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The Art of Ending:
Closure in European Instrumental
Music c.1900-1970

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ABSTRACT

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This thesis brings together a variety of different perspectives on closure in music, including cognitive models developed from speculative and empirical research, and theoretical models derived from traditional analytical approaches. The application of these theories to twentieth-century instrumental music allows the ideas surrounding closure to be critiqued, expanded and recontextualised in the light of a musical repertory to which concepts of closure have rarely been applied. The focus is mainly on European art music of this period. A wide variety of compositional schools and orientations have been included, ranging from neo-tonal to atonal, from romanticism to serialism and the avant-garde, and enriched through the inclusion of the music of Varèse and Scriabin from beyond the confines of Europe itself.

The effect of closure cannot be defined in a single phrase, but it is often expressed through a range of metaphors such as stability, finality, conclusiveness, completion, and resolution. These terms are usually defined through a dialectical engagement with opposing qualities such as tension, continuity, instability, openness and mobility. The nature of this dialectic and its articulation through a range of theoretical models will be the focus of this study. To this end the thesis is divided into two sections – part one, focussing on endings (with reference to a wide range of works, styles and composers), and part two, which examines closure as a process that engages entire movements and works (requiring a smaller number of more concentrated case studies).

To some extent each chapter is self-contained, but the whole is organised around recurring themes and issues, outlined in the introduction. Chapters Two and Three concern the model of abating closure put forward by Robert Hopkins, and advance a theory of interaction between sense and sign, abatement and terminal modification. Chapter Four considers the role played by silence and other interrupting features in creating clinching effects in the form of the rhetorical *aposiopesis*. Chapter Five (initiating the second part of the study) is an enquiry into the effects of pitch centres and their role in articulating closure, and concludes with an extended case study of Messiaen's '*Danse*' from *Quartet for the End of Time*. Chapter Six tackles problematic issues of tonal closure in the finale of Stravinsky's *Symphony in Three Movements*. Chapter Seven examines cadential formulae in relation to closure in the first movement of Lutoslawski's First Symphony and the finale of Bartók's Fourth Quartet. Chapter Eight focuses on climactic endings as a counterpoise to the abating endings considered in the first two chapters, considering the role played by aesthetic and cultural factors in the creation and theorisation of end-oriented narratives of closure. The conclusion draws together the issues raised by the thesis as a whole, regarding both the compositional art of ending and a listener-based theory of closure.

This thesis is dedicated to my partner,

Lois

*Whose continual love, patience, support and generosity
enabled me to complete this research.*

Contents

Acknowledgements

Note

Musical examples and tables referred to by the text are given at the end of each chapter. The first number of an example refers to the chapter in which it occurs. The system of registral notation used is that in which C4 is equivalent to middle C, C3 to the octave below, C5 to the octave above etc.

Chapter One

Introduction : Defining Closure

Despite the fact that the term 'closure' is frequently invoked in musical analyses and commentaries, there have been only a few attempts to define and interrogate this concept in a thoroughgoing and extended fashion. Yet this deceptively simple word is as ambiguous and mysterious as other broad categories of musicological discourse such as 'tonality' and 'atonality', both of which have received painstaking dissection and elaboration in the academic literature. It is hoped at the very least that this thesis will offer meaningful reflections upon existing discourse concerning closure, as well as contributing new insights that might enliven future debate. The related topic of musical endings has received equally scant attention as an area of study in its own right, although analyses of individual works frequently comment on the nature of the ending, often considering the latter as a completion of wider structural processes that bind the work together as a whole. This thesis is concerned as much with endings as it is with closure, and the complex relationship between the two will be explored in due course. The nature of this relationship is reflected in a bipartite scheme, the first part of the thesis focussing on endings in isolation (calling upon a multiplicity of musical works), and the second part investigating the wider mechanism of closure as it relates to entire movements and works (comprising a handful of longer case studies). The introduction will discuss the various meanings attached to the concept of closure and endings, and provide an adumbration of recurring themes and questions of methodology relating to subsequent chapters.

While the chronological and geographical boundaries adopted by this study might be expected to impose limitations on the wider applicability of its findings, in actual fact the sheer diversity of the repertory under consideration calls for a varied methodology that has ramifications for the understanding of music of other periods, styles and cultures in relation to closure and endings. Admittedly, the musical examples and references are drawn from canonic repertory - modern classics - but it is hoped that this will be an added convenience for the reader who is familiar with such works; it is not intended to

perpetuate the claims of those composers to aesthetic supremacy. The decision to centre the thesis on the classical instrumental music of the first half of the twentieth century is strategic in that it allows received notions of closure to be tested and expanded in relation to music that is often hostile to a uniform or single-minded theoretical account of closure. For example, 'tonal closure' is a construct that allows the principle of closure to be explained within a single theoretical paradigm of pitch-determined structure, whereas in post-tonal music such a singular mechanism is rarely available to the analyst, who is forced to consider closure as the product of multiple mechanisms and models. Given that the assumed perceptibility of long-range tonal closure has in any case been challenged by recent empirical research (eg. Cook 1987, Brinkman & Marvin 1999) it would seem appropriate to develop a framework by which closure can be accounted for in other ways, and the historical period in question provides just such an opportunity (although relationships with aspects of tonal closure have not been overlooked).

There is a parallel motivation here with Robert Hopkins's study of the role played by secondary parameters in creating closure in Mahler's music (Hopkins 1990) in that Hopkins focuses upon non-tonal features in order to circumvent the *a priori* model of tonal closure. However, in its exclusive attachment to secondary parameters Hopkins's theory is equally restrictive as a model of closure, although his work provides an important foundation for some of the theories developed herein. More compact and yet far richer in scope is Kofi Agawu's study of closure in Chopin's Op.28 Preludes (Agawu 1987), which, although based around overtly tonal music, provides significant food for thought for any study of closure. I will return to some of Agawu's observations shortly in a consideration of theoretical issues, but first I will attempt to sketch briefly the different categories of closure that can be ascribed to the experience of music.

Defining Closure

1) Gestalt Closure

The term 'closure' has undergone considerable expansion in meaning since it was first introduced by the Gestalt psychologists in connection with visual perception during the

first half of the twentieth century[1]. By simple demonstration the latter proved that things do not look as they do because they *are* what they are. For instance, in the image below there are no actual triangles or circles, and yet several can be seen, in particular a large white triangle standing in front of the page!

The *Kanizsa Triangle* (Kanizsa 1955)
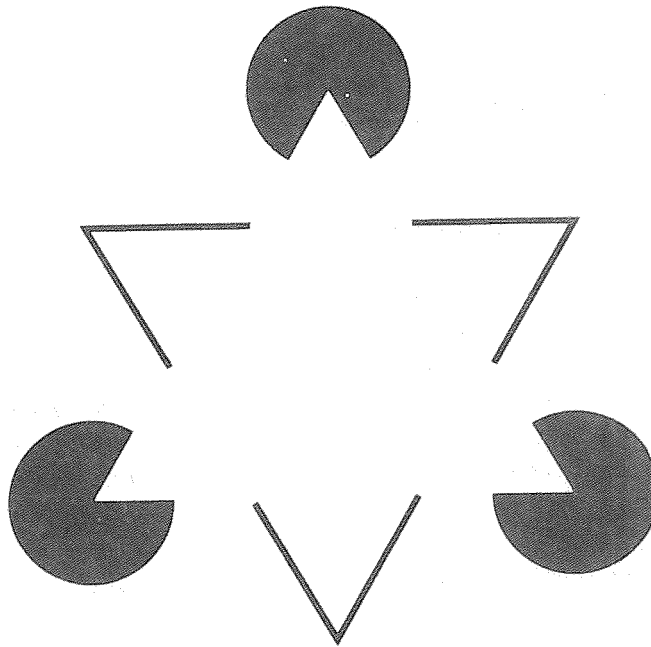
Time and again the Gestalt psychologists demonstrated by elegant illustrations the tendency for the mind to make sense of visual stimuli by filling in the gaps. There can be few cartoonists whom have not made use of this principle of closure, by which parts of a figure not present tend to be filled in or inferred by the onlooker. But how can this static model of visual closure be translated into the dynamic time-based medium of music? The German word '*gestalt*' has its origins in '*stellen*', the old high German meaning 'to shape', and since music also consists of such shapes – for example, melodic shape – it is possible to translate some key Gestalt principles into musical contexts. One easily

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[1] One of the most comprehensive works concerning the foundations of Gestalt psychology is Koffka's *Principles of Gestalt Psychology* (Koffka 1935).

recognisable example of this occurs in the segmentation of figure and ground; in visual terms we tend to perceive the outlines of simple or familiar objects in relation to a background, and in much traditional music there is a similar experience of melody as figure and accompaniment as ground. Only with sustained effort can we concentrate attention on the details of the accompaniment such that it becomes the main centre of attention.

Meyer's seminal *Emotion and Meaning in Music* (Meyer 1956) was the first treatise in English to explore systematically the relationship between Gestalt psychology and music, and it remains one of the most formidable and insightful texts of its kind; it has influenced several generations of music theorists and psychologists, and will be referenced a number of times in this thesis, along with later works by Meyer that elaborated these principles. Rather than attempting to find direct musical analogies for visual perception, Meyer appropriated the general principles that lay behind Gestalt psychology and showed how they might apply to musical processes. The key to this achievement lay in the notion that musical patterns, once established, arouse the desire for a particular kind of continuation; the realisation of such implicative processes brings about completion and hence closure. Meyer devotes an entire chapter to this effect, drawing on a range of musical examples (Meyer 1956: 128-56). Here there is a subtle difference between visual and musical modes of closure: in the former case the viewer fills in the gaps instantaneously, whereas in musical contexts the listener experiences ambiguities that are progressively resolved by the music itself. This results in different degrees of closure, often differentiated by Meyer in a qualitative continuum of weak, medium and strong. The conventional cadence provides one example of this: the accentuated arrival of a tonal phrase on the tonic note provides a point of closure partly because the listener has already inferred that this pitch is a likely point of termination, based on his or her experience of other similar melodies. The degree of closure is determined by the type of cadential pattern invoked and its tonal context - imperfect or perfect, weak or strong.

The extent to which this kind of closing effect is learned through repeated exposure to a specific style - rather than being an inherent mode of perceptual organisation - might seem clear enough in this instance; however, it is important to recognise that Gestalt

psychology had broken new ground by suggesting that closure provided evidence of innate types of response to visual stimuli, in opposition to the predominant behaviourist view that perception was conditioned by learning. To an extent Meyer also managed to reduce the principles of closure to a set of universals that were independent of style, although his continuing recourse to the music of the eighteenth and nineteenth centuries certainly prejudices his conception of these universals. There is not space in this introduction to describe these theories in any depth, but aspects of them are given further consideration in chapters Four, Five and Seven. They were later taken up by Eugene Narmour, who attempted a more rigorous codification of the melodic 'implication-realisation theory', as it is known, drawing greater distinction between style-dependent factors and 'cognitive primitives' – universal principles of musical cognition (Narmour 1989, 1991). Very briefly, his theory involves close study of note-to-note relations, classified according to whether they are similar or different, and hence anticipated or unexpected. The theory judges whether these relationships result in non-closure (implying further continuation) or closure (implying no further continuation). With the burgeoning study of music perception, however, further debate has arisen over whether Gestalt categories in music (including closure) are the outcome of stylistic and cultural experience or whether they reflect 'hard-wired' biological responses.

2) Syntactical Closure

One way in which closure can be conceived in music is by analogy with linguistic syntax. A sentence is felt to be complete or closed when certain grammatical requirements have been fulfilled; similarly, tonality acts as a mode of grammatical organisation in music, and the completion of musical sections is usually underlined by a conventional type of closing harmonic progression. The registering of syntactical forms of closure has even been found to have a direct impact on brainwaves. By measuring certain brainwaves (event-related potential or ERP) it has been extensively shown that there are significant differences between responses to sentence endings that violate syntactic constraints and those that confirm them. A unique study of this phenomenon in relation to musical phrase endings revealed a similar correlation, the authors stating that

'ERPs are a potentially vital measure of how language-like or uniquely musical the perception of phrase closure is.' (Hantz *et al.* 1998: 69). Phrases with four possible kinds of endings were played to experienced musicians: closed (tonic note or tonic chord), open diatonic (dominant chord or member thereof), open chromatic, and open white noise (a non-musical control). 'All four stimulus types elicited identifiable responses...Taking the closed endings as the expected "standard", the waveforms for the two types of musical deviant endings were significantly below the standard...The amount of negativity was proportional to the amount of deviance of the ending' (*Ibid.* 69).

It would be interesting indeed to apply this experiment to phrases in an atonal context as a measure of their syntactical effects. However, syntax is a problematic concept in post-tonal music, even where that music evokes tonal procedures. Discrepancies between the treatment of modal and harmonic resources in different compositions - and even within the same composition - make it difficult to establish a set of harmonic functions that work with the same consistency as the cadences of the tonal era (on the other hand, even tonal syntax does not embody absolute meanings as the traditional harmony textbook might lead one to believe[2]). This is not to say that individual movements might not set up their own rules and harmonic procedures that could enable pitch-based syntactical analysis to succeed, and indeed this will be demonstrated in Chapter Five. But the analyst cannot take for granted that a certain harmonic progression will have a predetermined level of openness or closure attached to it, or that listeners will always respond in the same way to such meanings. This is partly because musical syntax is stylistically contingent rather than absolute (as it is in language): for example, the phrygian cadence, which in the medieval period could have a final closing function, became increasingly associated with a half-closed imperfect function in later Renaissance and Baroque practice. In the twentieth-century the lack of stylistic conformity (together with diverse listening habits) reduces the possibility of establishing universal syntactical meanings, although this does not rule out the possibility of investigating the consistency of internal syntax embodied by individual pieces, and thus creating syntactical models of closure for those pieces.

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[2] Consider the fact that a closing perfect cadence in the tonic is also an open I-IV progression in the dominant. Syntactical functions are therefore not just created by local signification but are also contextual. We would only hear the I-IV progression if the dominant had been sufficiently tonicised, so to speak.

3) Abating Closure

Closure in music has also been closely associated with relaxation, a quality of quiescence or progressive reduction in energy termed 'abatement' by Leonard Meyer, Robert Hopkins and others. For example, many pieces slow down and/or get quieter at the end. This model of closure as a psychological sensation differs from the syntactical and Gestalt models summarised above, although there is scope for interaction between the two. It calls for a definition of musical elements that contribute to intensification on the one hand, and abatement on the other (see Hopkins 1990: 29-63). Chapter Two offers a more thorough examination of the merits of this model of closure in stylistically diverse contexts, and to avoid immediate repetition I will leave the exposition of this theory of abatement to the following chapter. The focus there is on endings *per se* rather than on internal points of rest within compositions, and one of the main arguments advanced will be that abatement is often complemented by other signals that the work is over, bringing me to the next category of closure.

4) Semiotic Closure

Certain closing formulae do emerge with some consistency in the early modernist period. One example is the tritonal cadence (using a tritone leap in the bass) that became a familiar distortion of the perfect cadence in the music of Scriabin, Bartók, Stravinsky and Messiaen. In fact the perfect cadence is also conspicuous at the ends of many early twentieth-century compositions that are otherwise not particularly tonal. These examples may be said to effect closure in a manner different from syntactical closure. Instead the cadence becomes a symbol, a historical *sign* of closure that may be imported from outside the composition rather than generated syntactically from within. This is akin to the increasing use of the plagal 'Amen' cadence to evoke a sense of finality in nineteenth-century musical practice; Meyer suggests that in the hands of Verdi, Donizetti and others 'the closing gesture has become more conventional – a kind of formulaic style structure signifying closure' (Meyer 1989: 278). Chapter Three will examine the use of a

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range of final chords and cadence forms that refer to wider historical traditions of ending as a means for creating this kind of symbolic enactment of closure. What we are dealing with here is evocation rather than syntax, although to complicate matters what is evoked in some of these examples is the closing syntax of another compositional system - tonality.

Thus, certain kinds of ending create their sense of closure by referring to other stereotypical or established kinds of ending. This can be referred to as *semiotic closure* since it may be conceived in terms of a system of signification: sometimes such closing signs may refer back to material that was used for the termination of sections *within* the same musical work; on other occasions these signs may refer to the endings of other works by the same composer, or to wider cultural traditions of ending formulae[3]. An important sub category relating to semiotic forms of closure is that of generic formal conventions. For example, the recapitulation or reprise expected towards the end of most traditional musical forms will aid the listener in navigating the structure as a whole; even in twentieth-century music such reprises occur frequently as formal signs of impending closure.

The classes of closure summarised above are by no means independent in actual practice. For example, there is often an interaction between *abating closure* and *semiotic closure*, because the common use of abatement at the end of compositions tends not only to accomplish a sense of closure in its own right, but also acts as a sign that refers to other kinds of endings that involve similar abatements. Similarly, conventional signs of closure may be derived from Gestalt principles of closure; as Herrnstein Smith observes in connection with poetry, 'a certain conclusion is likely to become conventional because it is, to begin with, effective in creating a sense of closure' (Herrnstein Smith 1956: 30). Again, an example of this is the traditional cadence, which is both a sign of closure and an enactment of Gestalt principles (i.e. because it will tend to resolve rhythmic tensions, bring about a unification of texture, or occur at the end of phrase boundaries). This may in turn contribute to a syntactical framework of closure that can be displayed as a theoretical construct.

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[3] Kofi Agawu uses the term 'extroversive' where reference is made to music lying outside the piece analysed, and 'introversive' for those signs that are internal to the piece itself (Agawu 1991).

Theoretical Issues in Closure

Phenomenological Descriptions of Closure

A further important development in the meaning of 'closure' occurred throughout the 1940s, 50s and 60s, during which the concept was broadened by Gestalt *psychotherapists*, although the latter were criticised vehemently by traditional Gestalt *psychologists* for their misappropriation of Gestalt concepts. The founder of this movement, Fritz Perls, elevated the notion of closure to the level of biography: 'our life is basically practically nothing but an infinite number of unfinished situations - incomplete gestalts,' he writes. 'No sooner have we finished one situation than another comes up' (Perls 1971:15). The neurotic individual 'somehow interrupts the ongoing processes of life and saddles himself with so many unfinished situations that he cannot satisfactorily get on with the process of living' (Perls 1973: 23). He tells us that such unfinished situations from the past compel the neurotic to repeat them in everyday life. Perls and his later advocates defined their own therapeutic model of closure in order to help the neurotic to overcome this compulsive behaviour, placing emphasis on making the individual whole once again. Their popularity – which persists today – brought the term 'closure' into common usage, especially in America and Germany, and this played an often unacknowledged role in shaping subsequent aesthetic discourse concerning closure.

It is not difficult to see how this more generalised type of *psychodynamic closure* might be embodied by narrative art forms such as literature, plays and poetry; indeed, a wealth of critical literature has emerged on this subject[4]. This is broadly concerned with the way materials, plot and rhetoric are organised to produce a sense of wholeness and completion (or not), and the complex issues of interpretation between reader and text that arise through such processes. In particular, Herrnstein Smith's work on poetic closure has provided an important point of reference for musical studies of closure (notably those of Hopkins and Agawu).

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[4] See Kermode 1966, Herrnstein Smith 1968, Miller 1981, Torgovnik 1981, Lenz 1986, Thickstun 1988, Krieger 1989, Schleuter 1995, and Roberts et al. 1997.

One way in which music theory and analytical commentaries appeal to these more generalised descriptions of closure is through their reliance on linguistic expressions, invoking certain metaphorical and phenomenological categories in order to relate the aesthetic feeling of closure. The table below lists several such expressions alongside their opposites. Notice that closed states are commonly described in a positive way, and open ones in a negative way, with prefixes indicating a lack or absence (i.e. *un*finished, *ir*resolute, etc.). This is revealing, for it demonstrates an inherent bias within language itself towards closure as primary and openness as secondary; conversely, there are few if any terms describing closure in terms of a deficient 'lack of openness'. Indeed, it would be illogical from an aesthetic point of view to consider closure as being a state that is lacking or unfulfilled in some way, yet many musical endings seem to invite this sensation. Some authors have sought out positive terms to reflect aspects of openness; Leonard Meyer enshrines the notion of 'becoming' as a quality of Romantic music, which he defines further through music theoretical concepts such as 'mobility', 'ongoing process' and 'continuity' (Meyer 1989: 272-336).

What we are dealing with here is the field of phenomenology; Thomas Clifton, in his study of music and phenomenology, writes that 'a phenomenological description concentrates not on facts, but upon essences, and attempts to uncover what there is about an object and its experience which is essential (or necessary) if the object or the experience is to be recognised at all.' (Clifton 1983: 9). As an aesthetic quality, closure, together with its correlates and opposites listed in the table, is one such 'essence'. Clifton's approach is to define the experience of music in relation to a listening subject, and he writes that 'if we hear the music at all, it is because we hear the grace, the drama, and the agony as essential constituents of, and irreducibly given in, the music itself'. (*Ibid.* 19) However, the problem in trying to uncover such drama and essences lies in articulating them from a precise objective or technical standpoint. Thus he asks 'how does the vocabulary of traditional music theory imply (or hide) the stratum of intuitive awareness? Am I actually going to revive the pathetic fallacy? Are "grace", drama, etc., only mental constructs?' (*Ibid.* 20) These problems are salient to the present thesis, which will attempt to negotiate between technical definitions of closure as a cognitive or

theoretical formulation, and wider cultural readings of closure as a dramatic and phenomenological essence.

Dichotomies of Closure	
Closure	Non-closure
Closed	Open, open-ended
Finished	Unfinished
Complete	Incomplete
Conclusive	Inconclusive
Stable	Unstable
Resolved	Unresolved, irresolute
Resolution	Tension
Whole	Part, partial
Coherent	Incoherent, fractured
End	Beginning
Ending	Unending, becoming
Stasis	Mobility, continuity
Satisfaction	Frustration

An important precedent for this approach can be found in Kofi Agawu's analysis of closure in Chopin's Preludes (Agawu 1987). He speculates on the 'feel' of closure in his analysis of Chopin's Prelude No.22, 'where we sense the compositional dynamic (or "forward drive" or "drama") within the framework of a number of avoided closes that retroactively structure the piece' (Agawu 1987: 5). In an imagined account by a hypothetical listener he characterises the prelude as 'akin to a series of waves whose course meets with a number of resistances. The function of these resistances is to postpone closure, while their effect is to heighten the tension resulting from frustrated expectations.' (*Ibid.* 5). Again, notice that closure is conceived as a dialectic process, expressed in terms of a binary opposition between closure and resistance. This wave-like model of closure will be examined further throughout the second part of the thesis.

What is attractive about Agawu's analysis, especially in terms of post-tonal music, is that it does not focus exclusively on syntactical (tonal) closure, but extends concepts of completion to other features – the completion of a melodic 'utterance' for instance, and a chronology of register that reaches its maximum point of tension just before the final cadence in Prelude No.22. Just before the latter arrives there is almost a bar's worth of silence, and he remarks that 'the piece has hitherto been propelled by a referential instability in the form of a joint rhythmic-harmonic syncopation between l.h. and r.h. The cessation of motion therefore heightens this dialectical play' (*Ibid.* 6), and this is resolved by the realignment of l.h. and r.h. in the final bars. Such textural synchronisation plays an important role in creating a sense of unification at the ends of post-tonal pieces, even in the absence of harmonic syntax, as we will see in Chapters Two and Three. The idea that sudden forms of interruption can be used to create an arresting motion shortly before the end of a piece, and then followed by a more complete type of clinching utterance, is explored in Chapter Four in terms of a dialectic between stopping and ending (The term 'stopping' is used to imply an indifference to closure, whereas ending is conceived here as a more satisfying and complete form of stopping). Thus, a number of non-syntactical features are available for bringing about sensations of stability and closure in a progressive and dramatic manner.

Musical analysis frequently hovers between schemes of imagined intentionality (compositional systems) and more abstract theoretical frameworks (such as semiotic, motivic, or prolongational analyses), calling on one to illuminate the other. In addition, such analysis usually assumes a concrete relationship between these structural formulations and the listening subject, even though the latter is often an idealised or hypothetical construct, and may represent nothing more than the analyst's subjective reactions to the music in question. The idea of examining closure from a score-based analytical perspective – rather than a listener-based empirical study - may appear flimsy in light of the psychological origins of the term 'closure', but I have attempted to bolster the claims of analysis by continual reference to empirical study in this area. This thesis therefore attempts to acknowledge closure on multiple levels, in relation to the act of composing, to theoretical formulations of closure *and* to the phenomenology of listening (though it will be necessary to point out which perspective is predominant, as well as

where conflicts arise between different levels). The value of such a multiple perspective on closure - and this is one reason why closure is so fascinating – is that it continues to be invoked in all of these areas.

Closure versus Endings

Agawu warns us early on in his article on closure that *'closure is not the same thing as ending...* The ending of a poem or piece of music refers simply to the terminal elements in that structure (we use terms like *coda, codetta,* and *cadence* to describe such musical elements)'. Closure, on the other hand is 'dependent for its effect on the listener's experience of the entire composition...An ending is therefore only part - albeit a significant one –of the mechanism of closure.' (Agawu 1987: 4) He goes on to distinguish between endings as 'local' elements of structure and closure as a 'global mechanism'. The usefulness of this distinction might seem obvious at first; however, some twentieth-century music presents important challenges to the assumption that a 'global mechanism' lies behind closure or that endings are to be relegated to a secondary role within that mechanism. The changing aesthetics of temporality introduced by forms of minimalism on the one hand, and Stockhausen's formulation of 'moment-time' on the other (which has implications that reach beyond Stockhausen himself), create problems for an understanding based on a progressive or linear account of musical time that conceives music in terms of a logical progression of beginning, middle and end.[5] The fact is that some music does not progress towards closure in the way that tonal music does. Even within the early modernist period, experimentation with static or disjunctive modes of composition leads to a situation in which closure can no longer be idealised as the gratifying final outcome of a set of smaller more localised 'closures'. At the other end of the stylistic spectrum, music based on repeating formulas, such as the ground bass or popular song, appears to be engaged in a perpetual state of localised closure and renewal that defies a long-range mechanism of closure. (Admittedly, variation movements are frequently organised in such a way as to give an impression of a

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[5] See Kramer 1988 for a detailed evaluation of new twentieth-century temporalities.

developmental trajectory, as with the Baroque variation that reaches towards ever greater heights of virtuosity in the density of its diminutions).

What these examples call for is closer scrutiny of ways in which endings can signal closure in a purely localised or symbolic way, and this perspective is adopted throughout the first part of the thesis, which looks to the surface characteristics of endings rather than to broader processes of closure that take up the piece of music as a whole. This is not to say that the idea of a progressive mechanism of closure is irrelevant to post-tonal music, and to this end it is investigated in detail in the second part of the thesis. Indeed, what must be asked in relation to endings is how they are unique or different from identifiable internal points of closure.

Closure and the Segmentation of Form

The division of pieces of music into beginnings, middles and endings constitutes an overriding factor in any kind of formal analysis. Further empirical study has confirmed that listeners can identify formal segmentation with some statistical degree of conformity:

> Many studies have shown that listeners segment a sequence according to its surface characteristics (event duration, pitch, intensity, timbre) following the principles laid down by Gestalt psychologists: a change in any sound parameter leads to the perception of a break in the sequence and thus to the creation of groups separated by the changes. For instance, the occurrence of a longer temporal gap or a major change in pitch leads to the segmentation of the sequence at that point with the termination of one perceptual unit and the beginning of the next. (Drake 1999: 11)

What should concern us about these types of segmentation experiments, however, is the bias introduced by the leading question, in which listeners are asked to narrow their awareness down to particular features, rather than to listen in their preferred or usual manner. The nature of the observations is compromised by the act of intentional observation; at best such studies confirm that listeners *can* respond consistently and with

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some level of conformity to issues of grouping, but whether they do so routinely as a matter of habit is another question entirely. Indeed, it would be rather surprising if listeners could *not* recognise sudden changes of texture or indeed more subtle boundaries like phrase endings, and form judgements about formal divisions accordingly. What is less well understood is whether listeners discriminate between segmentation cues at different hierarchical levels and respond to them in terms of a sliding scale of weak and strong forms of closure. This issue is crucial, because higher hierarchical levels (e.g. the exposition in a sonata) are felt to produce greater sensations of closure than lower ones, and at the highest level 'a piece constitutes a group' (Lerdahl and Jackendorf 1983: 88).

The retrospective definition of musical sections and forms has important ramifications for the way closure operates in relation to various post-tonal repertories. In logical terms the ending itself is only confirmed after the music has ceased. However, regarding the internal divisions of a movement, a section of atonal music may collide with the next section without first establishing its own sense of *internal* closure, whereas in tonal music individual sections are generally sealed by a more pronounced level of syntactical closure (in the form of a cadence). Hopkins's study of closure in Mahler's music bears witness to this phenomenological conundrum concerning beginnings and endings; he observes that in some movements 'formal divisions are most often articulated by the beginnings – rather than the conclusions – of phrases and sections' (Hopkins 1990: 160). This is in one sense quite logical, since if each section is defined as such by its own distinctive set of parameters, it follows that the end of that section will conform more closely to that section as a whole (in terms of texture, for example) than it will to the contrasting section that follows it. The same principle can be illustrated at the foreground level of the individual phrase: a phrase might terminate with a cadence, but it might also be more strongly defined retrospectively by the beginning of a new phrase[6]. In this way, the recurrence of a familiar motto rhythm or motif to identify phrase openings forms an important ingredient of eighteenth and nineteenth-century phraseology, and also provides

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[6] Meyer notes that 'though processes in Romantic music are markedly open and continuous, events (such as motives and phrases) are, nevertheless, clearly articulated. This seeming paradox is possible because the ends of events are defined, not primarily by syntactic closure, buy by the beginning of another pattern – very often the same event repeated sequentially. In other words, the prevalence of sequences in nineteenth-century music is partly a result of their ability to define events without dependence on syntactic closure.' (Meyer 1989: 311)

the basis for segmentation in paradigmactic semiotic analysis. The detection of a change of group therefore becomes paramount in defining form, but any localised sensation of closure that may occur at the boundary between groups must be considered supplementary. In many twentieth-century works the analyst is hard pressed to find any evidence of closure at the end of such groups (for example, does the first texturally-defined group of Stravinsky's *Symphony of Wind Instruments* effect closure at Fig.1, or does it merely stop there?). This situation creates problems when trying to extrapolate a hierarchical conception of closure in which smaller closures are seen to add up to higher levels of closure. The use of the word 'closure' to designate the ends of formal divisions and groups is therefore misleading, and perhaps better expressed by the term 'enclosure' – the idea of a group that is merely identified by its sense of parenthesis rather than by the presence of a full stop between groups. I will therefore make an important distinction between closure and grouping (or 'enclosure').

Hierarchical Models of Closure

The division of the open-ended experience of musical time into a series of segmented units, from individual movements right down to the level of phrases and motifs, is a tendency that remains fundamental to structural and hierarchical forms of analysis in general: 'for a series of stimuli to form separable events which can act as elements within a hierarchy, there must be some degree of closure' (Meyer 1973: 81). Again, I would prefer to use the term 'enclosure' to define separable events, since closure as defined here involves more specific psychological effects (as adumbrated in the first part of this introduction). Narmour restates Meyer's position more unequivocally: 'Closure...must be regarded as the central issue governing the very emergence of levels since the degree of closure is the crucial factor by which hierarchical levels come into being or are denied existence. Thus, if what is desired is a truly hierarchical conception of analysis, we must come to grips with this matter of closure and nonclosure' (Narmour 1983: 156). Does this imply that listeners can sense the final closure of a piece as the natural outcome of a set of smaller localised closures? There is indeed an assumption by some psychologists that 'segmentation cues are more salient (larger temporal separation or larger pitch jump)

at higher hierarchical levels' (Drake 1999: 15), yet the layout of post-tonal compositions is rarely consistent in this regard. While one can find musical examples where such neat hierarchies are apparent (see Chapter Five) the situation is not always clear cut. Narmour himself points out in the article quoted earlier that features like maximum durations, highest notes or points of maximum consonance, do not always indicate where levels begin or end: 'In short, locating the "natural" boundaries of musical levels turns out to be problematic.' (Narmour 1983: 131) If this problem rears up in relation to tonal music, whose boundaries are at least emphasised by syntactical codes and formulae, in atonal or post-tonal music the degree of ambiguity may be even more pronounced, and finding a substitute non-tonal parameter on which to base hierarchical judgements is beset with difficulties.

One of the main questions that runs through this study then, is 'how appropriate is a hierarchical model of closure for post-tonal music?' The idea that a piece of music consists of a pyramid or nested hierarchy of units which eventually add up to the entire piece is a common one in relation to tonal theory. In these terms a study of closure demands the study of an entire piece. Such a perspective also rests at the heart of Schenkerian analysis, whose graphical observations lie in explicating the precise relationship between multiple foreground units and the singular background unit of the triad that closes off the entire work (and therefore provides a theoretical point of orientation around which the mechanism of closure hinges). However, despite the attempts of some analysts to extend these principles to the post-tonal repertoire, the evidence for a systematic survival of hierarchical prolongation structure in such music is at best intermittent. The presence of the same sonority at the beginning and ending of a piece – a common enough ploy in twentieth-century music (see Chapter Three) - is something of a red herring, in that it does not necessarily indicate an intervening network of diminutions that maintain a clear relationship with the framing sonority. Observing this phenomenon in relation to Bartok's Op.20 piano pieces, one study concludes that while prolongation occurs close to the surface, and there functions close to the Schenkerian model, 'on the larger scale the prolongational hierarchy is much weaker, and the mere fact of connection and repetition becomes the primary means to long-range structure' (Wilson 1984: 89).

Such weakening of the hierarchical bonds that would otherwise bind foreground harmonic structures into a convincing background entity reflects the tenor of much prolongational analysis of post-tonal music. Robert Fink sums up the problem rather well when he says that 'hierarchically-minded theorists of post-tonal music confront a persistent "problem": they must resolve the conflict between a surface that evokes the tonal past – fifth progressions in the bass, half-step melodic "cadences", directional "prolongation" spans – and a new pitch language which seems to fracture structural levels.' (Fink 1999: 114). Of course this fracturing does not invalidate either the compositional relevance or perceptible salience of prolongational structures at middleground or foreground levels, but it does mean that prolongation as a factor in creating long-range completion can no longer remain the focus of a hierarchical analysis, as it has done for theories of tonal closure. In Chapter Six I will give more detailed attention to these issues in connection with a movement that is demonstrably a critique of long-range tonal closure – the finale of Stravinsky's *Symphony in Three Movements*. In both this chapter and Chapter Seven I will also demonstrate how prolongational structures interact with other forms of closure, contributing to the sense of an ending without necessarily appealing to long-range forms of tonal unity.

While I have attempted to respond to some of the inadequacies of hierarchical analysis by exploring alternative non-hierarchical approaches to closure (through attention to closure as a feature of endings rather than of entire movements), I have not abandoned entirely the notion of hierarchy or its importance in explaining the mechanism of closure. This is because a sense of hierarchy does not have to be oriented around a prolongational harmonic structure. Leonard Meyer, who avoided the Schenkerian approach altogether, could still contend that 'the structure of a composition is something we infer from the hierarchy of closures which it represents…The end of a movement is not merely a cessation of sound. It is the point at which all parameters move congruently to create the stability of closure' (Meyer 1973: 89). Meyer's descriptions of hierarchies tends to be looser and less regimented, however, than those of Schenkerian orthodoxy, and I will follow his approach in Chapter Seven. Rather than conceiving of closure as a strictly hierarchical system I will argue that it is more accurate (and honest) to describe it in terms of a relative mechanism of weaker and stronger effects, whose organisation in

relation to our sense of the whole has some apparently hierarchical features, but also engages dramatic and symbolic processes to create what might be called 'closural narratives' (much in the manner of Agawu's wave-like analysis of Chopin's Prelude No.22).

Closure and the Aesthetics of Completion

There is a sense in which much critical and theoretical thinking is conditioned by what we might call the 'assumption of closure'; Massimo Fusillo writes that 'Neoaristotelianism and New Criticism in the United States, and semiotics and structuralism in Europe, have insisted on the artistic text as an autonomous system: that is, as a closed model apart from the flow of existential time.' (Fusillo 1997: 209) Meyer has also indicated how the concept of closure is predicated on goal directed processes that spring from the ideology of post-Renaissance modernity:

> The future-oriented, goal-directed ideology of the modern Western world has been characteristic of the arts as well as of the natural and social sciences. In the visual arts, perspective established clear goals; in music, tonality implied auditory goals; in literature (especially perhaps in the prevalence of the novel) the goals of the protagonists became the chief concern of narrative (Meyer 1994: 330)

Deconstructionist approaches to criticism have challenged these goal-directed ideologies by exposing the assumptions that lie behind their rhetoric of closure. The stance of deconstructionist theory is tersely expressed by Derrida: 'What I can never understand, in a structure, is that by means of which it is not closed' (Derrida 1978: 160) What this partly ironical statement really means is that Derrida will always *attempt to show* the ways in which structures are not closed (in this case in connection with the philosophy of Husserl). In writing this thesis I was therefore faced with a fundamental problem concerning epistemology - whether to write from the perspective that considers a piece of music as a closed aesthetic artwork, or whether to attempt a more radical deconstruction of the notion of closure. One problem is that the broad repertory I have set out to tackle

seems to invite both approaches at different times. On the one hand, traditional practices remain a significant residual force in the music of the early twentieth century, and the wider formulation of modernism as a dialectic with the past means that traditional values of closure and the nature of the musical work as a closed art form are perpetuated into the later part of the century. (Of course, this does not mean that this music cannot be subjected to critical scrutiny so as to reveal closure as an arbitrary force or a conceit of music theory.) On the other hand, more radical movements within modernism and the avant-garde tended to question the nature of the work as a closed art form, and even to formulate notions of temporality which no longer viewed linear clock time as a constraint or necessity. In effect, Stockhausen's formulation of 'moment-time' challenged the very assumptions on which closure is built, as did the aleatoric principles that would allow a piece of music to have a variety of different endings. The musical examples I have used do not predominantly focus on the music of avant-gardists like Stockhausen and Cage, but in each chapter I have included counterexamples that reveal the possibility of a deconstructed view of closure - closure as an artifical or ambiguous construct. Most of the music chosen for analytical examples leans towards the first half of the twentieth century, if not in character then at least in spirit. Yet even this period was so rich in innovations and *isms* that it would be impossible not to detect in the maelstrom a profound disengagement with traditional values of music as a closed art form. Moreover, the expressive volatility of the new musical styles forged in this era tends to destabilise traditional modes of closure, posing many ambiguities and theoretical challenges.

Part One

The End

Chapter Two

Sense and Sign: Abatement and Terminal Modification

The complementary concepts of 'tension and release', 'expectation and realisation' and 'conflict and resolution' are all part of an intuitive vocabulary with which many composers, analysts, psychologists and listeners describe the shape of their musical experience. Closure is closely associated with the second term in each of these pairs (i.e. release, realisation and resolution) and has been characterised as a kind of waning psychological state or reduction in energy, termed 'abatement' by Meyer, Narmour and Hopkins. These authors have concerned themselves primarily with eighteenth and nineteenth-century repertories, providing only hints at the relevance of abatement for closure in twentieth-century atonal music. This chapter and the next will explore forms of abatement in relation to a fairly wide spectrum of twentieth-century instrumental music in an attempt to broaden our understanding of how it may be related to final closure (i.e. ending), as well as to confront a number of theoretical problems. These problems include the interpretation of works that end in the opposite way, with an apparent increase in intensity. A second theoretical angle – 'terminal modification' – will be put forward as a means of explaining how certain pieces appear to signal the ending by doing something different, and the interaction between this model and the abatement model will be explored in some detail.

The connection between abatement and closure is deeply ingrained in our theoretical terminology, and lies latent within several of the kinetic metaphors we use to talk about music. We speak of music 'slowing down' and of 'stopping' for example, as if it had been engaged in 'activity'.

> ...the sequence of impulses we perceive when we walk or run is rather similar to the regular sequence of tones in moto-rhythmic music (such as Bach). If the music reminds the listener of physical motion, it would be natural to insert a final *ritard.*, as the listener knows from experience that locomotion is usually slowed down before it is arrested.' (Kronman 1987: 58)

There are examples from many different musical cultures and epochs in which a combined decrease of tempo and dynamics conspires to create the sense of an ending, sometimes as a nuance of performance, sometimes as a feature of the score, and frequently in both domains at the same time. Indeed there is a wealth of performance directions in common usage that underline this metaphor – '*ritardando*' (becoming slower), '*morendo*' (dying away), '*perdendosi*' (literally 'losing'), and '*calando*' (lowering) – to name but a few. It is tempting to suggest a universal impulse for the imagination to treat music in terms of an anthropomorphic concept of activity and motion, and the origins of this metaphorical alliance can of course be found in the age-old phenomenon of dance. For some musics the slowing down that occurs at the end is entirely a matter of performance; for example, a lack of performance directions in the original scores of much baroque music has led to a variety of performative attitudes towards endings, from protracted Romantic ritardandos to the economical commas and subtle elongations of the final chord that are common in contemporary baroque performance practice. The Romantic formulation of *rubato*, literally meaning 'robbed', in which time is borrowed from the first part of a phrase (i.e. the tempo increases) and is then restored at the end (i.e. the tempo decreases), also reflects the notion of an end-oriented abatement in tempo. I refer the reader to David Epstein's research in which he confirms and expands this traditional model of rubato by examining the relationship between two interdependent timing systems – literal clock time and subjective time – that are measured as accurately as possible by detailed analysis. He asserts that 'these two but different timing systems, which are out of phase during the progression of the phrase, come once again into phase (or into phase synchrony) at a specific point – the phrase ending' (Epstein 1995: 375).

Given the extent to which such performance traditions are embedded in the habits of Western musical culture, it is hardly surprising that twentieth-century modernism should at times perpetuate these gestures, both in terms of phrase endings and global endings, but the extent of this perpetuation merits further attention, since it can be witnessed in some surprisingly avant-garde contexts. Regarding nineteenth-century practice it is well known that the number and precision of expressive markings in the score increased as composers attempted to exercise more control over idiosyncratic interpretations of their work. Mahler and Debussy represent contemporaneous highpoints in this process, setting the stage for the more meticulous and objective accuracy employed by many later twentieth-century composers. Initially at least the

gestures and rhythms of the past were carried over even while harmonic language was transformed. The sense of timing conveyed by Mahler and Debussy (among others) is one that seems to comply with and indeed to document nineteenth-century practice and rubato phraseology. For example, '*Cédez*'- falling back - is routinely deployed in Debussy's scores to enhance phrase endings. Mahler similarly uses ritardandos frequently in association with the passages that Hopkins classifies as enacting abating closure.

The generation of composers that followed generally extended such attention to detail even further. Not only did the act of leaving too much to the performer go against the supreme creative authorship of the composer, but in the case of modernism new and disorientating works were likely to be misunderstood by performers at first, and needed as much clarification as possible. The end of the first movement of Bartók's Fifth Quartet uses no less than four different metronome markings in the last nine bars to create the effect of slowing down in a rather fastidious way. The music of the Second Viennese School is also rich with expressive directions that often reflect nineteenth-century phraseology and nuance, ritardandos frequently occurring at phrase endings as well as at the ends of sections, movements, and entire works. Meyer notes that 'all the important points of articulation in the first movement of Schoenberg's Third String Quartet are characterised by a marked abatement in secondary parameters: descending pitches, less discordant harmonies, simpler textures, softer dynamics, and slowing of tempo and rate of attack.' (Meyer 1989: 341) Here we have a long list of musical ingredients – *secondary parameters*[1] - that work together in creating closure, and the quotation demonstrates the extent to which abatement is nearly always a confluence of many different parameters. The usefulness of observing these so-called secondary parameters lies in their independence from melodic and harmonic syntax. Since the conventions of harmonic closure are broken or at least transformed into a perplexing harmonic variety in the twentieth century, Meyer argues that these secondary parameters are increasingly important in shaping musical relationships.

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[1] The use of the word 'secondary' to describe these features does not necessarily imply that they are of secondary importance. Primary parameters are broadly considered to include categories such as melody, rhythm and harmony, and it is the traditional emphasis of music theory on these features that has led to them being termed 'primary', whereas dynamics, dissonance, timbre, tempo , texture and rate of attack can also be accounted for in terms of collective or interrelated processes (see Hopkins 1990: 29-63 for an in-depth discussion).

Robert Hopkins has gone further by attempting to dissect and map out the individual components that contribute to the effect of abatement. At the outset of his study of closure in Mahler's music Hopkins describes the potential of each parameter to operate in either of two modes - *abatement* or *intensification* (Hopkins 1990: 29-63). He divides the secondary parameters into six broad categories (registral pitch, dynamics, duration, concordance, timbre and components) each of which has their own types of behaviour with regard to abatement. Not surprisingly, registral pitch abates by falling, dynamics by getting softer, and duration by getting longer, slower and having progressively fewer attack points. Concordance is the tendency for abating passages to grow more concordant in terms of harmonic structure (this will be dealt with more fully in Chapter Three). 'Components' refers to 'the number of identifiable and differentiated strata in the musical fabric' (*Ibid.* 33), and abatement in this parameter means a decrease in the number of parts or notional voices. Timbre is rather more problematic to define, and despite setting up a category for it Hopkins actually has disappointingly little to say about it in the majority of his analyses. To begin with I will look at the way in which Hopkins's model of abatement in the parameter of duration can be widened to accommodate an important dimension of twentieth-century composition, that of 'stratified' texture.

Abatement and Stratification

In a final evaluation of the relative importance of different secondary parameters in shaping closure Hopkins concludes that durational closure is the most common type to be found in Mahler's music (Hopkins 1990: 158).[2] Effectively this means the use of long notes and fewer attack points, although this is something of an oversimplification (it is not necessary to repeat all the details of Hopkins's argument on this point). The important factor is that rhythm and duration can be defined in relation to a number of different processes that tend either towards intensification or abatement. Rhythms that tend towards longer values Hopkins calls 'cumulative

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[2] Hopkins's definition of durational closure as a secondary parameter might appear to differ from other authors, who define rhythm as primary. However, there is a distinction to be made between rhythm and duration. Hopkins notes that rhythm 'is a dependent variable determined by a number of interacting parameters such as harmony, pitch, duration, and dynamics. Therefore rhythm may be considered a summarising property, an *emergent property*, which may be defined as a variable of music that is essentially dependent on two or more independent variables' (Hopkins 1990: 29-30)

durations' and these are abating in nature, although he points out that such a 'rhythmic series *per se* does not usually imply a *specific* point of conclusion [my italics]. One simply cannot define a point of greatest possible repose in the parameters of...duration, as one can with the octave in concordance' (*Ibid.* 51). Hopkins's basic analytical tactic is to re-notate the rhythm of a given passage as a compound rhythmic line that takes into account the combined rhythm of all orchestral voices, as well as attack points created by marked changes of harmony and texture. He shows this line alongside other abating processes (in dynamics and registral pitch, for example) beneath the score to demonstrate quite convincingly how abating closure is often the result of the interaction of several parameters at once. This works fine in many Mahlerian instances, but I would like to suggest in the following analysis that for some twentieth-century music it may not be insightful to represent rhythm as a single plane of attack points.

