the equality of its superimposed melodic lines can be fully 'explained' by a chordal analysis. What I believe such an approach can do (and here the relevance of this model to Stravinsky's music as a whole can be reinforced) is perform the usual, useful analytic task of revealing invariant features, the balance between similarity and variety which is perhaps the most basic of all compositional techniques in all styles and cultures. And I would also argue that those 'invariant features' gain from being described in ways which make comparison with con-

ventional tonal, triadic harmony not just possible, but unavoidable. With this piece, however – as already suggested – the function of such comparison is not to claim that the music has a consistent 'background' of conventional harmony: it is simply to define with some degree of precision the distance between such harmony and what Stravinsky actually writes.

This composition comprises a succession of 123 chordal statements – a total arrived at by counting all immediate repetitions (as in bar 1) as *one*, but all separated repetitions (as when the first chord of bar 1 is repeated in bar 2) as one each. Even when all repetitions are grouped together, and all enharmonically equivalent intervals regarded as the same (for example, sharp 4 as flat 5), there remain 45 different types of vertical sonority – not totally different, of course – and it is through plotting the relationships between invariants and variants in this material that analysis can begin to interpret the harmonic character and structure of the music. Figure 1.6 lists the 45 chord-types in an order determined by the gradually increasing size of their constituent intervals, and also indicates which of the 123 chord statements are represented by each type.

As the formal analysis has already indicated, the first part of the piece, up to Chord 82, is dominated by exact and varied repetitions. Chord-type 3 (flat 2, natural 3, flat 6 and its enharmonic equivalent flat 2, flat 4, flat 6) accounts for 18 of the 82 statements, and chord-type 23 (flat 3, natural 3, flat 7) for 13. It is also these statements together which do most to orient the harmony towards an extended C minor. Indeed, Chord 7 in its first, predominant, form might be defined in scale-degree terms as the third inversion of a C minor tonic seventh, though such nomenclature is scarcely very illuminating, given the context. Chord-type 3 is particularly important, not just as a focused dissonance with strong C minor connections, but as the leading member of a family of chord-structures whose offshoots can be found in significant numbers throughout the piece. In particular, the fact that Chord 7 is an exact transposition of Chord 5, and the additional fact that both share the invariant flat 2, flat 6 element with Chord 4, point to the piece's most significant unifying features, chordally speaking. It will be noted that Chord 6 (Chord-type 23) does not share this feature, beyond the ubiquitous minor second between its flat 3/natural 3, and this distinction demonstrates a strong contrast between the present method of analysis and pitch-class set analysis: chord-type 3 is pitch-class set 4–19 [0, 1, 4, 8]; chord-type 23 is pitch-class set 4-Z15 [0, 1, 4, 6]. In pitch-class set terms, therefore, the invariant relationship is much closer than it is in the chordal analysis. The argument for a significant difference in structure between Chord 6 and the chords on either side of it centres on the fact that Stravinsky consistently uses it as a passing element between the two type-3 chords. And in the larger context of the piece as a whole chords built from the flat 2 interval are much more prominent, numerically and structurally, than other types.

Chords built from the flat 2 interval provide 54 out of 123 statements, including the first and last chords of both parts of the piece, and 16 out of the 45 types of sonority. Moreover, the flat-2 type chords are particularly important in linking the two parts of the piece. If the principal contrast is provided by the shift of pitch centre from C to C♯ (itself a flat-2 structure) in bars 27–37, just under half of the 30 chordal statements in this segment – 13 – are of the flat-2 type. More importantly still, chords containing the flat 2/flat 6 sub-collection (types 3, 6, 8, 9, 10 and 16) provide an even stronger invariant quality to the harmony throughout.

The most prominent intervallic invariant on the surface of the piece is provided by the perfect fourths between the two violins which persist through most of Part 1. Study of the chordal analysis reveals the extent to which something which recurs with almost monotonous regularity in one segment of texture may be constantly recontextualized by much freer movement in the other segment. Similarly, in the passage between bars 27 and 37, where pitch invariance centres on three bars of repeated Ds in the cello followed by seven bars of a D–A drone, the chordal analysis reveals that intervals common to successive chords may not be equivalent to shared pitches. Figure 1.5 shows a relatively simple case:

Figure 1.5

Chord 111: ♭4, ♭6, ♭8: A♯, D, F♯, A

♭4

♭6

♭8

Chord 112: ♭2, ♭4, ♮4, ♭6: C♯, D, F, F♯, A

♭2

♭4

♮4

Chords 111, 112: invariant pitches	invariant pitch-class F♯
D, A:	A♯/D(111) C♯/F(112)
invariant intervals ♭4:	
♭6:	A♯/F♯(111) C♯/A(112)

It is also worth noting that the presence in the music of what may be generalized as a tendency for pitches to change their intervallic significance in successive chords represents a principle fundamental to tonal composition.

As with other types of analysis, however, the maximization of invariance through reduction to common interval patterns will override significant differences in actual chord layout in the piece. For example, the first and last chords, though of the flat-2 class, are distinctive sonorities because they are built upwards from perfect fifths, a property they share with the five representatives of chord-type 22. And the interpretation of Stravinsky's use of chord-types, as opposed to a mere description of them, will conclude that one of the piece's most essential features is the way in which what one might expect

Example 1.6 Stravinsky: No. 3 of *Three Pieces for String Quartet*