The ending of Edgard Varèse's *Déserts* (1950-4) exhibits a consummate sense of pacing, and also contains an unprecedented instruction for the conductor to conduct the final 7/4 measure in its entirety, even though most of it is silent (Ligeti also does this in a more extended fashion in his *Ramifications*). In analysing the rhythmic abatement of this ending it is not particularly revealing to provide a rhythmic profile that combines the attack points and durations of each part, in the fashion of Hopkins's analyses of compound duration in Mahler. For one thing, Varèse's sense of rhythmic motion is far removed from nineteenth-century conventions of metre and rhythmic grouping. The very notion of reducing rhythmic activity to a single compound rhythmic line (a sum total of the rhythms of different parts) ignores the spatial attitude to composition extolled by Varèse, in which different sound masses converge and interact. Rather, it is necessary to adopt a stance that takes account of these different sound masses as distinct textural strata, as Edward Cone's influential 'Progress of a Method' article does for Stravinsky (Cone 1962). This kind of stratification of texture can easily be grasped during the last 15 bars of *Déserts*, in which there are three distinct textural components (*x, y* and *z* in Ex 2.0). The behaviour of these strata in terms of their duration and interval of recurrence is central to the impression of abating closure generated by Varèse. The first stratum (*x*) is a piquant chord of adjacent semitones that spreads upwards in typical Varèsian fashion at bb.311-12, and again at bb.313-14, each time terminating in all parts at once, apart from in the horn part, which straddles both chordal statements. This horn part then becomes a textural

stratum in its own right[3] (z), always remaining on the same E♭4, reinforced on three occasions by a very soft low suspended cymbal, whose tremolo occupies exactly the same duration as the horn (and thus merits being considered as part of the same stratum). Only once is this pitch given to another combination of instruments (piano, bass clarinet and trombone). Counting its initial appearance during x, this note is sounded eight times over the course of this final unit of the work, and the pattern of durations it creates are revealing: (in quavers) 10, 9, 8, 7, 5, 6, 9, 17. This is represented in a spatial format in Ex 2.0; the E♭4 is represented by the cross-hatch rectangles in the lower part of the example (z) and the entire diagram is proportional with the durations of the score. It can also be seen from this diagram that the interval between each statement of z follows a similar pattern to its durations, at first compressing and then augmenting time intervals: 13, 13, 13, 7, 0, 7, 9, 14. The shortest interval of repetition coincides with the shortest duration. The final expansion of durations (or what Hopkins calls 'cumulative durations') gives the impression of abatement here. When the rhythmic activity of the score is merely rendered into a single line of attack points the essence of this abatement – the compression (intensification) and expansion (abatement) of a specific stratum - is obscured by other musical notes and rhythms that constitute the minutiae of this design. By contrast, the diagram in Ex 2.0 gives a much more accurate spatial representation of how textural strata can be organised to produce abatement. The key to this abatement is not the distribution of attack points, but the more large-scale rhythm with which strata are expanded and reiterated.

Glancing at Ex 2.0 it is easy to appreciate how the behaviour of the z stratum enacts closure, first by speeding up the rate of change and then by slowing it down. However, this layer is cut across by the chordal layer represented by the upper squares of the diagram. These strata (x and y) never precisely coincide with z, but have a life of their own that in some ways runs counter to the procedure enacted by z because their durations decrease (16, 12, 7, 7, 7). However, the gap between the paired chords ($x1/x2$ and $y1/y2$) does increase, as does the overall distance between the x and y groups, and between $y2$ and $y3$. The fact that $y2$ and $y3$ are harmonically identical and of equal duration gives a tolling sense of repetition (as does the insistent repetition of E♭4 in the z stratum) that also helps to augur the ending. Not only this, but the

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[3] Cone uses the term 'divergence' to describe this procedure, whereby what was initially a single texture splits off into two or more independent strata (Cone 1962: 22).

shortening of chordal statements also coincides with a reduced level of harmonic intensity, which is reinforced by the reduction of dissonance from the x chord (3 semitones) to the y chord (1 semitone). Ingeniously, when the E♭ is slotted in to either of these chords it creates an additional semitone conflict, so that when the chords disappear the remaining E♭4 has an additional air of calm. With regard to Hopkins's definition of registral line, this E♭4 is also restful because of its intermediate register, and although it does not descend as such, it does contrast strongly with the registral extremes explored elsewhere in the work.

It can be seen from Ex 2.0 that silence occurs when neither stratum is in operation, and that the durations of these silences also become shorter and then longer (4, 3, 5 and 13 quavers) in emulation of the pattern of organisation found in the z stratum. Thus, the curious conducted silence at the very end effectively extends this tendency towards durational increase to the stratum of silence itself! It also adds to the process of durational abatement enacted by the z stratum: although, given the conductor's continuing activity, we might well be expecting another statement of z at the end, in fact the conductor simply stops. This results in a total of 30 quaver beats between the onset of the last E♭ (final z stratum) and the end itself (where the conductor stops) as shown at the end of Ex 2.0. This is the longest spatial duration in the piece and constitutes Varèse's own highly individualistic contribution to the practice of ending a work with a very long note, if we permit the conducted silence itself to represent musical activity of a sort. Rather than being a superficial joke to fool the audience (*Déserts* being the least funny of any of Varèse's music) the final silence is part of the durational architecture of abating closure.

Climactic Endings and Stasis

Unsurprisingly, the twentieth century raises many challenges to intuitive assumptions about the relationship between abatement and closure. For example, it is a little perplexing, in the light of Hopkins's synonymous use of 'abatement' and 'closure', that Mahler's music often ends with a bang, that is, at the height of intensification (the First, Second, Third, Fifth, Seventh and Eighth Symphonies all end with maximum dynamic intensity). We must then beware, for abating

closure is contradicted by the many endings which tend in the opposite direction - towards extreme activity – most obviously in the allegro finale handed down from tradition. Leonard Meyer observes:

> …on the whole, the slowing down which brings a piece of music to its close is not a slowing down in the physical tempo but a slowing down of the rate of musical process. That is, though the tones may fly by with great rapidity, the melodic, harmonic, and rhythmic changes which create a sense of tendency are brought to a standstill. The music no longer progresses; it marks time; it is static. (Meyer 1956: 140) [4]

In Bartók's Fifth Quartet, for example, the final movement has the overt characteristics of a Classical finale: it is in 2/4 time, '*Allegro vivace*', with a rondo-cum sonata form. As we approach the ending the notes do indeed 'fly by with great rapidity', as Meyer puts it, reaching the fastest tempo in the entire finale (and the fastest in the work) just a couple of pages before the end (minim=168). The music really has reached the edge of Dionysian frenzy, as far removed from stereotypical abating closure as the endings of Stravinsky's *Le Sacre,* Ravel's *Daphnis et Chloë*, or any other demonically possessed ending one cares to name. And yet, as with those endings, there is Apollonian control every step of the way. Admittedly, what finally brings the music to a standstill is a change of gear to about two thirds of the speed for the last four bars, thus lending credence to the abatement theory on one level. But this would sound crass and artificial if it were not that the music had already paved the way for closure. What creates the impending sense of an ending here is the slowed *rate of change* relative to the preceding bulk of the movement. Ex 2.1 shows the final page of the score, and although there is a gradual dynamic intensification throughout, this is countered by several static ingredients: bb.810-23 are based around an unchanging pitch collection, and a stubbornly dissonant D♯/E pedal point in the lowest parts. Also, this passage exhibits more overt motivic repetition than any other in the movement, with the descending C-B-A-G♯ motif heard ten times in succession

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[4] Reflecting upon this, the strata of *Déserts* might have been fashioned from material of a quick or loud nature, but the sense of abatement could still be imparted by the slowing 'hyperrhythm' of the strata themselves.

(Although this motif and its inversion are almost ubiquitous throughout the movement, they are never presented so many times at the same pitch, and with such breathless close repetition on the same instruments). Like a hamster in an exercise wheel the music spins away at 150 minims per minute but does not move anywhere. What is called for, then, is a broader category of abatement that refers to a slowing rate of change in order to accommodate endings that are dynamically and rhythmically quite intense but which still exhibit a type of closing behaviour based on abating principles. Here, although the mood of the music is 'intense' there is a sense that the intensity has reached a state of saturation, that it has ceased to develop, as if frozen in time.

There is a significant problem, however, in viewing static textures as indicative of closure because, far from creating a sensation of rest, stasis can actually generate tension through the desire for change. Meyer dubs this effect 'saturation' and remarks that it is bound up with the beliefs which the listener entertains as to the nature of aesthetic experience: 'Our expectation of change and our concomitant willingness to go along with the composer in this apparently meaningless repetition are also products of our belief in the purposefulness of art and the serious intentions, the integrity, of the composer. We believe that he will bring about a change' (Meyer 1956: 135). Clearly this statement is deeply problematic when applied to the aesthetics of musical minimalism, whether that be American minimalism or contemporary dance music. However, it does reflect the prejudices of the early generation of modernists like Bartók and Schoenberg, who enshrined the notion of 'development' as a given stylistic norm. Meyer's definition of saturation is also the role assigned by Schoenberg to 'liquidative' passages in both traditional and atonal music: 'The purpose of liquidation is to counteract the tendency toward unlimited extension. *Liquidation* consists in gradually eliminating characteristic features, until only uncharacteristic ones remain, which have very little in common with the basic motive' (Schoenberg 1967: 58). He goes on to explain that by eliminating thematic material, by reducing everything to background patterning, a static space is created on the one hand, and a desire for a new and eventful foreground on the other. It is important to remember that liquidation is most often used by Schoenberg to describe a state of languishing *within* the work or at the end of a phrase; it is rather less clear what the difference is between liquidation that happens in the middle of pieces, and that which happens at the end. Meyer points out that 'a repeated pattern at the end of a work

need not give rise to saturation, since at this point the listener understands…the significance of the repetition…[and] lack of forward motion is expected and desirable.' (Meyer 1956: 136) However, he does not attempt to explain at this point how it is 'the listener understands the significance of the repetition'. Such comprehension may rely on formal and generic cues, but equally these could be absent or uncertain in a progressive musical context. In the case of the last movement of Bartok's Fifth Quartet examined above, the liquidative passage is arrested by a sudden pause and followed by a slower motivic statement that inverts the scalar falling motif used by the liquidation itself, clarifying the ending with a kind of clinching utterance. This utterance brings about a reversal of the stasis in just the way Meyer's concept of 'saturation' describes, by bringing about a decisive change. Debussy does something very similar at the end of *Jeux*, where a floating whole-tone texture based on multiple ostinati is followed by a more incisive rhythmic phrase in unison, punctuated by a final cadence on the downbeat of the metre.

A further problem in assigning a closing function to stasis and liquidation in twentieth-century music is that these features become an increasingly common and normative stylistic element. Composers like Mahler, Sibelius, Debussy and Janáček (among others) are frequently cited as incorporating static techniques such as ostinati, unchanging pitch collections, long pedal points, repetition and slowly changing textures to create an effect of 'timelessness'. For those composers this technique often seems to be an allusion to eternity or nature, and such textures frequently alternate with other more goal-directed temporalities. However, particularly for later generations - among them Stravinsky, Messiaen, Varèse, Cage and the minimalist schools – stasis became exploited in its own right rather than being exceptional or a mere episodic contrast. This clearly creates a problem for the theoretical association between stasis and closure, since a more generalised level of stasis – a slow rate of change in parameters – throughout the work would make it more difficult to use stasis as an effective signal of the ending. In '*Voiles*' from the first book of Debussy's Preludes the use of an unchanging whole-tone collection throughout (the infamous six bars of pentatonicism excepted) *and* many other static features (pedal points and ostinati) calls for a particular exaggeration of stasis and abatement in order to signal the ending. The composer looks partly to the performer for this, writing for the last seven bars '*Très apaisé et très atténué jusqu'à la fin*' (very calm and weak all the way to the end), and introducing no less than four fermatas to reinforce this effect. The

element of close repetition at half-bar intervals, rather than the more leisurely repetition of two- and three-bar phrase units elsewhere in the work, adds to this, and as in Schoenberg's sense of the term 'liquidation', a developing sense of thematic contour is eliminated.

Thus, a concept of *extreme liquidation* – a kind of intense stasis beyond the normative level of stasis in the work – may help to explain how the sense of an ending can still be conveyed by abatement and liquidation even in contexts where stasis is already the dominant compositional mode. The idea of stasis can be conceived as relative rather than absolute, and in static contexts it could be argued that we are more sensitised to slight changes and thus also to forms of closure that reduce the level of activity in a more pronounced way. Alternatively, static sections may be rounded off by a sudden change, as with the clinching endings of Bartók's Fifth Quartet and Debussy's *Jeux*; this phenomenon has also been observed in connection with Varèse:

> Earlier the point was made that the sheer number of repetitions in a pitch static situation leads, seemingly inevitably, to an accumulation of tension that requires dispersal in some fashion, usually through subsequent rapid pitch development. Thus the placement of a pitch-static passage at the end of a section, or (especially) at the end of a work, would seem calculated to deny any sense of closure. Varèse, in fact, did not often use the stasis as termination... (Bernard 1987: 156)

Instead, Bernard utilises the concept of 'terminal modification' to indicate the way in which tension-generating static textures give way to sudden changes, which demarcate formal episodic boundaries, or indeed the final boundary of the work as it passes into silence[5]. This concept of 'terminal modification' is in fact highly pertinent to my analytical pursuit of the sense of an ending.

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[5] See the analysis of Varèse's *Density 21.5* later in this chapter, in which the static permutation of three pitches (C,E and D) is released into a directional upward ascent.

'One of the most effective ways to indicate the conclusion of a poem generated by an indefinitely extensible principle is simply to modify that principle at the end of the poem' (Herrnstein Smith 1968: 53). For example, where a poem is formally contrived such that each verse exhibits the same internal structure, the ending may be marked by a change of structure, a procedure that Herrnstein Smith dubs 'terminal modification'. The finale of Britten's Second String Quartet ('Chacony' – chaconne) provides an analogous musical example; the monophonic chaconne theme exhibits an unusual modulating structure (from a B♭-centre to a C-centre). The final variation returns to the original unison theme, but interposes no less than 16 root position C-major triads between the notes of the actual theme itself, thickly instrumented by double-stopping (Ex 2.2). This creates a grating bitonal effect until the C-based second half of the theme arrives and the triad comes into clear focus with the theme itself as it lands on C. Britten adds five incisive repetitions of this C-major triad in a Classical gesture of closure, and the otherwise stable nine-bar length of the chaconne and its variations is modified by these four extra bars, creating terminal modification in just the way Herrnstein Smith suggests in connection with poetry. In addition, the root-position major chords are a new element in the work (or at least, they are permitted only fleetingly before this[6]), as is the extreme number of repetitions they receive. These latter factors constitute perhaps more immediate forms of terminal modification than the alteration of the formal structure itself. Although the dynamic level is far from abating, the chordal repetitions also create an overriding abatement in the parameter of harmonic rhythm, showing yet another way in which a climactic ending may be integrated with the experience of stasis. Of course, the purity of this harmony is initially smudged by the melodic dissonances of the theme itself, but it is the stubborn insistence of the C-major triad, almost as if ignoring the theme, that creates so striking a sense of finality. The C chord is hammered home as the tonic of the work with a Beethovenian insistence so that closure is also generated on the tonal plane, and this allusion to familiar historical modes of closure adds another layer of

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[6] The only strongly articulated major triad elsewhere in the movement is at the beginning of the first violin's cadenza, where it is very brief but also loud. This triad is, however, 'blurred' by the B-C trill of the first violin, which continues afterwards to creates a sense of suspense rather than cadential release.

meaning to the overall sign of an ending. There is also of course the fact that we have returned so clearly to the theme, which has been increasingly veiled through the many variations, and this must be considered as an overriding formal factor of closure.

Together these transformations of structure and sound world signal closure by the act of doing something different (terminal modification). On one level there is something rather unexpected about the gesture of this ending as it suddenly seeks tonal refuge from the seemingly inexhaustible modal and chromatic riches of the composer's imagination. Such a form of modification that involves many parameters and layers of meaning perhaps deserves to be called 'terminal *transformation*', although the difference between this and terminal modification is only one of degree. The listener is here presented with a range of cues that the piece has reached its destined point of repose by the exaggeration of static features, and by allusion to tonal practice. However, the irony remains that while we are aware that the piece is reaching its conclusion, it takes a few hearings to predict exactly which of the last seven chords following the arrival of the final C of the theme itself is in fact the final one, since each is of the same duration. Moreover, the last four chords are all equidistant in terms of rhythm, with no particular cues to draw special attention to the last chord (such as a substantial increase in length). Only those who have been attentively counting the slow 3/2 metre will realise without a score that the final chord completes a hemiola (and one that evolves over about ten seconds!). The performers themselves must play a key role in confirming the sense of an ending or, on the contrary, they might take delight in maintaining a sense of suspense after the final chord (as they are perhaps invited to do by Britten's enigmatic pause marks following the last chord). These ambiguities concerning the ending hardly undermine the overall sense of closure outlined in the foregoing commentary, since creating the sense of an ending is about more than simply conveying the exact moment when a piece is over. Nevertheless, from this one musical example a veritable Pandora's box of technical and aesthetic issues concerning closure and endings has been unleashed.

The poetic concept of terminal modification is relevant not only to repeating verse forms but also to more formally complex poems and rhetorical forms of address (and by analogy its relevance for music goes far beyond the variation movement or humble chaconne). Think of the way in which Shakespeare nearly always signals the end of an important scene or act with a rhyming couplet, but note that this type of rhyme is reserved only for this purpose. In terms of semiotics there is an important relation between the sign's effectiveness and its economical functional usage (for instance, commas and full stops are not interchangeable, and if they were this thesis would be unreadable!). Similarly, there are many pieces of music that reserve certain gestures entirely for the ending. One familiar example is the Tierce-de-Picardie in Baroque music, in which the transformation from minor to major in the final tonic chord brings about an abrupt change of harmonic colour that serves to confirm the ending. It could also be argued that this is a form of harmonic abatement, at least in a cultural context where the major key is considered more relaxed than the minor. Since music is rather more flexible than grammar, however, certain gestures and signs may occur at the end which, while they are not unique to the piece as a whole, represent distinct exaggerations or extremes (as in Britten's 'Chacony' movement). Indeed, terminal modification sometimes occurs in the form of an exaggerated abatement, enhancing the psychological *sense* of an ending with a distinctive *sign* of an ending. A traditional example of this occurs in the contemporary performance practice of baroque endings, in which a brief de-acceleration and/or lengthening of the final chord provides both a sense of abatement *and* a type of terminal modification, since the relatively metronomic sense of pulse is broken only at the end. Such terminal modification of tempo is common in other diverse repertories that also rely on an otherwise stable sense of pulse, including jazz, pop and rock music, as well as music from many different folk traditions. In the jazz tradition there is strong evidence of such terminal transformations based on the sudden cessation of activity:

> Even though it is a very common ending, a fermata on the final chord or note
> is often a good choice for an ending...In *Giant Steps*, as recorded by John
> Coltrane, a fermata on the last note of the melody provides a greatly needed

point of rest at the end of a demanding piece...A fermata on the last note of the melody may be followed by other fermatas. *Autumn Leaves* by McCoy Tyner uses a fermata on the last note of the melody, which is followed by another fermata that actually ends the tune (Rinzler 1989: 22-23)[7].

Another example where a final pause is used to striking effect as a terminal transformation is Berio's *Sequenza I* for solo flute. Crucial to the mercurial fluidity of the piece is the style of rhythmic notation adopted, in which barlines are abandoned along with hierarchic rhythmic notation (i.e. quavers, crotchets minims etc.). Instead, the physical gaps between the notes on the page suggest approximate note lengths, and grace-notes, quavers and unstemmed note heads are used to indicate respectively three broad classes of duration within this scheme, from very rapid to long. A regular metronomic pulse is indicated in the score only as a guideline for the performer, not something that can be felt at any point by the listener[8]. The composer himself tells us that

> The temporal, dynamic, pitch and morphological dimensions of the piece are characterised by maximum, medium and minimum levels of tension...The extreme density of the melodic writing is ensured by the fact that at any one time *at least* two of the four dimensions that I've described are at the maximum level of tension (Berio 1985: 99).

Together with the absence of obvious recurring motifs or periodic phrasing, this generates a volatile musical discourse in which the listener can never seem to hear what lies around the corner. Obvious points of internal closure are avoided because abatement is unlikely to occur in several parameters at once (since rhythm, dynamics and pitch are never supposed to be at the minimum level of tension all at once). However, the final stave is unique in terms of score layout since there are only two notes displayed, in contrast to the fairly densely packed appearance of nearly every other stave (Ex 2.3). The ending presents a very clear abating gesture - a long-held

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[7] We will also see in Chapter Four how such pauses are used slightly before the ending as rhetorical rupturing devices that create discontinuity as anticipation of the ending itself.
[8] This pulse is indicated by the vertical dashes intersecting the top line of the stave, around which the performer fits the given notes.

C#4 with an attendant general pause, dying away from *pp* to *pppp* – with the
appearance of the score suggesting that it should be the longest note of the work.
Although there are other fairly long notes in the work, these are always in a higher
register throughout the latter part of the piece, whereas the final note is nearly the
lowest on the flute (recalling Hopkin's definition of low register as a form of
abatement)[9]. There is a twist in the tail of the ending, however, because this very long
note is followed by a staccato grace note C5 - a final glimmer of the mischievous
spirit that seems to pervade the work.[10] Nevertheless, the listener can hardly miss the
implications of abatement created over the last two staves; the spacing of the beamed
group of notes in the penultimate stanza together with the following grace-note pair
implies a gradual deceleration in the rate of events, and the final stasis created by the
penultimate note acts as a kind of terminal modification. A similar approach occurs
in *Sequenza VI* for solo viola, in which the final dyad is marked *pppp* and has a
fermata over it.

In the case of *Sequenza VIII* for solo violin, a fermata is accompanied by a
durational indication of ten seconds, creating by far the longest sustained dyad in the
entire work (Ex 2.4). Even before this the listener is given a cue that the work is
reaching its end by an increase in stasis, projected by repeated notes (seven B♮s, the
last five of which are equal crotchets, followed by five beats on A and a further six
beats on an A♭/B♭ dyad). The presence of exact pitch repetition and cumulative
durations here creates a clear sense of abatement, with the dynamic level also moving
from *p* to *pp* to *ppp* (although there are expressive dynamic nuances embedded within
this pattern). While repetition can be found elsewhere in the work – especially in the
ostinato figures of the central section – it is never so blatant as the single repeated
notes at the end (except during the opening, the formal rhyme between beginning and
end thereby adding another dimension to closure in this work). These endings thus
confirm the importance of saturation/liquidation in the form of repetition and lack of
development, but terminal modification surely aids the listener in interpreting this
saturation as a sign of the ending. A similar approach to final lengthening occurs in
the ending of '*Le merle bleu*' (blue rock thrush) from book one of Messiaen's

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[9] The closest Berio comes to using such a low pitch with a long duration and fading dynamic is the
G♯4 on the second stave of the second page, and in that case its position early on in the work mitigates
against any closural expectations.
[10] This is very similar to the gesture at the end of Stockhausen's *Gruppen* - see Chapter Three.

Catalogue d'oiseaux. This ending is characterised by a wonderfully static sequence of pentatonic pianissimo chords, each of equal duration. This gesture has in fact been heard many times during the piece, but it has never been augmented to such slow tempo, and the effect is a clear form of terminal modification (a very similar gesture is used at the end of the next piece, '*Le traquet stapazin*', using single notes rather than chords).

Abatement and stasis are thus often invoked not only to produce relaxation *per se* but to create signals that stand out in a particular context in which they otherwise play little role – that is, as forms of terminal modification. Schoenberg's *Pierrot Lunaire* is a veritable dictionary of such devices, and what probably prompted the composer to craft each of the twenty-one endings in this cycle so delicately was the need to maintain a sense of continuity between one movement and the next, to signal the end of each song without recourse to lengthy and therefore disruptive pauses. He frequently instructs the performers to go on without pause to the next song, yet the division between each number is rarely ambiguous. For example, the ending of the first song simply slows down, but this description hardly does justice to the rhetorical impetus of the device on this occasion; the unearthly ostinato that dominates the movement remains at a constant speed throughout, but is subjected to a protracted deceleration at the end that calls to mind images of a wheel losing momentum. Despite the fact that we have heard the ostinato many times, it becomes increasingly estranged and unfamiliar the slower it gets, creating a striking form of terminal transformation. Songs two to five develop a language of their own to communicate the sense of an ending, based around repetition; in particular, the second, third and fifth songs use immediate repetitions of the same note or chords to end. These repetitions are rhythmically equidistant in song number three, while songs two and five employ cumulative durations. The fourth song uses three repetitions at exact half-bar intervals in the instrumental parts as an effective signal of the ending. It is remarkable how definitively these gestures mark the endings, and at the same time how difficult it is to translate into words the possible reasons, technical or aesthetic, for this effect. One thing is clear: Schoenberg's atonal style in this work rarely has recourse to the exact and immediate repetition of motifs (accompanimental ostinati excepted), far less single notes, so that once again it is the uniqueness of these gestures *and* their liquidative function that makes them excellent finalising techniques.

The dropping out of instruments or textural layers (what Hopkins terms an 'abatement of components') can be used to create a theatrical sense of terminal modification and abatement that operates as a visual gesture also. Think of the striking ending of Haydn's 'Farewell' Symphony No.45, for example. A similar protracted dropping out occurs at the end of Berg's *Lyric Suite*, as well as in the march that begins and ends Stravinsky's *Histoire du Soldat*; in the latter it takes the form of a codetta for percussion alone, the disappearance of the rest of the ensemble creating a striking contrast. In the first movement ('*Liturgie de cristal*') of Messiaen's *Quartet for the End of Time* there is a very subtle terminal modification based on this device. The movement uses a rigid isometric formula for the piano and cello, which is played at the same delicate dynamic and within a similar register throughout to create a sense of timelessness. The violin and clarinet are free from this system, and cut across its statuesque rhythms with their birdsong-like improvisations, yet these too remain dynamically static. The overall effect is of something that marks time in a rather beautiful way but remains fundamentally the same, without future goals, like a precious jewel revolving on its display table. The violin and clarinet drop out in the penultimate bar; significantly, nowhere else in the movement are both instruments absent for more than a crotchet, so this is an example in which the abatement is designed to sound quite unique in the context of the movement as a whole, thus functioning also as a form of terminal transformation. Although the two instruments rejoin the ensemble in the final bar, they each play a motivic fragment at *ppp* dynamic, and this fragmentation and dynamic abatement serves to underline the abatement. Such unique alteration of parameters that otherwise remain constant draws attention to the end and marks it out as different and distinct, without sounding discontinuous or abrupt.

The very idea of closure might be thought out of the question in connection with Boulez's Third Piano Sonata (1957-8) due to aleatorical elements in the determination of the form, and its moment-form aesthetics, and yet there is a clear appeal to both abatement and terminal modification as a signal of completion. Of the two published movements[11] either may be played first or last in a given performance, according to the whim of the performer. The movement '*Formant 2: Trope*', which is divided into four separate sections, is presented in a spiral bound score that can be opened at any

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[11] There are five movements in all, the others awaiting revision. The two extant movements are entitled '*Formante 2: Trope*' and '*Formant 3: Constellation-miroir*'.

section and then played cyclically until all other sections have been played. As an added complication the section entitled *'Commentaire'* has two possible positions within the cyclical structure, only one of which must be chosen for a given performance, giving a total of eight possible formal permutations overall. In this scheme any of the named sections can provide the final part of the form. Written as something of an unexpected response to Cage's aleatoric practices, this sonata also engages with 'moment-form' (in Stockhausen's sense[12]): there is no regular accentuation of musical time via metrical rhythm, nor is there even any sense of pulse, though paradoxically the rhythm is meticulously notated in order to achieve this arhythmic effect. Obvious motivic repetitions are avoided, and the music is written on three staves throughout in order to accommodate the frequent and wild shifts of register that, together with volatile dynamic changes, prevent the tendency towards continuity in any parameter. In other words the musical language of the work is, from the start, 'anticlosural', as with Berio's *Sequenza I.*

Despite this, there is still a sense in which the possible endings of *'Formant 2: Trope'* are differentiated and marked out. For each of the four sections that comprise this movement Boulez provides two alternative performance directions according to whether the end of the section happens to constitute the cyclical completion of *'Formant 2'* or not. If *'Commentaire'* comes at the end then the performer is told to leave the final sonority sounding for a very long time, releasing the pedal very slowly so that the 'suffocation' of the strings can be heard. If *'Texte'* is to be the final section then the performer is to hurry (*presser*) a little; and in *'Glose'* the tempo at the end should be slightly retarding. By contrast, if a section is to continue into the next one, Boulez writes 'link without pause' in a manner redolent of Beethoven's interlinking of movements with the direction *'attaca'.* Thus, terminal modification of tempo is used to impart a sense of finality if one of the sections occurs at the end of the movement.

I have so far omitted to say that the remaining movement, *'Parenthesis'*, rather as its title suggests, is ambivalent with regard to its ending and will 'link without pause' whether it constitutes the final section or not (but 'link to' what in the case of an

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[12] 'Forms of which an instant must not be a little bit of a temporal line, nor a moment a particle of a measured duration, but in which the concentration on the Now – every Now – makes as it were vertical sections which penetrate across a horizontal portrayal of time in a state of timelessness, which I call Eternity: an Eternity which does not begin at the end of time, but which is attainable in each moment' (Stockhausen 1963: 198-99, translated in Harvey 1975: 85).

ending?). Perhaps this reveals its parenthetical function, although the possibility that the work will end with this parenthetical movement presents something of an oxymoron: how can the movement be parenthetical with regard to the formal structure if it appears at the beginning or end[13]? On closer inspection this movement ends with a long held G# in the bass, *una corda*, which itself has terminal connotations of abatement and 'dying away'[14], somewhat neutralising the indifference of Boulez's performance instructions (it is also the same note in every sense - register, length, dynamic marking, *una corda* - with which the section began, and as such represents a return to initial conditions that introduces the possibility for reading the rest of '*Parenthesis*' as a parenthetical interpolation between this identical beginning and ending).

In the listener's reality these terminal modifications come across in an understated way, since the musical surface is so haunted by the perpetual apocalypse of its own moment-form-like gestures, although the performer might certainly convey this sense of an ending by gestural means – at which Boulez's directions seem to hint – that cannot be captured by a recording. In some ways this type of control denies the open aesthetic of the work as a whole and its aleatoric construction. Despite the terse and fragmentary surface of '*Formant 2*', the performance directions for its possible endings import familiar closural gestures - terminal modifications of tempo and abatement - that seem to place the work back in the world of terminating conventions, albeit in a subtle way.

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[13] The revoking of traditional assumptions about the linear order of discourse in the Third Sonata parallels Derrida's *Archive Fever* (Derrida 1996), whose first three chapters all bear titles that are synonymous with the notion of an introduction ('Note', 'Exergue', 'Preamble' and 'Foreword'), and whose opening line renounces time: 'Let us not begin at the beginning, nor even at the archive'. In Boulez's music the implication of the titles of each movement of '*Formant 2*' is similarly one in which each movement is a commentary, gloss, text or parenthesis of the others, and there is no central exposition or established rhetorical sequence (in terms of primary, secondary, developmental and concluding material). Rather, the serial thematic resources inform every moment of the structure, and each movement is considered 'formative' (in the sense of becoming) rather than already formed.
[14] This is very similar to the gesture at the end of '*Formant 3: Constellation-Mirroir*)', which may also constitute the final movement of the piece as a whole in its present published form.

'Textural unification' is a term I have devised to categorise endings that, through a diversity of means, achieve an effect similar to abatement but one that needs a broader phenomenological definition; in terms of a spatial analogy, textural unification is the condensation of musical space and events into a singular horizon, static block or vanishing point. One of the simplest examples of this phenomenon is the momentary interchange from polyphony to homophony at cadence points in much contrapuntal music from the Renaissance to the late Baroque. There is a real sense of satisfaction as the garrulous points of imitation dovetail into the cadence, and a sense of rounding-off is achieved (one can also sense this at the cadence points of fugues). This sensation might be described as being similar to that of reading a sentence and arriving at the full stop, the point at which the tensions of meaning and syntax reach a temporary point of clarification. There are several aspects of this gesture that are relevant to this discussion of closure: firstly, there is often a decrease in overlapping rhythmic activity as the parts come together in a homophonic way; secondly, this often results in an iambic upbeat-downbeat rhythm, with the homophonic chord of resolution placed firmly on the downbeat. Frequently this motion fixes the modal or tonal centre and could be considered equivalent to the 'vanishing point' mentioned above, with the modal lines themselves functioning as the framework or 'perspective' that draws towards such vanishing points.

The way in which several overlapping rhythms are fused into a single homophonic gesture is particularly salient for the definition of the term 'cadence' in the twentieth century. The fifth piece from Schoenberg's enigmatic *Sechs kleine Klavierstücke* ends in this way with two chords over a tied bass note (Ex 2.5). Note that although both chords are dissonant and carry no associations of tonal or modal syntax, they do employ semitonal voice leading, and such motion by proximity has been found to create a greater impression of stability than movement by leaps in atonal contexts (Dibben 1999). This cadential gesture also represents a clear case of terminal transformation, since there are no other homophonic cadential gestures in the piece (bb.7-8 exhibit a much looser kind of homophony, in which the inner voices play a decorative contrapuntal role). In addition, there is marked abatement in a number of parameters in the phrase that leads up to the final cadence - a gradual ritardando,

pronounced diminuendo, and massive descent of register. Britten's Third Quartet ends with a similarly iconic cadence, but one in which the only palpable cadential feature is the act of textural unification and stepwise voice leading, the harmony being far from cadential in the traditional sense (Ex 2.6). Once again an exaggerated sense of abatement is produced by the rallentando, decrescendo and fermata.

The relationship between the unification of texture and closure is applicable in circumstances beyond those that merely point to traditional cadential gestures. There are many instances where dense polyphonic works end with a simplification of rhythmic texture, either by using all the instruments in rhythmic unison, or by presenting a less chaotic rhythmic texture that is more unified than earlier material. I refer the reader forward to a number of examples occurring later in this thesis[15]. As a further example, the second movement of Berg's *Lyric Suite* (*'Andante amoroso'*), while it does not end with a cadence, utilises a sequence of descending chords (Ex 2.7). This is the only completely homorhythmic passage in a movement that is otherwise intricately polyphonic[16]. Even the material upon which the ending is based (in bb.13-15) is broken up by the cello's pizzicato in its earlier appearance. By contrast, at the end it is permitted to glide down in a continuous procession of 'unified' chords whose scalic descent also corresponds to Hopkin's notion of abatement in terms of registral line.

Berg also faced a problem that has direct relevance to this discussion of textural unification when he came to weave the orchestral episodes of his *Lulu Suite* into the continuous fabric of the opera itself. The orchestral pieces were composed first, being intended to advertise the forthcoming opera, but each piece in the suite feels relatively complete, something that Berg wanted to avoid for those pieces which were to be absorbed into the middle of the dramatic action. For example, the exquisite third piece from the suite - *'Lied der Lulu'*- begins and ends with a sequence of three perfect fifths played on the vibraphone (in retrograde at the end), effectively a framing device (Ex 2.8). In order to weave this piece into the through-composed fabric of the opera Berg simply got rid of this frame. Ex 2.9 shows the operatic passage corresponding to the end of the movement from the suite: the final solo vibraphone of the suite is missing; instead, the fifths on E/B and F#/C# formerly played by the

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[15] See the cadences of Lutoslawski's First Symphony and Bartók's Fourth Quartet (Chapter Seven) as well also the endings of Varèse's *Amériques* and Sibelius's Fifth Symphony (Chapter Eight).

[16] Even its simplest textures involve rhythmic syncopations and dislocations between the melodic and accompanying voices.

vibraphone are now strongly emphasised by instrumental pairs (violas with cellos, and two trombones) but are abruptly superimposed with each other rather than played in sequence. The woodwind, instead of dying away on long notes, merge into rapid loud figures that provide connectives to the next 'Tempo furioso' section. Unlike the fading mystery of the orchestral version, Berg creates the sensation of a sudden lurch across a formal boundary by an increase in tempo and dynamics, catapulting the listener into the next section of the opera. Moreover, he avoids the neat unification of texture of the original by allowing the voices to collide and develop rather than to freeze into a sustained harmonic haze, as they do in the version from the suite.

The unification of conflicting rhythms into a monorhythmic or simpler rhythmic entity appears as a frequent ending scenario; the end of the third movement of Ligeti's Second String Quartet (1968) is a prime example of this (Ex 2.10). From bar 38 onwards the instruments are locked into the kind of complex repeated-note cross rhythms of which Ligeti is so fond. Several points stand out in terms of abatement: first, the overall speed of these repetitions gradually reduces from an initial tuplet group of 13 to a final steady group of 9 (occupying the same time span). This certainly provides a reduction in the rate of events, but cannot precisely be termed a slowing down of pulse since the notional tactus continues to be articulated at the same speed by the periodic synchronisation of the different cross rhythms (not that this is particularly accented or marked out for the listener's attention). Secondly, these cross rhythms, which are initially out of phase, gradually become united into a single rhythm; the cross-rhythmic texture starts at bar 38 with four simultaneous cross rhythms, reduced to three at bar 39, two at the end of bar 41, and final unification from the second half of bar 42 onwards. In summary, two features brought to our attention by Ligeti's treatment of cross rhythms can be categorised in terms of abating closure: the number of different tuplet groupings that are present (as an indication of tension), and the overall decrease in the tuplet frequency as a factor showing the slowing rate of events. The final touch is added by the progressive dropping out of each instrument (complete with *morendo* and decrescendo), what Hopkins would call an abatement of components. Exactly the same cross-rhythmic procedure occurs at the end of Ligeti's *Ramifications*, though it is compressed into a much smaller time span: three simultaneous repeated-note groupings (quintuplets, sextuplets and septuplets) are merged first into just two, and then into one. At the moment at which the groupings are fused into one the composer is very specific in the score, writing

'from here on absolutely simultaneously in all instruments' to underline the effect of synchronisation. In both the movement from the Second String Quartet and in *Ramifications* the cross-rhythmic textures are synchronised fully only at the end of the movement/work, creating terminal modification in the form of textural unification.

Terminal Modification and Climactic Movements

For works that have climactic endings the composer must turn to gestures other than abatement as a means of signalling the end. In addition to stasis (as pointed out earlier in this chapter) and/or textural unification, this can be achieved through other types of terminal modification. In fact, the focus of that transformation may well be the climax itself, and there are instances too numerous to mention of works that reserve their most powerful climaxes for the end of the composition (for a discussion of climactic endings see Chapter Eight). Sustained final climaxes in extrovert orchestral and solo works appear to reach saturation point, pushing virtuosic intensity to the limit (think only of Stravinsky's *Le Sacre*). This is also the prevailing dynamic in much of the traditional music of Southeast Asia: in the North Indian classical tradition, for example, there is usually a gradual increase in tempo throughout the performance in the traditional sequence of *alap, jod* and *jhala*. In the case of the North Indian tradition, however, the final climax is usually superseded (after the rhythmic cadence) by a short passage in which the tabla player drops out, the sense of pulse is lost, and the soloist returns through various notes of the rag (melodic mode) to rest on a scale degree that is consonant with the ongoing accompanimental drone (usually the tonic, third or fifth degree). Here is a prime example where abatement in the parameters of consonance and tempo act as a form of pronounced terminal modification. Such sudden tailing off is also witnessed as a means of producing abatement in climactic Western music. Hopkins observes that one form of closure is created by a passage 'that builds in tension until reaching a point of reversal, whereupon stability and rest are achieved – that is, an intensification that builds to a climax and then quickly (perhaps immediately) reaches repose.' (Hopkins 1990: 8).

In loud, fast or climax-oriented movements such trailing off may be prolonged into a final '*morendo*' coda, where the latter constitutes abatement writ large into a final formal block, providing a terminal transformation of the movement's character. The

clearly differentiated coda of the finale of Sibelius's Fourth Symphony provides an example of this, as does the end of Lutoslawski's Second Symphony (both are considered in more detail in Chapter Eight). Another example is the last few pages of Varèse's *Déserts* analysed earlier, whose dynamic (between *p* and *pppp*) contrasts strongly with the dynamic explosions that flare up throughout the fourth and final episode of the work. A further example occurs in the third movement of Vaughan Williams' Second Symphony. Here the contrast is maximised by the fact that the movement is a light and lively scherzo, which is suddenly interrupted towards the end by slow-movement-like brooding strings that eventually bring the movement to a close with a protracted minor chord. The composer loosely integrates a fragment of the scherzo figuration into this texture, but the dislocation of mood is obvious and produces an eerie terminal transformation. Shostakovich does something very similar in the second movement of his Third Quartet, where the prevailing *perpetuum mobile* is transformed by a drawn-out final triad. This is echoed in the finale by a final chord that seems to last forever.

Terminal Modification, Climax and Register

If final gestures of abatement tend towards the infinitely slow and quiet, the same mechanism underlies certain climactic endings in reverse, so that both are what we might call 'gestures to infinity'. Such gestures lead occasionally to an exploration of registral extremes. To delve briefly into nineteenth-century repertoire, witness for example the extraordinary final gesture of Chopin's Prelude Op.28 No.24, which has a special role since it serves to bring the entire cycle of preludes to a spectacular close. The composer swoops from a very high D7 to a cavernous D1, and what is rather wonderful about the cascade of grace notes that links these two points is that it is not merely tacked on to give a final bravura touch, but is thematically justified by similar cascades that previously adorned the melody of the piece. Although the right hand has explored higher notes than the D7 that initiates the final swoop, it is the compass of this final gesture, spanning seven octaves, that marks it out as different from any other passage. This situation also arises in Varèse's *Density 21.5*, which ends with the reverse of this process in terms of register, but to similar climactic effect (Ex 2.11). Varèse's final gesture rises from the lowest note of the flute, C4, to B6

almost three octaves above, paralleled by a crescendo to triple forte, and durational abatement in the form of gradually increasing note lengths (Hopkins's 'cumulative durations'). Although the flute earlier explores a higher pitch, D7 (bb.45-50), it is the maximal span of the final ascent that creates a gesture to infinity, and this in turn represents the culmination of rising tendencies that distinguish the melodic motion of this piece. The sheer extremity of timbre in this case provides a signal that the piece is about to end (as does the almost unplayable high F7 in the flute part close to the end of Boulez's Sonatine for Flute and Piano, for example).

Another subtler element of terminal transformation in *Density 21.5* is the sudden appearance in the final six bars of a new interval class, the major third. There are no less than six instances of this interval in the final six bars, as shown in Ex 2.11. By contrast, there is only one such interval in the rest of the piece (b.40, E♭-B♮) and this is notated as a diminished fourth rather than a major third, as well as being understated because the B is played in a quiet staccato. In fact, Varèse is eager to underplay the major third in the rest of the piece, avoiding even the impression of a major third by refraining from scalic motion through two major seconds (this is exactly how one of the thirds is identified in Ex 2.11). Although this might sound like a rather dry intellectual matter, the presence of major thirds does in fact alter the whole colour of the melody towards the end (analogous to the change from minor to major in the tonal *Tierce de Picardie* ending). The presence of such terminal transformation in the approach to intervals has troubled the analyst Jonathan Bernard, who expressed perplexity at the discontinuity of this ending with the motivic logic of what precedes it, where otherwise 'the materials in use have been rigorously restricted throughout' (Bernard 1987: 231). But he does offer an apposite aesthetic solution to this problem:

> Why does Density 21.5 end this way? Considered from one standpoint, the disjunction represented by the final measures is mysterious – and perhaps ultimately inexplicable...Like other Varèse endings, the purpose of this final ascent is not to close off by emphasising the limits of the medium, not to reach a climax by neatly summing up, but to suggest the limitless possibilities of musical space. Varèse's phrase 'open rather than bounded' is nowhere more appropriate. Like other musical compositions, Density 21.5 must end

somewhere, but the 'journey into space' may go on, in however a figurative sense. (Bernard, 231-232)

Varèse's *Poème Électronique* also ends in this way: what we might call the final gesture takes up the last 20 seconds of the work and is by far the loudest and densest section of a work that is surprisingly sparse in its textures (given the 150 speakers that were used in the first performance). This alone gives a feeling of climax, a climax that is much more sustained than the short bursts of intensity that arise now and again during the course of the work. The dominating sound during these last twenty seconds is a kind of electronic realisation of the parabolic effect that Varèse was so fond of generating with sirens in his orchestral works. Moreover, the electronic version of this sound has the advantage that it does not need to descend after it has ascended, unlike its mechanical counterpart. This allows Varèse to create a climactic ending in the form of an upward glissando that reaches its peak and stays there until it is suddenly cut off[17]. So here is an electronic realisation of the registral ascent witnessed in *Density 21.5*, where the same directional tendency (which might here be designated in terms of rising pitch, volume and timbral intensity) moves along a single axis to its extreme position, or at least as extreme as the sound-producing medium will allow. The attendant sound effects superimposed on this climax add an apocalyptic dimension, appropriate given the images of atomic bombs and mushroom clouds that accompanied the original performance of the piece, and they become progressively louder and more frequent towards the end. Nevertheless, these sounds all disappear during the last three seconds, leaving only the oscillator tone at the height of its ascent. This sudden disappearance of the other voices is important, because it adds a final sign of termination (in the form of terminal modification) to the apocalyptic tendencies of the last 20 seconds.

The figurative 'journey into space' or 'gesture to infinity' is indeed a common twentieth-century solution to the problem of ending, either in the form of prolonged abatements that trail off into nothingness – such as the ending of Mahler's *Das Lied von die Erde* - or registral ascents or decents that seem to reach forever into the depths or up into the stratosphere, beyond the range of human hearing. Rather than offering

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[17] Actually, the situation is more complex than this, in that a descending siren develops beneath the ascending one, while the latter also diverges into two at one point, but eventually these offshoots are cut off to leave only the original siren on its high note, so that the overall trajectory of the passage is as stated.

a clear stopping point or gravitating towards a tonic or note centre these endings suggest a continuation of the music beyond the immediate confines of the score. Sometimes both processes occur at once, as in the remarkable contrary-motion gesture at the end of Schoenberg's *Erwartung* (Ex 2.12) which surely must have influenced Ligeti when he came to write a similar ending for the Second String Quartet (Ex 2.13). Both of these endings remind one of the illusions of infinity captured in the artwork of M.C. Escher, such as the infinite staircase of ascending and descending monks depicted in his 'Ascending and Descending'. Ligeti was particularly fond of infinitely rising or falling registral gestures, so much so that they even become something of a norm in the first book of piano Etudes (1985). The first Etude ascends to the highest note of the piano in a crescendo scale that literally disappears off the end of the instrument! The fifth Etude repeats this formula in a more meandering fashion and with an 'infinitely quiet' dynamic (*pppp, 'perdondosi...quasi niente'*), like smoke curling upwards and disappearing into the ether. The sixth Etude terminates with a roller-coaster chromatic descent ('*tutta la forza*') to the lowest note, more like the felling of a tree than the whirl of autumn leaves suggested by the title ('*Automne á Varsovie*'). The second Etude again makes a slow, soft and gradual descent to the lowest note. Yet another example of this registral and dynamic extreme occurs at the end of Messiaen's *Quartet for the End of Time*, where the violin rises from E4 in bar 22 to an E7 harmonic (with G♯7 in the piano accompaniment) in bar 32. The dynamic also fades to *ppp* in the last few bars, and Paul Griffiths has noted that 'Messiaen is in line with predecessors as diverse as, say, Fauré ('*In paradisum*') and Berg (*Wozzeck*) in associating the infinite with music of high pitch, clear scoring, bright harmony and long duration.' (Griffiths 1985: 105).

Terminal Modification and Special Effects

Independently of rising or falling lines, registral extremes may be invoked as a kind of 'special effect' to denote the ending, and might in these circumstances be interpreted as a timbral form of terminal modification. The second and third songs of Schoenberg's *Pierrot Lunaire* utilise high registral extremes in just such a capacity, as sudden forms of terminal transformation rather than as part of a linear ascent (the composer using the highest note on the piano in the case of the third song). By

contrast, Schoenberg uses the lowest note on the piano, together with the lowest notes on the clarinet and cello, to terminate the eighth song of the cycle. Such effects are part of a broader class of special effect that may be used to introduce an obvious terminal modification in the parameter of sound itself, judged against the backdrop of a normative sense of timbre or instrumentation. These transformations occur in a myriad of forms. One common device is the strategic use of percussion for the final event of a movement or work. Witness the extraordinary tone colour created by Mahler for the end of the third scherzo movement of the Second Symphony, a mixture of very low contra-bassoon and tam-tam, the latter reverberating into silence. This has had repercussions for several later works, including the end of the second movement (*Ostinato: Allegro*) of Berg's *Lulu Suite,* where the tam-tam is combined with a minor triad in the lowest register of the harp to create a very unusual sonority indeed; when Berg came to weave this movement into the through-composed fabric of the opera, he omitted this instrumentation altogether, moving on directly from the end of the ostinato movement to new recitative accompanied by the piano, and thus logically removing the terminal transformation of sonority that gave such a powerful finalising effect in the suite. Berio's *Laborinthus II* (1965) also terminates with a sudden switch from orchestral and choral texture to a quiet tam-tam stroke, reinforced by the sound of spring coils. Of course, the more frequent use of percussion in this work makes it less of a terminal modification, but the fact that this occurs at the end of a sustained diminuendo adds to its effectiveness as a sign of the ending. The '*laissez vibrer*' nature of the sound as it rings out into silence also reinforces this abatement, and links it back to the endings by Mahler and Berg mentioned above (as well as to some of the endings in Boulez's Third Sonata discussed earlier).

It is important to note that this kind of timbral transformation need not be attended only by abating processes, as in the above examples. In pieces that end climactically, timbral transformation can be used to generate imposing walls of sound, as with the sudden addition of the chorus towards the end of Scriabin's *Prometheus* and Ravel's *Daphnis et Chlöe*. The ending of Xenakis's percussion piece *Persephassa* (1969) presents a remarkable '*nuage dense*' (dense cloud) at the end (Ex 2.14): this is the expression Xenakis himself uses in the score, which uses graphic notation to suggest the idea in an improvisatory manner rather than attempting to transcribe it in detail. Although such a texture is far from unified in the homorhythmic sense, the swarm of percussion activity implied by the graphic notation can be experienced as a

homogenous sound mass (or '*nuage dense*') with no particular part being given more prominence than another. Similar clouds interrupt the prevailing texture twice before the ending itself, but at the very end there are three instances of terminal transformation which make the final cloud distinct: firstly, the fact that the cloud is to be played on all instruments (where earlier appearances were limited to one group at a time); secondly that it is to be sustained for 15 seconds, creating a terrifying climax (*fffff*) for the audience, who are entirely surrounded by the percussion ensemble; and thirdly, that this cloud disintegrates the pulsing rhythms that otherwise prevail in the work. This latter detail is strongly reminiscent of many jazz endings, where the rhythmic impetus of the music is suddenly dissolved into a flurry of activity that remains aloof from any regular sense of pulse. The effect ranges in mood from an impressionistic dying away to a frenzied collision of multiple cadenzas, but the clarity of this terminal transformation as a signal of the ending is always ensured where it stands in stark contrast to a rhythmically-defined normative sense of style. A typical example is a performance of *Beautiful Love* by Bill Evans, Scott LaFaro and Paul Motian on Evans's album, *Explorations*:[18] although everyone ends up decisively on the downbeat for the final chord, the piano and bass continue briefly with a loose feeling of time, apparently uncoordinated with each other, the piano with the pedal down so as to smudge the final harmony in an impressionistic manner.

In Varèse's *Octandre* (1924) the composer employs two types of special effect as a means of creating terminal modification: the second movement ends with flutter-tonguing in all but the lowest two instruments, and in the last movement the brass instruments are instructed to play with bells held aloft, creating a visual cue as well as a slight modification of timbre (Varèse also uses this instruction for the brass section at the end of his colossal *Amériques*). Significantly neither of these effects are used elsewhere in the work. A very unusual kind of special effect that also makes use of the visual aspect of performance occurs in Stravinsky's Serenade in A (1925). Stravinsky treats each movement's ending with the dying sound of bare octave As, as a terminal contrast with the rather dense pandiatonic harmonic palette of what has gone before. At the same time these fulfil the criteria of abatement, in that they fade away into silence and are free of harmonic colouring, thus sounding empty, bare and final. The consistent use of this sonority across the four movements strengthens its

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[18] The catalogue number of the CD recording is OJCCD-037-2, from an original LP: RLP-9351, by Riverside Records.

significance. But I have not touched on the most theatrical aspect of these octaves, for in the first three movements one or more of the final As is played silently: the key is depressed and held but without the note sounding. The point of this seems not to be to effect the usual sympathetic resonance, since there is insufficient force in the other voices to achieve this. Rather, the composer seems to be engaging in a kind of joke, whereby the voice leading is resolved technically on the page but not actually heard. Nevertheless the performer has the opportunity to make these resolutions gesturally convincing (and amusing), particularly with the silent bass octave of the second movement, visually obvious but aurally missing! The ending of the final movement, instead of dissolving into thin air as before, resolves most of its voice-leading obligations audibly, providing 'sounding' As in each octave that before had been silent (A1, A2 and A3 - see Ex 2.15) and thus resolving the incomplete endings of the former three movements.

Conclusions

What I have hoped to show in this chapter is the extent to which abating gestures survived as a type of conclusion in a myriad of different twentieth-century contexts. I have also attempted to suggest ways in which the parameter-based definition of abatement can be opened out to recognise complex situations in which stasis and saturation are produced even where several parameters tend towards intensification. Charting the temporal activity of independently moving textural strata would seem to be one important way in which rate of change can be measured in appropriate contexts, as I did for Varèse early in this chapter. Clearly there is scope for a more thoroughgoing theorisation of this phenomenological aspect of listening, which might look to semiotic notions of segmentation as well as to empirical studies in order to define an analytical measurement of the rate of musical change. I feel, however, that such a study would be best conducted in a narrower stylistic context than that presented here; by contrast, my intention has been to merge a broad study of abatement with that of terminal modification, and to wield both as explanatory tools that seem to account for many different kinds of ending scenarios. In some ways this has resulted in an unashamedly 'surface' reading of endings, readings that have paid scant attention to the mechanisms of closure as defined by background processes or

narrative developments *within* the musical work, and this is something that will be remedied in later chapters. But this surface perspective provides a useful point of departure in that it allows us to think about endings afresh, as expedient signals rather than idealised trajectories (such as those embodied by the falling *Urlinie* of a Schenkerian graph or a traditional formal archetype). In fact, the notion of terminal modification does reach back into the body of a work in as much as it transforms its normative elements.

Cultural criticism might usefully contemplate the extent to which the phenomenon of 'doing something different' at the end results in some kind of acknowledgement of that which is 'other' to a given musical style, at the same time as marginalising it. What are Bruckner's final tonic sound-sheets if not the potential beginnings of an (albeit rather stiff) John Adams-like piece of symphonic minimalism? Yet Bruckner would have never entertained the idea of writing an entire piece in this way. And what of all those pointillistic full stops that terminate so many nineteenth-century works? If we understand them as isolated pinpricks of sound that condense the listener's attention in a single moment, collapsing musical time at the end like sonic singularities, can they not be said to prefigure not only the gesture but also the temporal attitude of Stockhausen's pointillist period? In an analogous way the brief expressionistic terminations of otherwise impossibly tight be-bop jazz numbers become the very essence of Coltrane's free jazz; one musician's ending becomes another's beginning. Without suggesting that there is a rational influence across these divides, there is a real sense in which terminal modification pushes composers into extraneous worlds, to explore the limits and borderlands of their musical personality and style. This is summed up by the final chord of Ives' Second Symphony (1902). Every other note in the work blends into a very passable nineteenth-century harmonic pastiche, but the final chord is a grotesque dissonance. Of course, it works as a classic case of terminal modification, and as a joke, but the point is that it is a question mark in a wider stylistic sense. 'Why not?', it seems to ask, and Ives spends the rest of his life seeking out the uncharted territory hinted at by this chord. The suggestion of 'otherness' in many endings matches the converse situation in which heavy-duty atonal composers return so willingly to the classical world of the triad for their final utterances.[19] The work reveals its antipode – tranquility and stability – as if to reinforce its connections with a classical lineage that is all too absent from the rest

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[19] See the examples in the following chapter.

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of the work, creating an aesthetic dichotomy, but one that gives a clear signal of ending.

Terminal modification as a theoretical model of endings does present some dangerous pitfalls, however. It may lead one to make too many assumptions about what is normative in a given movement or work, which might in fact be an over-generalisation or based upon details missed by most listeners. To validate instances where terminal modification appears to characterise an ending it is always necessary to give careful consideration to the conditions that prevail up until that moment in a movement or work, and not to overlook other passages where similar modifications are also in evidence. In fact, to use terminal modification alone as a theory of how endings are signalled would be foolhardy. One of the shortcomings of a theory that relies on the rather loose phenomenological idea of transformation as a means of generating signification is that, while it works fine in styles that exhibit stable or normative behaviours in certain parameters – in tempo, tessitura or timbre, for example – it is bound to be less effective in musical contexts which are in a perpetual state of transformation or change. In that sense it is revealing that the majority of the examples of this phenomenon in the present chapter come from shorter movements rather than lengthy ones or entire works. In the latter there is clearly more scope for change in many parameters, whereas smaller works can often make more effective use of a sudden unforeseen change as a means of ending.

One example where these ambiguities come to the fore is in Messiaen's *Catalogue d'oiseaux*, in which the episodic construction of each piece embodies a contemplative attitude towards nature that eschews goals or traditional formal architecture. Instead the composer appears to glance in an unpredictable manner from one bird to another, and from one scene to another (the exact nature of which is meticulously noted in the score), juxtaposing episodes rather than linking them together. Because so many parameters are in flux between each episode (tempo, register, rhythm, type of birdsong) it is difficult to establish a set of parameters that might usefully be manipulated to signal an ending via terminal transformation. In several of the pieces, for example '*Le loriot*' (golden oriole), Messiaen makes effective use of the '*laisser vibrer*' abatement of the last note, which makes a particularly poetic image in the low register of the piano because of the time it takes to die away. In this case he then adds a clinching phrase of birdsong from the *Loriot* itself, exactly the same as that at the opening, in order to confirm this abating closure with formal closure. However, when

in the next piece, '*Le merle bleu*' (blue rock thrush), the same fading '*laisser vibrer*' sonority is invoked, it does not even anticipate the end!

It is initially rather difficult when listening to an entire recording of the *Catalogue* to discern the points at which one piece finishes and another begins, particularly because silence itself is used as a divider between different episodes in the same piece. Each piece has its own constellation of episodes and is thus defined retrospectively when a new constellation emerges, yet the exact point at which something new begins may be difficult to judge amid continual contrasts and juxtapositions. Such an effect is repeatedly noted by Hopkins in relation to Mahler; he observes that in Mahler's rondos 'formal divisions are most often articulated by the beginnings – rather than the conclusions – of phrases and sections' (Hopkins 1990: 160). This is also true of other examples I have drawn on from this chapter, particularly for the songs from *Pierrot Lunaire*. Having said that, abatement and terminal transformation provide an important element in 'naturalising' these endings, in making them sound like convincing or believable stopping points in retrospect, particularly in the absence of other generic and formal cues. This naturalisation process can be seen in much poetry too, where allusions to death frequently serve to signal the end. In Surrey's 'The Happy Life' Herrnstein Smith notes that closure is secured simply through allusion to death, which 'is one of the most common and effective nonstructural devices. Allusions to any of the "natural" stopping places of our lives and experiences – sleep, death, winter, and so forth – tend to give closural force when they appear as terminal features in a poem.' (Herrnstein Smith 1968 :100) The abatement of a piece of music appeals to our imagination as an anticipation of final stillness in a similar way. Herrnstein Smith might as well be speaking of music when she writes that 'closure, then, may be regarded as a modification of structure that makes stasis, or the absence of further continuation, the most probable succeeding event.' (*Ibid.* 34). Perhaps that is why abatement itself is so often the focus of the final transformation.

Endings that use a clear or prolonged abatement in several parameters might be conceived as attempting a smooth negotiation between the activity of the work and the non-activity of the silent frame into which the work moves at the end. This compositional approach can help to impart the impression of a logical or natural sense of conclusion to pieces - like Messiaen's *Catalogue* or Boulez's Third Sonata - that are not necessarily oriented towards a final goal or point of consummation. Maconie

remarks that 'ending a permutational form is nearly always a matter of taste, not design. While the listener may be satisfied with a sensation of completion, the composer knows that though a series of permutations may eventually be exhausted, it does not automatically resolve. The ending's essential arbitrariness has to be disguised.' (Maconie 1976: 144) He is referring to Stockhausen's *Kontakte*, a work that indeed ends with a very pronounced abatement in the parameter of dynamics and components. The basic dynamic level reduces from fortissimo to *pppp*, while the distribution of percussion activity visibly changes from dense to sparse. Even the speed of rotation through the stereo image of the part for pre-recorded tape - which appears in the uppermost section of the score - is slowed down to suggest a decrease in momentum, creating a kind of spatial abatement! But whether this completes the work (in the sense of traditional closure) or whether it merely fades out something that cannot be finished (owing to the complexity of permutations[20]) is another matter. One source wryly observes that Stockhausen 'would probably still be working on *Kontakte* today had he not brought it to a finish with a decision as to a definite performance date...The present finish seems to him very much like a dummy ending' (Wörner 1973: 110).

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[20] Maconie recounts the theoretical crisis precipitated by Stockhausen's discovery that by changing the order of the three heads in a tape recorder from the normal order of 'erase-record-playback' to the succession 'playback-erase-record' it became possible to superimpose layer upon layer of material on a single tape loop automatically, modifying the aggregate continuously as required. 'Thus the concept of a closed, theoretically integrated and essentially speculative system of composition had to be abandoned in favour of an open, subjective, series-orientated but practically inexhaustible range of choices, governed in the last resort by an intuitive awareness of the "good sound"'. (Maconie 1976: 139)

Ex 2.0 Varèse, *Déserts* (ending) - showing the temporal organisation of strata
(numbers refer to quaver durations)
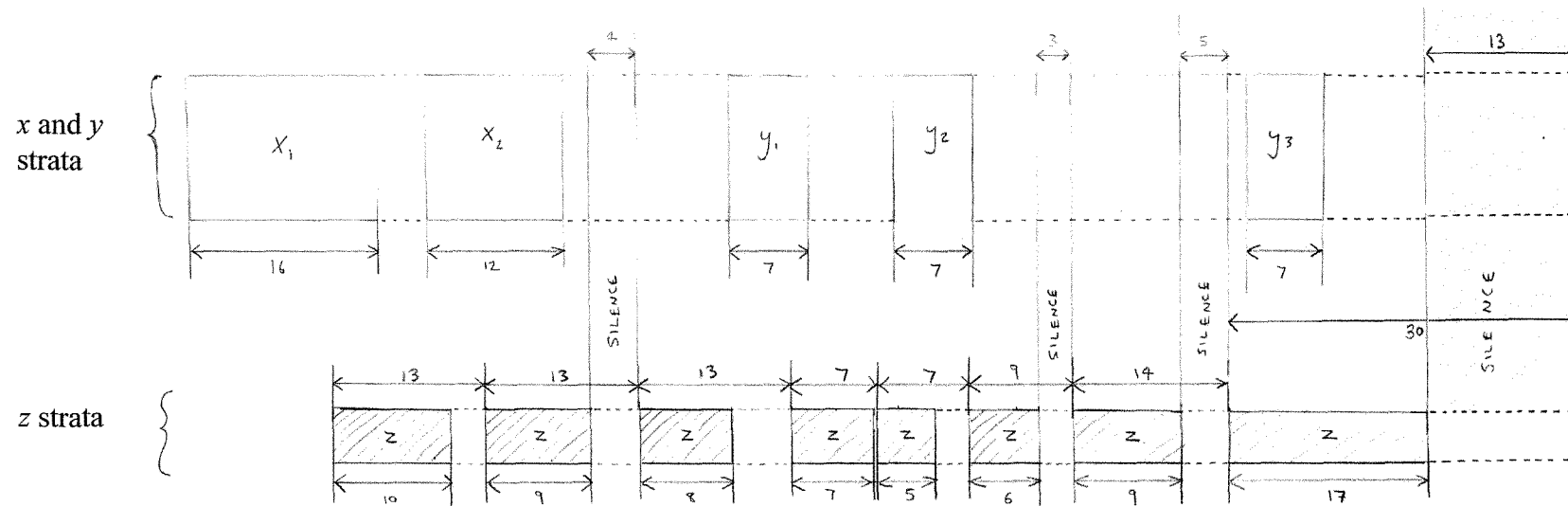
Ex 2.1 Bartók, String Quartet No.5 (ending)

Ex 2.2 Britten, String Quartet No.2 (ending)

Ex 2.3 Berio, *Sequenza I* for solo flute (ending)

Ex 2.4 Berio, *Sequenza VIII* for solo violin (ending)

Ex 2.5 Schoenberg, *Sechs kleine Klavierstücke*, Op.19 No.5 (ending)
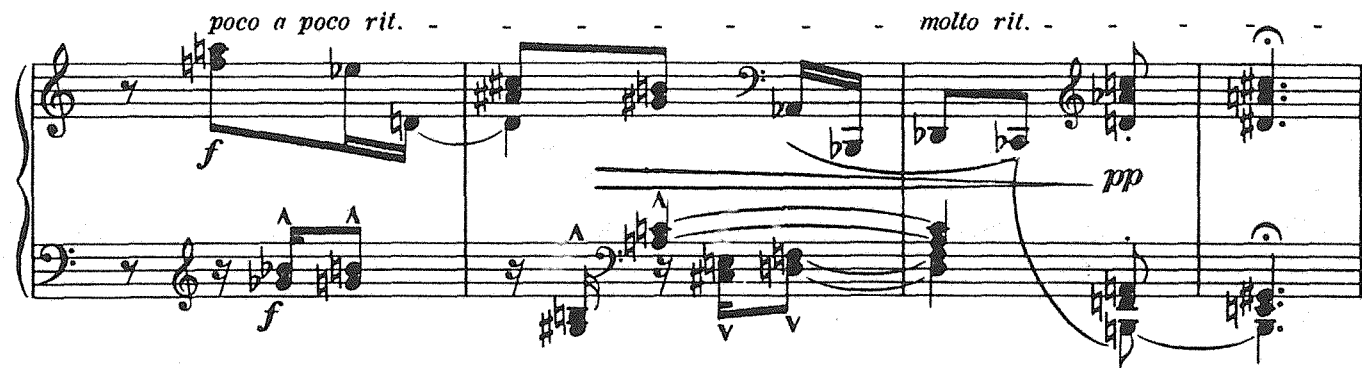
Ex 2.6 Britten, String Quartet No.3 (ending)

Ex 2.7 Berg, 'Andante amoroso' from the *Lyric Suite* (ending)
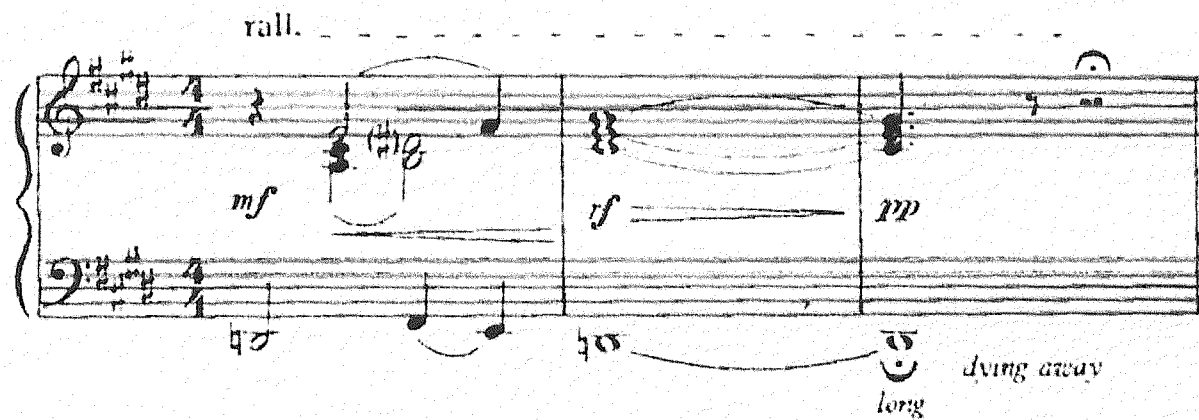
Ex 2.8 Berg, 'Lied der Lulu' from the *Lulu Suite* (ending)

Ex 2.9 Berg, *Lulu* - showing the ending of 'Lied der Lulu' from the suite as it appears in the opera (annotations indicate the reorchestration of the vibraphone perfect fifths from Ex 2.8)

Ex 2.10 Ligeti, String Quartet No.2, third mov. (ending)

Ex 2.11 Varèse, *Density 21.5* for solo flute (ending – brackets show the occurrence of major thirds)

Ex 2.12 Schoenberg, *Erwartung* (ending)

Ex 2.13 Ligeti, String Quartet No.2 (ending)

Ex 2.14 Xenakis, *Persephassa* (ending)

Ex 2.15 Stravinsky, Serenade in A (endings of all four movements)

p secco

*) Appuiez cette touche (≡)
sans faire entendre le LA.

*) Appuiez adroitement ces touches
(≡) sans faire entendre leur LA.

*) Appuiez adroitement ces touches
sans faire entendre leur LA. (≡)

m.d.

{*)

appena

Ped.

Chapter Three

Last Chords and the Role of Harmonic Abatement

This chapter is in many ways a continuation of the previous one, since it examines the role of harmonic abatement – defined as the tendency towards consonance – as an agent of resolution and terminal modification that lends weight to the closing impact of final chords and contrapuntal progressions. This phenomenon presents a particularly potent confluence of sense and sign in post-tonal music, since the use of a final consonant sonority not only provides a type of psychological abatement and quiescence, but also acts as a striking signal of contrast with the background of an atonal and dissonant harmonic norm. The chapter will examine the role of harmonic abatement in a variety of twentieth-century endings: firstly it will consider the perpetuation of triadic endings, secondly the terminal role of extended triads, thirdly the use of fifths, octaves and pedal points, and fourthly the way in which endings are shaped by processes that tend towards increasing levels of consonance. The final part will consider the ways in which some endings of a less consonant nature can be explained in terms of a supplementary formal model of closure.

Final Triads as Signs of Closure

A remarkable feature unites the diverse styles and periods within the tonal era, a detail which has been in place from the very dawn of harmonic music, and one which persists today (albeit sometimes disguised) amid equally diverse genres, from popular music, folk music and jazz to contemporary classical music. For at least one thousand years (in other words, from early polyphony to the dawn of the twentieth century) the harmony to be found at the end of a piece of music in several voices or parts can be classified into a surprisingly limited number of categories. If the meaning of harmony is restricted to an intervallic definition of the last chord then there are as few as four such categories for notated music within this period of Western culture: individual parts will finally converge on i) the unison (or octave), ii) the unison and fifth, iii) the unison and third, or iv) the unison, third and fifth (i.e. the major or minor triad). Of course, there are exceptions, grey areas around the twilight regions of this enormous

epoch. We would want to add the interval of the fourth as a further possibility within the practice of organum, as well as several new categories by the beginning of the twentieth century (developed below). There is also the problem that we can only discuss *notated* music from this epoch, being unable to take into account the sonorities employed by heterophonic improvised music. (This is important, since notation lends itself to the rigorous control of dissonance). Nevertheless, the more one ponders on the generality of these four categories of final chordal types - which are so often taken for granted - the more extraordinary their persistence appears. If triads and their constituent intervals were the only harmonies in use during this epoch then these four categories would be simply truistic, but the vast vocabulary of sevenths, ninths, inversions, suspensions and melodic embellishments of all kinds makes it even more surprising that composers should always feel it necessary to dissolve their music into the primordial triad, fifth or octave before passing into silence!

The diversification of vertical harmonic resources through the eighteenth and nineteenth centuries did not lead to immediate experimentation with final chords other than major and minor triads or unisons, although there are some exceptions[1]. Even Wagner's *Tristan und Isolde*, held to augur the breakdown of tonality, ends on a simple B-major triad. Although Debussy is frequently also credited with being the father of modernism, most of his endings are also triadic, or involve unisons, octaves or thirds. This is true even in his most progressive music (for example, the Second Book of Preludes)[2]. He did use the occasional daringly different sonority at the end, however: the second number from the fourth act of the *Martyre de Saint Sébastien* (1911) ends with an eerie 'Tristanesque' half-diminished chord with an added major ninth (reading upwards - C♯,E,G,B,D♯), shown in Ex 3.0. This seems appropriate at least in terms of harmonic unity, given that the half-diminished chord predominates throughout the number. There is evidently also a poetic motivation for this mysterious ending because the writing above the score indicates that it is to accompany the fading of the priest's magical vision. The music accompanying the

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[1] Agawu points out several of these: the dominant seventh at the end of the first song of Schumann's *Dichterliebe*, the E♭ added to the final F major chord of Chopin's Prelude in F major, opus 28, no.23, and the unresolved seventh chord in Mussorgsky's *Child's Song* of 1968 (Agawu 1987: 3).
[2] Only Prelude No.10 from the Second Book ends with an unconventional chord (a triad with added ninth).

vision itself is aligned with the diatonic F♯-major passage in bb.22-33, but the dominant at the end of this passage slips out of key in bar 34 to an E-minor sonority that slowly unfolds into the 'Tristanesque' final chord; the evaded cadence thus parallels the fading of the evanescent vision. Of course, the use of such a mysterious and unconventional sonority for this ending is permitted by the fact that this is only a temporary point of repose, not the global ending of the work. However, the composer did choose to integrate this piece into the end of the last movement of the concert suite of *Symphonic Fragments* he arranged from the original incidental music. What is fascinating is that in the latter he excised the mysterious 'Tristanesque' ending in favour of a rather blatant resolution to F# major, the resolution which we are in fact led to expect from bars 22-33 in the original version. Instead of the wavering incompleteness afforded by its place in the unfolding stage drama, Debussy grants the familiar diatonic ending seemingly required by concert-hall etiquette.

During the early decades of the twentieth century there is an aesthetic tension between the perpetuation of these triadic last chords as relics of tonality, and the 'emancipation of the dissonance' that was transforming the harmonic language of music. This is not only manifest as a tension between conservative and modernist schools, but can be felt within modernism itself, as if composers were unsure how else to bring a piece to a convincing harmonic close. Schoenberg's First Chamber Symphony, in spite of its daring dissonances, resolves onto an E-major chord at the end, and even the groundbreaking atonal finale of his Second Quartet ends on an angelic Tierce de Picardie.

These allusions to the triad are fleeting compared with the triadic endings of Stravinsky (for example, in the *Symphony of Psalms* and Piano Sonata[3]). Hindemith too frequently ends his pieces with major triads, even though his harmonic vocabulary is typically based around quartal harmony (a fact that reflects his own theory of harmonic tension[4]). It is perhaps unsurprising that neo-classicist compositions frequently imported such Classical final triads. However, what many of these examples have in common, in contrast to Wagner's *Tristan*, is that the pure triad is so rarely allowed to stand alone during the bulk of the work that it could be thought to present an aesthetic contradiction when it appears seemingly out of the blue at the end. At the same time, this is another example of the workings of terminal

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[3] For a discussion of Stravinsky's final chords, see Whittall 1977: 55-57, and Maconie 1972.

modification, for in circumstances where the triad is comparatively rare, its appearance at the end is all the more striking as a sign of closure. One example of this is the ending of Scriabin's symphonic poem *Prometheus*, whose final climactic F♯-major triad seems deeply incongruous with the dense harmonic language of the rest of the work. The composer almost seems embarrassed about it himself, since he cuts the triad off abruptly after a few seconds (this is discussed in greater detail in Chapter Eight). Again, the concert-hall setting might have obliged Scriabin to fall back on this sure symbol of finality as a means of communicating closure to his audience (although the piano music from this period begins to explore a greater range of end-sonorities). Even by the middle of the century such triadic endings can still be found: Henri Dutilleux ends the second movement of his First Symphony (1951) in a similar way, the frenetic lines of the scherzo being suddenly arrested as they crash into a brief but effective triadic full stop. On the whole, however, the pure unadulterated triadic ending is by no means common in twentieth-century music (though it certainly might be outside the field of modernist and avant-garde composition). Nevertheless, harmonic abatement and terminal modification remain palpable factors governing the approach to final sonorities. Before we begin an evaluation of some non-triadic examples of harmonic abatement, it will be necessary to outline some means of objectively assessing levels of consonance and dissonance in relation to harmony.

Measuring Dissonance

Hopkins devotes a brief discussion to the parameter of concordance (and by implication dissonance), which then goes on to play an important role in his commentaries on abating closure in Mahler's music. In his system, consonance is equivalent to abatement (and therefore closure) and dissonance to intensification. He defines concordance as 'the compound parameter whose elements are combinations of pitches that define harmonic progressions without regard to tonality but rather with respect to the agreement between adjacent partials in the combined harmonic spectrum.' (Hopkins 1990: 40). He states at the outset that he is using Helmholtz's ordering of just intervals as a guide to the relative concordance of harmonies. In this

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[4] See Hindemith 1942.

scheme, unisons and octaves constitute the most stable consonant type of sonority, moving through fifths, fourths and triadic intervals to the dissonances recognised by traditional music theory (major seconds, minor sevenths, tritones and semitones in order of increasing dissonance). It is important to note that the justification for this scheme is not merely historical or intuitively derived, but has a reality in psychoacoustic fact: any two pitches that stimulate overlapping areas of the basilar membrane inside the inner ear (pitches separated by an interval of a minor third or less in central registers) produce a sensation of 'roughness' that is experienced as dissonance. This region of interaction is known as the critical bandwidth, and the roughness is maximal when the distance between the two pitches is approximately a quarter of the critical bandwidth (Plomp and Levelt 1965). Thus, the semitone is the most acoustically dissonant interval in the equally tempered scale (except in the bass region where the third also exhibits a marked degree of roughness). Because the effect operates not only amongst the fundamentals of the interval or chord in question but also between upper partials, there is also a degree of dissonance when the semitone is separated by an additional octave (as with the major seventh and minor ninth). The tritone is also considered dissonant from this point of view, since the lower partials generated by its two pitches are in semitonal conflict with each other.

The alliance between abatement, consonance and closure explored by Hopkins provides a cohesive model for Mahler's music, but it is unclear how far these relationships are relevant for other twentieth-century composers. At least one recent empirical study has confirmed the role played by psychoacoustic consonance and dissonance in listeners' perceptions of stability in harmonic progressions from Schoenberg's music (Dibben 1999). Dibben's experiments required subjects to rate atonal musical sequences in terms of their relative completeness; she found that passages terminating with consonant chords were generally classed as being more indicative of stability than dissonant ones. Stability, though not necessarily synonymous with closure, is an important phenomenological category of musical experience often associated with endings and closure.

The calculations involved in determining the precise level of 'roughness' present in any given sonority are complex, having to take account not only of the number of dissonant intervals present in the score but also the effects of particular chord voicings on the interaction of overtones. In addition, the timbre of the instrument or combination of instruments and their individual harmonic spectrum will also

influence this index of roughness. Although Dibben used the algorithms developed by Hutchinson and Knopoff (1978) as an advanced measure of roughness within atonal harmony, she found that 'no significant correlation was found between this measure of roughness and completeness ratings...suggesting that the crude measure of the dissonance of the final chord of each segment provides a better fit to the data than does this psychoacoustic measure' (Dibben 1999: 285). Since I am not engaged in empirical study here I will maintain the somewhat looser approach to measuring dissonance sanctioned by these findings, in which a count of semitones and other dissonant intervals provides a rough index of the level of sensory dissonance, disregarding octave levels[5].

The classification of harmony in terms of dissonant intervallic content has a number of disadvantages and pitfalls, however. Assuming octave equivalence makes the semitone synonymous with the major seventh, yet a cluster of semitones will have a more astringent kind of dissonance than if those semitones were spread out over several different registers. There are other contexts that can reduce the perceptual harshness of dissonance - for example, the use of underlying triadic and consonant structures in lower registers to support dissonant upper structures. But while it cannot be expected to perform analytical miracles, a basic measure of sensory dissonance such as this is often helpful in reinforcing and articulating our intuitive responses to harmonic stability, as Dibben's experiments suggest, and in many cases proves revealing when considered in the light of other factors. The following section will attempt to show this further.

Extended Triads as Final Chords

According to Bartók, he and Debussy were among the first to explore final harmonies that had hitherto been proscribed by the traditional rules of harmony and counterpoint (Suchoff 1976: 334-5). Almost as if apologising for these transgressions of harmonic law, Bartók attempts to rationalise them; he argues in one instance that because of the prominence of the seventh as a modal centre within pentatonic folk

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[5] Allen Forte's appendix of prime forms and their properties provides a useful catalogue in this regard, since the interval vector of the prime form gives a precise count of semitones, tones, minor thirds, major thirds, perfect fourths and tritones within a chord (Forte 1973: 179-81).

music, it was allowed to be incorporated as a stable note within the harmonic accompaniments that he devised for such tunes, even in the final chord:

> ...it follows that in pentatonic melodies the modal seventh takes on the character of a consonant interval. This fact, as early as 1905, led me to end a composition in f# minor with the chord: f#, a, c#, e. Hence in the closing chord the seventh figures as a consonant interval. At that time a close of this kind was something quite out of the ordinary. (*Ibid.* 334)

The creation of new forms of harmony as 'verticalisations' of horizontal modal collections is a recurring theme of the early modernist period, and can also be witnessed in the pandiatonic approach of Stravinsky, where the notes of the diatonic scale are clustered into dissonant vertical arrangements. The general level of sensory dissonance having been thus pushed several notches, it probably seemed aesthetically inconsistent and artificial to rely on traditional triads to mark the end of a work (though not always in Stravinsky's case, as pointed out earlier). New combinations of notes had to be found that satisfied both the requirements of harmonic freedom *and* a sense of finality or stability. In many cases this involved dressing up the archaic triad in a halo of added notes, often analysable in terms of 'extended triads', in which the dissonant components were stacked in thirds above the triad itself, forming sevenths, ninths, elevenths and even thirteenths (and parallel developments can be seen in the evolution of jazz and its vocabulary of altered chords). It is as much the voicing, orchestration and static homogeneity of such final chords (through the 'unification of texture' explored in the previous chapter), in addition to their triadic underlay, that provides a sense of stability.

A brief reflection on the possibilities open to the composer who wishes to add a small amount of dissonance to the triad is in order here. In terms of the above theory of dissonance, if one had to add a note to the triad in such a way as to produce the minimum level of sensory dissonance it would be the major sixth above the bass. This is the only note from the chromatic scale whose addition creates only one dissonant interval: one major second is formed between the fifth and sixth scale degrees but all other intervals still remain consonant with each other. Adding the ninth, by contrast, creates a more dissonant cluster (in C major, C,D,E) producing two adjacent major seconds (though of course, one could reduce the impact of this cluster

by a more spacious voicing in which the dissonant elements are not adjacent). Thus, in one work that uses the added sixth as an end-sonority - Mahler's *Das Lied von die Erde* - the long held ninth resolves upwards to the third of the chord (D to E) four bars before the end, but the added sixth persists. This last chord is unresolved from the traditional point of view, and is unique in Mahler's oeuvre[6], but in relative terms it is less dissonant than the preceding added-ninth harmony. A similar process occurs at the end of Berg's Violin Concerto, where the final triad with added sixth is dissolved from a more dissonant serially derived harmony (Ex 3.1(1)). Both Messiaen's '*Turangalila*' Symphony and *Quartet for the End of Time* end with an added-sixth chord. One author has suggested that this is done in order to invoke the pentatonic scale in order to hark back to the most ancient and timeless sound known to human culture (Griffiths 1985: 103). This would certainly concur with Bartók's observations on the consonance of the pentatonic scale cited earlier (the added-sixth chord being an inversion of the minor-seventh chord mentioned by Bartók). Perhaps this explains the significance of the added sixth as a final chord in Messiaen's music[7]; furthermore, the added sixth forms a recurring subset within his beloved octatonic collection (Mode II of the 'modes of limited transposition') so that it is hardly surprising it should occur as a signifier of resolution within octatonic contexts.

At a stylistic tangent, the added-sixth chord makes an appearance as the terminal harmony of many jazz standards (for example, Cole Porter's *Easy to Love*, Jerome Kern's *The Song is You* and *Dearly Beloved*, and Billy Strayhorn's *Chelsea Bridge*). There is certainly the possibility of a stylistic crossover between jazz and classical endings; Anthony Pople has noted in relation to Berg's ending in the Violin Concerto that 'the resolution of this chord (a whole-tone dominant-quality chord on G♭), onto the tonic triad of B♭ with added sixth, follows a harmonic progression found frequently in 1930s dance-band arrangements' (Pople 1991: 60). Stravinsky also drew attention to the 'rather too commercial D♭ [added-] sixth chord' that ends his *Symphony in Three Movements* (Stravinsky and Craft 1961: 52).

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[6] And of course there is a poetic motivation here, for in this protracted farewell the composer will not relinquish entirely to the end of the journey (read "death") implied by the perfection of the pure triad.
[7] Another instance occurs at the end of '*Joie et Clarté des Corps Glorieux*', the sixth piece in Messiaen's organ cycle *Les Corps Glorieux*.

There is a further possibility to be considered in terms of the softer hued dissonances open to the composer who wishes to elaborate the triad, and this is the dominant seventh, which, like the added sixth, introduces a major-second clash (between the flattened seventh and tonic), but which also contains a tritone between the flattened seventh and major third - an additional dissonant interval. Perhaps one reason that this chord is rarely found as a final chord is because of its historical association with the functional dominant seventh, the latter being syntactically unstable in tonal contexts. However, it does turn up occasionally - for example, at the end of Scriabin's Prelude Op. 74, No.5. Here the precipitous descent of the right hand line conveys the sense of closure in terms of registral abatement, but while the final chord is indeed less dissonant than the preceding octatonic configurations, it does have a smouldering quality, as if the fires of this piece (marked *'Fier, belliqueux'*) are not entirely put out. Messiaen also uses the dominant-seventh chord to similar effect at the end of his organ cycle *L'Ascension*, where its unresolved quality is a poetic device illustrating immortality, or perhaps the absence of an ending within God's creation. This is all the more striking when one considers the fact that the final chords of the preceding three movements are uncomplicated major triads! Such irresolute harmonies mark the ends of other later works by Messiaen, including the spectacular dissonant chordal peroration of *Chronochromie*. These examples should warn us that there is more to a final chord than its apparent degree of harmonic abatement, and that in some cases closure is supposed to be ambiguous, or suggestive of continuation beyond the frame of the work.

In spite of the reductive explanation offered above for the added sixth as a logical choice for composers seeking to expand their palette of final chords beyond the triad, the fact is that the added sixth never became a normative end-sonority within twentieth-century harmonic practice. With its schmaltzy overtones it was perhaps too much of a nostalgic backward glance for composers who wished to pursue the modernist agenda of innovation. Nevertheless, the idea of expanding final triads, whether at global or internal points of closure, by submerging them within a halo of diatonically-related added notes, seems to have been an important technique in many different stylistic areas of twentieth-century music, in particular neo-classicism. The final chord of the second movement of Stravinsky's *Symphony of Psalms* (Ex 3.1(2)) and the third movement of his *Symphony in Three Movements* (Ex 3.1(3)) both expand the added-sixth chord by the addition of the ninth, thus resulting in pentatonic

sets which, if technically more dissonant than the added sixth itself, nevertheless do not contain any semitone clashes and thus still retain a degree of modal purity.

Semitonal dissonances are in fact also frequently found embedded within the genera of final extended triads, but in such a way that they appear unobtrusively, almost like artificial harmonics floating above the triad itself. One example of this is the major-seventh chord, which once again appears frequently as a closing chord in jazz. Ex 3.1(7) shows an instance from the ending of the first movement of Stravinsky's *Symphony in Three Movements*, and Ex 3.1(4) is a somewhat surprising example from Nancarrow - surprising because this work is a typically complex canon in twelve parts (and effectively twelve different tempi) which is anything but consonant at any other point. It is in fact quite common for Nancarrow to apply this kind of terminal modification by invoking a more triadic or less dissonant harmonic structure. Ex 3.1(5) shows another example of the major seventh as a terminal chord; it occurs at the end of the first movement of Lutoslawski's First Symphony, and reflects the fascination of this work as a whole with semitonal harmonic clashes, though these are considerably more dense elsewhere in the movement. (See Chapter Seven for a more in-depth analysis of this movement).

Ex 3.1(6) is from Scriabin's piano piece, Op.72 (*'Vers la flamme'*) and it builds on the added sixth and ninth configuration with the major seventh as well as the sharpened thirteenth above the bass, resulting in a dazzling fortissimo peroration that includes within it all the notes of the B-major scale! Notice the emphatic doubling of these added notes in the treble stave, counterbalanced by a pure triadic component in the bass. This final chord is sustained over the final nine bars of the movement (even longer counting the general pause), and as such is of greater duration than any other single harmony in the piece, again illustrating the importance of harmonic stasis in bringing about the sense of an ending. The same sense of durational abatement occurs in most of the other examples here (except Ex 3.1(5), which instead offers a short sharp shock). Other gestural forces are at work in giving the sense of terminal modification in Scriabin's Op.72; the final chord is spelled out gradually in a slow upward arpeggiation, harking back to nineteenth-century pianistic end-gestures. (Five of Chopin's 24 Preludes end in this way, and the gesture frequently appears in Debussy's piano music – for example at the end of *'La fille aux cheveux de lin'* from the first book of Preludes). This is an entirely foreign gesture in Scriabin's piece, and the final chord perhaps needs such an overtly contrastive gesture to compensate for its

complex harmonic structure, acting as a form of terminal modification and conventional sign of the ending. Scriabin finally adds a clarifying bass octave E (the root of the chord) and high C♯ to the pedalled wash of harmony, these two pitches forming a (consonant) compound major sixth and absorbing all the other dissonant notes within their wide ambit as a final stabilising effect.

It is worth drawing attention to the way the other extended triads of Ex 3.1 are voiced. First, the attitude to the bass resembles that of the tonal tradition, with the notes of the chord more widely spaced in lower registers. Second, the added notes in all cases are placed above a complete triad in the lower parts, and tend to be most frequently deployed in the higher register (with the exception of Ex 3.1(2) where the third is missing from the lower parts). This would be consistent with the overtone series, with the fifth and third occurring as relatively lower partials and the more dissonant tones as artificially reinforced upper partials. The prominence of the triad in the lower voices would suggest that it acts as a foundation upon which a more or less dissonant array of notes can be layered above, without altering the fundamental triadic ambience of the chord - hence its sense of stability and usefulness as a symbol of closure. To test this, try playing any of the chords in Ex 3.1 so that the some or all of the added notes appear in the lower register or underneath the triadic component: the effect is psychologically unstable by comparison (though this effect will inevitably vary depending on the timbre of the instruments used and the amount of doubling).

Not every example of final extended triads is so clear cut in terms of voicing. Ex 3.1(8) is from the end of Stravinsky's Symphony in C, and it hovers ambiguously (from an analytical perspective) between C major and E minor. Is this a first inversion chord of C major with an added B and D (in other words a major-ninth chord), or a root-position chord of E with added sixth and seventh? Of course, the fact that the work is ostensibly a symphony *in* C would suggest a common sense analytical response, but this final sonority calls for more than mere functional pedantry. From a technical harmonic point of view the work ends in many ways in the bars before, which offer a brief root-position C-major triad (with added seventh), but Stravinsky does not allow this chord to hang in the air for long. It is curious that in the final chord the tonic (C) is represented only in one inner voice, and the rumbling E in the basses sounds less than secure after the preceding C root. This

creates one of those rather enigmatic post-closural events that we will come across more than a few times in this thesis (another will be the end of Scriabin's *'Désir'* Op.54 examined in Chapter Eight).

Unisons, Octaves and Fifths

Having explored some instances of rich final harmonies I now turn to the opposite end of the sonority spectrum. Unisons, octaves and fifths are relatively common ending formulae in early twentieth-century music, and appear in many different guises. Bartók's Fourth Quartet ends with a C unison, while the finale of his Fifth Quartet ends on an emphatic B♭ unison, echoing the end of the first movement. Fifths are also common at the ends of Bartók's works, but pairs of fifths may be combined in mildly dissonant ways. For instance, Bartók's Third Quartet ends with a strong fifth in the bass (C♯/G♯), but this is superimposed with another fifth (D♯-A♯) in the upper parts. The resulting sonority contains two whole-tone clashes, and yet the registral separation between the different pairs of fifths does seem to preserve a sense of purity, especially when compared to the passage that precedes it, where the harmony is brimming with semitonal conflicts. Stravinsky was also fond of fifths as final sonorities: they can be found punctuating the ends of movements in his *Soldier's Tale* (1918) - for example, at the end of 'The Little Concert' - and there are also multiple fifths at the end of 'The Devil's Dance' (G,D,A) and the end of the 'Tango' (also G,D,A). Even for Schoenberg, it seems fifths played an important role in articulating formal boundaries (including endings); Silvina Milstein has remarked for instance on the fact that 'pitch-levels…which appear at the boundaries of groupings, [are] often reinforced by leading-note and appogiatura-like semitonal figures, and frequently supported by perfect fifths' (Milstein 1992: 6).

Another context in which octaves and fifths appear as final sonorities is in relation to pedal points. Berio's *Sequenza VII* (1969) for oboe has a B sounding throughout on an electronic oscillator, and at the end the oboe completes what could easily be called a neighbour-note action (B-C-B) with octave displacements, which clearly gives the impression of consonance-dissonance-consonance against the simultaneous B pedal of the oscillator. From a formal perspective this also brings the piece back to its opening state of equilibrium, where the oboe began in unison with the oscillator.

For centuries the use of drones in folk music the world over has invited this type of ending formula. Witness the end of a typical North Indian classical improvisation, where the final frenzy generated in the *gat* section is often dissipated in the moments after the tabla ceases by a rapid descent by the soloist through the notes of the scale, finally converging on the 'tonic' drone or sometimes the third, fourth or fifth. A similar principle becomes a focus for most of the final 'Coda' movement of Boulez's *Dialogue du L'ombre Double* (1985) for live clarinet and tape, in which a high C6 from the pre-recorded clarinet hangs in the air for the last two minutes. The live clarinet and its other recorded counterparts occasionally stretch up to this note, doubling it briefly (perhaps one should say 'shadowing' in light of the title) and finally doubling it for a longer duration, after which for the last thirty seconds the pre-recorded inverted pedal is heard alone. Here the idea of a 'tonic' pedal is taken out of its functional context and used as a more localised surface signal of release and stability. These examples bear witness to the lasting power of the psychoacoustic principle of consonance as a stabilising effect in otherwise complex and dissonance-laden contexts. It is precisely because of the normative use of dissonance that consonance stands out so well when invoked as a symbol of finality.

Harmonic Abatement as Process

The following section will consider the use of harmonic abatement not as a singular final event, as in the above sections, but as a progressive tendency, a process of abatement that is aligned with cadential or contrapuntal progressions. I have already pointed out (in the previous chapter) that the very presence of a homophonic progression may induce sensations of stability by creating a unified sense of texture and rhythm in an otherwise contrapuntal context. The historical sign of closure produced by such cadential figures may be enhanced by abating processes, including harmonic abatement. Although there is little evidence of harmonic abatement in textbook tonal cadences – since both chords in cadential progressions are usually triadic and therefore undifferentiated in terms of dissonance – some older forms of cadence *do* exhibit this property. For example, the medieval cadence usually proceeds outwards by step, from a first inversion chord to a chord of fifths and octaves, creating a striking change of harmonic colour, from triadic to fifth-based harmony (as in the works of Dufay, Dunstable and Machaut). Indeed, the use of bare

fifths and/or octaves at the end of medieval polyphonic music survives into the Renaissance, and provides a final form of terminal modification in contexts where triadic cadences have otherwise become normative at internal points of closure (as in works by Ockegham, Josquin and even Palestrina). In addition, the ubiquitous use of the suspension prior to the cadence injects a further level of dissonant intensification that is then contrasted with the stability of the chord of arrival. Similarly, pre-cadential chords in tonal harmony sometimes provide an intensification of sensory dissonance – for example, the first-inversion supertonic seventh chord or diminished seventh – which is then relieved by the triadic final chord of the cadential progression.

In the twentieth century, the emancipation of the dissonance opened the way for a much more dynamic approach to harmonic abatement in chord progressions, which recalls in some ways the sonically contrastive chords of medieval and Renaissance cadential practice. With the new freedom of harmonic resources, levels of dissonance could be increased significantly in the approach to a cadence, and the sense of contrast maximised between chords of tension and resolution. One example of this occurs in the ending of the fifth movement (*'Louange a l'Éternité de Jesus'*) of Messiaen's *Quartet for the End of Time* (Ex 3.2). The composer reaches towards a pure triadic E-major chord in the final two bars via an octatonic sequence of four chords, each of which contains one semitone (and in the case of the first two chords a tritone). The purity of this E major chord thus contrasts strikingly with the dissonances that precede it[8]. The important theoretical question of whether the resolution of sensory dissonance reflects syntactical resolution will be considered in depth in the course of Chapter Seven. The example from Messiaen's quartet certainly points in this direction, since it occurs as a final resolution to the E-major tonic of the movement.

Even where final chords are not triadic, a relative sense of contrast between dissonance and consonance can be produced to effect closure. Stockhausen's approach to the last chord in *Gruppen* bears out what he once said in an interview about going 'from a certain degree of noisy sound to pure sound, which is always perceived as a resolution, as something purifying' (Cott 1974: 100). Such purification no doubt ties in with the 'Deo Gratias' (Thank God) annotation at the end of this

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[8] The melodic line in the cello also attains closure by simultaneously crossing the octave in an interval cycle of minor thirds that returns to its point of origin an octave higher (E-G-A♯-C♯-E) and there is a dynamic abatement to *ppp*.

composition. In fact, the final musical gesture of this work appears to be a rather self-conscious 'last chord' – homophonic at the beginning, occupying the whole of the final 'group'[9] and in stark contrast to fragmentary material that precedes it. Within this last chord there is a progressive motion towards consonance that results from the serial subtraction of the twelve-note row[10]: the chord with which the final group begins contains ten semitone clashes generated from the simultaneous sounding of eleven notes of the series. As these notes are subtracted in serial order (C#, A, D, B, A#, etc.) the dissonance is reduced. This can be demonstrated by counting the decreasing number of semitone clashes in the chord (Ex 3.3), which falls in stages from ten, through six, four and two, to zero. Stockhausen has deliberately chosen a subtractive interpretation of the series in order to generate an abatement of components and dissonance. The harmonic resolution is reinforced by the use of dynamics: there is first a crescendo, but this turns into a diminuendo as the process of serial subtraction begins. The resultant arch of tension and release is complemented by the percussion, with a drum-roll during the crescendo, followed by a crash of bells at the point of maximum dynamic tension, the latter creating a sudden dissipation after which the percussion disappears entirely. This arch of intensity is reinforced by the agitated tremolo bowing, which gives way to non-tremolo at exactly the same climactic point, giving the decaying part of the gesture a smoother and hence more resolved quality. Of course, there is no point in pretending that this last chord has anything triadic about it, yet the orchestration adds to the stasis: the use of strings divided into nine parts, smoothed with the horn, and voiced using wider intervals in the bass within a relatively constrained registral ambit, produces a strong level of textural homogeneity, and an almost Berg-like colour of repose. The only modernist spanner-in-the-works in this example is the curious semiquaver G thrown in at the very last by the horn. This note completes the series nearly adumbrated by the eleven-note chord, and in that sense brings about the completion of the final group, but in some ways the note is unexpected, for it contradicts the calm and serenity of the last chord by introducing a pointillistic 'blip' at the last minute. This event wrests the listener from the unusually static sonority of the final group and back into the

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[9] The groups referred to by the title of this work are compositional sections marked in the score, each being characterised by a distinct interpretation of the series that governs the work as a whole.

[10] See Harvey 1975: 68 for an adumbration of the serial process here.

pointillistic realm that otherwise dominates the previous groups in the latter part of the work[11].

Harmonic abatement occurs not only in the guise of discrete chords and cadences, but also in contrapuntal contexts. At least two analysts have drawn attention to the final phrase of Bartók's *Music for Strings, Percussion and Celesta* in relation to closure (Hopkins 1990: 42 and Maconie 1972: 21). The precise intervallic symmetry of this contrapuntal mirror results in harmonic abatement during the final step from the dissonant major second to the consonant unison (Ex 3.4). In addition, the fact that this gesture returns to its starting point reinforces the impression of completion. Such two-part contrary motion that draws towards a final consonance is a fairly common final gesture in Bartók. Sometimes this contrary motion is directed outwards to the final octave, as in the original and revised endings of the Concerto for Orchestra and finale of the Fifth String Quartet; sometimes it draws inwards, as with the ending of the first movement of the same quartet and the *Music for Strings, Percussion and Celesta*. Furthermore, this process may be in evidence not only in the immediate foreground, but also in the middleground; Antokoletz has shown how the ending of the Fifth String Quartet can be abstracted into expanding and contracting contrapuntal 'wedges' over the final 70 bars of the movement, converging on a final octave B♭ (Antokoletz 1984: 184). I will refer to this phenomenon in a shorthand way as '*contrapuntal convergence*' (towards the unison, octave, fifth or triad).

Ligeti's Second String Quartet (1968) also utilises this kind of contrapuntal convergence in the endings of three of its movements. The quartet as a whole is concerned with the contrast between psychoacoustically pure intervals and the dense impenetrable fog of semitonal and microtonal intervals. As Paul Griffiths puts it, 'a characteristic play is the muddying of simple chords (octaves at the simplest) through movements up and down a semitone' (Griffiths 1983: 70). The voice leading at the ending of the first movement is sketched in Ex 3.5. It falls into two stages, the first of which is represented by the converging beams in the diagram. Here the three upper parts all fall, though at different rates, while the cello rises in parallel fifths. In fact,

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[11] The passage leading up to the final chord entailed a sequence of six similar 'points' in the brass instruments, progressively quieter and with progressively longer silences between each, abatement thus foreshadowing the end. There is a suggestion that the final note is designed to complete this earlier sequence in terms of voice leading, since the final G4 on the horn is only a semitone away from the G#4 of the trumpet that precedes the onset of the last chord.

played alone the cello part *or* the upper two parts are consonant, but played together and with the slow moving viola part there are regular dissonant clashes. Nevertheless, one can hardly fail to notice the moment of convergence when the parts lock onto octave Gs from a dissonant cluster (F#,G#,A,Bb). To emphasise this moment of resolution Ligeti asks the players to make a transition from the agitated tremolo bowing that has been used throughout the passage, to ethereal harmonics on G played triple *piano* and without tremolo, a kind of 'timbral abatement' that might be subjectively described as a transition from a rough texture to a smooth and shiny one (very similar in this respect to the change of bowing used as Stockhausen's chord begins to dissolve in *Gruppen*). The second stage of the ending traces a descending chromatic line in octaves, and although the registral spacing of the octaves is irregular, the overall sense of calm is reinforced by the absence of any vertical interval other than the octave.

The ending of the second movement of Ligeti's quartet echoes that of the first, but this time with an *upward* chromatic procession of octaves (Ex 3.6). However, this movement does not end with a unison or octaves but with a whole-tone cluster (E,F#,G#). Nevertheless, the sudden appearance of G at four different octave levels just before bar 46 and immediately after a brief flurry marked '*Kratzgerausch*' (scratching noise) has a quality of timbral and consonant resolution analogous to that in the first movement, and interestingly enough the pitch chosen for this resolution (G) is the same. Although this G is not allowed to become the stable termination of the movement its sudden stability does seem to 'cue' the ending. What happens is that this pitch is then stretched upwards in microtonal increments, at different rates in different parts, until it converges on a pure sequence of unisons (A,A#,B and C). The use of dynamic contrast in the final upward step B-C (ppp-fff) adds a theatrical dimension that marks out C as a strong point of arrival and might cause us to hear the motion as a displaced leading-note-to-tonic motion. In addition, the overall progression of the voice leading from G to C could be heard as a linearisation of the perfect cadence (again, see Ex 3.6). The fact that C is then sustained in the bass in the manner of a tonic pedal point together with its dominant G in the second violin further reinforces this interpretation, although Ligeti avoids too much historical naivety by refusing to unite the converging inner voices onto G above this pedal point, instead leaving them drifting into silence on an enigmatic and stubbornly unresolved cluster (E,F#,G#).

In the ending of Ligeti's *Ramifications* harmonic abatement does not occur at the end, but it does play a role in cueing the ending in a similar fashion to the quartet movement examined above: there is an accompanied pedal on F1 on the double bass just before the ending, which lasts about thirty-five seconds (bb.103-111), creating an exaggerated sense of stasis and a sign of impending closure. This constitutes a unique event in the work, and it is joined by a very high F7 harmonic in the violins at bar 106. The fact that both of these notes are Fs adds consonance to the equation once more. Thus, harmonic abatement can be used some way before the end, as a kind of cue suggesting that 'the end is nigh', while the ending itself is free from this harmonic cliché.

In the third movement of Ligeti's quartet there is a further factor in the abatement: the texture ascends to a dissonant cluster (D,E,F,F♯) by the beginning of bar 40, but over the course of this bar the violins and viola ascend in steady glissandi to fuse with the F♯ of the cello (see Ex 2.10 in the previous chapter). Thus, Ligeti's micropolyphonic style absorbs the resolving logic of traditional counterpoint, moving from dissonance to consonance. In fact the cello has been holding this F♯ all the way through the cross-rhythmic section as an inverted pedal note – another dimension of stasis and abatement[12]. Exactly the same technique is used at the end of Ligeti's *Continuum*: the right hand reaches a highpoint on an F♭6 inverted pedal note, and the left hand, with which it alternates rapidly, moves from E♭6 to F♭6, merging the dissonant semitone into a consonant finalising unison.

The use of consonance may reinforce the sense of an ending in three distinct ways then - firstly, by virtue of being different from the rest of the work as a whole (terminal modification), secondly by projecting a sense of abatement through either a sudden or progressive motion from sensory dissonance to consonance, and thirdly by evoking historical harmonic principles of ending (triads, unisons and fifths). Often these three types of meaning will overlap; as with the effects explored in the previous chapter, the resultant sense of closure can be attributed to a mixture of 'sense' and 'sign', of psychological principles of resolution on the one hand, and associative extroversive semiotic factors on the other. It must be emphasised that these

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[12] See the comments on rhythmic abatement in this ending in the previous chapter.

tendencies are usually intertwined with other abating processes, homogenous forms of textural articulation, and sometimes with syntactical harmonic processes of resolution.

Together these examples bear witness to the lasting power of the psychoacoustic principle of consonance to suggest a harmonious state of completion and wholeness. It is precisely because of the surrounding dissonant contexts in these works that consonance stands out so suddenly – it seems to jump out with instant clarity from the dissonant web of micropolyphony in Ligeti's Second String Quartet, for example. Harmonic abatement is used alongside other abating parameters in many of these examples (for example, the Boulez and Berio examples both exhibit abatement in the fields of duration and dynamics, and Ligeti also uses longer durations for his unison textures in Ex 3.5, as well as sustained pedal points, to generate a sense of stasis).

Despite the demonstrable importance of harmonic abatement in relation to endings, it would be naïve to advocate this as the only approach to closing sonorities in twentieth-century music. The watershed of atonality early on in the century produced some strikingly 'untriadic' final sonorities, the compositional motivations for which I will explore in the following section. At the very least I have been able to round up here some examples of what is clearly a very large field for investigation. I have also emphasised that the effect of harmonic abatement is not limited only to historicising trends like neo-classicism, but that it also takes place in more radical modernist contexts (for instance in the examples from Stockhausen, Boulez, Berio and Ligeti). Some of the principles examined here will provide a basis for detailed harmonic analysis of closure in individual movements in Chapter Seven.

Dissonant Endings: Harmony and Sonority as Formal Frame

There is another approach to final sonorities that deserves consideration and which explains some of those cases in which composers do not revert to psychoacoustically stable or pure sonorities. This is what we might call the 'structural' approach to final chords, in which distinctive harmonic, timbral and textural features are used to forge connections between the beginning and ending. Where the beginning and ending make use of the same harmonic thumbprint, we can speak of a 'framing sonority'. In tonal music this framing sonority is invariably the triad, which usually recurs at the same pitch. A simple atonal example of such framing sonorities occurs in Berg's *'Lied der Lulu'* from the *Lulu Suite*, where a distinctive sequence of three fifths is

played by solo vibraphone at the beginning and ending of the work (in retrograde at the end). The fact that post-tonal music can draw on a much greater variety of vertical harmonic resources than tonal music, means that vertical combinations can be made quite distinctive, and can therefore serve as memorable thematic elements in their own right. Well-known examples of such framing sonorities include *'Farben'* from Schoenberg's *Five Orchestral Pieces*, Op.16, and the fourth movement of Webern's *Five Movements for String Quartet*. A later example is the last movement of Ligeti's Second String Quartet; the gossamer polyrhythmic texture established by the opening bars of the finale provides a clear sense of formal return near the end (although it is finally swept aside by the 'gesture to infinity' – see Chapter Two, Ex 2.13).

Harmonic correspondences between beginnings and endings can be more veiled and abstract, however. For example, the chord that ends the first of Schoenberg's *Drei Klavierstücke,* Op.11 is the dissonant set [0,1,6,7]; further analysis reveals the importance of [0,1,6] – an obvious subset of this final chord – as a recurring motivic element throughout the piece (both vertically and horizontally). In particular, the piece begins with two brief phrases that are each punctuated by a chordal rendering of this set[13] (Ex 3.7), and in this sense the final sonority brings the piece full circle. The descent to the final [0,1,6,7] chord also articulates [0,1,6,7] in the horizontal plane at a different transpositional level, adding to the somewhat esoteric process of unification and reprise (Ex 3.8). This is perhaps more obvious and relevant to the composer's (and analyst's) sense of formal completion than it is for the listener. At the same time the final passage achieves a more immediate sense of closure through the gesture of registral and dynamic abatement, and through the accented downbeat staccato of the final right-hand chordal configuration, which recalls nineteenth-century pianistic gestures of completion. There is also a multiple pedal point held through bb. 59-62, which creates a static anticipation of the ending. Earlier we witnessed the use of pedal points as stabilising consonant forces in atonal contexts, but here the pedal point does not serve to provide an aura of consonance. In fact it comprises the set [0,1,5,6] (discounting the mobile inner voices), which is related to the final sonority and the

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[13] Admittedly the second chord marked in Ex 3.7 also contains a fourth pitch class, Db, that is not part of the [0,1,6]. However, the identical voicing of the left-hand part of this chord and that of the first chord creates a more obvious parallel between the two. It is also this major seventh interval that forms the basis of a multiple pedal point in each of the hands towards the end in bb.58-61 (see Ex 3.8.)

opening through its [0,1,6] subset. However, basic set theory is a hindrance to recognizing the true similarities between this pedal chord and the final chord; rather it is the chord voicings that reinforce this relationship: the pedal chord can be described as two perfect fourths separated by a tritone, whereas the final [0,1,6,7] collection inverts this relationship, comprising two tritones separated by a perfect fourth. While one is not exactly a prolongation of the other, the similarities may be said to add coherence to this final unit.

Although the pedal chord is overtly dissonant, it fulfils a stabilising role by anchoring the chromatic descent of the inner voices in a way that is analogous to the use of pedal points amid passages of great chromatic flux in the tonal repertory. (It is also the first extended pedal point in the piece and as such an instance of terminal modification). It reminds me in this sense of the second movement of Ligeti's String Quartet No.2 where a double pedal point contains and anchors the chromatic stepwise motion of the other voices (Ex 3.6). Furthermore, the moving inner voices against this pedal chord are directly related in melodic and rhythmic contour to the melody of the opening, adding a further layer of thematic reprise (compare Ex 3.7 and Ex 3.8). Another example of veiled correspondences between openings and endings is Lutoslawski's Symphony No.2 (see Chapter Eight), which opens, closes, and climaxes near the end on an F/E♭ dyad, though each of these points differs substantially in texture and mood. Given that this work is of much longer duration than Schoenberg's Op.11, the harmonic symmetry is arguably even less noticeable.

In my final example - Varèse's *Octandre* - I will explore the possibilities of extending the harmonic frame to other formal boundaries. The first harmony we hear in this work emerges, after the initial oboe solo, with the addition of the clarinet; piquant semitones are formed as the two instruments collide on Bb3 and A4 for the first half of bar 6 (Ex 3.9). The next note to be added is the B♮ harmonic of the double bass, briefly forming the an [0,1,2] set with the other voices. The same set occurs at the very end of the work, in a triumphant trio of trombone, trumpet and horn (Ex 3.9). If this relationship might seem obscure, the memory of the [0,1,2] sonority is kept alive for the listener at other strategic points in the work, notably at the boundaries between the three movements. For example, the beginning of the last movement also forms the [0,1,2] set (if I am permitted to include the semiquaver C natural of the bass as a linear projection of the set). And in the first and second

movements the beginning of the solos outline the same set in linear fashion. In addition, after the solo opening of the second movement the clarinet joins the piccolo in a piercing long-held major seventh high in the high register [0,1]. Thus the framing semitonal dissonances are extended to the opening of each short movement, together with the final edge of the frame at the very end (summarised in Ex 3.9).

Although I have used the 'dry' terminology of set theory as a convenient label in this example, the correspondences between sonorities at the beginnings of each movement and the ending are certainly not hidden from the listener as they were in Schoenberg's Op.11: the [0,1,2] set is no less individualistic than the distinctive vibraphone fifths that frame Berg's 'Lied der Lulu'; the acute clustered semitones together with the sparse scoring become characteristic features which aid the listener's navigation of the structure.

The reader will probably object at this point that the very fact that Varèse and Schoenberg utilised such astringently dissonant harmonies at the end refutes my earlier attempt to utilise psychoacoustic theory. It is for this very reason that I am presenting an alternative perspective on final chords based upon the idea of reprise and formal closure. At the same time, a deeper consideration of the harmonies used in *Octandre* reveals that there is an ongoing preoccupation with psychoacoustic levels of dissonance (remembering that Varèse had read Helmholtz's *On the Sensations of Tone* – the seminal work on psychoacoustic dissonance - with great interest[14]). Varèse seems preoccupied in this work with chords built from many adjacent semitones, of which the [0,1,2] configurations in Ex 3.9 are mere embryos. Ex 3.10 shows a couple of these fiery concatenations of dissonance from the first movement, whose piercing semitone conflicts are immediately obvious from their pitch-class-set descriptions. These create intense, climactic gestures, scored with crescendos over wide registral spans. Similar gestures can be found in the remaining two movements, always articulated through a similar fanning out effect whereby each instrument enters with a new note of the chord. (See the 2nd movement at bb.39-41, bb.69-70 and bb.78-90; and the 3rd movement at bb.32-43). By contrast, the beginning and end of the first movement, as well as the beginnings of the second and third movements, employ solo passages that are moulded entirely from linear semitone motion, albeit with occasional octave displacements. These solo passages are not dissonant

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[14] See Varèse 1973: 42.

vertically, but spell out the strings of semitones that are elsewhere compressed into the somewhat excruciating climactic chords (Ex 3.10). Thus the endings of the first and third movements do in fact function as harmonic abatements on a formal level, being much less dissonant than the internal climactic sonorities[15]. The global ending expresses this idea of harmonic abatement in a clinching manner, resolving what is the largest semitonal set in the movement (comprising ten adjacent semitones when reduced to a pitch-class set[16]) with a gesture analogous to a cadence, simply cutting off most of the parts to leave the embryonic [0,1,2] sonority (Ex 3.10). Although not exactly consonant, the latter is noticeably less dissonant and less dense than the preceding chord, and thus bears out the idea of harmonic abatement explored in the earlier part of this chapter.

Conclusions

This chapter has explored some of the diverse approaches to final chords found in post-tonal music, primarily in terms of their intervallic harmonic structure. Although perhaps unashamedly surface-oriented, the act of disregarding notions of harmonic syntax in favour of concentrating on the vertical outlay of end-sonorities nevertheless proves historically and analytically enlightening. One of the major problems encountered when attempting to theorise such diverse final sonorities is the fact that a significant portion of twentieth-century music appears at first hand to be unconcerned with the rules of consonance governing traditional harmony and counterpoint. However, I have shown that some endings at least show great sensitivity to minute variations in levels of sensory dissonance, and that their tendencies towards a relative sense of consonance are an important element in communicating the sense of an ending. Although the triad itself occurs as a final formula throughout the first half of the twentieth century, it is merely one type within a broader genus that appeals to our ability to respond to distinctions between dissonance and consonance, and to experience the latter in terms of stasis, abatement and closure. This wider family of

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[15] The exception is the end of the second movement, which comprises a semitonally dense climactic sonority. However, this suddenly disappears as the double bass initiates the final movement, shortly leading to [0,1,2] as noted in Example 7.0. Thus the sudden abatement still creates a structural boundary, though it is a 'new' beginning rather than an ending.

[16] Despite only having eight instruments available, Varèse generates this gigantic chord by using trills and rapid alternations to give the illusion of additional voices (notated as tremolos in Example 3.10)

chords and sonorities may involve simple consonances - the octave and fifth – as well as more complex harmonies that emphasise consonant triadic or fifth-based features. While it can be argued with validity that this compositional approach is a natural outcome of neo-classical and modernist historicising tendencies, and that these filter easily into the rhetorical appreciation of the listener immersed in the culture of tonal practice, there is also a broader case for recognising the role of consonance in endings as an independent variable in its own right. This can be appreciated in the examples from the later half of the twentieth century, in which contexts the traditional triadic halo has been lost but there is still a strong appeal to what might be termed 'consonant forces'. In some cases these forces are felt a little before the ending itself, cueing the ending, and thus liberating the composer from the necessity of ending with obvious harmonic clichés.

While it would become rejected and even ridiculed as aesthetically inconsistent by later generations, the use of the triad and other consonant combinations that have their roots in the past provides a historical foothold through which to offer a clear sense of an ending to concert-hall audiences. But it is more than just an expedient device; rather, it reveals a deeper and perhaps subconsciously ingrained aesthetic within the compositional mindset. For, even at the same time as transforming tonality, modernists like Schoenberg, Stravinsky and Bartók at times seem to be reincarnating tonal ideologies of closure at the end of their works, something I shall explore in the later chapters. And it is not only the triad itself that provides this link, but often also the manner of its presentation, the way it is dressed up in an almost iconic way to represent stability and completion.

Such finalising harmonic configurations engage with abatement (in the form of increased levels of consonance) and also act as signs that reinforce the sense of an ending by referring back to the tonal tradition of triadic endings or by being noticeably different from the normative dissonance engaged by the typical modernist work (fulfilling the role of terminal modification explored in Chapter Two). Further study of the spectral qualities of these sonorities together with empirical tests of their psychological effects in terms of stability might prove interesting, but, as we have seen, closure cannot be boiled down to just one parameter but constantly demands contextualisation within a wider set of other abating parameters and expressive modes. As an example of this, the final part of the chapter addressed the issue of overtly dissonant endings by arguing that formal strategies of symmetry can

contribute to the effect of harmonic closure, overriding the requirements of harmonic abatement. These structural rationales for closure may vary in their transparency to the listener, but are no doubt of deep relevance to compositional thought. In many of these cases other forms of stasis and abatement play a role in defining the stability of the final dissonant chord (such as textural unification and/or dynamic abatement). In some cases, in spite of the radically atonal language, there is still a theorisable interaction taking place between dissonance and consonance that contributes to the effect of these endings.

Ex 3.0 Debussy, *Le Martyr de Saint Sébastien*, Act IV Scene 2 (ending)

Ex 3.1 Extended triads as final chords

1) Berg, Violin Concerto.
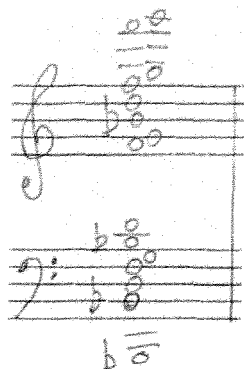
2) Stravinsky, Symphony of Psalms, II movt
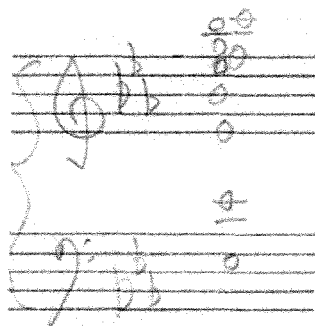
3) Stravinsky, Symphony in Three Movements, III movt.
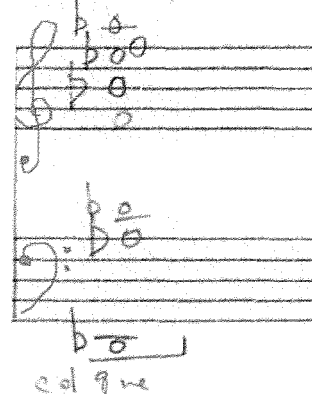
4) Nancarrow, Study No.37 for Player-piano
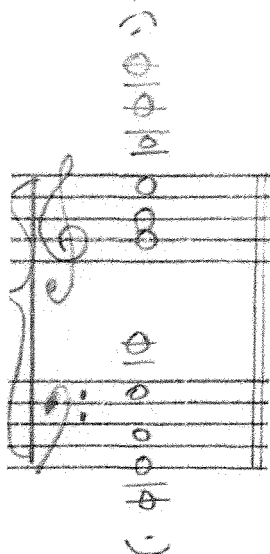
5) Lutoslawski, Symphony No 1, I movt.
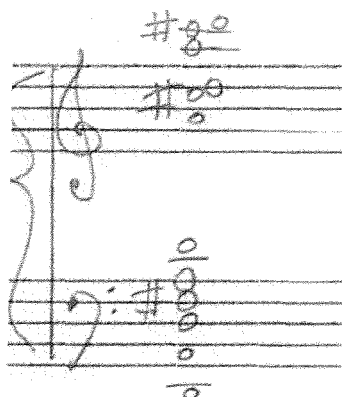
6) Scriabin, *Vers la Flamme*, Op. 72.
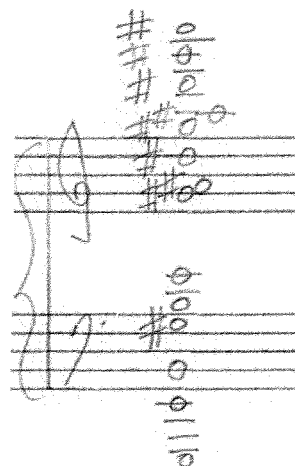
7) Stravinsky, Symphony in Three Movements, I movt.
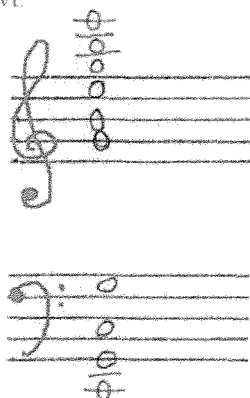
8) Stravinsky, Symphony in C, IV movt.
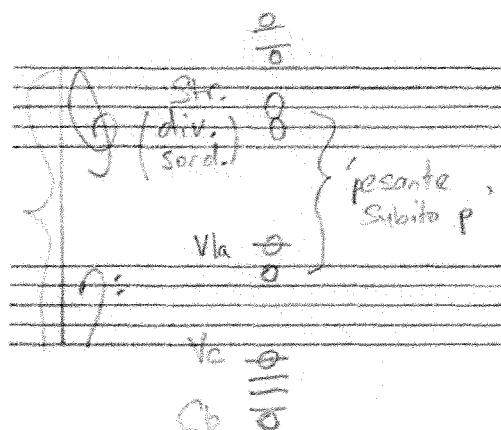
Ex 3.2 Messiaen, *Quartet for the End of Time*, fifth movement (ending)

Decreasing dissonance >>>

| No.of tritones: | 1 | 1 | 0 | 0 | 0 |
| No.of semitones: | 1 | 1 | 1 | 1 | 0 |

Ex 3.3 Stockhausen, *Gruppen* (ending) – showing the order of disappearing notes and resulting harmonic abatement in the last chord

No. of semitones: 10…   8… 6… 4… 2…   0

Ex 3.4 Bartók, *Music for Strings, Percussion and Celesta*, first movement (ending)

Ex 3.5 Ligeti, Second String Quartet, first movement (ending) – showing contrapuntal convergence and chromatic unison descent

Chromatic descent: G♮ F♯ F♮ E♮ D♮ C♯ C♮ B♮ B♭ A♮ G♯

Ex 3.6 Ligeti, Second String Quartet, second movement (ending) – showing chromatic ascent, unison and final C/G pedal

Chromatic ascent: G - - - - G♯ - - A A♯ B C

Ex 3.7 Schoenberg, '*Drei Klavierstücke*' Op.11 No.1 (opening)

Ex 3.8 Schoenberg, '*Drei Klavierstücke*' Op.11 No.1 (ending)

Ex 3.9 Varèse, *Octandre* – showing embryonic [0,1,2] sets at the beginning of each movement, and at the end.

Ex 3.10 Varèse, *Octandre* – showing horizontal and vertical concatenations of adjacent semitones in the first movement, and in the final cadence

Chapter Four

The Sound of Silence: Stopping versus Ending

One of the few certainties about musical endings, at least within the tradition of concert-hall performance, is that they give way to silence. Admittedly this is rather an idealistic silence that is in actuality often riddled with coughing and murmuring, or beset by an immediate outburst of enthusiasm from that quarter of the audience eager to impress the rest of us with their intimate knowledge of the work and where it ends. The situation here is distinct from other musical contexts; for example, radio stations playing popular music tend to rely on a continuous stream of sound (music, talking, jingles and advertisements) in which silence almost never intervenes. By contrast, the idealised silence that follows performances of classical music possesses a kind of poignancy, one might say a degree of 'correctness', although this is not to say that such a feeling cannot also occur within other styles and genres. Nonetheless, it is perhaps the scale and length of so many works from the Western classical tradition that impresses this kind of potency upon the final silence. Like reading the last page of a novel, the listener begins to contemplate the work as a whole, to seek meaning in the last utterances that will make sense of the journey just witnessed.

The final silence is also the point at which the listener is removed from this reverie, the point at which the piece as an artefact abuts into the real world. Indeed, silence is the framing factor around the music which allows us to speak of a separate piece of music or separate musical movements in the first place; as Edward Cone says, 'the frame announces: Here the real world leaves off and the work of art begins; here the work of art ends and the real world takes up'. (Cone 1968: 15)[1] This is not always a clearly defined line, however, and Cone goes on to point out pieces that begin almost imperceptibly from silence and others that fade into silence so gradually at the end that the listener struggles to hear the precise moment when the piece is over. Every conceivable kind of play has been made on the notion of this silent frame in twentieth-century music. Varèse's *Tuning Up* is fashioned from the sounds associated

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[1] For a thought provoking deconstructionist perspective on Cone's essay, see Littlefield 1986.

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with the orchestra *before* the beginning of a performance, and thus extends the margin of the frame backwards in time. Varèse and Ligeti have included bars of conducted silence at the end of their works, effectively conducting the frame itself[2]. One young composer I know of even wrote a piece that required the players to begin playing again at the end as soon as the applause had started!

Of course, absolute silence is impossible so long as we are living, breathing human beings, as Cage famously demonstrated in *4'33''*. But in general, silence, or at least the absence of composed sound, marks an important event in sealing off the musical work as a whole and dividing it from the quotidian world of mundane sonic accident. The power of silence in this framing capacity has left its mark on compositional practice. More accurately, because of its important role in communicating and confirming closure (as a state of maximal abatement and quiescence) the use of silence has frequently been restricted to just that. Silence is used judiciously and sparingly before the twentieth century, its main function being to separate individual movements and works. What silence offers in terms of a compositional resource *within* the work was apparently of less interest. With the rise of what might be termed 'through composition' in the later nineteenth century – for example, the replacement of operatic numbers with Wagner's *unendliche Melodie* and the concomitant inter-linking of symphonic movements into the single-movement symphonic poem – the formal role of silence as a divider of separate movements was cast aside by the ideal of organic unification prized so highly by Romantic metaphysics. Admittedly, there are many instances of much shorter silences embedded within works of the tonal tradition - the crack between transition and second subjects in many eighteenth-century sonata forms, the chinks of silence between phrases, and the equally brief silences necessitated by the breathing of singers and wind players - but it was largely left to the twentieth century to discover the true potential of empty space.

The apparent goal of this final abyss of quiescence in art music remains something that is taken for granted, yet in an often unacknowledged way plays a part in shaping the preceding body of the composition. This is true of both music that exhibits a phobia of silence, and that which openly incorporates silence within itself as a more

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[2] ...as we have already seen in Chapter Two: in Ligeti's *Ramifications* there are five bars after all instruments have stopped playing in which the conductor is instructed explicitly by a note in the score to continue beating time. In Varèse's *Déserts*, after the last note the conductor is instructed to beat the final silent 7/4 bar.

normative element. For in both cases what is offered is the possibility of playing with the audience's expectations of silent finality. And here the compositional dilemma becomes obvious, for if silence is incorporated *before* the end itself there is always the risk that it will be misinterpreted as a sign of the ending instead of as a pause or interruption. Has the music ended, or has it just stopped momentarily? How many of us have witnessed performances of unfamiliar or new works where this question has permitted only a cautious applause at what we think is the end? Such provisional stopping is quite acceptable within the generic convention of multi-movement works, where silence can be appreciated as a resting-place between a familiar sequence of movements. But in works in which the audience is given no specific documentation or generic convention to follow, it will be left to the performer or conductor to give an appropriate expression of the degree of closure embodied in a silence, and also to the composer's skill in manipulating sensations of closure to give the impression of different kinds of silence – fulfilled or unfulfilled[3]. It is to questions of this latter aspect of compositional practice that the present chapter is devoted. The first part focuses on the rhetorical strategy of the *aposiopesis*, 'the act of suddenly breaking off in the middle of a sentence as if unwilling to continue' (Hanks 1986: 69) in order to determine some of the qualitative differences between stopping and finishing. The latter part of the chapter considers the ramifications of new musical discourses which are less restrictive in their use of silence - that is, where breaking off becomes the norm - and the problems of closure to which these give rise.

The Aposiopesis as a Gesture of Finality

In music it is perhaps no accident that the *aposiopesis* found its way into the dramaturgy of Baroque compositions following the revival of interest in Classical rhetoric in the sixteenth and seventeenth centuries[4]. The act of breaking off at the end is useful in music that is otherwise continuous in texture or rhythm, pieces marked

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[3] Another factor is that the audience may also look anxiously to see how many score sheets are left during a performance, just as when reading a novel we anticipate the ending by noting how many pages are left!

[4] See Bartel 1997: 202-3 for a selection of seventeenth-century definitions of the *aposiopesis* and related terms (*abruptio, ellipsis, homoioptoton, homoioteleuton, tmesis, suspiratio* and *pausa*). The use of the term '*aposiopesis*' in this chapter is not intended to evoke the precise connotations of earlier usage, however, but as a useful blanket term for the process of breaking off followed by completion as defined here.

predominantly by continuity rather than frequent changes of pace, where it fulfils the role of terminal modification. The *aposiopesis* provides an excellent means of putting the brakes on, a way of escaping the clockwork rhythmic pulse that seems to want to carry the music on forever. There are a number of examples in Bach's *Art of Fugue*; interestingly, they all occur close to the end of each fugue. One has to look no further than the ending of *Contrapunctus* I for a striking example of this device (Ex 4.0). However, apart from the unintentional breaking off in the final fugue (which was left unfinished by the composer), the *aposiopeses* of *Contrapunctus* I, VI, VII, XVII and XVIII entail not only a breaking off, but are followed by continuation and completion. In the example from *Contrapunctus* I the *aposiopesis* itself is followed by the logical completion of the musical sentence in a very straightforward way, with a cadential formula and tonic pedal. It is this twofold process of interruption and completion that, far from eroding the overall sense of closure, produces a clinching effect whereby what was cast into doubt by a seemingly illogical pause is then verified with an irrefutable perfect cadence – a miniature musical projection of the rationalitic aspirations of the Enlightenment itself! A remarkable twentieth-century elaboration of this device occurs at the end of Sibelius's Fifth Symphony, where multiple silences are used between the different chords of the final cadential sequence (see Chapter Eight, Ex 8.0.ii).

It is not always easy to explain the psychological and aesthetic factors that create the *aposiopesis*. It requires sensitivity, albeit subconsciously on the part of the listener, towards the difference between just stopping and actually ending (thus the title of this chapter). In aesthetic terms, stopping would imply interruption - a sudden and unfulfilled or ambiguous silence - whereas an ending creates a feeling of conclusiveness, the feeling that nothing more is to follow (though there are examples where this is not the case). In tonal music it is the conventional syntactical connections between harmonic events that allow composers to exploit the effect of the *aposiopesis*. For example, in Bach's *Contrapunctus* I the choice of the dominant before the brief silence, in the form of a tentatively voiced diminished triad, creates both a vertically dissonant and grammatically open-ended destabilization. Hearing this against the backdrop of common tonal practice the unfinished quality of the silence is not difficult to apprehend. One of the most important questions from the point of view of the twentieth century, however, is to what extent the effect of the *aposiopesis* can be exploited in an atonal context where harmonic goals are less

obvious or at least less well theorised. Conversely, are non-harmonic parameters capable of creating a similar effect without the aid of such syntactical structures? What follows is a series of studies which attempt to address these questions with regard to the seemingly timeless gesture of breaking-off plus completion as it appears in what might be called 'less tonal' as well as atonal contexts. The examples are divided into several sections, achieving interruption and closure through different means: the first explores the potential of post-tonal harmony for creating the *aposiopesis*; the second looks at ruptures of texture that are completed by processes of dynamic, registral and rhythmic completion; the third examines the motivic *aposiopesis*, while the final sections examine instances where silence is less clearly resolved. It will be noted that silence itself is not always the interrupting factor in some of these examples; sometimes other kinds of breaking off are involved - a sudden change of texture or dynamic level, for example.

Harmonic Aposiopeses

My first example is from Scriabin's Four Preludes, Op.48 No.1 (Ex 4.1). Still on the shores of tonality, this impetuous firework is suddenly extinguished in bb. 16-17, sparks up again in bar 18, falls silent and then explodes in the final bar. This brings about a kind of double *aposiopesis* (each is indicated with a question mark in Ex 4.1). The second part of this formula involves the breaking off of dominant-seventh harmony, followed by silence and then the tonic. The first interruption follows a more modern harmonic shift, from a dominant seventh on C♯ to an augmented sixth chord on G, with a distinctive leap of a tritone in the bass (the latter progression can be seen in almost every bar of this piece). The enharmonic reinterpretation of the tritone provided a fresh colouristic effect for many composers in the early years of the twentieth century, at first as an embellishment of traditional tonality as in this instance. It became (albeit independently) one of the foundational harmonic principles of be-bop jazz in the 1950s and 60s (commonly referred to as 'tritone substitution'). Quite simply, the technique involves maintaining the same tritone from one harmony to the next (in the case of bb. 15-16 of the Scriabin's Prelude this

tritone is B/E♯) while transposing the other notes of the chord by a tritone (thus, the

bass notes move from C♯ to G over bars 15-16 in Ex 4.1)[5].

Within the functional tonal universe which this piece inhabits, this effect is non-

functional, that is to say it does not constitute a cadence or resolution despite the

downward leap of the bass, but simply prolongs the tonally dissonant tritone B/E♯

(see the annotations in Ex 4.1). This tritone is then restated in bar 18, once again over

C♯, and, after a further pregnant pause in which we await resolution, the tritone is

finally resolved outwards in a diatonically functional manner to the tonic (F♯/A♯). It

is well known that Scriabin was among the first to explore in depth the property of

tritone symmetry[6]. The subsequent evolution of Scriabin's approach to tritone

relationships exemplifies the importance of stylistic context in the syntactical

operation of closing gestures. When the progression is heard against a backdrop of

traditional tonal cadences, as it is in Op.48 No.1, the tritone cadence cannot be heard

as a resolution, so the silence that follows is an unambiguously open one. However,

in Scriabin's later period (from the Sixth Sonata onwards) the role of the tritone is

established independently of such tonal voice leading; instead the tritone operates as a

stable entity within octatonic, whole-tone or modally mixed systems, and tritones

themselves are the objects of prolongation[7]. Scriabin's Op.72 ('*Vers la Flamme*') and

the five Op.74 Preludes actually *conclude* with a tritone leap in the bass, rather than

using it as an open gesture, as it was in Op.48 No.1. It is therefore quite telling that

Scriabin does not risk any silent interruptions of his final tritone progression in any of

the late piano music, presumably in order to avoid possible misinterpretations

between these two contradictory systems – tonality (in which the tritone has to

resolve) and tritone modality (in which the tritone is a stable entity)[8]. Of course, it is

possible that through further establishment of the tritone as a normative ending

Scriabin could have created a sufficiently confident stylistic tendency that itself could

be subject to subversion and harmonic *aposiopesis*. But the apparent reluctance to do

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[5] In fact it would be more accurate to say that the whole chord is simply transposed by a tritone; due to the fact of tritone invariance any tritones within the transposed unit remain the same when transposed by this interval.

[6] It can also be found in late Brahms, in the second of the Three Intermezzos Op.117, bb.68-69. Here the harmonic daring becomes the focus of the climax itself.

[7] See Tebbs 1998: 23-28 for a discussion of tritone prolongation in Scriabin's Op. 74.

[8] Scriabin does use a silent interruption of one bar close to the end of the Sixth Sonata, but here it is rhythmic expectation – rather than harmonic expectation – that is withheld to produce the *aposiopesis*.

so illustrates to a degree the extent to which harmonic expectation is bound up with historical norms, especially in the period of emergent atonality.

Bartók was another composer for whom the tritone and its unique symmetrical properties occupied a special place in the exploration of new atonal geometries. The finale of his Fifth Quartet is a veritable essay on the tritone, a roller coaster of a ride through every conceivable contrapuntal permutation and variant of the apparently simple four-note upward and downward scale fragments at the opening of the movement. An important aspect of the contrapuntal interplay in this movement is the strong tritonal ambience. The main theme hinges around successive tritone pairs, and the 2/4 metre tends to emphasize the tritone pole between the five-note scale segments (eg. E,D,C,C♭ / B♭). The E/B♭ pole is frequently used to initiate this first theme group, as it does later during bars 367-446, a lengthy stretch in which E and B♭ are to be found in every bar as pedal notes. At bar 546 E and B♭ again provide the point of departure for the recapitulation of this theme. It is perhaps no surprise therefore that the final tonic of the quartet is one of these notes, B♭ (Ex 2.1 – Chapter Two). It is even possible to argue that ending accommodates both tritone 'tonics' (ie. B♭ *and* E), since the final linear cadence presents two ascending fourths (B–E followed by F-B♭).

The ending itself incorporates a briefly silent *aposiopesis* just before this clinching motto theme steps in to close the movement firmly, and one that should be long enough – if the tempo decrease is observed in performance – to create the effect of an abrupt breaking off (Ex 2.1, bar 825). This follows a rare moment of harmonic homogeneity in the movement, and all the more unusual for being a simple major dyad (D/F#). Such a consonant sound subverts the notion that the breaking off should be vertically unstable – a seventh chord or diminished chord in tonal contexts, for example. In fact, since the movement is so aggressively dissonant it makes this modest major dyad sounds rather awkward, and purposefully so, making an excellent springboard of suspense for the brief but uncertain silence that follows. There is a problem with arguing that this dyad is a *non sequitur* however, for on another level the F♯ at the top of this dyad is actually a completion of the descending figure (C-B-A-G♯) that has been trying unsuccessfully to reach down to its tritone pole (F♯) for

the last ten bars. In this sense there is a motivic sense of satisfaction as the D major dyad arrives. And what of the long E/D# pedal in the accompaniment through bb. 810-820? Does this frictional semitone create the sense of growing agitation that finally resolves itself into D major? Or is it that the E pedal creates a desire for B♭ (its tritone pair) which appears to be deliberately excluded from the last 24 bars, only to be reinstated as the final event of the piece (E is also present as a pedal throughout most of bars 781-801[9])? It is significant that Bartók, under these ambiguous circumstances, only allows himself one bar of silence for the breaking off - too much and the movement might have seemed to have come to an end on D major. The point here is that in atonal contexts, in the absence of an absolute grammar, ambiguity and the possibility of multiple readings always present themselves. As if in acknowledgement of this, the final gesture alludes to tonal closure in its outlining of two perfect fourths, the second in diatonic guise (F,G,A,B♭), so that even here there is a hint of a past tradition to ratify the culminating power of the final event (as well as the factors of liquidation, consonance and tempo abatement mentioned in connection with this ending in the previous two chapters). One could perhaps conclude that it is the overriding sense of syntactical ambiguity, rather than a specific type of off-tonic syntactical orientation, that is responsible for the effect of the *aposiopesis* in this example.

Dynamic, Registral, Rhythmic and Textural Factors

Close to the end of the colossal final dance of Stravinsky's *Rite of Spring* we get a sense that the music has reached dynamic and virtuoso saturation point, the whole orchestra caught up in the Dionysian frenzy, and because we feel this point cannot be exceeded we know (or hope!) that it will soon burn itself out. The last 73 bars entail immense block doublings of two essentially rhythmic lines, the final bars of which are summarized in Ex 4.2. The dialogue between these two lines is, to put it crudely, a kind of 'um-cha-cha' effect in which the lower 'ums' and the higher 'chas' vary their number unpredictably. In the last 16 bars, however, the 'ums' (given to the bass

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[9] See also the contrary motion voice-leading diagram proposed by Antokoletz for the end of this movement (Antokoletz 1984: 184) in which both the D major dyad and the final B♭ are accommodated by longer range processes.

instruments, lower timpani and bass drum) finally establish a regular pattern in 2/4, creating stability and liquidation (although contradicted by the irregular grouping of the 'chas', marked as motifs x and y in Ex 4.2). However, the expected 'um' inferred from this pattern is suddenly missing at rehearsal figure 201, while the 'chas' continue alone until they too break off and the texture scatters with the suddenly quiet *sul ponticello* of the first violins and strange upward quasi-glissando of the flutes. The texture thus evaporates, leaving a momentary question mark in the listener's mind as to the finality of the music. Stravinsky is very specific here, writing '*non crescendo*' over the flute and piccolo ascent so that the downbeat in the following bar is not perceived as an accented point of completion. After a brief pregnant pause of almost three crotchet beats in duration, the final gesture creates a 'cha-um' with the 'um' focussed on the downbeat. Or rather, an iambic upbeat-and-downbeat is generated out of the blue by brute force, since there is no longer an established metrical point of reference (This fact is worthy of remark, since elsewhere there is evidence to suggest that, by contrast, composers deliberately align the final note of a composition with the strong beat of the bar, especially where the metre has become misaligned or syncopated in the preceding passage[10]). Importantly, the *aposiopesis* is achieved here without recourse to clear harmonic resolution[11], using only parameters of timbre, register and localised agogic rhythmic accent. The final downbeat unifies the bass element of the 'um' with the brass (horn) element of the 'cha' previously used to punctuate motif y, thus synchronizing elements that were formerly opposed. It also maximises the registral difference between the two layers, from A7 down to D0 over seven octaves below, producing a powerful clinching gesture.

The overall pattern described above and illustrated in Ex 4.2 fits with Leonard Meyer's interpretation of Gestalt theories of closure: 'such a break in process may arouse the keenest expectation...but expectation is satisfied after the rests, not because something which was missing is introduced, but because that which was interrupted is begun again.' (Meyer 1956: 131) In the case of Stravinsky's

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[10] One author comments on Bartók's use of a metre-breaking 3+3+2 cycle, 'a rhythmic phenomenon that, similar to the role of hemiola in 3/4 time in Baroque music...was Bartók's favourite means to break the steady pulsation of 2/4 time and so prepare a cadence'. (Somfai 1996: 174-5). Somfai's diagram of the revised ending of the first movement of the Piano Sonata shows that Bartók alters the end of this cycle in order to bring the final downbeat into alignment with the background 2/4 metre that had been displaced some eight bars earlier.

[11] Nevertheless, an almost inaudible trace of tonality remains in the A to D progression of the bass between rehearsal figure 201 and the final bar, implying a perfect cadence.

aposiopesis it is not so much that Meyer's process 'is begun again', but that it is restored in a singular moment that is simultaneously a continuation and a completion. Here the predictable element - the regular accentuation of the downbeat by the bass - disappears, thereby creating tension, and is then reinstated, resulting in closure. This is made obvious by the fracturing of the texture and dynamics, which is then restored with similar orchestration to the passage that was originally interrupted. In this sense the gesture of the *aposiopesis* is closely analogous to visual forms of Gestalt closure, as defined in Chapter One, in the sense that the musical gaps are retrospectively filled in by the continuation and completion of an implied pattern or state.

In its directness this technique escapes the necessity of exploiting harmonic conventions as a means of marking a lack of closure, using instead a break in texture and metrical continuity. Nor does silence itself have to intervene to produce such interruptions; a sudden change applied to parameters that have otherwise remained continuous is all that is required for this effect: Beethoven, for example, interrupts the end of the ebullient scherzo of the Seventh Symphony with what seems to be a third appearance of the quiet trio, and then brushes the latter aside with a brash cadential progression that restores the dynamic character of the scherzo. The end of the carnivalesque finale of Mahler's Seventh Symphony also employs a sudden pianissimo change in what are otherwise the loudest bars of the work, at the same time eerily bending the tonic C-major harmony to an augmented triad on C, only to restore both the plain triadic harmony and the loud tutti dynamic in a final confirmatory explosion. These two examples stretch the original meaning of *aposiopesis* as 'breaking off into *silence*', but a similar principle seems to be at work, in which the musical surface switches relatively quickly between two sets of parameters (A-B-A) in order to establish the primacy of the initial state.

The same device finds many reincarnations in twentieth-century endings: Lutoslawski employs it at the of the first movement of his First Symphony for example, using the orchestra *en masse* before scattering the motifs in a chamber-music-like fashion between different sections of the orchestra. He then reverts to the full orchestral sound again in unanimous rhythm for the final cadence, thereby allaying the would-be disintegration. There is a harmonic element to the deception too in this case; what we expect to be the final chord (before the chamber-like layer emerges in its wake) is actually an augmented triad on B♭, whereas the genuine last

chord is a root-position D major chord (albeit with a bit of C♯ added-seventh spice, with the D major triad as the foundation).

Pierre Boulez might seem an unlikely candidate for such a traditional rhetorical ploy as the *aposiopesis*, but its appearance in the unassumingly titled Sonatine for Flute and Piano is a testament to the historical interplay that surrounds his works. The past comes alive with a new intensity here, though nothing in the spiky atonal surface really hints at this past; indeed, the structure and the choppy motivic rhythm all bear the hallmark of an incessant developing variation the likes of which Schoenberg could have only dreamt about! Within this overall margin of intensity the level rises and falls, tending particularly towards climax and liquidation at the end of the strongly contrasting sections of which the piece is formed. The end itself is founded on such a climax, exploiting the brittle and piercing highest tessitura of the flute in an upward flurry marked '*tres appuyé*' ('emphatic, 'overdone') and then, as it arrives on the highest note (C7) '*arraché*' ('snatched' or 'uprooted'), bar 491 (Ex 4.3 at (1)). This is not yet the moment for the *aposiopesis*, but it does provide a fairly clear full stop for the end of the previous section, after which the rate of events slows down dramatically, creating a new air of stasis. This stasis is articulated through two ideas: first there is a long trill on B♭/C♭ in the piano right hand between bars 496 and 502 during which the flute is silent (Ex 4.3 at (2)). Second, and more unusually in the context of the rest of the work, this is followed by a sequence of three long-held notes that pick up the earlier registral extreme of the section ending in bar 491, the first on F#6, and the second and third on A# 6 (Ex 4.3 at (3), (4) and (5)) (and we have already witnessed in Chapter Two how repeated gestures are a common sign of an ending). The registral and dynamic extreme is essential to the successful implementation of the final *aposiopesis*: following the third of these long-held notes is a deliberately lifeless piano interlude ('*sans inflexion et sans timbre*') that drifts off into near silence, constituting the 'breaking off' part of the *aposiopesic* formula (at (6)). Then suddenly the previous registral and dynamic extreme is restored (and indeed exceeded, since the flute ascends to a virtually unperformable F7) with a figure very similar to that which punctuated the end of the previous section at bar 491 (Ex 4.3 at (7)). The significant difference between this and the earlier figure is that here the left hand of the piano does not spill over into a grace-note descent as it did in bar 491, but is instead given a quasi-cadential leap in the extreme bass, and one that

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indicates a binary iambic upbeat-downbeat rhythm akin to the iambic clinches at the end of Bartók's Fourth Quartet and Stravinsky's *Rite of Spring*. While not exactly silent, the piano interruption is in maximal contrast with what comes before and after, and the most acute hearing is necessary to detect the continuing sound of the sustained chord in bar 509. In these examples from Boulez, Stravinsky, Mahler, Lutoslawski and Beethoven the effect of the *aposiopesis* and its completion is made clear by continuities of dynamics, register, harmony and orchestration that straddle the divide created by the breaking off itself, thus helping to impart a logical sense of rounding off.

Motivic Aposiopeses

The ending of Bartók's Fourth String Quartet provides a splendid and almost textbook illustration of the twentieth-century *aposiopesis*. So effective is it in bringing about a decisive sense of an ending that Bartók uses almost exactly the same material for the end of the first movement, producing a formal rhyme across the two outer movements that also strengthens the effectiveness of the ending. The motivic material of these endings is derived from a variant of a motif that dominates the entire Quartet, heard first in bar 11, and which begins to take hold again in the final *piu mosso* section of the first movement (bb.126 ff.). From bar 137 onwards Bartók juxtaposes fragments and variants of this incisive motive with highly contrasting figures that seem to want to derail it. First the motive is presented *forte*, in simultaneous inversion with itself, but beset by pairs of *piano* crotchets in the lower register. Between statements of the motif these crotchets lengthen progressively their uneven third-cycle ascents (G#; G#-B, G#-B-D#; G#-B-D#-G etc.) until they completely take over the texture in bars 145-47. As the original motif reasserts itself, this time in the lower register, it is mocked by sforzando whole-tone chords with acciaccaturas in the higher register (at the beginning of Ex 4.4). Rather like the expectation that suddenly crystallizes from Stravinsky's use of a regular 2/4 metre in the bass in the example from the *Rite of Spring*, Bartók then dispenses with these disruptions and regularizes the rhythmic and metric structure into a clockwork descending sequence of the primary motif (Ex 4.4). This arouses a clearer sense of expectation, particularly in the rhythmic domain, as well as having a liquidative function that constitutes a kind of triumphant affirmation of the motif following its

former battles with other interrupting material. The motif is here lengthened to nine quavers and two contrapuntal lines are traced by the instrumental doublings (see the bracketed lines in Ex 4.4). The syncopated stretto of these two identical lines results in blurred vision, with the sforzandos of each part always tripping over each other and thereby evading the kind of rhythmic closure that would be effected if the motif were to be heard alone. Bartók cuts this potentially infinitely descending clockwork sequence short just before the final note of the motif arrives in each part (see the arrows in Ex 4.4). We hear an infuriating silence that cannot possibly be heard as an ending but only as an *aposiopesis*, a breaking off of the motif. He then corrects the earlier double vision by playing a reduced version of the motive, synchronized in all the parts at once, adding double-stopped harmonies to produce two clear accents, upbeat and downbeat. The touch of triadic colour is no doubt an allusion to tonal closure.

All the Gestalt ingredients of the *aposiopesis* are here: the generation of expectation through sequential repetition of a motif, the deliberate non-completion of that motif leading to an uncertain silence, and the resynchronization of the motif into a unified clinching gesture with an iambic focus. What Bartók does in the last movement is to purchase himself an even longer silence by beginning the clockwork descent from a much higher position and plummeting through a full 12 bars of 2/4 (rather than the equivalent 3½ bars of 4/4 in the first movement); since the expectation generated is therefore so much higher the length of the silence can be increased (Ex 4.5). Bartók interpolates two further elements between this silence and the final clinching gesture: a three-note motif in the cello and viola that for a moment seems to be trying to begin the scherzando section from bar 102 (reminding us once again of Beethoven's trick at the end of the Seventh Symphony's scherzo), and a pianissimo A♭/B♭ dyad that hangs quizzically in the air, delaying the clinching phrase even further. Once again the effect is to strengthen rather than weaken our sense of an ending, since although the discontinuity is greater, the reinstitution of the original motif therefore seems to carry more authority. This example shows how the expectancies generated by motivic units can play a role in creating the effect of an *aposiopesis*, in which established motifs are cut short and then restored.

In Boulez's First Piano Sonata, written in the same year as the Sonatine, the end of the first movement provides a much more ambiguous example of the use of silence, where the breaking-off process is not matched by a singular and definitive clinching gesture but by a number of different clinches, each of which seems to want to have the last word! First, the movement seems to come to a climactic end with an authoritative triple forte semitone cluster at the very bottom of the piano in bar 96, the timbral extreme making this an ideal point of terminal modification and ending (see Ex 4.6). Indeed, this is similar to how Boulez ends the final movement (Ex 4.7), but as with the climax at bar 491 of the Sonatine, the apparent termination of the first movement of the First Sonata spills over into a further aggressive gesture in bar 97. A contrasting section then begins, '*subitement lent*', recalling not only the mood but the rhythm and serial content of the opening, the motivic material being inverted or displaced in register (see Jameux 1991: 236-38). As in the opening this material is immediately contrasted with a rapid forte arpeggiation, this time upward rather than downwards (bar 99). The dialectic between the sparse hovering notes amalgamated by the pedal and these vicious dry upward and downward stabs through bb. 98-103 will be heard as a reprise of the main combative idea of the movement – assisting in the formal mechanism of closure - which then fragments in bar 105 (marked triple piano in a very high 'dispersed' register). With the heightened sense of dynamic abatement and the slowed rate of events in bb.104-105 the rests surrounding the gesture of dispersal in bar 105 have a deceptive quality that has us on the edge of our seats, asking repeatedly 'is this the end – or is this the end?' rather like the rests that followed the climactic gestures of bb.96 and 97. The answer is always 'no', however, and this is followed by a kind of victory of the vicious element (marked '*violent et rapide*') in which the descending 'stab' is now thickened in dyads, and its lowest notes – B♭0 and B0 – return to the extreme bass touched on at the climactic end of the previous section. The distinctive intervallic and rhythmic patterning of the serial motto heard at the beginning of the movement and at the '*subitement lent*' (among other places) is then superimposed over the pedalled chord created by the stab (see annotations in Ex 4.6). The vertical unification of these two elements - elements that were formerly only ever juxtaposed in sequence - creates the possibility for an

interpretation of closure along the lines of fusion or synthesis. It also generates an eleven-note sonority (marked 'x' in Ex 4.6) expressed with all the vehemence of a serial apocalypse!

Surely this gigantic eleven-note complex spanning almost six octaves would seem to deserve the last word, especially since it has such a clean point of termination, with all parts lifting off together at the end of bar 108; indeed, this is followed by a silence of one bar that would seem to confirm the ending. However, after this the twelve-note aggregate not quite adumbrated by the eleven-note chord is completed as G enters sforzando in a very high register, followed by a mercurial downward flurry related to the downward stabs identified earlier but very different in character. The addition of this gesture seems to throw a final spanner into the concluding rhetorical workings of the movement. In retrospect it turns out that the sonority at x was not the end, and without the score we do not yet know whether the flurry figure belongs with the end of the first movement or the beginning of the second (that is, until the second movement begins, since it does so with greater rhythmic continuity, a new tempo and continuous dynamic). In a live performance the pianist might consolidate the sense of an ending by relaxing after the flurry as an expression of the final silent fermata; on the other hand, he might choose a more deceptive interpretation in accordance with the mercurial tendencies of this ending, relaxing after x, *before* playing the flurry as a kind of 'second' ending. Thus, the growing sparseness of musical events in the final bars of the first movement of this sonata implies that the movement is running out of steam, but it is hard to predict exactly when the wheels will stop moving; instead, the point at which the movement is over is obscured by a sequence of gestures, each of which seems to want to have the last word. I am reminded of a line from Samuel Beckett's *Endgame*: 'Finished, it's finished, nearly finished, it must be nearly finished' and indeed what better way to describe this than as a kind of musical end-game?

The legacy of the framing silences between movements in a sonata is deconstructed by Boulez as he allows the silent frame to leak backwards into the movement itself. Unlike the earlier examples in this chapter, the deceptive nature of these silences is not clarified by a singular clinch in the form of a motivic or textural continuation. Or at least, there is an aesthetic tension between the abstract completion of the series offered by the G in bar 109 and the prior gestural climax of the movement on chord x, which might seem to carry more terminal weight from the listener's perspective,

especially since it is followed by a relatively long silence. (Such aesthetic tensions are paralleled by the mercurial completion of the series at the end of Stockhausen's *Gruppen*, discussed in Chapter Three). The result is that the silence which actually divides the two movements is not a complete, satiated silence but one in which we are almost expecting some definitive confirmation that the first movement is over (which in this case is fulfilled not so much during the final silence, but only when the continuity of the next movement becomes established). This gestural ambiguity usefully helps to ward off full closure at the end of the first movement, suggesting a wayward analogy with some Baroque slow movements that terminate with an open-ended phrygian cadence, which is then resolved as the final movement begins. Although the ending of Boulez's second movement is also beset by a number of uncertain silences (Ex 4.7), it does end with a gesture whose accompanying instruction - '*arpèger très brutal et très sec*' - invites the performer to add an extrovert theatrical touch like that at the end of the Sonatine. Where the first movement tapered away into an anticlimax, the second fulfils its climactic tendencies in the last two bars.

The second movement itself presents a similar multiplicity of silent ambiguities towards the end, however. In some ways these help to apply the brakes in this whirlwind toccata movement in the same manner as the multiple *aposiopeses* of Scriabin's Prelude, Op.48 No.1, and are complemented to this end in bb.135-6 by a striking reduction in tempo and dynamics, giving a psychological sense of abatement that also acts as a sign of impending closure. One detail that helps Boulez to sustain continuity over some of these silences is the disposition of thematic material. Since bb.137-146 constitute a reprise of the opening, the intervening silences in bb.137, 139 and 140 can be heard from the standpoint of thematic interruption much more clearly than can the fragmentary silences at end of the first movement (Ex 4.7). This is because the opening serial motto comprises five distinct gestures that allow it to be identified as a thematic sequence at various points later on in the movement (Ex 4.8): (a) three notes, widely separated in register (low, high, medium); (b) consisting of two notes (high-low) the first of which is ornamented by two grace-notes; (c) another three-note group of widely separated registers inverting the order found in (a) (i.e. medium, high, low); (c) an aggressive and rapid five-note figure; and (d), a sequence of three dyads with implicit contiguous voice-leading between each. When this sequence returns towards the end in bb.137-41 gestures (a) and (b) are a minor third

higher than at the opening, while (d) and (e) are a major third lower, discounting registral displacements (Ex 4.7). However, (c) is missing, replaced by a bar of silence. But the listener who has grasped the main theme of the movement will listen across the divide (the rests in bar 140) to the completion of this theme, with its distinctive F/G to E/G♯ tail. The silence here occurs as a thematic interruption, and is therefore not a closing silence but an unsatiated open one. Unlike the motivic breaking off of Bartók's Fourth Quartet, this thematic breaking off makes greater demands on the listener's memory, for it is not the immediate shape of an established motif that is left unfinished but the order of motifs as recalled from earlier in the movement.

Even if Boulez's clinching gesture in the second movement does appear to set a seal on the sonata in a theatrical sense, it is in some ways an arbitrary form of closure, an ironic completion of what is in fact a limitless compositional universe of serial permutations, unlike the closed order of tonality confidently projected by Bach's *aposiopeses* in the *Art of Fugue*; this is especially so, since Boulez's full stop occurs in the context of an arrested redevelopment of the movement's two themes (see the final two question marks in Ex 4.7). We have already encountered this mode of ending in Chapter Two, where Maconie was quoted in relation to Stockhausen's *Kontakte*: 'while the listener may be satisfied with a sensation of completion, the composer knows that though a series of permutations may eventually be exhausted, it does not automatically resolve. The ending's essential arbitrariness has to be disguised.' (Maconie 1976: 144) There are parallels with modern poetry too; in a discussion of a poem by Levertov in relation to the 'anticlosural' tendencies of modern verse, Herrnstein Smith writes, 'the reader is left with a mildly elegiac impression, a hovering half-question never to be answered, something like: "Ah! Is that possible? No, perhaps, but it can seem that way. But what if...?" and so on.' (Herrnstein Smith 1968: 95). She says that this produces a conclusion that 'without sounding arbitrary, manages to avoid sounding conclusive', which fits rather well the endings of the two movements of Boulez First Sonata. In some ways even Bartók's endings in the Fourth and Fifth Quartets also embody this sense of disguised arbitrariness, applying self-contained clinching utterances to music whose sense of motivic development seems inexhaustible. Indeed, as noted earlier, the *aposiopesis* in the finale of the Fourth Quartet threatens yet another return of the *scherzando* second

theme before brushing it aside with the clinching cadence, as if to suggest arrested development in a similar way to the end of Boulez's First Sonata. But what is only a minor rupture in Bartók – and can therefore be synthesised into the dramatic model of the *aposiopesis* - becomes fractured into an entire field of disintegration in Boulez.

Silence and Interruption as Normative Features

One of the ways in which silence can be introduced into a composition without the risk of it sounding conclusive is through its association with an opening gesture or thematic group. To state the obvious, we do not hear the gaping silences surrounding the fits and starts at the very opening of the finale of Bartók's Fifth Quartet as implying closure, since we know this is the beginning of the movement. Redundant as this observation might seem, the opening 13 bars purchase the composer later opportunities for silence, since when these bars are recapitulated (at bb.150, 359, 458 and 527) their silences are related to the original context of 'initiating activity' rather than 'concluding activity'. This allows the music (and the listener) to catch a breath amid the otherwise dense and ever permutating whirlwind of strettos of which the bulk of this 828-bar movement consists! Another formal type of silence occurs in bars 200-201, dividing the first and second theme groups, the latter having a contrasting *leggerissimo* character. Again, the generic convention of introducing contrasting themes as a part of a large-scale finale prevents the misinterpretation of this silence as a premature ending: there is just not enough weight in the movement to balance the rest of the quartet at this point. Bartók uses almost four bars of silence at the corresponding fulcrum point between exposition and development in the finale of the Fourth Quartet (bb.148-151).

A more thoroughgoing and problematic use of silence is exhibited in the first movement of Lutoslawski's Second Symphony, entitled '*Hésitant*'. As one commentator observes, 'the hesitant quality is achieved by interrupting each episode twice: first, just after it has begun, giving the effect of a false start; secondly, just before the end, with a general pause followed by a brief abortive attempt to continue.' (Rae 1984: 103) These disruptions are akin to the *aposiopeses* discussed in the earlier part of this chapter, in that they involve a breaking off followed by continuation, but in this case the continuation does not offer a decisive completion when it occurs at the end of a section, but instead collides with the onset of new material. As one section is

displaced by the hesitant 'false start' of another, the formal boundaries are blurred in a perplexing closural riddle; as one writer pointed out to the composer in an interview, 'the partial suiperimposition of beginning and endings of successive sections is a feature of your composition closely linked with your particular type of aleatory technique' (Kaczynski 1984: 37). The troubling and discontinuous effect that this produces at the outset of the movement is replaced by a certain amount of expectation in the later part of the movement: paradoxically, as these interruptions become the rule we tune into the quirky logic of the movement so that the silences themselves become an intrinsic part of the musical fabric rather than implying an extrinsic framing role. We begin to experience all silences as 'active' in some way, like those of the traditional *aposiopesis*. It will be left to the wider drama of the symphony as a whole to de-activate its final silence. Lutoslawski sidesteps the question of how to produce a final silence in the first movement by eliding it to the beginning of the next. The latter (entitled *'Direct'*) is markedly different in character, being continuous and uninterrupted (at least until near the end – see Chapter Eight), but its status as a new movement emerges only in retrospect. Thus, the idea of the *aposiopesis* is extended to the formal level, the continuity of the second movement resolving the multiple discontinuities of the first!

The continual technique of interruption used in Lutoslawski's first movement is indeed quite common in twentieth-century music. Consider the following description, which refers to Luciano Berio's *Sequenza VI* for solo viola.

> Passages between one section and the next are often described as zones of *tiling* –in the present case, of repetitions of configurations of a profile analogous to the one just completed – following a break which gives the impression of a change of pace and puts off the real segmentation until the end of the section. (Ahmadi & Deliège 1987: 24)

This mirrors the phenomenology of the *aposiopesis*: there is a break in continuity, then a return to and continuation of the material that was broken off, followed by a new contrasting section. In both the Berio and Lutoslawski examples this technique of interruption is no longer reserved only for the end of the movement, but is used to articulate divisions between contrasting episodes. Ahmadi's and Deliège's experiments with listeners' responses to Berio's *Sequenza VI* produced a consistent

view of the phenomenon. Here listeners were asked to press a computer key when they detected decisive segmentation or contrast; both non-musicians and musicians were able to recognise points of segmentation that corresponded closely with a theoretical analysis of the piece's form. According to the authors, 'parts of the musical discourse are marked off by contrast-moments that signal and impose the segmentations' (Ahmadi & Deliège 1987: 19). The 'tiling zones' (or *aposiopeses*) play an important role as 'contrast-moments', and thus in defining segmentation. Another type of 'contrast-moment' is what they refer to as 'cues' – 'a rather brief marker whose impact is very clear in sound and rhythm' (Ahmadi & Deliege 1987: 19). The sudden crack of the snare drum towards the end of the first episode of Lutoslawski's Second Symphony would rank as one such cue.

Is there perhaps a way in which such contrast-moments and cues can be organised along hierarchical lines to confer different degrees of closure? For example, do longer silences represent more important structural divisions than shorter ones, with the longest occurring at the end? The end of the first movement of Lutoslawski's Second Symphony does seem to confirm this, since the final version of the refrain is introduced by a much longer silence (five seconds) than on its previous occurrences. Similarly, in the next chapter I will show how Messiaen uses longer durations and rests in a quite systematic manner to mark the ends of larger sections. Ahmadi and Deliège encounter a problem with this approach, however, when trying to relate silence's formal importance as a dividing cue to its strength (as indexed by its length) in Berio's *Sequenza VI*:

> In the structuring of the plan of a work, the weight of a rest is not just a function of its length. To be convinced of this, one must only go back to example 7 where the interruption that precedes the 'tiling' zone is longer than the one that introduces the [following] fourth section. Such a situation, apparently illogical, creates ambiguity and temporary suspension. First, registered in terms of its real impact, i.e. of its objective length, the rest's importance is only stabilised retrospectively. (Ahmadi & Deliege 1987: 42).

Thus, at least for Berio's *Sequenza VI* there is little evidence to suggest that longer silences necessarily articulate large-scale formal contrasts, as they do, for example, between movements of a traditional suite or four-movement symphony. In fact, in a

context where silence is pervasive as an internal force, surely longer silences will be heard as even more unstable than shorter ones, in other words creating intensification (of expectation) rather than abatement, stasis and closure. The kind of segmentation cues theorised here do not always lead to a sensation of closure, therefore, but round off each individual section with an *aposiopesis*-like Gestalt (the tiling zones) or terminal modification (the cue markers), creating 'enclosure' - formal demarcation - rather than closure (as noted in Chapter One). It will be left to the tendencies of the notes themselves to suggest the finality of silence. In Berio's *Sequenza VI* such finality is largely suggested by the abatement of dynamics in the final two stanzas (from *p* through *pp* and *ppp* to a final *pppp*). What is significant is that this final abatement acts also as a clear form of terminal modification: first, nowhere else in the work is *ppp* or *pppp* used; secondly, the dynamic level is generally quite loud and strident, with regular use of multiple stopping on three or four strings; third, where a quiet dynamic is used elsewhere it is rarely stabilised for long, being continually juxtaposed with volatile changes of dynamic.

Conclusions

Faced with the diversity of different scenarios presented in this chapter the sceptic might claim that ultimately all silences are potentially open ended, that whether they lead to something else or simply constitute the end is a matter simply of what follows them, and that the phenomenology of silence cannot be consistently theorised in relation to compositional technique. In other words, the end is defined only retrospectively, either after a *very* long silence, or as the musicians put down their instruments or the conductor his or her baton. Although this retrospective definition obviously plays its part in defining every conclusion (including those of formal sections within a work), it does not explain why the experience of a pregnant silence within a movement or work can be so exhilaratingly unfinished, compared to the finality of the framing silence that follows the very end. Certainly, one factor that helps these internal silences (and interruptions) along is their generally quite brief duration (though not in some works by Cage, Pärt, Feldman, Crumb and Lutoslawski, for instance). Another is that hearing such works time and again helps to solidify our sense of an ending, against which internal silences may be judged.

In this chapter I have attempted to give some indication of the different compositional tactics surrounding the use of silence and other forms of interruption in relation to endings and closure. The *aposiopesis* is alive if not entirely well in the twentieth century, and at least seems to have had a residual influence in the struggle to imbue works with closural logic amid new harmonic realms whose syntax remains unclear. Furthermore, in the earlier examples chosen for this chapter the *aposiopesis* resides in its familiar traditional position, close to the end. This reflects Herrstein Smith's observations that in poetry 'a certain conclusion is likely to become conventional because it is, to begin with, effective in creating a sense of closure.' (Herrnstein Smith 1956: 30). The *aposiopesis* produces this sense of closure first by presenting a sudden uncertainty, the disruption of an otherwise stable flow; the resumption of that flow then has a restorative effect, and on several levels. There are often cognitive continuities forged over the silent or texturally contrastive gap - continuities of register, dynamics, voice leading, motif and theme. Frequently, iambic rhythms are used to create the effect of a final downbeat in order to allay the metric insecurity of the silence (as in the ending of Stravinsky's *Rite of Spring*, Bartók's Fourth and Fifth Quartets and Boulez's Sonatine). And there is also the wider aesthetic reassurance that the interruption is secondary, that the primary goal of the piece has triumphed, that 'all is as it should be'. In this way the tendency of a piece towards a climactic ending may allow the interruption to be felt as false, as in the endings of Mahler's Seventh Symphony and Boulez's Sonatine.

It is only when the singular clinching nature of this triumph is obscured or blurred by multiple interruptions that endings become more difficult to recognise and decidedly less reassuring. The normative use of interruptions casts doubt on the overall completeness of a section or work, and other gestures must come into play to create conclusiveness in these cases (or perhaps not!). Such complementary devices might include elements of reprise (as with the ending of Boulez's First Sonata) or allusions to other familiar signs of an ending (the consonant octave and diatonic implications at the end of Bartók's Fifth Quartet, for example) as well as forms of abatement, stasis and liquidation. The formal context of the silence – whether it is associated with opening material or not – can also alter its significance, together with its overall position within a movement whose generic length is known roughly to some degree beforehand. Silence or the absence of notes has only one surface characteristic, but through what comes before and after, the experience of this silence

is coloured, so that silence itself can take on many sounds of its own. Let me end by saying that…

Ex 4.0 Bach, *Art of Fugue, 'Contrapunctus 1'*
(ending) – showing *aposiopesis*

Ex 4.1 Scriabin, Prelude, Op.48 No.1
(ending) – showing double *aposiopesis* and
resolution of voice leading

Ex 4.2 Stravinsky, *Rite of Spring* (ending) –
reduction showing metrical/textural
continuity, disruption and restoration

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Ex 4.3 Boulez, Sonatine for Flute and Piano
(ending)

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Ex 4.4 Bartók, Fourth String Quartet, first movement (ending)

Ex 4.5 Bartók, Fourth String Quartet, finale (ending)

Ex 4.6 Boulez, First Piano Sonata, first movement (ending)

reprise of opening

Twelfth note

Ex 4.7 Boulez, First Piano Sonata,
second movement (ending)

Ex 4.8 Boulez, First Piano Sonata, second movement
(opening)

Part Two

Closure as Process

Chapter 5

Centring the Work : Linear Processes of Closure

> Even the obstinate clinging to a tone or group of tones borrowed from folk
> motives seems to be a previous foothold: it offers a solid framework for the
> compositions of this transitional period and prevents wandering about at
> random. (Bartók on Stravinsky, in Suchoff 1976: 318)

There is a growing body of empirical research into the effects of 'melodic
anchoring', whereby a single pitch in a given phrase is heard to project more stability
than other pitches, acting as a localised tonic or pitch centre (Bharucha 1984a/1984b,
Krumhansl 1990, Laden 1994). Such experiments make use of probe tones; this
involves playing a single pitch after a passage of real music, and asking listeners to
rate how well this note 'fits in' with the musical context or how 'appropriate' or
'stable' it sounds. Stability itself is not necessarily synonymous with closure, but it is
often a contributing factor. Through multiple experiments using different probe
tones, various axioms concerning the apprehension of stable pitches in tonal music
have been formulated. However, the application of such formulations to atonal
idioms is less well understood, especially with regard to the so-called centric music of
Bartók, Stravinsky, Messiaen and others. While in tonal music the goals of phrases
towards specific note centres is organised around the broader stylistic tendencies of
tonality (including syntax and cadences), it has been observed that

> In centric music, cadences also function structurally, but events prior to such
> points are not necessarily 'directed' in the traditional sense. In fact, it is often
> not easy to determine what the goals are before we reach them, and when we
> do reach them we are cognizant of arrival through conditions such as agogic
> accent, dynamic exposure, and rhythmic caesura, than through specific
> functionally directed progressions (Morrison 1985: 159).

In this chapter I will therefore explore the anchoring effect in relation to examples drawn from the music of Bartók and Messiaen, with reference to six factors that create sensations of centricity: emphasis, repetition, linear oscillation, phrasing, cadences, and modality. Each of these categories are defined further below and examined in light of an extended final case study. In contrast to the preceding part of the thesis, the aim of this case study is to understand how sensations of centricity can be manipulated to create a progressive mechanism of closure that takes in the entire piece rather than just its ending.

Duration and Emphasis

One of the most significant findings of listener-response research is that duration plays a large part in determining points of stability in music; in an experiment utilising North Indian music, researchers found that duration and probe-tone ratings correlated in both Western and Indian listeners: tones heard for a longer amount of time were rated as being more stable (Bharucha *et al* 1984b: 394-412). Bernice Laden verified this in the harmonic domain; by following short, tonally ambiguous melodies with different triads extrapolated from the notes of those melodies, she found that 'each chord received its highest rating when the associated melody tones had the longest duration.' (Laden 1994: 209) Durational abatement (the lengthening of a note relative to others) thus provides a form of emphasis that may identify a particular pitch as being more stable than others in a given phrase. Other forms of emphasis, such as dynamic accents or the placing of a note on the strong beat of the metre, may also aid in singling it out as an important pitch centre, as noted by Morrison above (in connection with Ligeti). Laden's experiments also led her to speculate that 'tones of particularly long durations may cause activation to saturate at a ceiling level'. That is, a pitch of very long duration develops its own sense of centricity regardless of the other pitch or pitches emphasised in the passage. This effect has been exploited by many composers: 'in tonal music of the eighteenth and nineteenth centuries it is not uncommon for a composer to strengthen final closure by saving the longest duration for the final chord, which may be marked with a fermata' (Hopkins 1990: 52). Indeed, we have already seen this principle at work in Chapters Two and Three, where such exaggerated durations are used at or near the end of pieces to produce an increased sense of stability and stasis (for example, the long

inverted pedal note that concludes Boulez's *Dialogue du L'ombre Double* and the sustained unisons used by Ligeti in several of the endings examined in Chapter Three).

Repetition

The importance of repetition in achieving a sense of closure will be obvious from the repeated cadential figures that occur at the ends of many Classical movements. In some ways the effects of repetition are akin to those of durational emphasis, since they serve to extend the predominance of single pitches or chords over time (for example, the 29 repetitions of the final chord at the end of Beethoven's '*Waldstein*' Sonata). However, repetition need not only apply to single pitches or chords, but may involve the repetition of a musical figure of several notes, which itself emphasises a particular pitch (through durational, dynamic, or metrical accentuation). The repetitions in this sense serve to underline the centric stability of this pitch.

Bartók's revised ending for the *Concerto for Orchestra* provides an example where the composer recomposed and extended the original ending by adding what might be called 'centring repetitions'. In the original version a motivic cell (from bar 2 of the opening theme of the movement) is sequenced downwards, supported by a rising procession of parallel triads such that the outer parts finally converge on octave Fs (Ex 5.0). This follows the model of contrapuntal convergence explored in Chapter Three, and illustrates how an increased level of consonance can also act as a form of centric emphasis. Notice that the final duration is not lengthened in this case, but the fact that the note occurs on the downbeat of the bar and at the height of a crescendo does give it additional emphasis, and its stability is retrospectively defined by the silence that follows. Nevertheless, the effect is somewhat abrupt, and Bartók extended this ending at the request of Koussevitzky, who required a 'longer, more stirring ending', and was later satisfied by Bartók's revision[1], which terminates with virtuoso orchestral figuration in a gesture of climactic terminal modification.

To my ears, it is not so much the orchestral character of the original ending that is insufficiently 'stirring', but rather its lack of centric preparation. The difference in feeling between the two endings can only be accounted for by taking in the entire

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[1] See the letter, 15 March 1945 from H.W. Heinsheimer, then editor of Boosey and Hawkes in New York (in Suchoff 1995: 194).

context. In the original version the final F seems to arrive out of the blue, since none of the preceding 40 bars pave the way for this pitch; one has to look back to bars 556-68 to sense the appropriateness of this final F, where what was originally the central fugue subject is transformed into a triumphant fanfare on the brass, the second part of which reiterates F. F is then lost as a melodic focus, except in the F-dorian scales in the bass that initiate the next section of sequences (bb.573-78). After these become more chromatically unstable, E♭ is suddenly emphasised by a long duration at the top of the texture (bar 594) supported by rising C melodic-minor scales. This E♭ then takes a thematic departure in long notes – E♭, B, F♯, D, G – which are not only a rhythmic augmentation of the sequenced motifs just heard, but also recall the pairs of descending leaps in bar two of the finale, bringing about an emphatic thematic reprise. At the same time this passage creates a tonal dilemma, in that it points towards G as the centric closing pitch with the leading-note F♯-D-G figure (see the beginning of Ex.5.1), and G is further emphasised by being the longest duration of the passage and by the unison texture. The feature that helps to destabilise G here is that when it arrives the dynamic sudden falls back to *p*, creating discontinuity and then a sense of suspense with the following *crescendo molto*. But all this emphasis on pitches other than F means that the ending from Ex 5.0, which now follows, feels rather insecure from a tonal perspective.

Bartók compensated for this lack of centricity in his revision by recomposing and extending the original ending such that F is brought into much clearer focus. The revised ending makes use of the original as far as the sustained G in bb 600-601. Two repeated chains of thirds then vacillate between C-minor and E♭-minor triads (G-E♭-C / B♭-F♯-E♭). A third statement of this chain an octave lower leads to F on the downbeat of bar 610, and the last part of this phrase (B♭-G♭-E♭-F) is then repeated twice in the context of a hemiola which again brings F into alignment with the downbeat at bar 613 (Ex 5.1). Not only is F emphasised metrically during this passage, but it is also given a longer duration than the surrounding quavers[2]. F is also

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[2] Although the F is only a quaver in length, it is followed by a quaver rest; empirical research indicates that notes which are followed by rests are perceived as longer than notes of equal duration that are not followed by rests (Idson and Massaro 1977: 317-37).

stabilised harmonically, since it is accompanied on each appearance with an F-major root position chord (Ex 5.2, following bar 609). A further chain of thirds leads to a sustained C-D♭ trill in the strings, heard from a tonal perspective as the decorated dominant of F. The trumpets and horns superimpose on this a truncated reference to the slower moving fanfare theme heard earlier at bar 556, but now with C as the axial note (C – E♭ – C). Then comes a syncopated I-V-I in the timpani, resolving rhythmically onto the downbeat on F. By now there is no doubt that F is the tonic, and F-Lydian scales swoop upwards with full confidence to the final F major chord. In short, the new ending gives us more 'centre', both by repeatedly emphasising F melodically and by importing a familiar tonal gesture of resolution (the I-V-I cadence in the timpani). It does so with an efficiency that should force us to reconsider the necessity for 'long-term' explanations of tonal or centric closure, given the absence of F as a centre prior to this revised ending. A simple threefold repetition emphasising F metrically, rhythmically (by durational emphasis) and harmonically, followed by an alternation with its melodic dominant, is enough to generate a powerful sense of centre. The passage is analysed from a harmonic point of view in Ex 5.2, which shows that harmonic closure is enacted by a chromatic version of the perfect cadence, in which the dominant chord is a half-diminished chord on C. This chromatic cadence does not shake the sense of closure projected by the melody's attachment to F and its dominant, but it does allow Bartók to avoid the cliché of the conventional dominant chord.

Linear Oscillation

The opening of Bartók's Fifth Quartet uses repetitions of bare octaves to suggest a local sense of centre on B♭, but closural implications concerning this pitch are not realised until the very end of the piece. The gesture occurs a number of times in the movement - on C (bb.37-41), E (bb.59-63), and F and E simultaneously (bb.126-129). These reiterative passages, in spite of their emphasis on a single pitch class (usually with a brief upper auxiliary-note decoration), do not establish a sense of tonal centre but rather a point of departure: their initial position at the outset of the movement gives them a sense of initiating action rather than resolving it, and their unpredictable, irregular rhythmic groupings create the impression of holding back pent-up energy,

which is then let loose in a riot of motivic and contrapuntal development. When this gesture at last occurs again on B♭ (bb.160-7) it logically coincides with the recapitulation. It also appears close to the end (bb.210-215) but here the composer develops the gesture to create a more rounded impression of completion: for the first time he follows the B♭ repetitions with similar repetitions on another note - a slower and dynamically more emphatic series of repetitions on D♭ in the upper voices (again with upper auxiliary-note decoration), terminating with a fermata on D♭ (Ex 5.3). The lower parts accompany this with a simultaneous inverted echo (E-D-E) and the overall effect is a kind of harmonically dissonant question mark, the answer to which follows as a series of motivic fragments derived from the contrasting third subject (originally heard in bb.45 onwards) converge onto a B♭ unison. In terms of a middleground process these last nine bars create an overall motion from B♭ to D♭ to B♭, a kind of localised melodic 1̂– 3̂– 1̂ motion that confirms the primacy of the B♭. Nowhere before has the movement attempted such a clear motion around a single melodic centre of gravity, and I shall call such middleground motions that depart from and return to the same pitch 'linear oscillations'[3]. Here, repetition is used alongside the durational emphasis of the D♭ to mark out the significant pitches of the oscillation. However, the final B♭ is not emphasised in this way, only by the return to a unison texture and the confirmatory silence. Other examples of such small-scale finalising oscillations include the ending of Berio's *Sequenza VII* and the first movement of Bartók's *Music for Strings, Percussion and Celesta* analysed briefly in Chapter 3, where consonance was used to give emphasis to the final point of repose. In addition, tonal and modal music is rich in such oscillatory closing gestures, usually expressed in terms of adjacent voice-leading or auxiliary-note configurations, like the 8-7-8 leading-note cadence.

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[3] This can be considered equivalent to Narmour's category of 'intervallic duplication' (Narmour 1989)

Every musician will have come across the term 'cadence', whether they are performers, composers, theorists or historians, and whether they are acquainted with Western classical music, pop, jazz, or non-Western repertories. In fact, so commonplace is the word 'cadence' that it is familiar equally to non-musicians, finding its way as a metaphor into novels, poetry and general discourse. Yet, despite its widespread usage, and perhaps because of the wide range of music to which it might apply, the term 'cadence' eludes singular classification. Its etymological source is the old French and Italian *cadenza,* literally 'a falling', from the Latin *cadere,* 'to fall' (Hanks 1986: 220). Indeed, the second most common meaning attributed by this source is 'a fall in the pitch of the voice, as at the end of a sentence', and there have been several attempts to relate this effect to musical closure - for example, Hopkins's notion of registral abatement (in the form of descending melodic lines), and Schenker's falling *Urlinie.* However, Schenker only arrived at this conclusion later on in his theoretical career, and there are a number of earlier graphs showing an ascending *Urlinie* (the first essay in *Der Tonwille,* vol. 4 (1923) finds exactly that in the first of Bach`s Twelve Little Preludes). Furthermore, the fact that the *Urlinie* may be hidden by foreground activity means that in practice structural descending lines can occur simultaneously against more exposed foreground ascents. If that is not confusing enough, one theorist has investigated in depth the existence of ascending types of *Urlinie*, finding many examples from the seventeenth through to the nineteenth century (Neumeyer 1987). The problem is that in harmonic music traditional voice leading will always give rise to simultaneous ascents and descents in different voices. Some melodic repertories are rather more consistent in their behaviour: apparently, over three-quarters of all Gregorian chants end with a type of descending conjunct pattern. (Homan 1964: 66-77). And in the Indian classical tradition, 'the final cadence in most rags is generally descending' (Jaicazbhay 1971: 114).

The Concise Oxford Dictionary of Music is more analytical in its definition of the cadence, which is defined as 'any melodic or harmonic progression which has come to possess a conventional association with the ending of a composition, a section, or a

phrase' (Kennedy 1980: 107). This underlies the assumption that cadences have meaning not in and of themselves, but through their extroversive semiotic associations within a given style or genre; however, this may be problematic when applied to modernism, because of its emphasis on individual subjective invention rather than collective stylistic ideals (serialism can hardly be called a style). The above definition also binds the meaning of the cadence to the phrase or section to which it is attached. In her survey of meanings attributed to the cadence, Janet Schmaldfelt also identifies phraseology as an important concept (Schmaldfelt, 1997, 95-115). One factor governing the apprehension of phrase structure is the way the beginnings and ends of phrases are articulated, without which there would be no differentiation between one phrase and the next. She observes that in Westergaard's theory of phraseology, a phrase need not end with a cadence in order to qualify as a phrase: 'in fact, Westergaard's cadence is just one means, albeit the surest means – of getting the listener to sense the forthcoming arrival of the phrase's second primary beat' (Schmaldfelt 1997: 98)[4]. These two primary beats are essentially the opening and closing parts of any phrase. Phrase endings need not be emphasised by cadences, but may simply be defined in retrospect by the onset of what is felt to be a new phrase; the latter can be identified in many different ways – for example, by introducing a transposition or repetition of the previous phrase, or by asserting a rhythmic or melodic motif that has previously been heard to initiate an earlier phrase. An example of such beginning-oriented phrase divisions is found in the baroque technique of *Fortspinnung*, where the tendency is towards a continuous elaboration of phrases whose endings are only occasionally punctuated by strong cadential gestures.

A major contributing factor to the shaping of phrases is the way in which they are interpreted by performers. It is often the sensitivity to phrasing that leads critics to praise or deprecate a performance. Empirical studies have also shown that the slight lengthening of the final notes in a phrase, together with the 'micropauses' – the 'chinks' of silence – between adjacent phrases, are essential to a musically satisfying performance. In the following summary the term 'markers' refer to these lengthened final notes and micropauses:

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[4] She is referring to Westergaard 1975: 318-19.

Four different computer generated performances of two melodies were submitted to a pairwise listening test. In the pairs, one version always included our phrase markers (NORMAL) while the other either lacked phrase markers or had them placed in awkward positions. In the majority of cases the listeners preferred the NORMAL case. The results suggest that phrase endings in music can be signalled in a similar way as in speech. (Friberg and Sundberg 1987: 49).

The analogy with speech is not difficult to appreciate: consider how difficult communication would be without the use of punctuation to emphasise syntactical functions. This is true of both written and spoken language; in the latter, rhetorical pauses signal the punctuation, which in turn has an impact on the syntactical clarification of the message. In addition, studies of speech intonation have found that in most languages the ends of sentences are articulated by a slight slowing down, which would correspond with the musical importance of durational abatement in articulating pitch centres (Carlson and Granstrom 1975: 245-253).

A consideration of the operation of phrases is of utmost importance to any study of closure, since they project in miniature a temporal construct of beginning, middle and end. They are the building blocks from which larger compositional units are traditionally constructed, and through which larger spans are brought to differing degrees of closure. Phrase endings are mutually enhanced by cadences, which themselves exhibit centring behaviour (tending to emphasise a particular pitch according to the criteria laid out earlier). For the student immersed in Western pedagogy the cadence takes on a more specific compositional meaning. In attempting to emulate tonal styles the student learns how to employ various complementary types of cadence in such a way as to generate a syntactical relationship among phrases. There is no doubt that the temporal architecture which emerges from such thinking is a tangible phenomenon: try substituting any nexus of Classical-period phrase endings with just perfect cadences for each phrase; the effect is pure bathos. On the foreground level each phrase ends unambiguously, but the sense of dialogue between antecedent and consequent, from one group of phrases to the next, is lost. This introduces a further concept into our cadential field of study, that of hierarchy, which will be investigated further in the final case study.

Centricity is a very important concept for the study of closure in post-tonal music, particularly in the burgeoning folk-inspired music of the first half of the twentieth-century, which looked to diverse forms of modality as a replacement for traditional diatonic tonality. In fact the latter provides just one means of centric organisation, whereas the concept of modality includes other kinds of orientation within the diatonic set, and within many other scalic sets derived from selective permutations of the chromatic scale. The theoretical definition of a particular mode is fixed by the kind of centric emphasis in a given phrase, section or work. Thus a passage in the dorian mode emphasises the traditional supertonic of the major scale to such an extent that it becomes a tonic in its own right. This centric emphasis may be achieved using a combination of the techniques described in the previous sections. An example is bb.25-116 of Sibelius's tone-poem '*Tapiola*', where a B-dorian centre is anchored by an ongoing B pedal in the bass, ostinati derived from the dorian scale, and melodic arches that begin and end on B. Just as in traditional diatonic tonality secondary centres emerge which complement the primary tonic, and in this passage the modal dominant F♯ later becomes a prominent melodic centre in bb.69-80.

In general, the centric treatment of modes in art music went beyond the fixed modal templates of the folk music which first inspired it. Rather like the modality of Renaissance polyphony, chromatic notes from outside the mode are frequently introduced to produce modulations and also to serve as the equivalent of 'musica ficta' – for example, the use of sharpened leading-notes to give local emphasis to the centric pitches of the mode[5]. This takes place in the upper melodic lines of the '*Tapiola*' example, where B is often approached via A♯; indeed, the overall absence of A♮ - the genuine seventh degree of the mode – might lead to objections that the passage is actually in B minor. Yet the passage feels strongly modal, and the main reason for this is the prominence of G♯, which is not used to ascend through the raised seventh degree to the tonic, but rather as an upper neighbour-note to F♯. It is this feature that differentiates the sound world of the passage from traditional tonal

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[5] For a detailed consideration of the tension generating and resolving effects of the leading note, see Chew 1983.

procedures, and through it we can begin to appreciate the complexities of defining modes: modality is not only defined by the choice of centric pitches within a stable scalic set, but the directional melodic tendencies of notes within that set. That is why diatonic tonality also assigns various functions to its constituent notes. It also explains why in North Indian music there are many different rags that on the surface of it appear to be in the same mode, but are further distinguished and categorised by the prominence of certain turns of phrase, such as different figures of ascent and descent analogous to those of the Western melodic minor. Different modalities may establish their own rules for closure and centring, which call for a particularly refined and sensitive analytical approach. In one sense then, a mode is a pitch-based map of closure and closing tendencies.

Summary Case Study of Centricity: the 'Danse de la fureur, pour les sept trompettes' from Messiaen's Quartet for the End of Time.

In the following case study I have attempted to analyse closure from the various perspectives of centric and cadential closure outlined in the first part of this chapter. While this thesis is not an enquiry into performance, the movement I have chosen to analyse possesses a high degree of rhythmic and metrical flexibility, and as such appears to encode within the score itself a large amount of performance information regarding the subtleties of phrasing and rhythmic nuance. Since this movement is entirely monodic in texture, it also allows me to focus on centricity as a linear phenomenon without introducing harmonic complications.

By placing the opening sixteen bars of this movement under the analytical microscope I hope to demonstrate that cadential closure can indeed work on principles analogous to, if not stylistically the same as, more familiar Classical modes of closure. It may seem paradoxical, in a thesis concerned with endings and closure, to pay such close attention to the beginning of a work, but the reasons for this are twofold: firstly, because the initial two phrases are also used in varied form to end the movement; secondly, because the procedures of the opening govern the compositional principles of the movement as a whole, and thereby assist in understanding closure as a process. This stems from a more organically minded theoretical stance, whereby in order to understand the nature of the ending one has also to understand the beginning and the

middle as the origin of the work's motivation and impulse towards closure. One useful approach in assessing this process of centric closure from an aesthetic viewpoint is Schoenberg's assertion that

> Every tone which is added to the beginning tone makes the meaning of that tone doubtful…There is produced a state of unrest, of imbalance, which grows throughout most of the piece…The method by which balance is restored seems to me the real *idea* of a composition. (Schoenberg 1975/1984: 123)

The opening of the sixth movement of Messiaen's '*Quartet for the End of Time*' possesses a coherent and hierarchical phrase structure which rivals that of any eighteenth-century dance, despite the apparent chaos of its 'additive' rhythms[6]. Messiaen includes barlines in this movement, despite the irregular bar-lengths and omission of time signatures. These barlines generally coincide with my own intuitive feelings about phrasing, but why? Ex 5.4 shows two types or levels of phrase structure reflecting an intuitive reading of the way phrase divisions might be classified[7]: slurs *under* the stave represent small 'subphrase' units, while the longer slurs *above* the stave serve to bracket each pair of subphrases into longer phrases or periods that can be perceived in terms of antecedent and consequent pairs (labelled P1, P2 , P3 etc).[8] It will be observed that my division of these overreaching phrases corresponds with the composer's own bar lines. The recurring feature that allows me to intuit phrase endings is that of durational abatement - the lengthening of the final note of each antecedent and consequent to a crotchet and minim respectively - in contrast to the quavers and semiquavers that make up the rest of each subphrase. The passage in Ex 5.4 is consistent in this regard[9], and the procedure accords with the importance attached to durational phrase markers by the empirical study quoted earlier. It also reveals a consistent hierarchical approach to such durational markers,

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[6] This term describes the technique whereby Messiaen adds or subtracts a small rhythmic value (such as a semiquaver) to a passage containing even rhythmical groupings (as in the first bar of the example) to create an irregular metre.

[7] Since this movement is almost entirely scored in octaves, I give only the violin part in most of the musical examples.

[8] Only phrase 6 has not been broken down into two separate subphrases.

[9] Phrase 7 is an exception, but the same principle of durational abatement is evident; the first subphrase terminates with a quaver (in the context of semiquavers) and the second subphrase ends on a longer dotted crotchet.

whereby initial subphrases are rounded off with shorter durations (crotchets) than the longer phrase units (minims).

In Ex 5.4 square brackets under the score identify melodic and/or rhythmic motifs that reinforce our recognition of phrase endings, which might be called 'motivic phrase-boundary markers' or more simply 'linear cadences'[10]. In terms of closure the motivic phrase-boundary marker y takes on the quality of a contextually-generated cadential formulae, its melodic contour occurring at the ends of phrases 1, 2, 4 and 6, and at a number of subphrases (in the middle of phrase 3, 5 and 7). Notice that every phrase ends with a descending leap (or step in the case of phrase 7) even where motif y is not in evidence, reinforcing the concept of registral abatement and the falling cadential paradigm noted earlier. Motif y is also associated with a rhythmic formula of cumulative durations (2+3+8 semiquavers) that consistently forms the approach to durational abatement at the ends of phrases 2, 3, 5 and 6, and in varied form at the end of phrase 7 (measured as 2+4+6 semiquavers). Thus, the composer from the outset absorbs into his individual style familiar rhythmic and directional features of traditional cadences and centring formulae, even though these are expressed in a somewhat angular motivic form, frequently terminating with the leap of a tritone (the latter will become a paradigmatic cadential term in the movement as a whole).

I could have analysed the passage from the perspective of a distributional semiotic analysis, which would have yielded a similar breakdown of phrases, though it would have fragmented into a plethora of many smaller motifs. Instead it is the continuity between adjacent phrases that I wish to emphasise here. Having established the existence of phrase boundaries and cadential melodic formulae in the absence of a regular metre or pre-existent phrase slurs, what does this perspective tell us about closure? The sensation of repose generated by the falling cadences and durational abatements of subphrases and phrases creates temporary points of stasis in which the longest duration serves to accent and mark out certain pitches for the ear, and the choice of these pitches is far from arbitrary. By mapping out the first and last pitches in each subphrase of the entire passage, an interconnected pattern of relationships between local pitch centres emerges. Ex 5.5 displays these patterns in terms of a lower foreground and upper middleground graphical reduction; neo-Schenkerian symbols have been used to link these notes over broader spans (represented by the

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[10] Only markers occurring at the ends of phrases are labelled in the example, although there are a variety of motivic markers that serve to underlie the beginning of phrases in an equally consistent way.

beamed notes and labels: LN (lower neighbour-note), UN (upper neighbour-note) and S (skip)). The beginnings and endings of many of the subphrases emphasise the same pitch, and can therefore be treated as prolongations of that pitch in centric terms, as represented by the dotted ties in the lower foregound level of the example.

From the lower foreground graph it can be seen that a process of linear oscillation underlies the choice of pitch centres: phrases 1 and 2 together enact a neighbour-note oscillation around F#; phrase 3 pivots around C; phrase 4 replicates the F$\sharp$ oscillation of phrase 1; phrases 5, 6 and 7 oscillate between C and C$\sharp$; and phrases 8 and 9 again return to the material of the opening phrases. In this scheme, the first two phrases establish F$\sharp$ as a tonic centre in the context of an incomplete whole-tone modality (see Ex 5.6), and reinforce this centricity with several additional mid-phrase repetitions of F$\sharp$[11]; the third phrase represents a contrasting unit, whose note centre moves a tritone away to C, and whose repetitive internal motivic structure causes a progressive lengthening of the subphrases (from 21 semiquavers in its first subphrase to 40 in the second). This new rival pitch centre, the increase in phrase-length, and the change to octatonic modality constitute tension-generating ploys, which are then relieved with the return of the opening phrase and original mode in phrase 4.

The middleground process of interaction between groups of phrases is represented by the upper level of Ex 5.5 as a continuing 'linear oscillation' between F$\sharp$ and C. Phrases 5, 6 and 7 constitute a lengthier foray into C-based territory, and the rise in tension is again reflected by even longer phrase lengths, a wider registral ambit, and an expansion of mode to include all the chromatic notes (Ex 5.6). C is then prolonged by repeated oscillations with its upper neighbour-note D$\flat$/C$\sharp$. The modal and developmental sense of tension is finally relieved with the recurrence of the F$\sharp$-centred opening material in phrases 8 and 9.

The only note in this scheme that is not placed exactly on a phrase boundary is the higher C5 close to the beginning of the second subphrase of phrase 7, but I felt compelled to choose it over the B that begins this subphrase, firstly because it is the

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[11] A high degree of statistical recurrence regarding a particular pitch class has been identified as another important factor in contributing to listeners' attribution of sensations of stability and centricity to that note (Krumhansl 1990). Schoenberg himself argued that the frequent occurrence of a given pitch class will raise it to the rank of tonic (Schoenberg 1975: 246).

first directly repeated pitch of the whole passage, secondly because Messiaen additionally marks it out for attention with a tenuto marking, and thirdly because it is very close to the beginning of the subphrase if not exactly the first note thereof. This final subphrase is unusual in other ways too, involving further repetition and a final abatement of dynamics. The purpose of this is to bring about temporary closure in terms of abatement (reinforced by the registral abatement and the narrow melodic ambit) and motivic liquidation, but this is contradicted by the lack of closure in tonal terms, since the phrase closes on G rather than the global F♯ tonic. The function of this G becomes apparent as it neatly elides with the tonic F♯ in bar 15, where the main theme begins again. Thus the G can be conceived as a half-close that prepares the return to F♯, but note that this return is simultaneously a moment of closure (on the plane of pitch hierarchy) and a new beginning (since the resolution to F♯ coincides with the start of a new phrase). Such dislocation between different levels has often been observed by other theorists (notably Meyer, who speaks of 'closural noncongruence') as a means of creating continuity rather than 'premature' closure. This is analogous to the use of phrase elisions in Classical pieces to blur the closing effect of a supporting perfect cadence, projecting the listener into the future rather than sealing off the phrase.

It is important to acknowledge that the structure outlined in Ex 5.5 is not Schenkerian in the sense of a melodic line that unfolds triadic harmonies (or any harmonies for that matter), and it only falls into place when the phrase boundaries are pinpointed. What this demonstrates is that clearly articulated phrase boundaries can define pitch-centric processes of closure in a hierarchical manner, even in the context of changing modal collections and in the absence of harmonic support. These boundaries are defined by a consistent type of cadential behaviour (lenghthened durations) that is reinforced by motivic forms of cadence developed contextually within the piece.

After the return of the opening in bars 14 to 22 (beginning with phrases 8 and 9 from Ex 5.5, and continuing to duplicate phrases 3, 4 and the beginning of phrase 5) the music undergoes even more wild transformations of the sort explored a little by phrases 5 and 6, now emphasising C and E♭ at phrase boundaries. There is a sudden change of character at bar 26, the music becoming pianissimo, legato and using

contrasting longer note values. Note that Messiaen refuses to seal off the previous section with a rest or double bar here, and thus avoids centring F♯ before embarking on the contrasting episode. (Thus, here is an instance of the effect of enclosure mentioned in Chapter One, whereby contrasting sections of music collide without strongly articulated closure occurring at the end of the first section). There is an isorhythmic principle in operation in this contrasting episode, in which the long chain of pitch classes covering the total chromatic aggregate[12] is repeated at a different point (a quaver before bar 29) to the repetition of its rhythmic sequence (which recurs much later at bar 33). The composer has virtually relinquished his compositional decision making to an automatic (isorhythmic) system here, and the result of this mathematical imposition destroys the symmetry of subphrase and phrase groupings that was capable of evolving a clear sense of pitch hierarchy in the opening section. This does not impair the beauty of the passage; rather, there is a qualitative change in the sense of temporality projected by this episode, which is similar to the timeless hovering effect of produced by isorhythms in the first movement of this Quartet.

Localised closure can still be felt in the faster passages of the isorhythm (bb.29-32), where longer notes terminate the semiquaver motivic units. While Messiaen uses phrase slurs to help articulate these motivic groupings, they do not create distinctive antecedent and consequent boundaries at the middleground level, instead sounding as a sequence of foreground fragments. In the more slowly moving passages of the isorhythm the listener is continually wrong-footed in their sense of where phrases begin and end, because long durations emerge only retrospectively and are not reinforced by recurring motivic or rhythmic cadences (since rhythm is out of sync with motif in isorhythmic music). Such passages appear simply to exist in the present moment, at times giving the impression of a string of consecutive downbeats rather than a relative sense of weak and strong rhythmic groupings[13]!

This is almost music without hierarchy – almost, but not quite, since there are a number of compositional choices available to Messiaen that allow him to shape our sensation of pitch centring. The first is the choice of the string of pitches comprising the isorhythm itself: significantly, the notes F♯, A, A♯ and C♯ are the only ones to

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[12] The sequence of pitch classes is: D,A,F#,C#,G# , A♯,C♯,D♯,B,F♯,C,G,E,F,A,B♭.

[13] Once again Messiaen's phrase marks tend to organise these so that the longest duration occurs at the end in an attempt to naturalise the awkward rhythmic irregularity and lack of metric organisation.

each appear twice in the sequence (see footnote 12). These reinforce each other in a triadic sense, and their statistical prominence creates the possibility of a reading based on an F♯ major/minor harmonic prolongation. A second important compositional choice is that of the register assigned to the pitches of the isorhythm. This factor enables Messiaen to focus attention on F♯ by placing it at the upper and lower registral boundaries of the passage: in the piano r.h., violin and clarinet it occurs regularly at F♯5 and F♯4, and an octave lower in the piano l.h. and cello. All other pitch classes are kept within this framing boundary.

After the isorhythmic principle is broken off towards the end of the episode (bb.39 ff.) F♯ is 'pinned down' as the tonic by a process of reiteration. Four short phrases - each of which is variation in terms of pitch but rhythmically the same - perform a repeated semiquaver descent to a quaver F♯4 (bb.41-44 – see Ex 5.7). This is the first close repetition of subphrases to occur in the movement, and each cascade of eight falling semiquavers serves as an iambic upbeat to the longer F♯ at the base of the descents (similar in principle to Bartók's iambic repetitions focussing on F at the end of the revised version of the *Concerto for Orchestra*). This is followed by a reprise of phrase 2 from the opening with an emphatic fortissimo, and since this phrase also terminates on F♯ it confirms the tonic status of the pitch. In fact, the final F♯ is reiterated an octave lower on the piano, cello and clarinet[14] for the duration of a semibreve - the longest duration in the movement so far – and is followed by the first rest in the movement (at least the first to occur in all parts simultaneously). Moreover, there is even a historical layer of signification in this closing gesture, since such downward octave leaps to long-held notes are common ending formulae in the nineteenth-century piano literature. This finally grants the sectional closure that has ingeniously been averted at earlier points: in a hierarchical sense the semibreve is the highest level in the durational hierarchy and therefore occurs only at the level of sections, not of phrases.

The overall trajectory of the music from bb.1-47 suggests a series of alternations between stability and instability, closure and openness, where the former is defined by the reprise of the F♯ centre and its attendant 'stable' thematic material (phrases 1 and

2 and their recurrences), and the latter by secondary pitch centres (focussed mainly on C at the middleground level) and evolving, unstable or 'fragmented' types of phraseology and expanded modal resources. During the opening eleven phrases the tonic and its thematic and modal representatives are constantly asserted against the forays and developments of the C-based material, as if the composer is at pains to reign the listener back to a firm sense of home. However, the length of the centrically polarised (non-tonic) counterphrases appears to increase exponentially, beginning with just 18 semiquavers in the first subphrase of phrase 2, then 61 semiquavers across phrase 3, 197 semiquavers across phrases 5, 6 and 7, and almost 400 semiquavers in the passage from bb.22-41, which includes the isorhythmic passage analysed above. This scheme reflects Schoenberg's sense of a 'state of unrest, of imbalance, which grows throughout most of the piece'. Bars 26 to 47 can be thought of as moving from a maximally ambiguous definition of pitch-centre to a stable one.

Even within the ambiguous isorhythmic passage the seeds of this F♯ centre are planted and prepared, but they are only later consolidated by the traditional closing gambits of repetition and reprise.

The arrival of sectional closure at bar 47 could be momentarily perceived to be the end of the movement, but a further section of roughly the same length is added. Of course, a traditional binary-form or sonata movement would usually end the first half in a different key, providing pitch-based evidence for non-closure. In choosing to end the first half firmly on the tonic and with a thematic reprise, Messiaen offers no basis upon which the hierarchically minded theorist might conceive a higher level of structure that remains open at this point. Although the movement exhibits a consistent hierarchical behaviour with regard to duration, the latter can only imply an open-ended continuum of lesser or greater degrees of stability (i.e. because there is no such thing as a 'tonic duration'). Of course, this is hardly problematic for the listener, who simply accepts that there is more to follow. But it serves to caution us that pitch-based hierarchies certainly have their limits in terms of background structure, even in pieces where they are so painstakingly organised on the foreground and middleground levels.

The second section begins at bar 49 with a variant on the opening two phrases, but these are interrupted by a rather statuesque triple forte figure around the augmented

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[14] The disappearance of the violin here – necessitated by an octave leap that goes beyond its compass – also produces a kind of terminal modification and abatement based on the dropping out of components.

triad F-C♯-A. This is clearly a challenge to the supremacy of the tonic F♯, and after progressively longer interruptions by this augmented figure, the music erupts in protest in two continuous waves of semiquavers (bb.68-77, and following further interruption, bb.80-93) culminating in an ecstatic trill on A and G in bb.90-4. This latter event invites comparison with the G at the end of phrase 7 (Ex 5.4) - the precarious upper neighbour note to the longed-for tonic F#. And what better way to create the climax than to prolong this tense off-tonic pitch through a crescendo and trill before finally resolving it in five different octaves simultaneously to multiple F♯s (bar 95), quadruple forte, creating a descending phrygian cadence to the tonic?

Whether the F♯ is actually 'longed-for' in any sense here is certainly open to question, especially since its memory is not kept alive through the immediately preceding phrase boundaries. However, there is a sense in which an expectation of thematic reprise (if not tonal reprise) is driving this climax, especially given the incomplete and varied allusions to the opening theme throughout this section. The use of the trill might also add an associative historical layer of meaning for some listeners, evoking impending closure through association with similar Classical gestures in which the trill commonly occurs as a heightened anticipation of closure.

A simple repetition of the opening theme in its original guise would be anticlimactic at the moment of resolution of this trill in bar 94. Instead the composer presents a freely rhythmically augmented version of phrases 1 and 2, with huge registral displacements of the original melody ('*terrible et puissant*') which is nevertheless intact (compare bb. 94 ff. in Ex 5.8 with bb. 1 ff. in Ex 5.4). Significantly, Messiaen now adds rests to distinguish between subphrases where in the opening there were none, probably because the durational cues for the ends of the subphrases have been lost due to the rhythmic distortion (i.e. because the final notes of subphrases are now not always the longest). In fact, the longest values are reserved for F♯ and C (the two main centres of the original opening section) both as they occur mid-phrase and at the ends of phrases (see Ex 5.8, where F♯s are marked with arrows). This gives further emphasis to these pitches as a kind of tonic and dominant, the F♯ having the last word at the end of all but one of the subphrases. An important aspect of these subphrases is their use of the downard tritone cadence, which plays an important role through the entire movement, occurring as an important motivic marker of phrase endings in the

opening phrase complex (as motif y) and at the end of the first section. Indeed, the composer's registral dislocations of phrases 1 and 2 near the ending of the movement are not allowed to interfere with the registral continuity and descent of the terminal tritones (marked 'T' in Ex 5.8)[15]. On the contrary, Messiaen modifies the registral disposition of the ending of the first subphrase of phrase 1, so that the tritone now appears in descending form, where in the opening it ascends at the corresponding point.

The next phase of the ending engages a familiar, Beethovenian trick (used for example in the ending of the scherzo of the Seventh Symphony), pretending to initiate a reprise of the slower isorhythmic section (as Beethoven does for the trio), only to be swept aside by variants of the ferocious pitch-centring phrases that occurred near the end of the first section at bb. 41-44, again establishing F♯ through repetition. In fact the fragment from the isorhythmic section also happens to use F♯ as its highest and longest pitch. A final variant of the opening motto, 'de-rhythmicised' into even quavers and introduced by an additional note E, is followed by an octave leap down to an F♯ semibreve, bringing the movement to a definitive close. This final gesture clearly parallels that at the end of the first section in bar 47, and the addition of a fermata would suggest the composer intended it to be the longest duration in the piece. Thus, retrospectively the hierarchy of durations is consistent even at the background level of structure[16]. The statistical incidence and durational prominence of F♯ is highest in these final 16 bars of the movement, bringing about a sense of centre in a repetitive and forceful way (especially given the *fffff* dynamic level). In fact, the music of the opening appears to have been rewritten specifically to serve this purpose.

Closing Discussion

Through this case study I have hoped to show the ways in which duration, repetition, linear oscillation, phrase structure, cadences and even registral boundaries

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[15] Octave transpositions may have resulted in ascending tritones here. The exception is at the very end of phrase 2, where the registral descent is expanded by an octave to emphasise the overall closure of the two phrase units.

[16] However, Messiaen does allow a semibreve to be used pior to this at the end of the augmented version of the theme (b.103), although he permits only a brief quaver rest to follow this.

contribute to the effect of pitch centring in a complex post-tonal musical context, while also developing a sense of how this centricity is embedded in a compositional narrative of tension and resolution that affords a global overview of the aesthetic mechanism of closure. The process of oscillation between tonic and non-tonic phrases and groups of phrases underlies a familiar tonal trajectory of stability versus instability. Tension is increased in the first half by a progressive lengthening of non-tonic subphrases, which are always associated with an increasing density of mode and the drawing out of intricate motivic permutations; this helps to challenge both the primacy of the tonic and the stability evoked by the shorter motto theme, and is later expanded by the use of total chromaticism and extreme phrase instability in the isorhythmic section. In the second half an interruptive motivic figure injects a further level of instability into this process. The figurative dialectic of 'home versus wandering' (or perhaps 'centre versus perimeter') is expanded across wider and wider temporal stretches (during each half) until a more emphatic homecoming is achieved. If the method by which balance is restored is indeed the real idea of a composition as Schoenberg states, then Messiaen's 'Danse' provides a systematic example of how this can occur in a modally rich and rhythmically complex composition, without recourse to harmonic abatement. His restorative technique at the end of the first section is actually quite simple, involving direct repetition and thematic reprise, but an increased centric emphasis is given at the very end of the piece to counterbalance the additional instabilities introduced through the course of its second part. Moreover, the endings of the two sections are carefully 'rhymed' by Messiaen as a kind of formal couplet (compare Exs 5.7 and 5.8). The subtlety of this scheme lies in the composer's microscopic attention to detail in terms of phrase structure, cadence, pitch hierarchies, durational hierarchies, and the meticulous balancing act between automatic isorhythmic procedure and an imposed sense of centricity.

Although it might be argued that centricity emerges merely as a localised side effect of durational abatement in post-tonal music, this example shows the extent to which centric relationships can also be used to create hierarchical pitch-based systems of closure akin to tonality, to which sensitive listeners might respond. Moreover, this is not only a pitch-based system, but also one that is articulated through the thematic and modal primacy of the opening two phrases and their recurrences. In this sense, as in a tonal reading of sonata or rondo form movements, a centric reading of the movement

merely serves as an economical model in which the notion of tonic is also representative of thematic and formal processes of closure.

The linear cadence can be defined as a motivic or rhythmic figure that becomes established contextually as a means of creating sensations of centricity and demarcating phrase endings. The recurrence of this figure and its transformation into similar figures at different pitch levels helps to aid recognition of centric pitches and their relationships through networks of phrases. Indeed, vertical and contrapuntal cadences would appear to have a similar value: for example, in Ex 5.3 Bartók hones in on the first centric pitch of his oscillating conclusion by approaching it with a stepwise contrary-motion cadence, which converges on the octave B♭ (bb 209-10), and he uses the same figure in inversion to arrive at B♭ at the end of the movement, and again at the very end of the finale (Ex 2.1 – Chapter Two). In the first movement these cadences appear as local phenomena embedded within the middleground oscillation of the terminating B♭-D♭-B♭ pitch centres, just as Messiaen's motivic cadences helped to express middleground relationships between oscillating pitch centres in the 'Danse'.

However, we have also seen in the course of earlier musical examples in this chapter that some movements are much less systematic in their use of centricity, while others seem suddenly to import centric gestures to underpin their sense of an ending (arguably functioning predominantly as signs of closure).

> While some non-tonal pieces manifest intricate and systematic determinants of centricity, other pieces are without complicated hierarchical systems of relationships, relying, rather, on means of centricity which may seem simple and basic by comparison. In such cases, identifying the structural points and the sources of motivation behind such points is of critical importance (Morrison 1985: 159).

Such motivations take us beyond the perceptual dimension of the music into speculation about compositional design and rationale, an issue which I will explore more thoroughly in relation to Stravinsky's *Symphony in Three Movements* in the next chapter. For example, despite the emphatic F-major ending of Bartók's finale in the *Concerto for Orchestra*, the movement does not systematically set up its final F goal

in the way that Messiaen's '*Danse*' does; only a brief passage from bb.59-73 is grounded with F major harmony, and F is certainly not established at the outset of the movement as a modal centre. The movement is kaleidoscopic in its exploration of modality, but its complex modal superimpositions and reorientations are nevertheless frequently grounded by pedal notes and triadic support that gives a feeling of localised impression of tonality, though rarely on F. The idea of a consistent tonal point of reference is neglected perhaps because the chaotic permutations of modality are allowed to dictate the localised sense of key at any given point, giving maximum compositional flexibility where tonal centricity might have hemmed in the composer (see Antokoletz 1993: 534-6 for a brief adumbration of these modal procedures)[17].

There are also pieces where uniform motivic boundary markers such as those found in Messiaen's '*Danse*' are in evidence, but where a mobile sense of pitch centre is suggested whose point of destination is not closed by linear oscillations. The opening of Varèse's '*Density 21.5'* provides an example of this (see Nattiez 1982). It also provides an instance where the cadential figures at the end of phrases tend to rise rather than fall, which is also true of the ending itself. It could therefore be argued that this piece creates its own contextual language of cadential behaviour based upon rising rather than falling gestures. We will also see, in Chapter Seven, how cadences can derive their impact from short dynamic accents rather than final lengthening. By analogy, 'some languages use other codes than lengthening for signalling the termination of sentences. This suggests that different codes may be available for signalling the phrase structure of a melody.' (Friberg and Sundberg 1987: 54). The important factor remains that analysis can reveal where such codes operate with consistency, as in Messiaen's '*Danse*', and that the categories pursued here in relation to centric forms of closure – emphasis, linear oscillation, cadence, phrase structure and modality – are flexible enough to be absorbed into a variety of stylistic contexts, from conventional tonality to the idiosyncratic procedures of a twentieth-century innovator like Messiaen[18].

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[17] It may even have been Bartók's intention to end the work abruptly, as if to suggest that his fantasy of modal permutations could have gone on indefinitely. In this way, the F strikes the tonally sensitive listener as a striking terminal modification, an effect which is lost to an extent in the more centric revised ending!

[18] Likewise, Jonathan Dunsby concludes in relation to Schoenberg's writings on cadence that 'a synthesis between this dialectic – as it can justifiably be called – between the forces of style and of artistic originality produces Schoenberg's central formulation of a theory of cadence' (Dunsby 1980: 43)

Ex 5.0 Bartók, Concerto for Orchestra (original ending) –
showing contrapuntal convergence on the triad.

Ex 5.1 Bartók, Concerto for Orchestra (first stage of the revised ending) - showing
melodic centring

Ex 5.2 Bartók, Concerto for Orchestra (revised ending) – harmonic analysis

Ex 5.3 Bartók, Fifth Quartet, first movement (ending) –
showing linear oscillation between pitch centres

Ex 5.4 Messiaen, '*Danse de la fureur, pour les sept trompettes*' from *Quartet for the End of Time* – a phrase by phrase analysis of the opening.

Ex 5.5 Messiaen, '*Danse de la fureur, pour les sept trompettes*' from *Quartet for the End of Time* – an analysis of pitch centres in the opening section.

Ex 5.6 showing the correspondence between phrases and modality in the opening of Messiaen's '*Danse*' – slurs indicate notes carried over from one set of phrases to the next.

Ex 5.7 Messiaen, 'Danse' from *Quartet for the End of Time* (bb.40-47) – showing 'sectional' closure.
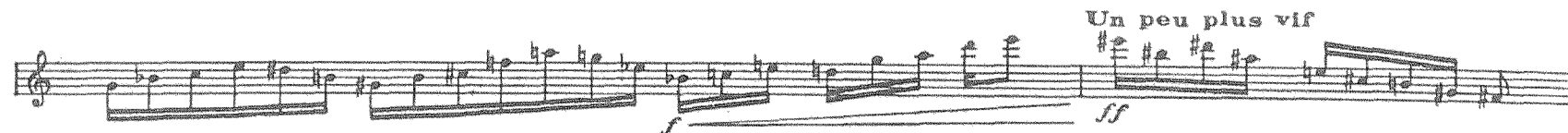
Iambic/regsitral accentuation of F♯

…repeated…
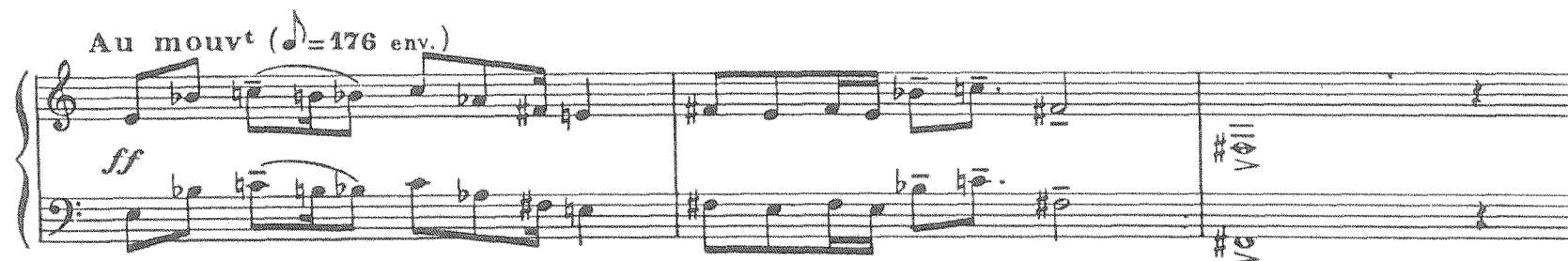
Equivalent to Phrase 2

Durational/registral emphasis

Ex 5.8 The ending of Messiaen's '*Danse*' from *Quartet for the End of Time* – showing the altered reprise of phrases 1 and 2, addition of rests (encircled), tritone cadences (T), and durational accentuation of F♯ (see arrows)

Chapter Six

De-centring the Work: Neo-closure in Neo-classicism

These bars are written in succession, as in normal music (perhaps the time will come when, in the name of progress, the bars will be lined up vertically instead of horizontally); thus I must believe that this succession signified a cohesive whole to the composer. But in music, all cohesion is nothing other than a composing-out in linear progressions; thus it is the linear progressions alone that bear witness to cohesion, not whatever the composer may say or write on the subject...It is unnecessary to contemplate what connection the passage cited might have with what precedes and follows it; for no composer can possibly control the large dimension of a form unless he is able to express a convincing structure even of sixteen bars' length. (Schenker 1926: 17-18)

This sarcastic denouncement of Stravinsky's claim to musical genius comes from Schenker's only analysis of Stravinsky's music, a passage he takes entirely at random from rehearsal figure 11 of the Piano Concerto (see Ex 6.0). The absence of a 'convincing structure' ties in here with Schenker's initial ironic statement: 'thus I must believe that this succession signified a cohesive whole to the composer.' 'Succession' in this context refers just to the chronology of events. 'Connection' implies a relationship between the adjacent events in that chronology. It is this 'connection' that Schenker finds wanting, but is it Schenker's theory or Stravinsky's music that founders as it becomes increasingly impossible to deduce the apparent laws and connections that govern the order and necessity of musical events? The twentieth century saw this mode of organised linear connection critiqued by what would probably have been Schenker's worst nightmare - the application of indeterminacy and chance to musical succession. Serialism on the other hand provided what Schenker would have probably seen as an equally arbitrary chain of connections in the form of the tone row, as a means of replacing the 'natural' cognitive connections exploited by neighbour-note motions, linear

progressions and so on. The same century saw a parallel breakdown in science's cause-and-effect understanding of the universe and its laws, elevating uncertainty to an *Ur-principle* in its own right. It is little wonder then that music, the experience of which issues from a seething mass of electrochemical interactions in the brain, should at times bear witness to the unpredictable logic of that quantum universe. However, just as physicists have learned to switch between the old Newtonian realm and the realm of quantum mechanics, the new musical languages of the first half of the twentieth century in particular present an analogous challenge to the analyst, since they are situated at various points along the boundary between the old principles of tonality and the burgeoning realms of atonality. In this chapter and the next I will explore this boundary; in particular, I will look at the way in which tonal closure has been re-enacted and, in the case of the present chapter, critiqued, in neo-classical and neo-tonal works.

Neither Stravinskians nor Schenkerians have taken Schenker's criticisms of Stravinsky very seriously. But before Schenkerian notions of prolongation and progression were applied to post-tonal works, Stravinsky was definitely not territory for students of *Auskomponierung*. The disparaging tone of Schenker's analysis raises some interesting themes; it seems to register the shock of Stravinsky's style in a way that perversely does justice to the composer's assault on tonal consciousness. And it goes straight to the heart of an issue that is still very much on the Stravinsky agenda: continuity versus discontinuity[1]. This issue is also central to the wider phenomenological basis of closure, since there is an assumption that closure demands integration and coherence, and that discontinuity is inimical to it. I will examine these theoretical problems in a later case study of Stravinsky's *Symphony in Three Movements*. For now let me turn my attention to Schenker's criticisms.

'Fig. 31 shows linear progressions; they are indeed of a simple type, but they are linear progessions nonetheless. Is it not the case, however, that Stravinsky contradicts this plan where he is able to?' (Schenker 1926: 17) – see Ex 6.0. Schenker's categorisation of these contradictions can be listed as follows: first, the lower voice obstructs the formation of the linear progressions; second, the motives are not differentiated enough to illuminate the linear progressions; third, the composer allows the tones constantly to appear in dissonances against each other. It is the surface that Schenker rails against here – 'our

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[1] See Hasty 1986: 58-74; Pople 1996: 271-87; Walsh 1996: 35-71; and Kramer 1988: 221-85.

precious public sniffs a bit of Bachian counterpoint and wallows in rhythm!' (Schenker 1926: 18) - and all his criticisms can become virtues in other more traditional contexts. With regard to his first point, there is a fine line between embellishing the spans and obstructing them, and in this sense Stravinsky surely provides no more of an obstruction to the spans than do the melodic bass lines of Bach (recalling that Bach's fugues were notoriously difficult for Schenker). As for his second point, motivic unity may be equally compelling as motivic variety, and as far as his third criticism is concerned, there are plenty of extraordinary dissonances equal to those of the Stravinsky example in the music of Bach, except that they do not appear so persistently. It is not so much the threat to the span by individual notes that is the problem, but the precariousness of the spans under the combined assault of so many accented foreground dissonances and elaborations. That is presumably why Stravinsky composed the passage using such simple I-IV-V-I models (which Schenker himself identified), to compensate and clarify the irregular surface with harmonic primary colours that manage to reign in the tonality (see Ex 6.0, under 'Fig 31').

In spite of these problems, it has proven all too easy to classicise Stravinsky by assimilating his music into Schenkerian orthodoxies, for which this unique example from Schenker himself unwittingly provided a precedent. While such work does reveal the subtlety of Stravinsky's connection with tradition, it underplays his disengagement with the totalising tonal schemes of the eighteenth and nineteenth centuries, a disengagement that makes the mechanism of tonal closure problematic in his music. Witness Felix Salzer's assertion in connection with Stravinsky's *Symphony in Three Movements* that 'the use of so-called polychords in no way implies two tonalities which would be contradictory to the unity creating essence of tonality, regardless of style.' (Salzer 1952: 218) In Salzer's statement, the hegemony of the tonic is asserted in order to preserve a tonal hierarchy, without which the idea of binding passages into prolongations and progressions becomes absurd. (He provides graphs showing the first 147 bars of the first movement of the symphony). If the possibility of two tonalities is outlawed by Salzer's mode of representation, today it seems clear on the other hand that double-tonic complexes, in which tonality vacillates between two keys without giving priority to one in particular, represent a key stage in the development of tonality during the nineteenth

century[2]. Because music is bound to its chronological frame, however, it must end by choosing between these alternative keys, and the real challenge to monotonality occurs when it chooses a different key at the end to that established at its opening. Examples of such progressive tonality are admittedly fairly scarce in the nineteenth century (it becomes a hallmark of Mahler only between movements, each individual movement being monotonally framed and closed). Stravinsky also employs the technique; for example, Joseph Straus has shown how Chopin's Ballade Op.38, which begins in F major and ends in A minor, provides the model for a similar tonal trajectory in Stravinky's '*Hymne*' from the Serenade in A (Straus 1990: 149-55).

It is significant that Schenker deals hardly at all with pieces constructed in this way; the examples in Chopin – the Ballade, Op.38 and the Fantasie, Op.49 – are not given any lengthy consideration. Jim Samson writes that 'several of these pieces are best described in analytical terms as monotonal (in a single key) with a non-tonic opening, and in style-historical terms as refinements of the tonally inductive prelude or recitative.' (Samson 1992: 53) However, he points out that the Second Ballade, which evidently had so much impact on Stravinsky's Serenade, 'refuses to permit a monotonal analysis. It can only be explained as a two-key scheme.' (Samson 1992: 54). There has been a myriad of responses to this piece; after a survey of these, Samson wisely concludes that

> these analytical approaches, through their systematic character, afford glimpses into the possible musical structures of the Second Ballade, their insights dependent upon, if not validated by, specific theoretical frameworks. There is nothing absolute about the findings here...It is theory above all which establishes the relativity of analytical work, mediating between the (potentially authoritarian) individual analysis and the (potentially permissive) multiplicity of possible analyses. (Samson, 56).

Notice the term 'possible musical structures' in the above passage. Samson's ambivalence towards a fixed musical structure is appealing, and his phrase also acknowledges that there may be latent but unactivated compositional alternatives within

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[2] For an extensive survey of these nineteenth-century 'double-tonic complexes' see Kinderman & Krebs 1996.

these possible structures, including the F-major ending reported by Schumann. To transfer this idea to the intertextual level, one might even want to include Stravinsky's *'Hymne'* within that range of alternatives as a kind of future possibility for the Ballade! If confusion and partisanship arise as a result of such an innocent tonal digression as that in Chopin's Second Ballade, we might expect a more pronounced difference of opinion in the case of a piece like Stravinsky's *Symphony in Three Movements*. Returning to Salzer's remarks – 'the use of so-called polychords in no way implies two tonalities which would be contradictory to the unity creating essence of tonality' – it seems strange that he overlooks a central fact: not only does the ending of the first movement transform Salzer's own 'tonic' prolongation of G major into a dominant, so that it ends with a C-major chord (albeit one that includes B as a distant memory of the G tonality[3]), but the finale vacillates between C major and D♭ major and finally chooses the latter for its ending.

Before discussing this instance of progressive tonality in detail it will be useful to place the work in its proper compositional context. The first movement was composed in 1942, but the work was not completed until 1945. It is important to recognise that the *Symphony in Three Movements* was not part of what Stravinsky termed his 'jazz commercial' output - the music he composed to keep up a sufficient income over the war years (including the *Circus Polka* (1945), *Scherzo a la russe* (1944) and the *Ebony Concerto* (1945)) - and this despite the fact that the middle movement was intended to accompany the 'Apparition of the Virgin' in Franz Werfel's film, the *Song of Bernadette*. The symphony was if anything financed by these other commercial projects, and therefore its artistic integrity should be born in mind and its war-imagery taken seriously:

> The third movement actually contains the genesis of a war plot, though I recognised it as such only after completing the composition...The exposition of the fugue and the end of the Symphony are associated in my plot with the rise of the Allies, and perhaps the final, albeit rather too commercial D♭ sixth chord –

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[3] A similar approach is found in the *Symphonies of Wind Instruments*, in which the opening G-major sonority is embedded within the final C major chord (see the summary graph in Hasty 1996: 60-61).

instead of the expected C – tokens my extra exuberance in the Allied triumph. (Stravinsky 1961: 51)

The work retains at least one important connection with the 'jazz commercial' works, however, and that is (as Stravinsky intimates) the colouring of its final chord, a major triad with added sixth and ninth, a typical jazz construction (as discussed in Chapter Three). The additional punch delivered by this chord in the last bar is not far removed from the overblown final chords of contemporaneous dance-band arrangements: it is written triple fortissimo, and is extremely heavily orchestrated across five-and-a-half octaves. (This overblown quality perhaps explains the composer's sharpening of the would-be tonic C to D♭, since the overblowing of wind instruments results in a slight raising of pitch). Perhaps Stravinsky wanted to invoke the sound of jazz because jazz had been banned in Nazi Germany as decadent music, thus providing an apposite symbol of the triumph of the allies. On the semiotic level, Stravinsky imports the saccharine chords of jazz endings in order to articulate the end of a work which is, harmonically at least, in a very different style, just as he imported Classical gestures of closure into neo-classical works like the Serenade in A. There are also parallels with other atonal works; for example, Berg's Violin Concerto imports tonal materials in the last movement (Bach's chorale setting of *es ist Genug*) in order to imbue it with a sense of harmonic closure.

Thus, as with that other exponent of progressive tonality, Gustav Mahler, the programmatic element seems to intervene with the natural course of things represented by 'the expected C', and this in part accounts for the ending of the piece on the 'wrong' chord. At the same time, can we really believe that someone as ambivalent about programme music as Stravinsky[4], would allow a programmatic whim to alter the course of his music in so pronounced a fashion? If the programme was indeed more subconscious – and Stravinsky admitted that he 'recognised it as such only after completing the composition' – then the ending itself may have equally strong non-extra-musical origins from within the internal musical processes of the work itself. The next part of this enquiry will consider how far this is true.

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[4] In true Stravinskian fashion, no sooner has he poured out an autobiographical account of his imagined brush with Nazism than he renounces the programme: 'But enough of this. In spite of what I have said, the Symphony is not programmatic. Composers combine notes. That is all. How and in what form the things of this world are impressed upon their music is not for them to say.' (Stravinsky 1961: 52)

It must be stressed that the practice of ending in a completely different key to the opening is not exceptional in Stravinsky's oeuvre. In the *Symphony of Psalms* and the Serenade in A, the overall progression of tonalities between beginnings and endings is by thirds, as against the semitonal move from C major/minor to D♭ in the finale of the *Symphony in Three Movements*. The distinction is important, because Stravinsky's third-based system conveniently concurs with the Schenkerian notion that initial scale degrees may be supported by non-tonic harmony, albeit as exceptional cases: the first movement of the Serenade in A illustrates this quite well, the note A being the bass note of an F major first inversion at the opening. However, the rise of the tonal centre in the finale of the *Symphony in Three Movements* results in a final chord that excludes any C major components, each of whose notes - D♭,F,A♭ – are neighbour notes to the true theoretical tonic triad of C major. On paper at least this chord looks like a photographic negative of the tonic, which implies that we should hear it as 'wrong'. Yet until I looked in detail at the score I must confess that I had never noticed any incongruity in this ending, at least not on the tonal plane.

The key to the achievement of a potentially unnoticeable shift in tonality lies partly in the fact that for the last ninety bars, from the beginning of the irregular fugue (two bars before rehearsal fig 170) to the arrival of the last chord, C is never in focus as a note-centre or harmony. Such an extended period (about one hundred bars) allows the memory of C to dissipate in preparation for the final usurping by D♭. By contrast, C is established as a triadic entity by the march topos at the opening of the finale, where the harmonies are derived from a modal mixture of C major/minor with B♭ as flattened leading note. There the 'C-ness' is unequivocally hammered home by strident arpeggios and the belligerent C-E♭ alternation of the timpani, although this generates not so much a melodic C-centre as a harmonic one. However, in the tailpiece to this idea at rehearsal figure 143, D♭ and G♭ dominate as a harmonic counterpoise, after which the march resumes in C. We have here the beginnings of a battle, nothing more than harmonic juxtaposition at this stage, but this will expand as the movement goes on (see Table 1 below). The idea of such a battle of tonalities would indeed seem to make sense at the programmatic level too, as emblematic of the battle between Allies and Nazis.

It seems entirely appropriate that the Nazis should be represented by this pompous goose-stepping march topos with its insistent C tonality, which Stravinsky does his best to parody and wrong-foot by his favourite device of metrical transformation. Following this march topos, a lighter texture ensues, pitting a linearly traced E,F and G collection against a ponderous D♭ and E♭ accompaniment in the bass (rehearsal fig. 145). After a dynamic swelling as the music reaches the dominant on G, the C march begins with renewed vigour, cadencing a little further on with a distorted $\hat{5}$-♯$\hat{4}$- $\hat{5}$ gesture, misharmonised into an ugly parody of the conventional dominant cadences with which many Classical first subjects come to a pause (just before Fig 148). One wonders at this point whether Germanic music itself is being mocked in this movement, especially considering the awkwardness of the later fugal section (which is reminiscent of the way Richard Strauss poked fun at his academic critics in *Ein Heldenleben* by writing just such a fugal parody). Stravinsky himself wrote that 'the immobility at the beginning of the fugue is comic, I think – and so, to me, was the overturned arrogance of the Germans when their machine failed' (Stravinsky 1961: 51).

Without wishing to burden the reader with a blow-by-blow account of the harmonic intricacies of the movement, an outline of the form as it pertains to the sensation of the C-versus-D♭ tonality is given in the following table.

Table 1 - Tonality in the Finale of the Symphony in Three Movements

Rehearsal Figure	Description	Tonal function
142-148	March topos with secondary idea	**C major/minor**
148-152	Chromatic canon for two bassoons with later orchestral accompaniment	Indefinite
152-157	Rumba rhythms with arpeggio accompaniment	G major/minor with superimposed D♭/F/A♭ in the upper parts
157-159	Repeated horn quavers with upper strings and woodwind accompaniment	V of G
159-161	Divisi homophonic string texture with horns	**D♭ Lydian** mode (D♭s emphasised in outer voices) with added D♮
161-164	Rumba rhythms. Culminates on D♭ 'dominant' seventh chord with D♮ and E also present (producing a partial octatonic collection based on D♭/D)	D♭ **major** with some subsidiary superimposed G major triads
164-168	Recapitulation: March topos with E emphasised in bass, terminating on V	**C major/minor**
168-170	Brief episode linking to fugue with insistent A♭ bass note.	Octatonic on G♭/A♭
170-182	Fugue	Indefinite (chromatic voice leading)
182-187	Agitated strings leading to dynamic climax	G dominant-seventh prolongation
187-end	(see Ex 6.1 and commentary below)	**G** and **D♭** major interlocked as recurring polychords until final resolution to **D♭**

One aspect of this scheme that deserves mention is that very few of the sections terminate with a definite cadence. Rather, it is the juxtaposition of different textures (defined by groups of ostinati and their characteristic instrumentation and pitch collections) that creates the formal boundaries given in the table above. There is little sense in which any of the resulting formal blocks have a clear orientation towards a particular tonal point of closure (except the instance of the $\hat{5}$-♯$\hat{4}$-$\hat{5}$ cadence mentioned

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earlier). Rather, as with the block technique identified in earlier works like the *Symphonies of Wind Instruments*, these units are simply juxtaposed with each other, each existing on its own static tonal plane. Unlike the earlier *Symphonies of Wind Instruments*, however, Stravinsky organises these blocks according to sonata-like tonal principles, at least in the first part of the movement: this begins with a distinct weighting towards C, which is expanded by sections that highlight the dominant and the dominant of the dominant (see Table 1). By contrast, there is little trace of C as a tonality during or after the fugue, and since the fugue represented in Stravinsky's mind the *'queue de poisson'* of the Nazi regime (literally a 'cutting-in-front-of') by the Allies, it is possible to interpret the latter part of the work quite literally as the rejection of another seemingly totalitarian regime – monotonality. At the same time, Stravinsky injects so much rhythmic dynamism and orchestral bravura into these episodic blocks that despite their apparent tonal stasis, the actual effect is one of accumulating momentum. It is as if he were exploring the symphonic rhetoric of goal-directed development from the perspective of a very un-symphonic mode of composition characterised by repetition, rhythmic development and static pitch collections.

In the lengthy span leading out of the fugue what emerges is a deadlock between G major (as theoretical dominant) and D♭ major. The composer superimposes these two frames of reference – G-major and D♭-major triads - in increasingly dense opposition between different orchestral battalions. Ex 6.1 charts the harmonic deadlock between these two chords across the final 33 bars of the finale. Three staves are used to clarify the different polychordal components; each of the top two staves contains a different triadic strand, while the chord symbol below the bass stave indicates the nature of the two conflicting triads. For example, C♯/G indicates a simultaneous C♯ major chord in the top parts with a G major chord underneath. Stravinsky juggles with the same combinations of chords throughout this final section, and to this end the main chordal types have been labelled x, y and z. (Type y is not labelled as a polychord, although it could be considered as a polychordal combination of E♭-major and B♭-minor triads.) Notice that although chords x and z can be viewed as octatonic when considered vertically, there is no single overriding octatonic collection that is prolonged throughout Ex 6.1; rather, the transition from chord to chord is made on the basis of adjacent voice

leading. The non-polychord z arises through neighbour-note motion from chord x. This example makes explicit the tonal stasis of Stravinsky's technique mentioned earlier: the final thirty bars of the movement are completely non-directional in terms of tonal goals; the composer is content to play with four chordal types in an incessant whirlwind of permutations, before finally hammering home one chordal type (D♭-major) as the victor.

Ex 6.1 shows seven distinct phases of harmonic permutation, bracketed at the top. Each of these represents a period of multiple juxtapositions of chords, the repetitions in the score being omitted in the graph to give clarity. Thus, phase 1 involves three rhythmically irregular appearances of the chord progression shown underneath the horizontal brackets (1), with frequent durational emphasis on chord x. The latter is the chord of 'deadlock', a combination of the would-be dominant triad of the movement (G major) and its tritone pair (D♭ major) that will eventually usurp the tonic. Phase 2 is a singular interjection, emphasising G7 on the timpani; this receives long-term resolution to C from the timpani and bass part in phase 7. Phase 3 involves three occurrences of chords x and y (woodwind, piano, strings and upper brass), together with a single interjection of chord z (full brass and strings). Phase 4 lowers the register of this exchange and this time culminates on chord z. Phase 5 again hinges around chord x, and involves several repetitions as well as a varied permutation of the progression, changing the order of the chords. Phase 6 oscillates between chord x and a variant of chord z. It is at this point that the deadlock moves to crisis point, alternating in quavers between one chord and another without any hint of resolution. This phase also has a liquidational function, hammering the 'irresolute' two-chord progression out no less than eleven times!

Phase 7 carries over the upper triad of chord-type x (now notated enharmonically as D♭ major), while bringing in a new modally conflicting element in the lower parts comprising a mixture of notes - C, D, E♭, E♮, and B♭ - the same in fact that originally established the C-ness of the opening march section. Stravinsky adds the timpani here, which also belongs to the original march topos. The pitches in this group, foreign to D♭ major, are then reduced to just three (D, E♭ and B♭), and when the D disappears the other two notes are assimilated into the final triad as added sixth and ninth, as indicated

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by the upward registral-transfer arrows at the end of Ex 6.1. Thus the elements of the C-modality with which the finale opened are briefly hinted at in the lower voices, but then dissolved, their remnants absorbed into the upper structure of the glaring D♭-major added-sixth chord at the end.

Another important detail highlighted in Ex 6.1 is the way in which the top voice helps to prepare the final chord. The final chord does not present the tonic (D♭) in the top part, but rather the fifth (A♭); this note is not arrived at through a linear progression or ascent, but – as the dotted ties through Ex 6.1 indicate – through a series of octave transfers and neighbour-note exchanges with G. Rather than constituting merely ornamental Schenkerian cover tones, these Gs and A♭s provide the linear fulcrum between the vestiges of the G dominant and the securing of the new D♭-major tonic.

The sheer length of the polychordal battle shown in Ex 6.1 intensifies the expectation of resolution. 'The tense dissonance must be heading somewhere', the increasing animation and climactic orientation of the music tells us, but there are no C-scales, nothing to cue the C-major choice that was enacted in the first movement. When elements of the C march topos are echoed at the beginning of phase 7 they are no longer supported harmonically, and the would-be reprise of this material is silenced by the D♭-major harmony of the strings and woodwind. That is not to say it would be impossible to recompose the last eight bars to end in C. A fleshed-out version of the music, especially the harmonies and voicing, from fig.143-144, would probably suffice to reclaim C, but there again why should Stravinsky be so slavishly deterministic? Having brought the idea of tonal progression, and therefore tonal closure, to a standstill in this final sweep of the movement, he is at liberty to discard its jurisdiction, which he took so seriously in other works like the Symphony in C.

The analytical issues raised by this movement outline many of the problems with applying traditional concepts of tonal closure in a twentieth-century neo-classical context. The harmonic surface of the music exhibits recognisable affinities with the tonal past, such as voice-leading continuities and triadic chord types, but these do not always imply tonal functionality. They are deployed in two distinct ways in the finale: during the first half of the movement (up to the fugue) they are used to create a tonal hierarchy extending

C as a harmonic centre via its dominant and the dominant of the dominant, while after the fugue the functionality of the tonic is displaced, so that the dominant becomes the main centre without leading to a cadence in the tonic. Instead the functionality of the dominant on G is frozen by a reiterative and essentially static approach to harmonic motion. The superimposition of polychords over this G-major triad does indeed create harmonic tension, but it is a vertical form of tension rather than a horizontal one, and does not imply tonal goals.

Paradoxically, the eventual resolution to D♭ major is not particularly ambiguous from the listener's perspective, but it is when regarded from the standpoint of monotonality. The problem is that the displacement of G by D♭ is achieved by a completely different compositional practice to that of conventional modulation. This can be clearly observed from the harmonic reduction in Ex 6.1. The polychordal arrangement of harmonies into two layers is the means by which the transition from G to D♭ is effected: the growing prominence of D♭-major triads in the upper polychordal layer eventually takes over from the G strand beneath, being supported by more and more D♭s in the bass during phases 5, 6 and 7.

Thus, and contrary to Salzer, I would assert that it is *precisely* the use of polychords that can be used to imply if not simultaneous different keys, then at least the possibility of a convincing slippage from one key to another, a slippage that shortcuts conventional modulation and closure. The passage in Ex 6.1 prolongs two triads simultaneously, and resolves this vertically dissonant amalgam simply by the removal of one of the conflicting triadic elements. In a monotonal universe the element removed should be D♭, leaving G to cadence back to C, but in Stravinsky's universe the G triad is removed instead. Ultimately the strong sense of closure can be attributed to surface attributes rather than long-range tonal coherence. Such attributes would include the sudden consonant clarification of the D♭-major triad and the resultant decrease in sensory dissonance, the meticulous preparation of the topmost A♭ throughout the passage in Ex 6.1 in anticipation of the final chord voicing, the long duration and repetition of the final chord, and the sudden homophonic unification of texture at the onset of this final chord; a

subsidiary formal element of closure would be the disguised return of the march topos noted earlier (beginning of phase 7). Thus, closure migrates from a structurally-generated attribute (dominant harmony) to a surface phenomenon that ignores the tonal implications of that dominant.

Whatever temptation remains to 'Schenkerise' Stravinsky, it has to be said that in this movement the surface reigns supreme while the background can never be assimilated into a monotonal unity. I am reminded of Pople's comment in an analysis of Stravinsky's *The Dove Descending* that 'the hierarchising power of the "false" tonal trail is a factor in the interpretative process through which the "real" trail becomes recognisable' (Pople 1996: 285): here, in a reverse of the classic Schenkerian concept, the 'real' trail is to be found at the surface and not in the background, yet without the dialectic between these two the work's apparent *raison d'etre* – its critique of monotonality - is missed. The kind of closure enacted here might be termed 'neo-closure' since it seems to evoke tonal principles at the same time as renouncing them. The primacy of the foreground suggested by such a scheme runs against the top-down readings generated by the *a priori* structures that Schenker devised to illustrate his elegant but flawed conception of composer as genius:

> *The totality of the foreground is therefore a single torrent of diminution, nothing but a figure.* Where the whole is not a figure in this sense, the motives sound as though snatched out of thin air, unprepared, stuck together, like a splash of tinsel, like ear jewellery, nose rings, and so forth. Therefore the following are really synonymous: the whole, synthesis, organicism and figure. (Schenker 1926: 18)

And it does indeed seem as if Stravinsky's final chord in the *Symphony in Three Movements* was deliberately intended as a splash of tinsel on the tail of the movement, if we recall the composer's own admission of the 'final, albeit rather too commercial D♭ sixth chord'. To extend Schenker's list of synonyms we might also add 'closure' as the outcome or aim of synthesis, the closure of the theoretical text as the sealing of meaning within its own contents. These synonyms reflect what deconstructionism would call the 'transcendental signifier', which strives away from the system of differences mapped out in Schenker's foreground to an abstract universal, the whole, the synthesis, the chord of

nature. Rather like the imagined infinitesimal moment in which syntactical closure takes place, theories themselves have conceptual vanishing points towards which every other detail is mobilised, as decontructionists like Derrida have noted: 'Structuralism lives within and on the difference between its promise and its practice. Whether biology, linguistics, or literature is in question, how can an organised totality be perceived without reference to its end, or without presuming to know its end, at least?' (Derrida 1978: 26) Similarly, Schenker's *Urlinie* organises and orientates the point of closure in his later graphs and writing, just as the convention of tonality provided a singular organising principle for composers.

In an analogous way, the use of a single vanishing point in painting, from the Renaissance onwards, provided the illusionist means by which most Western artists were able to recreate external reality through the quality of perspective. In obeying such laws, however, they cut themselves off from the subjective inner landscape of dreams and visions which it fell to later generations of impressionists, symbolists and surrealists to rediscover. Debussy has come to represent the musical counterpart to this rediscovery, and some of his music is impossible to assimilate into the paradigm of tonal closure. It can be no accident that Stravinsky's first work to explore irrational discontinuities – the *Symphonies of Wind Instruments* – was dedicated to Debussy. This work has generated more discourse and argument that perhaps any other single work in the twentieth-century repertoire, and its conclusion in particular has aroused similar debates to those explored in this chapter. Van den Toorn suggests that 'the C-scale-on-C "resolution" has little to do with pitch organisation generally, with respect to both local, within-block activity and the more global or between-block perspective. The "resolution" surfaces, rather, as a *terminating convenience*, an expedient, a "device"' (Van den Toorn 1983: 342). This would accord with the argument underlying the first part of this thesis, to the effect that the sense of an ending can be explored in terms of localised signification rather than a global understanding of closure as process. As Rehding points out in his review of analyses of this work, other theorists have concurred with such a view (Rehding 1998: 60): Kramer writes that 'this not totally conclusive ending is appropriate to a piece that is largely permutational rather than developmental, that is sectional more than progressive, that exists to a certain extent in moment time' (Kramer 1986: 261). We have already encountered the ramifications of permutational forms and moment time in relation to

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such arbitrary endings in Chapters Two and Four (in relation to Stockhausen and Boulez). Indeed, the sense of an ending projected by Stravinsky's *Symphony in Three Movements* takes place within a similar context of permutation, in this case of adjacent harmonic juxtapositions. However, Rehding is not content with what he sees as a belittling of Stravinsky's achievement, and his entire article seeks to provide a structuralist justification for Stravinsky's seemingly irrational processes, a 'logic of discontinuity' (Rehding 1998: 61-62).

> In this demand for the flat and the horizontal, what is intolerable for structuralism is indeed the richness implied by every volume, every element of signification that cannot be spread out into the simultaneity of form. But is it by chance that the book is, first and foremost, volume? And that the meaning (in the general sense of meaning and not in the sense of signalisation) is infinite implication, the indefinite referral of signifier to signifier? (Derrida 1978:25)

From his remarks about ornaments, as well as his comments about Stravinsky's revelling in rhythm, Schenker exposes his phobia of surfaces and foregrounds – of the 'intolerable richness of a volume' - clothing them metaphorically with images of seduction and transient beauty. These images carry fragrances of the exotic that perfectly match the kind of orientalism upon which French artistic culture was fixated during the formative decades of Stravinsky's career. It is in some of the latter's most original music that such ornaments become truly detached from the body that would allow them to be considered as ornaments in the first place, and take on an autonomous life of their own, resulting in what many consider to be an entirely new formal principle of construction. Structuralism is not content to observe the existence of this principle, however, but seeks to explain it in ever-decreasing circles, as if trying to errect a new set of rules that will constitute the *Ur*-principle by which Stravinsky will be raised to the status of a thinking 'background' composer rather than one who is dictated to by the caprice of the foreground. Rehding's article is just one of a whole stream that attempts such a structural justification for Stravinsky, a stream that can be traced back to Edward Cone's influential 'Progress of a Method' essay (Cone 1962: 21-26) - in which the author teases out continuities from Stravinsky's juxtaposed blocks - and its elaboration by Kramer (Kramer

1988: 221-285). In these, background continuities in pitch structure are seen to atone for and make sense of surface discontinuities of texture and tempo, while proportional ratios, rather than linear development, generate the structure of the work. One wonders, had Schenker been more familiar with the face of a surface that he found unbearably ugly, whether he might not have seen through that which was skin deep to something that was more susceptible to 'theoretical closure', the act of unifying works of art by imposing finite limits on their infinite possibilities of (re)interpretation.

More recently, however, growing numbers of theorists have begun to question such an analytical ideology. Robert Fink writes that 'the assertion that abstract musical artworks have a surface, and thus also have a hidden trajectory and depth, underlies what is perhaps the single most important metaphor of structuralist musical analysis.' (Fink 1999: 102) He goes on to state that such unified theoretical models will 'become progressively more untenable – at least, progressively worse explanations of salient musical experiences – as we approach the contemporary moment.' (*Ibid.* 103). But 'salient musical experiences' are hard to pin down, at least with any universal theoretical certainty: after all, what is salient to one person might be missed by another. Fink falls back on his own engagingly subjective response as a guide-rope for an analysis of the first movement of Stravinsky's *Symphony in Three Movements*, and his observations on the dislocation between what he calls the 'surface linear structure' and deeper structural readings - 'a totalizing hierarchy of pitch' - concur with the dislocation between surface and background I have outlined in the last movement. The finale appears to have a ruptured background (because it does not achieve closure in the home key) and yet this hardly ruffles the continuity and strong sense of closure achieved at the surface level of the ending itself (except perhaps for those inflicted with perfect pitch). The tonal sleight of hand achieved by Stravinsky hints at the fragility of long-range tonal listening, and illustrates the ease with which composers can bend the rules of tonality to their own ends without producing any overt sensation of bad practice or disjunction. Nevertheless, there is a palpable sense of nostalgia for symphonic goals in this work, and the finale seems curiously poised between primitivism and elegance, between discontinuities of texture and harmonic orientation on the one hand, and continuity of tempo and rhythmic drive on the other.

Ex 6.0 Schenker's analysis of Stravinsky's Piano Concerto

Fig. 30

All markings other than *fp sub.* at the upbeat are by the author of this Yearbook

Fig. 31

a) (Oktavzug)

A: $IV^{\#3}$ — V $I^{\#3}$ — $IV^{\#3}$ V^7 — I

b)

Ex 6.1 Stravinsky, *Symphony in Three Movements* (ending) – an analysis of polychords and their harmonic functions

Chapter Seven

Cadential Mechanisms of Closure in Lutoslawski and Bartók

There are a number of questions I wish to address in this chapter. I have already shown in Chapters Two and Three how cadences and chord forms have been used as a terminal gesture to suggest closure in a symbolic way, but to what extent are harmonic cadences capable of sustaining different degrees of closure across an entire movement? Is there evidence to suggest that composers regulated the 'mechanism of closure' in ways analogous to tonality, through the use of perfect, imperfect and interrupted cadence forms? And what are the appropriate analytical means by which such analogies may be rendered transparent? I have already dealt with the importance of phrases and centricity in defining hierarchical mechanisms of closure in a purely monophonic context (see Chapter Five). To reiterate, the cadence is not merely a motivic phrase-boundary marker but a form of punctuation that stands out both as a sign of closure *and* an expression of a certain degree of Gestalt closure, and this can function within a wider syntactical field of related cadential signs. By scrutinising the properties of harmonic cadences and comparing their different forms across individual movements I hope to provide an analytical framework for explaining the way in which cadences seem to carry the listener forward in a kind of harmonic narrative of closure.

To summarise briefly, the first movement of Lutoslawski's First Symphony provides an example of an atonal movement that is tonally punctuated; the manner in which surface details contribute to a perceivable hierarchy of the major cadences of the movement is considered as an alternative analytical model to the tonal hierarchy implicit in the bass notes of these cadences. Second, the finale of Bartók's Fourth Quartet is examined on the basis of its C-tonality, delving further into the salience of a neo-Schenkerian prolongational approach and the necessary adjustments of that approach as a model of closure within post-tonal music. Before embarking upon my first musical example I would like to introduce two analytical categories that are appropriate for classifying and analysing cadences in works that exhibit prominent cadential gestures - *closural congruence* and *cadential morphology*.

Leonard Meyer's brand of analysis often remains close to the surface, while his idea of implication and realisation projects into middleground levels (only occasionally does he talk of long-range 'remote realisation'). His is definitely a bottom-up approach, which does not get all that far up, an approach in which the moment of listening *in time* is the all important point of reference for analysing and describing the trajectory of the music. Closure figures regularly in his kind of progressive account of music (which can come across in exactly the way undergraduates are discouraged from writing, that is from 'left to right', rather than according to subheadings – 'motif', 'form' etc. that are more generally 'top-generated' analytical categories). And yet although Meyer never really abstracts his blow-by-blow analysis into more than a few phrases of structural schemata, there is an underlying sense in which hierarchical judgements are implicit in the mode of listening suggested by his analyses. Closure is particularly congenial to this treatment, and Meyer frequently distinguishes between weak, medium and strong levels of closure. (This does not mean there are three discrete types of closure, but rather hints at a continuum of closural effects that can be judged in relation to one another).

Consider Meyer's analysis of the first movement of Beethoven's *Lebewohl* Sonata (Meyer 1973: 242-68). The motto theme of the movement – the falling $\hat{3}$-$\hat{2}$-$\hat{1}$ contour with its plaintive horn-fifths accompaniment - is conceived by Meyer as a kind of cadential protagonist, subject to all kinds of transformations and continuations throughout the movement. Crucially for him, the cadential implications of the motto are only fully realised near the end: 'the implied cadential progression does not occur in the proper register and with an unequivocally end-accented rhythm until the penultimate cadence of the coda' (Meyer, 1973, 248). The cadences throughout the rest of the movement are interrupted, imperfect or variously weakened, and are invariably related to the initial interrupted cadence accompanying the motto; even the stronger cadences punctuating the end of each section of the sonata form are weaker than the final cadence of the coda. The final cadence is thus seen as an archetypal perfect cadence, whose emergence is postponed until the end of the movement. This correlates with the model of closure put forward by Agawu in connection with Chopin's Preludes: 'A global close secures closure for the entire piece. As a rule, there is only one such close in the piece; all others are necessarily subservient to this

most decisive one.' (Agawu 1987: 6). In Agawu's model the locus of this kind of global closure is harmonic, and is nearly always generated by a I – V – I progression in the last phrase or closing area of the prelude. For example, Prelude No.22 presents a stock cadential phrase in the final two bars, which 'answers to all the suppressed and/or understated closes encountered earlier in the piece, and it offers the most decisive completion of the structural process.' (*Ibid.* 7)

Given the reliance on a syntactical model to define such archetypal cadences it might be suspected that the latter do not afford a workable theory of global closure in twentieth-century music. However, in addition to the different degrees of closure implied by syntax, Meyer has shown how other non-tonal parameters can contribute significantly to the relative strength of a given cadence. He points out that 'closure – the arrival at relative stability – is a result of the action and interaction among the several parameters of music…to the extent that the parameters act together in the articulation of closure or, alternatively, in creating instability and mobility, they may be said to move *congruently*' (Meyer 1973: 81).[1] Potentially then, by observing levels of congruence across several parameters, it may be possible to define cadential strength independently of syntactical rules, and this chapter will attempt to do just that. Even a simple auxiliary-note motion represents congruent closure on a melodic level, for example, creating an elemental pattern of tension and release through departure and return, but it may be weakened by opposing forces: it might be accompanied by changing harmonies that weaken the sense of return, or other voices might overlap with it in stretto, thus expanding this potentially closed unit.

One traditional example where non-congruence reigns supreme is that of polyphonic or fugal textures, in which cadential closure is undermined or blurred by the polyphonic elisions and criss-crossing of linear phrases, withholding the homorhythmic cadence until the end of a section or work. Conversely, such cadences stand out against this background as moments of congruence, defined by their rhythmic and textural unification. Non-congruence is rather common in modernist contexts where the prevailing density of musical discourse and lack of cadential

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[1] Robert Hopkins has also utilised Meyer's terminology to classify the operations of multiple parameters with regard to weakened levels of closure: 'In any given passage, different parameters can have different functions. If they do, the parameters are *noncongruent*. In such cases we may describe the passage as intensifying with respect to certain parameters, but abating or static with respect to others.' (Hopkins 1990: 7) However, Hopkins's idealisation of abatement as the *sine qua non* of closure is problematic for the generally loud and assertive cadences explored in the following case studies.

punctuation often leads to a situation in which a strong sense of closure is absent; the listener feels that they are part of an open-ended flow of time rather than having the sense that time is being divided up into phrases and sections. The reason behind the choice of pieces in the following case studies is that they do afford the opportunity to discuss closure from the point of view of congruent cadences; both of the movements under consideration exhibit strong tendencies towards contrapuntal development. In this context the homophonic and quasi-cadential areas stand out strongly to the ear, and can thus be recognised as cadential signs and experienced as congruent events.

Cadential Morphology

This brings me to the second of my analytical categories - cadential morphology - which constitutes the range of qualities by which the harmonic cadence is identified; these include factors such as textural unification, voice-leading, rhythmic profile, dynamic accent, chordal density, changing levels of dissonance, and the position of the cadence within the phrase. If 'cadential morphology' represents the facts about a cadence, 'closural congruence' provides a template for interpreting those facts according to a sliding scale of cadential strength.

What might the archetypally strong (or weak) cadence sound like in post-tonal music? There can be no singular answer to this; rather, as we saw in the case of Messiaen's '*Danse*', cadential figures may often be generated contextually according to the individual piece. In the case studies that follow I have focussed particular attention on the parameter of sensory consonance/dissonance as an indicator of whether cadences are resolute or irresolute (building on the observations of the Chapter Three regarding harmonic abatement). In particular, those that move from dissonance to consonance might be considered more resolved (i.e. perfect cadences) than those that move in the opposite fashion. To this I have added observations regarding the degree of consonance between outer voices, as this also seemed particularly salient for creating impressions of stability and instability. I have been selective in my choice of other morphological parameters, concentrating attention on those that appear to be foregrounded for the listener or which provide a theoretically meaningful basis for comparing cadences across an entire movement.

In terms of interpreting cadential strength outside of a purely syntactical framework, one strategy which works convincingly in some cases is to take the final cadence of a

movement or work as the yardstick or closural archetype and to judge everything that precedes it in relative terms as an incomplete foreshadowing of this ultimate point of closure (which is exactly what Meyer does in his analysis of Beethoven's *Lebewohl* Sonata). It is this strategy which I have adopted in the following analysis of closure in the first movement of Lutoslawski's First Symphony (1941-7). My second case study is more complex, since the final cadence does not closely resemble prior cadences in the movement. The cadential archetype remains hidden and elusive throughout the movement, but hierarchical judgements concerning different degrees of closure can be made. Moreover, the articulation of a C-tonality in this movement provides the opportunity to focus more closely on the interaction between surface parameters and their longer-range syntactical functions.

Archetypal Closure: the first movement of Lutoslawski's First Symphony

Lutoslawski's First Symphony clearly resembles the traditional symphonic model[2] with its four separate movements - each clearly demarcated by an intervening silence - and sonata-form first movement. One of the most significant points of contact with tonality in this work is its extensive use of the cadence as a punctuating gesture, especially as a means of defining boundaries between formal sections. In a polyphonic style as densely interwoven as this, any pulling together of the texture into a homophonic chord progression is striking, and any progression of two or more discrete harmonies in such a simplified texture will be considered a possible form of cadence (as a form of congruent activity). However, although cadences are typically associated with phrase endings, a phrase might also *begin* with a cadence. More than this, a cadence might as well appear at the end of the first phrase as at the end of the movement. The question is whether these cadences are differentiated in such a way that they may be felt to exert a different degree of closure according to their place in the form – in short, whether terminal cadences are in some way more closed than previous cadences.

The first three bars of Lutoslawski's First Symphony not only punctuate the first movement at key points in the sonata form, including the opening and ending, but also return in an inverted guise to open and close the finale. The technique of opening the

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[2] Probably arising from Lutoslawski's study of Classical music and Brahms with his teacher, Maliszewski.

work with a closing gesture (or rather, as it happens in real time, closing the work with the opening) is familiar from certain Classical works (for example, the first movement of Beethoven's String Quartet Op.135), and also played a role in Messiaen's 'Danse' (Chapter Five). In Lutoslawski's First Symphony the device is extremely economical, comprising a terse cadential epithet taking up only three bars at the opening and truncated further at the end of the first movement (compare Ex 7.0.i and vi).[3] As it finally takes its place at the end of the finale this gesture carries nineteenth-century symphonic overtones of triumph, generating an unambiguous declaration of the end.

The appearance of this cadential gesture at the outset of the symphony is preceded by a densely dissonant chord of stacked thirds, followed by motoric semiquavers that lead to a second chord on the downbeat of bar three. This creates an iambic end-accented rhythm whose strong downbeat is reinforced by the dynamic accent, thick harmony and extreme registral compass of the final chord (Ex 7.0.i). The metric location of this cadential destination chord on the strong beat also plays an important role in emphasising the other major cadences given in Ex 7.0. The second chord is less dissonant than the first, containing only two semitonal clashes where the first contained four, and thus it appears to resolve the striking dissonance of the first chord.

At the end of the first movement the cadence is stripped down further to render an even greater clinching effect: the motoric semiquavers are omitted and the root and fifth of the D major chord are honed in on by linear chromatic motion during the upbeat (Ex 7.0.vi). There is a convergence of parameters that elicits in the final cadences of the two outer movements a solidity that is lacking elsewhere, which can be summarised as follows:

i)   The final cadence is followed by silence. This might seem obvious at first, but in a work so shot through with counterpoint there is very little sustained silence elsewhere, and this silence provides an important, perhaps *the* most important, finalising factor.

ii)   The last chord is less acoustically dissonant than the preceding chords. This gives the sense of the chord resolving prior dissonant harmonies and tensions.

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[3] Bartók uses a similar epithet at the end of the first and last movements of the Fourth Quartet – see the second case study below.

iii)   The outer-voice interval of the final chord is consonant. Just as in many tonal endings, the consonance between the outer voices contributes a finalising effect.

iv)   The last chord is predominantly triadic, or contains mainly fifths and/or octaves[4]. This allusion to tonal practice reinforces the strong sense of closure.

v)   The final chord lasts less than a crotchet. This is important because, while the sensation of ending may in many circumstances derive from an exaggerated amount of durational weight, it is the percussive brevity of the cadence that in this case provides a contextual model for strong closure (this context is set up by the very first cadence in bb.1-3).

vi)   The dynamic accent on the final chord is very loud, and reinforced by percussion. This must be thought of not as a unique factor but one which helps to lend the cadential epithet force and to focus its metric accentuation.

vii)   The final chord is a unanimous event. Unlike some other cadences in the movement, the final cadence is characterised by the absence of stray counterpoint and overlapping parts, the instruments being suddenly synchronised in the articulation of the final chord.

viii)   The final chord emphasises D in the outer voices. The extent to which this is a byproduct of the above interaction of parameters rather than a tonal means by which the listener actually senses closure, requires further consideration.

These morphological features can be said to provide a model of congruent closure against which the properties of other cadences can be measured. To this end Table 1 (which appears with the other examples at the end of the chapter) compares the attributes of this final cadence with those of other prominent cadences in the first movement. The morphological attributes given above are listed along the far left column of the table, while the columns to the right are checked by an asterisk if one of the other cadences in the movement exhibits identical or similar features (the cadences are pinpointed with reference to rehearsal figures in the top row of the table). The sum of the asterisks for each cadence is given in the bottom row as an approximate index of cadential strength (or congruence), with the final cadence satisfying all criteria. In the row concerning the presence of 'triadic features' I have

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[4] Although there is also a strong B♭ in the last chord of the finale, it adds to the sense of accent and does not detract from the essential emphasis of most parts on D, with which it is consonant.

distinguished between those in which the triad is muddied by a non-triadic bass note (one asterisk) and those in which it is pure in the lower parts (two asterisks). Most of the cadences referred to in this table are illustrated in Ex 7.0, nos. i – vi, with some simplification of orchestral detail[5]. The numbers appearing in some of the cells of Table 1 indicate the values of further important features – the number of semitones in each chord and the outer-voice intervallic structure of the chord progression. In this case the different chords in a harmonic sequence are separated by the '>' symbol.

Several points are immediately made explicit by the number of asterisks recorded at the bottom of the table: firstly, none of the cadences satisfies *all* of the closural criteria fulfilled by the final cadence, showing that the composer maintains a sense of hierarchy in which the final cadence is the strongest or most closed; secondly, the next most fully closed cadences - the closest to the model of the final cadence - occur at the boundaries of the sonata structure, at the beginning and end of the exposition and reprise[6]. By contrast, the cadences at the end of the counter-statement, in the middle of the development, and the beginning of the coda, are significantly less closed in terms of the congruent model (having fewer asterisks). The use of stronger cadences to delimit the major boundaries of the sonata form, and weaker ones nested within that structure, reflects Classical practices and reinforces the formal hierarchy.

One important harmonic detail that has not yet been mentioned is the recurrence of the very dissonant and dense opening harmony of stacked thirds; it acts as a kind of harmonic question mark that spurs the movement into action, and it returns as a belligerent and dramatic force, interrupting the second theme in the exposition and recapitulation (at Figs 9 and 31). If the cadences outlined in Table 1 provide varying degrees of resolution (as noted in the 'cadential strength' row) then this recurring harmonic riddle is the source of the explosive dissonance which they are trying to assuage. Ex 7.1 gives a chronological overview of the cadences in Table 1, and also incorporates this harmonic question mark (enclosed in boxes)[7]. The process of resolution is finally completed after a subset of this explosive dissonance returns in the recapitulation to interrupt the second theme (at Fig 31 in Ex 7.1). The D, C♯ and

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[5] The asterisks in Ex 7.0 mark the vertical moments where the properties of the chords in question have been incorporated into Table 1. The cadence from rehearsal figure 12 has been omitted from Ex 7.0 but is almost identical in expression to Ex 7.0.iv; its harmonic profile appears in Ex 7.1.

[6] For a formal analysis of the movement see Stucky 1981: 25-6

[7] Not only does this harmonic question mark contain semitone clashes, but also a diminished-seventh chord, which adds two tritones into the dissonant mix. It is this distinctive diminished seventh that provides the point of connection with the other recurrences of the question mark, and also the defiant orchestration and weight.

B♭ within this subset are taken up in the next cadential phase and resolved onto a consonant D/A open fifth (at Fig.33).

Table 1 also shows that the urge towards finality in the formulation of the cadence intensifies during the reprise, a factor that provides further links to the Classical sonata recapitulation with its insistence on extended closing gestures. Lutoslawski has remained true to Classical principles here; whereas the exposition migrates from a loosely defined D major towards the sharp side, finally tonicising C♯ (at Fig 12 in Ex 7.1), the cadences of the recapitulation remain focussed on D all the way from the retransition to the coda (from Fig 24 onwards in Ex 7.1). Indeed, D is embedded in almost every single vertical arrangement from the reprise onwards, and is revealed at the apex of the texture in the cadences (see Ex 7.1); not only that, but D is counterpoised by a long dominant pedal above which rides the A-major second theme at Fig 30. Furthermore, even the troublesome subset of the opening chord that interrupts the second theme again at Fig 31 now has D in the highest voice. The fact that D appears again and again in the highest voice certainly lends it a new degree of authority, and reveals yet again the importance of the pitch centring in the aesthetics of ending.

The composer complements this feeling of centricity with an increasing level of cadential strength during the recapitulation, bringing the cadences more closely into alignment with the final congruent model: the cadence that before signalled the end of the exposition (at Fig 12) is now intensified dynamically at Fig 33 and extended by a D pedal in the bass (Ex 7.1). In addition, an expanded version of the cadence first heard crowning the counter-statement of the first subject (at Fig 3) returns near the end (at Fig 36)[8]; unlike the earlier version, the latter's final chord has a consonant outer-voice structure with increased dynamic (and orchestral) weight. It also gives prominence to D, firstly through the tonal $\hat{5}$ - $\hat{1}$ motion in the top voice and secondly because D is enveloped by triadic components at the beginning and end of the progression (Fig 36, Ex 7.1). Thus, not only is there stronger emphasis on D in the recapitulation, but the cadential gestures are strengthened in terms of the closural criteria laid down in Table 1. In fact, the two schemes are not entirely independent,

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[8] The relationship between these two cadences can be seen by comparing Ex 7.0.ii and v; the rhythms, dynamic gestures and overall contour are the same.

since it is the extra consonance and stability of the outer voice progressions that give D the sense of being a tonic here.

What I have tried to explore here is the way the surface characteristics of each cadence contribute to the impression of tension and resolution traditionally imputed to the syntactical grammar of tonality. Even aside from tonal considerations these characteristics coalesce to give greater or lesser impressions of resolution and closure. Moreover, through a tabular evaluation of relative degrees of closure, the surface can be seen to articulate a hierarchy of its own. The fact that this hierarchy harmonizes with the tonal structure of the movement (as outlined by Ex 7.1) is also to be expected, but I would argue in this case that it is the surface hierarchy - rather than syntax suggested by the bass notes of some of the cadences - which is primary in determining sensations of closure. For one thing, the D tonality plays only a sporadic role throughout this movement, which should be thought of as being generally atonal with occasional tonal punctuation marks. As such the listener's memory of the tonic is stretched to breaking point, except in the final sweep of D-related events. Tonality undoubtedly acts as a general compositional organising principle, as can be seen by the prominence of D at the sonata form boundaries, but the extent to which this *compositional* pitch-based plan filters down to determine the listener's sensation of different degrees of closure, is questionable. In other words, the fact that the note D is the focal pitch of strong closural events is actually an effect rather than a cause; it is the morphology of the cadences that gives D the appearance of a tonic rather than the D that guarantees the function of a perfect cadence.

It would be tempting given these remarks to recommend disregarding tonal factors in favour of a surface oriented model of cadential strength for post-tonal works. However, it is precisely the interaction between the complex and ramified pitch systems in use by composers of the twentieth century and the way these are articulated through cadential patterns and other centric phenomena that constitutes such a fascinating yet little understood area in musical analysis. The pitch systems themselves are easy enough to isolate, whether they are diatonic, serial, octatonic, modal or based on linear processes. But as with tonality, we must be cautious about assuming that the system itself guarantees an automatic locus of closure. Pitch collections themselves ought to be considered neutral, except where there is enough statistical evidence to point to a common centric procedure that is contextually relevant, as with the major scale in relation to tonal common practice. Even the latter

possesses only a fragile internal hierarchy when considered outside of mainstream eighteenth and nineteenth century usage: with a shift of rhythmic or metric stress and an unconventional harmonisation any note within the major scale can be centred as a modal tonic. With this problem in mind I will try to integrate a surface reading of closural elements with a viable prolongational plan for the last movement of Bartók's Fourth String Quartet. My aim will be to investigate further the primacy of pitch-based elements as against the secondary parameters of cadential morphology in the creation of a harmonic hierarchy.

Cadential Hierarchies and Harmonic Narrative in the finale of Bartók's Fourth String Quartet

> But one thing must be kept entirely clear: this C, or C-E, is in no sense a tonality. It is an arbitrarily chosen, static 'tonal center' which is not involved in any scheme for generating secondary tonal areas. (Treitler 1959: 294)

> The fact remains...that in this movement, out of a relatively meager vocabulary of non-triadic materials, Bartók was able to create and elaborate a new and complete tonal system, true on every level to its primordial tonic sonority (Travis 1970: 314)

Here are two opposing views on the role of tonality in Bartók's Fourth Quartet. Both authors refer mainly to the first movement in their analyses. Treitler acknowledges the C/E pairing as a 'static point of reference' (Treitler 1959:294) but is mainly concerned with pursuing the transformation of three abstract cells in what is essentially an elaboration of George Perle's work on the quartet (Perle 1955: 300-12). Despite Treitler's undeniable logic in revealing a complex and unifying compositional scheme, his eventual claim that 'the C-ness, or C-E-ness, of this quartet is inadequate to account for any harmonic motion within the piece' (Treitler 1959: 298) clearly contradicts Travis's reading, which is at other end of the analytical spectrum entirely, culminating in a neo-Schenkerian graph of the entire first movement. Equally, there are several problematic elements in Travis's attempt to shoehorn the music into a Schenkerian outfit, since he has to accommodate so many unconventionally dissonant harmonies, which one often struggles to hear as resembling their suggested functional

equivalents (reminding us of Schenker's criticisms of Stravinsky referred to in Chapter Six). But his intention to reveal the tonal mechanism that generates the 'extraordinary finality of the last few measures' (*Ibid.* 299) certainly makes a refreshing and at times convincing argument. What both analyses have in common is their reductive structuralist perspective, Treitler explaining the structural basis for the musical material and its development in cellular/transformational terms – a familiar mode of analysis where Bartók is concerned - and Travis applying the formal methodology of Schenker in order to boil the first movement down to its *Urlinie*.

My own analysis does not necessarily negate the observations of these commentators; rather, it seeks a third approach oriented around a closer reading of surface activity, placing emphasis on the perceptual ingredients of cadential closure while at the same time charting the interaction between the morphology of the surface and deeper theorisable structures within the movement – harmonic structures that afford considerable insight into the neo-tonal concerns of the composer and his relationship with a tonal past. My approach also seeks to readdress the relationship between composer and listener - which in the other two analyses remains idealised at best - by examining the way in which identifiable compositional strategies of closure overlap with the hypothetical domain of the listening experience.

So compelling is the sense of an ending in the *first* movement of Bartók's Fourth Quartet that he uses very similar material for the last nineteen bars of the finale. The rhetorical effect of the *aposiopesis* that is involved in generating so decisive a conclusion is considered in detail in the Chapter Four. What I wish to study in this section is the role of harmony and cadence in shaping closure. Table 2 summarises and compares some the morphological features of cadential areas of this movement, in chronological order from left to right. It also includes certain harmonic procedures that are only loosely classifiable as cadences but which contribute significantly to the process of harmonic tension and resolution (and therefore closure), referred to as 'dissonant interlocks'. The upper six rows of the table are concerned with morphological aspects of texture and articulation that allow the listener to appreciate the punctuating role of the cadential progression and permit its cadential classification; these features tend to be very similar throughout the movement, while the 'dissonant interlocks' have a different set of characteristic parameters.

In terms of morphology, cadences are characterised by their homophonic articulation[9] (see row 4) as well as by the way they outline a distinct two-stage progression. Some of these progressions are entirely linear (made up of unison textures) while some are entirely harmonic (made up of two or more distinct harmonies), and still others present a mixture of the two. Dynamics are used to give emphasis, most frequently accenting the second chord by means of a *sforzando* or a crescendo towards it (see row 5). Register is also used as a contrastive device, to clarify the bipartite nature of the cadence: in the table, 'high', 'low' and 'med(ium)' are used to indicate relative rather than absolute positions of register, while 'full' indicates a filling out of register into both high and low regions, usually in the second chord (see row 6)[10]. Together these factors draw attention to the harmonic progression and make it stand out as a punctuating cadence. Such foregrounding of cadential progressions is reinforced by a detail that can hardly be missed by the listener - the repetition of the cadential progressions indicated by the second row of the table. Some repetitions are interspersed with other parenthetical material, but in general the repetitions are quite direct and do not involve any substantial variation. One exception is the passage from bb.227-37, in which I have included the liquidative passage that precedes the cadence proper in order to allow for the twenty repetitions of the motif that will eventually clinch the cadence (there are more motivic repetitions than this in fact, but only twenty on the pitch classes E♭ to C). Similarly, for the final cadence I have included the preceding motivic repetitions from bb.374-85, again to show the way in which repetition reinforces the final cadential phrase, which is motivically related to these repetitions. The effect of these repetitions invariably mean that the cadences referred to in Table 2 are plural rather than singular, although for ease of reference I refer to them in the singular (i.e. 'cadence 1', 'cadence 2' etc.).

The relative duration of cadential chords has not been compared in the table although it is occasionally emphasised; cadences 2 and 8 involve significant temporal extension of the final chord, corresponding to an increased emphasis on closure at major formal boundaries (i.e. the end of the exposition and the end of the recapitulation, before the coda). In addition, from the first row of the table we can see that silence occurs to a noticeable degree only after cadences that occur at major formal boundaries - at the end of the exposition and development (and obviously at

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[9] ...or *homorhythmic* texture in the case of unison cadences.

[10] The final two cadences remain level in terms of register, as do the linear cadences at bb.145-8 and bb.237-8.

the very end) - helping to articulate formal divisions in a manner similar to that found with regard to duration in Messiaen's 'Danse' (Chapter Five).

Rows 7 and 8 take into account two parameter types that help to differentiate the stability of each chord in the progression: the degree of sensory dissonance in each chord, and the outer-voice intervallic structure. Both of these factors contributed to the strength of cadential closure in Lutoslawski's First Symphony, and as in Table 1 the symbol '>' is used here to divide each progression into its two constituent chords or notes (only in 'Interlock 4' are three chords considered). Row 7 offers a crude measure of the sensory dissonance of each of the two chords in a progression, based on the number of semitones *and* tritones contained within each (semitones/tritones), while row 8 shows the outer-voice interval, following traditional Schenkerian nomenclature by expressing the number in terms of a diatonic interval.

Together rows 7 and 8 are used to arrive at a suggested surface function for each progression; these surface functions are classed as either 'perfect' or 'imperfect' cadences in row 9, although it is important to note that this does not imply a direct resemblance to tonal cadences, but rather an analogous state of resolution or irresolution based on changing surface levels of dissonance. There are six cadential areas containing 'perfect' cadences, with a particular concentration in the last sixty bars – a further factor of significance in considering analogies with closing groups of Classical movements. The perfect cadences fall into two distinct types: the first two instances (cadences 2 and 3) are characterised by monodic linear motion, while the last four perfect cadences are harmonic (cadences 5 and 10 combine linear motivic and vertical harmonic elements). These latter four harmonic perfect cadences attain a high degree of closural strength in terms of the criteria laid out in the previous analysis of Lutoslawski's First Symphony: each progression lands on a consonant outer-voice interval, and the last chord of the progression is entirely consonant[11]. These factors are reversed in the case of cadences labelled 'imperfect'; in those cases the degree of semitonal and tritonal dissonance tends to increase or remain the same in the final chord of each progression, and/or the outer-voice interval of the final chord is dissonant (a seventh or ninth between treble and bass).

Cadences 2 and 3 lack sensory dissonance, tracing a tensionless octave outer-voice structure (in the case of the former instance with supporting open fifths). It is not

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[11] The final cadence is a superimposition of harmony and motif, and although the second chord contains a dissonance (E♭ against E♮) the motif itself finishes the work off in octaves (i.e. in consonant fashion).

only for this reason that they have been classified as a type of perfect cadence, but also because they are unified from a rhythmic point of view (see row 3) whereas elsewhere in the movement such unisons generally overlap with other lines in stretto. In addition, both of these cadences articulate only two notes (albeit with a very brief chromatic passing note in the case of cadence 2) in exactly the same kind of bipartite gesture on which the harmonic cadences are based. Furthermore, they are the only cadences within the movement to be followed by a significant duration of silence (apart from the final cadence itself). Thus, although they lack internal differentiation from the point of view of consonance/dissonance variation (as expressed in rows 7 and 8), their strong closural effect is marked by the quiescence of the silence that follows them.

The remaining type of progression indicated by row 9 is that of 'dissonant interlock', which could be broadly interpreted as another imperfect cadential type because it is marked by an even greater level of dissonant emphasis, both in vertical terms (increased sensory dissonance) and in terms of dissonant outer-voice progressions. However, it represents not so much a cadence - since its cadential morphology is weakened by the continuous syncopation of two different layers of harmony - but an important recurring textural and harmonic theme of the movement, which has ramifications for cadential resolution that will be discussed a little later. In fact the syncopations add to its lack of congruence and complement its tension-generating irresolute harmonic role.

The reader should now refer to Ex 7.2, which locates the cadences given in Table 2 within a prolongational graphical analysis of the movement. This graph corresponds with the emphasis given to certain pitches through repetition (in the form of frequent pedal notes and ostinati), and rhythmic and dynamic emphasis, and it demonstrates the importance of C as a tonal centre in the movement (as observed in both Treitler's and Travis's analyses). The graph is best thought of as a wide-focus middleground account of the movement, but one that accommodates a speculative background (*Urlinie*) structure. A few words are necessary to clarify the symbology: octave transfers are shown with the familiar double-curved slur; dotted slurs connect pitches that are sounded at the same level throughout a section, and since such static prolongation is used extensively these slurs are quite conspicuous (it is not intended that they convey speculative 'remote' connections between events). Beamed notes in either stave are reserved to suggest structural events at the level of the *Urlinie*, which

turns out to resemble a Schenkerian 'interrupted' structure ($\hat{3}$– $\hat{2}$ // $\hat{3}$– $\hat{2}$– $\hat{1}$) except

that the first $\hat{3}$– $\hat{2}$ manages to reach $\hat{1}$ firmly at the end of the exposition. These

beamed treble scale degrees are harmonised by diatonic root-position chords, which

are also beamed across the bass stave; occasionally, however, scale degrees are

unharmonised but remain prominent by virtue of striking unison textures (the end of

the exposition, for example). Where treble scale degrees are accompanied by quaver

stems this is done to show that they do not belong to the background (and are not

accompanied by structural root-position chords) but have a degree of local

prominence which maintains their presence throughout the more developmental and

atonal stretches of the movement. For example, a glance at the first page of the table

will show the degree to which $\hat{3}$ is marked in this fashion throughout the first part of

the exposition, even when the accompanying harmony descends to VI. Such degrees

are often placed in relief by being the uppermost notes in the texture, rhythmically

prominent, melodically prominent, or treated as pedal notes; this is particularly true of

$\hat{3}$ throughout the development (see bb.152-227 in Ex 7.2). One can also discern

through this marking of scale degrees that there is an ascent back to $\hat{3}$ in the extreme

high register through the reprise, even though the exposition undertook no such move.

Row 10 in Table 2 indicates the pitch-based outline of each cadence, transferred

from Ex 7.2; scale degrees refer to the upper voice and roman numerals to the bass

degree. What is immediately striking from this row is that the upper voice in each of

the cadences consistently acts upon scale degrees of C major/minor, while the bass

articulates primary functional degrees within the C tonality (I, II, IV and V). Thus,

each of the cadential phases in Table 2 can be seen to underlie a C-based tonal

element. In many cases the entire triad is present within the chord structure of these

cadences, together with other notes of the diatonic scale or chromatic elements[12], with

frequent emphasis on open fifths in the bass. Our next question should be to ask

whether the apparent *surface* function identified by row 9 of the table corresponds

with the wider *background* function of these progressions in terms of the Schenkerian

blueprint shown in row 10. Indeed, what we find is that each of the perfect cadences

designated in row 9 also represents high levels of closure in terms of their scale-

degree outline: the linear cadences at the end of the exposition and development end

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[12] See the octatonic colouring of the second cadential chord in bb.75, 78 and 86.

on $\hat{1}$, while the harmonic perfect cadences – cadences 5, 9 and 10 - land on $\hat{3}$, $\hat{5}$, and $\hat{1}$ respectively.

Given this accordance between surface function and background function in the instance of the perfect cadence it might be expected that the imperfect cadences would work in reverse, moving away from tonic scale degrees and harmonies. This is not the case, however: each of the imperfect cadences also terminates on a triadic scale degree of the tonic in its upper voice, like the perfect cadences. The exception is cadence 1, but this cadence emphasises the tonic in the bass, as does the imperfect cadence 4. Although the later instances of imperfect cadences (cadences 6 and 7) take place over subdominant supporting harmonies - thereby matching an imperfect surface function with an aversion of full closure on the structural level - the adherence of *all* cadences to tonic scale degrees in their top voices represents a significant departure from normal tonal practice. Thus, the *weak* ('imperfect') closural implications of the surface appear to be out of phase with the *strong* closural emphasis on the background tonic at these points.

The focus of nearly all cadences on the tonic (in terms of either scale degrees, harmonies or both) concurs with Treitler's idea that C provides a 'static "tonal center" which is not involved in any scheme for generating secondary tonal areas' (Treitler 1959: 294). The most striking evidence for this lack of secondary tonal areas is that the exposition itself ends on the tonic rather than in a new key. One explanation for the use of C in this way - as a static point of tonal reference - might be that it compensates for the instability of the atonal passages that surround it: rather than engaging in a tonal interplay between one key and another, the interplay here is between diatonic and atonal resources, and between noncongruent development and congruent closure. Had Bartók made extensive use of secondary centres the grounding effect of this tonality might have been weakened (but whether it provides grounding for the listener or grounding for the composer is open to question). The effect does not really come across as 'static', however; on the contrary, this movement engenders a desire for cadential resolution that creates a strongly driven teleological sense of urgency. The genius of the movement lies in its combination of a static tonal background *and* a cadential foreground that is able to inject a dynamic sense of hierarchy into the movement, differentiating levels of tension and resolution: the dual function of the imperfect cadences - irresolute on the surface, but integral to the middleground prolongation of the tonic – serves to balance these dynamic and

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centring roles. For example, cadence 1 occurs in the midst of the exposition, which has just returned from VI to I (see Ex 7.2) but is still far from complete in terms of its formal span; the tonic is therefore reasserted in the prolongational design at the same time as closure is averted by an imperfect surface function. The imperfect cadence at bb.280-4 (cadence 4) coincides with the early part of the recapitulation, where similar conditions apply.

There is one cadential area in which non-tonic harmonies come to the fore, and that is the final closing group of the recapitulation prior to the coda, which focuses on the subdominant in the bass. This passage, which spans the adjacent cadences 6, 7 and 8, constitutes the most extended cadential sequence in the entire movement. Moreover, closure is for the first time strongly emphasised on the metric level by two adjacent hemiola-like figures (bb.323-29 and bb.329-32), each of which serves to bring the final cadential chord into alignment with the first beat of the bar, strengthening the level of emphasis. The sheer insistence of these cadences and the 24 repetitions of the subdominant chord that follow them (at bb.332-40) suggest a kind of struggle towards closure. Notice that these latter reiterations represent one of the highest frequencies of repetitions in the movement (see row 2 of the table). The composer is perhaps paying homage to the tradition of repeated chords to be found in the coda or closing section of Classical forms, which is appropriate given the formal role of this passage towards the end of the recapitulation. But this passage seems to play with the listener's expectations of closure: although the duration of the movement by this point would lead to an increasing expectation of the ending, Bartók does not satisfy this impulse either at the background level or in terms of the foreground. The surface dissonance of the cadential chords of 'arrival' in cadences 6 and 7 – in particular the dissonant seventh in the outer voices and the density of the chords themselves (which contain all the notes of the diatonic C-scale except B) - implies an imperfect function, which correlates with the fact that these chords do not emphasise the tonic but instead the subdominant. The extension of this subdominant via reiterations through cadence 8 seems to be a kind of protest at this lack of closure (through the *col legno* writing of bb.334 onwards and strange isolated pizzicato at the end of bar 338) and the texture finally 'gives up', sinking down through a fantastic double-stopped cello glissando to a solitary sustained F, with a sudden abatement of parameters. The notional 'perfect' cadence (cadence 8) that emerges in Table 2 at this point is really a sudden dissipation of energy rather than a neat resolution. This is reinforced by the discontinuity of

register between the E at the top of the chord in bar 340 and the F unison in the bass that follows (almost four octaves below). Any sense that this F constitutes a resolution is avoided by the fact that it becomes a new point of departure for the coda, rather than disappearing into silence. This passage thus illustrates further the relationship between deep structural level (the C-tonality) and surface features. In this case the composer uses textural cues in the foreground – the sense of impatient protest - in addition to the 'imperfect' qualities outlined in Table 2, to underline the lack of background tonal closure, thus delaying full closure until the final cadence 10.

So far the category of cadence identified in row 9 of Table 2 as 'dissonant interlock' has remained untracked. It is the least cadential of the figures considered in Table 2 but it has been included because it provides the cornerstone of harmonic tension in the movement, similar in function to the chord of stacked thirds that behaved like a dissonant 'question mark' in Lutoslawski's First Symphony, stirring the work into being by, as it were, demanding resolution. In the finale of Bartók's quartet, the dissonant interlock sections likewise possess the highest level of sensory dissonance (as indicated by row 7) in comparison to the true cadential sections. Their role is to initiate periods of harmonic tension that are then resolved by the cadences. For example, 'interlock 2' is eventually answered by the perfect cadence that terminates the exposition. These interlocks occur at the opening and towards the end of the exposition, returning again in the recapitulation (interlock 3). However, the interlock does not return in its original form in the later part of the recapitulation. Instead, its vertical structure is alluded to in the cadence forms that dominate this part of the composition. Ex 7.3 charts the various vertical forms of this dissonant interlock throughout the movement, which, when displayed alongside the later cadences, reveal a kind of harmonic continuity that underpins the urge towards resolution across the movement as a whole, and reveals a further dimension to the global mechanism of closure.

The interlock always appears in the same textural guise, as two syncopated layers of harmony whose overlapping elements create tension and stability both rhythmically and in terms of sensory dissonance. In the usual pattern, one harmonic layer begins and then a second is superimposed shortly afterwards, giving the impression of an harmonic progression of growing vertical intensity (only the resulting combined harmonies are given in Ex 7.3). The similarity between different periods of interlock is created not only by this common syncopated texture, but also by the internal

structure of the harmonies themselves. Stacks of open fifths figure prominently in the voicing of these chords, and all the interlocks possess a dissonant outer-voice interval. The compositional origin of these structures can be found in Treitler's 'z-cell' [0,1,6,7], which plays a prominent role in the design of the quartet as a whole (Treitler 1959: 294-97) and is present as a subset in the first three interlocks. The most important aspect of this set is that it can be arranged into a pair of fifths (or fourths), separated by the interval of a tritone. Thus, in the opening of the finale, C and G in the bass are attended by D♭ and F♯ in the upper voices, and this configuration is then prolonged for the next forty bars, with emphasis on the consonant C/G as a tonic pairing in the lowest voices (refer back to Ex 7.2).

The interplay between fifths placed a tritone or semitone apart seems to fascinate Bartók in this movement, and proves to be instrumental in the unfolding of a kind of narrative of harmonic closure that may also be conceived as an abstract compositional game. When the brutal interlock returns at bb.121-41 (interlock 2) the original stack of three fifths from interlock 1 is transposed a minor third lower in the bass (to D/A/E), and the urgency has been heightened by superimposing a second stack of fifths a semitone lower in the upper voices (i.e. D♭/A♭/E♭). The increase in vertical dissonance during interlock 2 is intensified by a longer period of interlock (now 18 bars compared with the 11 of the opening) in which the harmonic sense of stalemate is extended by a brief neighbour-note alternation of harmonies (see Ex 7.2 at bar 133). The reason for beginning the interlock over D is made clear as Bartók introduces Cadence 2, treating this D as $\hat{2}$ and resolving it to $\hat{1}$ over a C/G pairing in the lower voices that suddenly releases the pent-up energy of the interlock. The function of the development is to re-instigate harmonic tension by building up dissonant atonal contrapuntal and motivic elaborations around a framework of pedal notes and consonant fifths that belong to the C-scale (see Ex 7.2, which shows this pedal-note framework).

. How then does the recapitulation resolve the dissonant harmonic tension that wells up in the exposition and development? From Ex 7.3 it can be seen that the process of resolution is gradual; the rise and fall of sensory dissonance throughout the interlocks and final cadences is charted by the 'tension' line that appears below the dissonance indication in Ex 7.3. The recapitulation initially presents a third interlock, equal in dissonance to interlock 1 but slightly truncated in length. However, in terms

of pitch structure interlock 3 is a kind of inversion of interlock 1 (indicated in Ex 7.3 by the voice-exchange lines between interlock 1 and interlock 3). Here F♯ and C♯, which were originally only secondary dissonances occurring in the upper structure of the chords in interlock 1, are now placed in the bass of the chord and extended upwards with a further pair of fifths on the sharp side (F♯,C♯,G♯,D♯), while the F/C pairing from interlock 1 now appears as a weaker element in the middle of the chord. This reversal of function remarkably generates a chord with exactly the same measure of semitone/tritone dissonance as interlock 1. From a tonal point of view, however, this F♯-centred harmony has an usurping role, displacing the tonic[13]. Bartók's concern throughout the drastically recomposed recapitulation is to reduce the harmonic tension set up by the movement thus far, and to bring the interlock into alignment with the tonic once again. To this end, interlock 4 lowers the level of dissonance slightly compared with interlock 3 and also presents the most extensive stack of adjacent fifths yet to appear in the movement (E♭,B♭,F,C,G,D).

A compositional form of resolution is achieved in the following three cadential zones by progressively resolving the black-note combinations of fifths that have emerged in previous interlocks (F♯/C♯, D♭/A♭/E♭ and E♭/B♭). This process is indicated by the 'no. of fifths (white)' and 'no. of fifths (black)' lines in the lower part of Ex 7.3, and the tension between the two is indicated beneath. In this compositionally-oriented model of tension and resolution, a concatenation of adjacent fifths built on the white notes are treated as maximally resolved, whereas a similar group of black notes are considered to contribute a state of tension. The reason for this is that from a tonal point of view the white-note C elements define the global tonic of the movement. During the course of the composition the balance between these different groupings changes in a way that reflects the general rise and fall of tension indicated by the changing levels of sensory dissonance. There is ample proof to suggest Bartók was working in this way, and this is particularly obvious during the final phase of resolution. As can be seen by Ex 7.3 the voice leading of cadence 4 resolves C♯ outwards to C and D, and the latter are absorbed by an entirely white-note diatonic chord of fifths focussed on the tonic in the bass (C,G,D,A). Here, even though there is a mild level of sensory dissonance, the C-based diatonic aura of the

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[13] This process was foreshadowed at b.92-104 of the exposition (Ex 7.2) where ♯IV became stabilised

harmony aids resolution[14] and contrasts with earlier interlocks and imperfect cadences by removing their semitonal dissonances. Cadence 5 resolves D♯ in exactly the same way, outwards to E and D, and the latter are absorbed by an even wider diatonic set of white-note fifths (C,G,D,A,E). At this moment the uppermost voice forms a tenth with the bass, creating an additional element of resolution in the outer-voices (and creating tonal stability in the prolongational design of the movement traced in Ex 7.2). Finally, the variety of cadence forms to be found in the region of cadences 6 and 7 are all bifurcated into two halves - an upbeat containing a linear motivic statement including most or all of the black notes, and a downbeat delivering a hexachord of white-notes stacked in fifths (F,C,G,D,A,E). Many different permutations of this resolution of black-to-white are explored throughout much of the recapitulation (witness the sweeping lines alternating black-note and white-note groupings through bb.272-279 just before cadence 4, and again through bb.285-294 prior to cadence 5). Thus, even though the F,C,G,D,A,E-chords have been considered irresolute in my earlier listener-based analysis, from the composer's point of view they perhaps represent a form of resolution in terms of the dialectic between black-note and white-note stacks of fifths. They are as much a part of the complex harmonic mechanism of closure as the tonal background and the sensual foreground. Bartók's final cadence (cadence 10) gathers up three of these black notes (E♭, F♯ and D♭) and resolves them in a linear and harmonic way: the final motif centres them onto the tonic (D-E♭-F-E♭-D♭-C) while harmonically F♯ and E♭ converge on the third of the chord (E) in the uppermost parts (see the end of Ex 7.2).

Concluding Discussion

In summary, there are at least three analytical strategies for charting harmonic closure in Bartók's movement. The first has focussed on surface qualities – cadences, textures and sensory levels of dissonance; the second has engaged with a long-range prolongational reading of closure; and the third has put forward a supplementary and speculative compositional scheme. The second of these strategies represents a familiar analytical mode of investigation, whereas the third scheme is more

in the bass.
[14] We have already seen in Chapter Three how chords containing adjacent fifths can provide stable end gestures.

idiosyncratic to the movement in question. To a large extent each scheme mutually enhances the others and together they underline a progressive enactment of closure, though there are points of tension between them that have proved problematic in developing a singular reading of closure. In particular, the bond between sensory dissonance and syntactical dissonance is frequently clear but occasionally more obscure (for instance, where sensory dissonance is used to underpin assertions of the tonic). In addition, the resolution of the compositional scheme is contradicted by the sensory dissonance implied by the chord of arrival in cadences 6, 7 and 8 (compare the two 'tension' lines in Ex 7.3). Overall, this case study would seem to indicate that the aesthetic notion of dissonance is a highly complex phenomenon in relation to closure and cannot be reduced to a simple sensory model. Rather, its definition must be widened to incorporate qualities of tension and release that can only be fully investigated in a context-sensitive manner. Moreover, tension and resolution are psychological states cannot be measured in an absolute or quantitative manner via the score alone, and empirical research would be needed to confirm the relevance of either scheme in determining listeners' experiences.

We might ask where the moment of global closure lies in this movement (if indeed there is one). From a Schenkerian standpoint the occurrence of $\hat{2}$ over a structural dominant does not occur until bar 363 (and again at bar 385) - see the end of Ex 7.2 - and the resolution would therefore have to occur in the final bars, which is quite feasible. I have referred to this section as a coda, but it cannot be classified as such if it is the locus of such an important structural event. On the other hand, cadence 5, which takes place well before this structural dominant, is one of the most resolved in the movement from the point of view of its surface qualities, both from the perspective of the tension/resolution schemes laid out in Ex 7.3, and because it is the first *perfect* cadence to occur that is truly harmonic (rather than being made up entirely of unisons). Yet the repeated expansion of its vertical and gestural content in the subsequent cadences (6, 7 and 8) is undermined structurally by the fact that here the chords are built over the subdominant, which can only be conceived graphically in terms of the familiar stepping stone to the structural dominant itself. This latter group of cadences (6, 7 and 8) seems to signify a heightened act of closure through hemiolas and manifold repetitions, but the sense of disintegration to which this leads in the rhythmically irregular *col legno* and pizzicato repetitions, followed by the glissando collapse to the low F in bar 340, seems calculated to withhold stability. In other

words, this can be interpreted more as a struggle *towards* closure than an attainment of it. Then again, by invoking these assertive cadential signs the movement does hint that it is drawing to a close. The next cadence to occur (cadence 9) cannot qualify as a powerful close either at the level of the surface or background, although it is fully consonant; with regard to the foreground it is weakened because the downbeat of its second chord is simultaneously a moment of departure for the clockwork motivic descent of bb.375 ff., and in background terms it cadences into the dominant rather than the tonic, further strengthening the structural dominant itself. Thus it does seem as though final closure is withheld until the very last cadence, and Bartók's recourse to the *aposiopesis* in this ending (see Chapter Four) turns this cadence into a gratifying final clinch.

The tabulation of cadential qualities, and the resulting classification of different points of closure relative to one another, enriches our understanding of how closure and cadences are interrelated. As far as analytical strategy is concerned it seems that there are two main options in the formulation of the design of such tables. One is to take the final or near-final cadence as the cadential archetype; this works well in cases where the final cadence is closely related to the earlier cadences of a movement or work, as in the case of Lutoslawski's First Symphony. In cases where the final cadence is unique, however, or where it is ambiguous or shaped by closural forces that extend beyond the immediate surface, it would seem better to apply a more generalised categorisation of surface details. This might fall roughly into three areas: first, *cadential morphology*, which concerns those features that allow the ear to pick out the cadence or chord progression and to recognise its symbolic closural function in some way; second, *closural congruence*, which concerns the way parameters act together to generate lesser or greater degrees of stability in different cadences; thirdly, '*syntactical closure*', providing an account of how the previous two categories articulate a prolongational or pitch-centric reading of closure. It is important to note that in twentieth-century music there is no absolute syntax that allows closural meanings to be unambiguously asserted according to a stylistic frame of reference; instead surface features such as cadences and centric devices (such as the durational emphasis found in Messiaen's '*Danse*') create a contextually-defined syntax. Bartók's allusion to tonality does however create the possibility of a more conventional syntactical reading.

Recognition of *cadential morphology* is only possible where the cadence, as a neo-

tonal gesture, can be isolated, as in the examples from Bartók and Lutoslawski. The principle features that define the cadence include homophony, chordal shifts based on differentiation (of dynamics, registers, levels of dissonance, and durations), and the intervention of silence to aid punctuation after the cadence. Dynamic accents are taken into account in both the Lutoslawski and Bartók examples, and here there is a clear sense in which sforzando accents and crescendos towards final chords provide confirmation of their punctuating role. *Closural congruence* is more tricky to define and would certainly have to be dependent on context. In the examples considered here, sensory dissonance provides an important measure of tension, versus consonant release; the interval between treble and bass would also appear to be an important factor in shaping stability within two and three-chord cadential progressions. Rhythm too plays an important role in articulating cadential strengths, though this factor has not been explored in detail in the tabular summaries. One problem that has arisen in both studies is whether to consider longer durations as indicative of stronger levels of closure. While overtly longer durations lend weight to some of the closural boundaries in Bartók's Fourth Quartet and in Messiaen's '*Danse*' (in Chapter Five), the pattern set up by the cadential archetype in Lutoslawski's First Symphony is that of a long duration followed by a very short one. This shows that generalised categories of closure based around durational abatement may be overridden by contextually defined patterns of closure. By analogy the same is true of dynamics and register: while many endings make use of falling dynamics and lowering register to convey a sense of abatement, cadential gestures may reverse such conditions in order to create more assertive or clinching effects of closure.

Meyer never adumbrated strict rules concerning precisely which factors should take precedence when establishing closural strength: his writings seem to encourage an intuitive approach in which the exact degree of strength can never be objectively stated, and one is only ever aware that closure is being generally denied or affirmed according to a qualitative rather than quantitative scale. A further problem is that he never attempted to apply the same kind of thinking beyond the nineteenth century, although he made a few remarks about how this might be accomplished. Like many other features from the immediate past, cadences did not simply vanish in the first half of the twentieth century, and I believe Meyer's approach can yield valid results, particularly in the case of neo-tonal styles. His relativisation of cadential strength offers a blueprint that is able to articulate what might be termed *the closural narrative*

of a work. Thus in the preceding case studies of Bartók and Lutoslawski I have attempted to create a sense of this narrative as an ongoing dialectic between open and closed, congruent and non-congruent moments of articulation, comparing and interrelating the surface qualities of each cadential area and opening up possible analytical criteria for distinguishing imperfect and perfect cadences in a neo-tonal context. The neo-tonal works analysed in this chapter offer an analytical corridor between prolongational readings, and readings in which the visceral primacy of non-syntactical foreground parameters – especially dissonance, silence, duration, register, homophony and repetition – appear to be the governing force behind closure. This would suggest a bottom-up approach, in which the foreground is mobilised to create impressions of centricity that may then give rise to syntactical structures. Of course, in other works such an approach towards analysing relative degrees of cadential closure may reveal less consistent results. Analysis based upon observations of parametric congruence needs to be flexible enough to adjust the definition of congruent closure for different musical styles and pieces.

A long-range perspective of harmonic forms of closure is still certainly viable, but I would propose that for neo-tonal works the tonal structure is not taken as a direct indication of such a closural hierarchy but that it is investigated by building up a picture of the movement that takes into account fluctuations of tension and release at the level of the surface in order to build up a more accurate picture of closure.

> Anyone who has heard this movement must have been struck by the extraordinary finality of the last few measures. It is not just the *pesante* indication, the triple and quadruple stops, the fortissimo dynamic, or even the especially forceful presentation of the principal motive. These elements, even taken together, can only partially account for the conviction of this ending, which so clearly confirms a kind of C-tonality. (Travis 1970: 299)

From the perspective of this chapter I would respond, to the contrary, that it is precisely such features that are responsible for the firm articulation of a tonal centre in the first place.

Ex 7.0 Lutoslawski, First Symphony, first movement
– showing cadence forms

Table 1 - showing positions and properties of cadences in the first movement of Lutoslawksi`s First Symphony. Asterisks indicate where the described property is present.

	Opening 3 bars (Ex 7.0.i)	Fig. 3 (end of counterstatement) (Ex 7.0.ii)	Fig. 12 (end of exposition)	Fig.23 (near end of development)	Fig.24 (altered reprise of opening) (Ex 7.0.iii)	Fig.33 (equivalent to end of exposition) (Ex 7.0.iv)	Fig.36 (equivalent to gesture at. Fig. 3) (Ex 7.0.vi)	Final Cadence (Ex 7.0.vi)
Followed by silence								*
Last chord contains fewer semitones than previous chord(s)	* 4 > 2	* 2 > 1	* 4 > 0		* 5 > 4 > 3 > 3	* 4 > 0		* 3 > 1
Progression lands on consonant outer-voice interval	* #7 > 8		* 4 > 8	* 4>#7>6>10	* #4>5>10>10	* 4 > 8	* 9 > 10 > #7 > 10	* 6 > 8
Triadic or fifth structure more prominent in last chord	**	(No, equally prominent in both!)	**		* (Yes, but less than in opening because bass obscures)	**	* (Yes, but it is an augmented triad)	**
Duration of last chord less than or equal to a crotchet	*		*		*	*	*	*
Loud dynamic (ff or fff)AND additional accent on last chord	*	*			*	*	*	*
Homophonic (no contrapuntal elision)	*		*		*	*	*	*
Stabilises D in upper voice	*				*	*	*	*
Approximate Cadential Strength	8	2	6	1	7	8	6	9

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Ex 7.1 Lutoslawski, First Symphony, first movement –
showing a chronological overview of cadence forms

Table 2 - a comparison of cadences in the Finale of Bartók's Fourth String Quartet

Section (bars)	Interlock 1 bb. 1-11	Cadence 1 75-86 (nearing end of first group)	Interlock 2 121 – 141 (altered reprise of opening)	Cadence 2 145 – 148 (end of exposition)	Cadence 3 227 – 237 (end of development)	Interlock 3 242 – 248 (varied recapitulation)	Interlock 4 267 – 270
1) Followed by silence?	No	quaver rest	No	Yes: 4 bars	Yes: 1 bar and a quaver (237-8)	No	No
2) No. of repetitions of the progression.	16	3 (interspersed with other material)	28	1	20 at the given pitch (motivic liquidation)	13	8
3) Homorhythmic gesture ?	No, two syncopated layers of harmony	Yes	No, two syncopated layers of harmony	Yes	Yes, but only at the culmination (b.237)	No, two syncopated layers of harmony	No, two syncopated layers of harmony
4) Linear/ harmonic progression	Harmonic (second chord superimposed underneath first)	Harmonic (fifths>complex superimposed harmony)	Harmonic (second chord superimposed underneath first)	Linear with fifths supporting final scale degree	Linear	Harmonic (second chord superimposed underneath first)	Harmonic (second chord superimposed underneath first)
5) Dynamic contour of progression	ff with occasional sf accents	$ff > sf$	ff with occasional sf accents	sff, with crescendo	Long crescendo throughout	ff with occasional sf accents	Initial unison is sf
6) Registral shift during progression	High > full (low + high)	Low > full	High > full	Final note has bass support	Cadential motif in upper register	High > full	med > full
7) Change in no. of semitones/tritones during progression	2/2 > 3/2 (increasing dissonance)	0/0 > 2/1 (increasing dissonance)	0/0 > 4/2 (increasing dissonance)	0/0 > 0/0	0/0 > 0/0	1/1 > 3/2 (increasing dissonance)	0/0 > 2/1 > 3/1 (increasing dissonance)
8) Outer voice interval progression (diatonic numbering)	5 > 9	5 > 10	4 > #4	Unison > unison	Unison > unison	8 > #4	8 > 9 > 7
9) Approximate surface function of cadence	Dissonant interlock (a harmonic 'question')	Imperfect (but reinforces tonic – see below)	Dissonant interlock	Perfect	Perfect	Dissonant interlock	Dissonant interlock (beginning on unison)
10) Tonal function of cadence (scale degree of upper voice/ harmony)	$\hat{5} > \hat{5}$ I > IV	$\hat{5} > \flat\hat{3}$ I > I	$\flat\hat{3} > \flat\hat{3}$ II	$\hat{2} > \flat\hat{2} > \hat{1}$ I	$\flat\hat{3} > \hat{1}$	$\hat{1} > \hat{1}$ I > #IV	$\hat{1} > \hat{2}$ I > $\flat$III

Table 2 (cont.)

Section (bars)	Cadence 4 280 – 284	Cadence 5 295 – 299	Cadence 6 322 – 327	Cadence 7 328 – 332	Cadence 8 332 – 340 (end of recapitulation)	Cadence 9 374	Cadence 10 391 - 392
1) Followed by silence?	Intermittent quaver rests	Intermittent quaver rests	Intermittent quaver rests	No	No, but final unison has long duration	No	Yes
2) No. of repetitions of the progression.	4	4	3	5	24	1	11 (counting the motivic occurrences from 374–385)
3) Homorhythmic gesture?	Yes	Yes	Yes	Yes	Yes	Yes, but with semiquaver ascent	Yes, but with motivic element superimposed
4) Linear/ harmonic progression	Unison followed by chord	Unison followed by chord	Harmonic	Linear > Chord	Chordal repetitions>unison	Chordal with linear chromatic ascent	Linear and harmonic
5) Dynamic contour of progression	> sf (end accented)	> sf (end accented)	> sf (end accented)	> sf (end accented)	ff throughout	$Cresc$ > f	ff with accent on second chord
6) Registral shift during progression	Mid > full	Mid > full	Low > full	Low > full	High > low > high > low > high > low	Level	Level
7) Change in no. of semitones/tritones during progression	0/0 > 0/0	0/0 > 0/0	1/0 > 1/0	1/1 > 1/0 (decreasing dissonance)	1/0 > 0/0 (decreasing dissonance)	0/0 > 0/0	1/0 > 1/0 > 0/0
8) Outer voice interval progression (diatonic numbering)	Unison > 9	Unison > 10	10 > 7	#4 > 7	7 > Unison	10 > 8	10 > 10 > 8
9) Approximate surface function of cadence	Imperfect (but resolves earlier dissonant interlock)	Perfect	Imperfect	Imperfect	Perfect	Perfect	Perfect
10) Tonal function of cadence (scale degree of upper voice/ harmony)	$\flat\hat{2}$ > $\natural\hat{2}$ I	$\flat\hat{3}$ > $\natural\hat{3}$ I	$\sharp\hat{4}$ > $\hat{3}$ IV	$\hat{5}$ > $\hat{3}$ IV	$\hat{3}$ > $\hat{4}$ IV	$\sharp\hat{4}$ > $\hat{5}$ II V	$\hat{2}$ > $\flat\hat{3}$ > $\hat{4}$ > $\flat\hat{3}$ > $\flat\hat{2}$ > $\hat{1}$ V > I

Ex 7.2 - a prolongational analysis of the Finale of Bartok's Fourth String Quartet

Ex 7.2 (cont.) bb 280-end

Ex 7.3 Harmonic Resolution in the Finale of Bartók's Fourth String Quartet

Region:	Interlock 1 bb.1-11	Interlock 2 121-41	Interlock 3 242-8	Interlock 4 267-70	Cadence 4 280-4	Cadence 5 295-9	Cadences 6 and 7 322-40
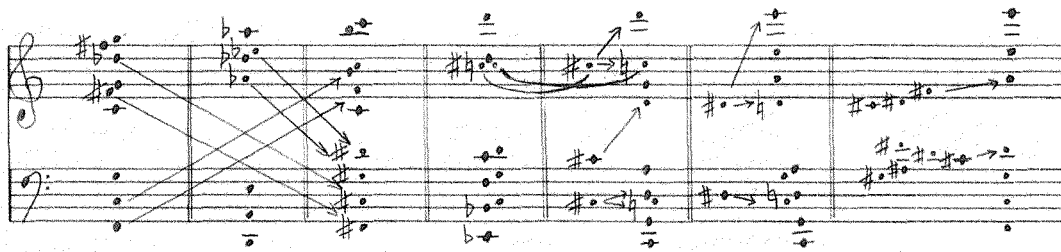
Dissonance (semitones/tritones):	3/2	4/2	3/2	3/1	0/0	0/0	0/1
Tension:							
No. of fifths (white):	2	2	1	3	3	4	5
No. of fifths (black):	1	2	3	1	0	0	0
Tension:							

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Chapter Eight

Affirmation and Tragedy in the Climactic Symphonic Ending

The subject of this chapter is the climactic ending, specifically the climactic symphonic finale. The issues that will be tackled here run deeper than the cognitive and analytical areas explored in earlier chapters. Rather, it is the wider aesthetics of endings that will be explored here, their poetic, cultural and even libidinal meanings. The chapter undertakes an historical journey from the origins of symphonic climax in Classical music, through the Romanticism of Sibelius, Scriabin and Mahler, to the thoroughly atonal world of Varèse and Lutoslawski. In spite of chronological and stylistic disparities, it is my intention to reveal a hidden thread of critical meaning that connects the particular works presented here, a thread that is most readily exposed by the symphonic genre, since the symphony itself spans such a broad historical epoch. This interconnection is not only illuminated by considering the various ways in which climax has been used to create the sense of an ending, but also by observing how climactic resolution became problematic for modernist composers working at or beyond the fringes of tonality. This is because climactic tonal endings make use of syntactical structures to reinforce their sense of closure, while climactic atonal or post-tonal endings either employ various strategies to replicate this effect, often somewhat awkwardly, or ignore it completely. Moreover, climax becomes transformed in many of these contexts, from a gesture of triumph to a gesture of resignation, of failed triumph. As the historian Eric Hobsbawm has observed, 'the central European avant-garde art of the Age of Cataclysm rarely articulated hope…Its most powerful achievements, most of them dating from the years before Hitler's and Stalin's supremacy…come out of apocalypse and tragedy.' (Hobsbawm 1994: 188) Two broad types of climactic utterance emerge - the affirmative/heroic ending and the irresolute/catastrophic ending. It is the transformation of affirmative climax into apocalypse and tragedy that guides the overall trajectory of the chapter.

The concept of climax is a deeply ingrained metaphor in musical thought, both in terms of theoretical discourse and compositional practice. Purely surface features such as dynamic intensity, fast tempi and rhythms, orchestral or textural density, harmonic conflict and virtuoso display, seem to call forth psychological descriptions of heightened energy and increased tension that spill over into metaphors of struggle, climax and eventual release. Leonard Meyer usefully distinguishes between two types of climax in tonal music: 'statistical climax' refers to the generalised type of textural climax described above, while 'syntactical climax' denotes a form of climax that is outwardly similar but which also attains syntactical resolution (Meyer 1989: 204); an example where these two types of climaxes become interwoven is during the retransitions and closing groups of Classical sonatas, in which syntactical harmonic resolution often coincides with climactic gestures in the form of emphatic cadences. (A related example is the Classical cadenza, which is essentially a climactic and virtuosic elaboration of the perfect cadence).

It is important to note that Meyer's definition of syntactical climaxes is not restricted to centric or harmonic syntactical forms of closure: 'to produce convincing closure and clear articulation, the momentum of mobile motion must be broken by what I call a reversal, in which ambiguities are resolved and unstable relationships are replaced by stable, well-shaped patterns. The process...that moves from instability through reversal to stability I call a *syntactic climax*.' (Meyer 1989: 304)[1] Although Meyer's definition of stability might seem rather vague, it refers back to his appropriation and development of Gestalt theory (for instance in his seminal *Emotion and Meaning in Music* (Meyer 1956)) and relies in that sense on his own particularized definition of terms like 'mobile motion' and 'reversal'. I have already elaborated on elements of this view of closure in Chapter Four, where the opposition between unstable and stable patterns was explored through the gesture of the *aposiopesis*. Indeed, a number of the examples drawn on in that chapter combine statistical climax with a clinching, stabilising gesture equivalent to Meyer's syntactic

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[1] There is some ambiguity in Meyer's writings over whether such syntactic climaxes should be understood as embodying surface features similar to 'statistical climaxes' (as defined in the previous paragraph), but it will be expedient for the purposes of this chapter to consider them as doing so (as being in effect statistical-syntactical climaxes).

climax (for example, the endings of Stravinsky's *Rite of Spring* and Boulez's Sonatine for Flute and Piano).

The finale of Bartók's Fourth Quartet examined in Chapter Seven provides a further elucidation of the differences between these two types of climax: the regions identified as 'dissonant interlocks' can be read as statistical climaxes that are counterbalanced towards the end of the exposition and reprise by various cadential (syntactical) climaxes in which rhythmical, metrical, textural and centric forms of resolution compensate for the earlier irresolute periods of tension. This illustrates a further aspect of the formal dynamic underlying the deployment of the two different kinds of climax: statistical climaxes are used to build up tension, which is later resolved by syntactical climaxes.

Classical composers seem to take delight in the tension-building process, heightening expectation by delaying the arrival of cadences, and such tonal frustration is often accompanied by climactic intensification which then finds release and gratification in the arrival of the cadential clinch. We have seen, in Chapter Five, how this principle may be extended to linear centric music constructed from very different modal templates to that of diatonic tonality; there, Messiaen's '*Danse*' from *Quartet for the End of Time* showed a similar propensity to defer centric goals, its two halves both terminating with what are effectively statistical-syntactical climaxes, heightening and then resolving the tension created by increasingly lengthy deferrals of centricity[2].

Climax and Resolution as Narrative 'Outcomes'

Meyer identifies an important historical development in the treatment of his two kinds of climax, pointing out that

> In Haydn and Mozart's sonata forms, whatever statistical climax there is tends
> to occur before or at the syntactic climax. Moreover, the high point often
> functions as a sign of syntactic structure rather than a focal point in its own
> right. For Beethoven statistical climax is more emphatic and more focal, and

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[2] Actually, the statistical climax immediately precedes the syntactic climax, though both carry the general tone of a climactic gesture. Witness the roller coaster of continuous semiquavers in bb. 80-88 that precedes the altered reprise, which intensifies through increases in tempo, dynamic and register, before finding release in the slower-moving syntactical climax.

tends to occur just before the recapitulation or in secondary development. In high Romantic symphonies it tends to occur late in the form, often in the coda. (Meyer, 1989, 306)

Charles Rosen, concurring with Meyer's observations, notes that the sense of stability brought about by the recapitulation 'is uncongenial to [the Romantics]. What they reject, in most cases, is the sense of climax and resolution at the end of the development and beginning of the recapitulation' (Rosen 1980: 320). Instead they tend to defer resolution until later in the recapitulation. Other authors have also pointed towards the deferment of climax and resolution in Beethoven's music. Burnham puts forward the notion of action-reaction cycles to explain rather well the dramatic impetus of Beethoven's music: 'In an art of dramatic engagement, the climax is a powerful expedient. We have seen how programmatic analyses of the *Eroica* tend to shape their narratives around climactic passages...At any given point the music is either building to a climax or subsiding from one, and such action-reaction cycles act as engines of dramatic engagement.' (Burnham 1995: 45). In this scheme, integration and closure - syntactic climax - are deferred until much later in the form:

> The coda completes this larger rhythm, brings the process around again to something like the crisis of the opening, and closes it unequivocally. This type of closure thus works both as the teleological climax of a linear process and as the rounding-off of a cyclical formal design....Such completion spreads its finality back over the rest of the movement and comes to seem necessary, the predetermined self-consumption of a process of destiny.
> (Burnham 1995: 55)

Some readers might recoil from this unashamedly metaphysical interpretation of Beethoven's music (and might with validity point out that not *all* of Beethoven's codas behave in this way), and yet Burnham's work is impressive precisely because it provides a detailed acknowledgement of the way in which Beethoven's teleological prowess - his sense of drawing the listener ever-forward towards closure - shaped subsequent analytical and aesthetic interpretations of music (and not only Beethoven's music), from Marx to Schenker and beyond. I have already found myself under the

sway of such an end-oriented concept of closure in many areas of this thesis – first of all in the identification of endings as important points of final closure (in part one), and secondly in the idea of a progressive journey towards closure that is only fully realised at the end (in part two). Chapter Two in particular provided a number of examples where climax provides the essence of the finalising terminal modification. This kind of end-weighting also manifests in multi-movement works in which the finale is granted a summative role.

Talbot has pointed out that 'the ideal of a final summation was nourished from two main sources, both intimately connected with narrativity. The first was organicism, the second biography' (Talbot 2001: 88). He underlines the extent to which, 'by the middle of the [nineteenth] century it had become orthodoxy among composers and their public that musical compositions conveyed something of the human condition' (Talbot 2001: 90), in particular the idea that a musical work is an expression of the life of an imagined and often heroic protagonist (invariably perceived as the composer himself). The idea that closure itself can be projected onto aspects of personal biography is also reflected in the Gestalt school of psychotherapy (see Chapter One).

To an extent this chapter is an attempt to chart the appropriation and critique of such heroic narratives in twentieth-century music, particularly the phenomenon described by Meyer, Rosen and Burnham, whereby resolution of climactic tension is deferred until later on in the movement or work. For example, the end-oriented climax is carried over into the twentieth century in much of Debussy's symphonic music; according to Roy Howat, *Gigues, Rondes de printemps, Jeux* and the '*Jeux de vagues*' movement from *La Mer* all avoid sustained dramatic accumulation in the earlier part of each work, making way for two sustained build-ups to large climaxes in the later part of the score (Howat 1986: 155). There are plenty of examples from other composers besides, and in the following case studies I will examine a variety of finales and single-movement works that generate a sense of forward momentum through the use of climactic narratives that move towards a culminating moment of apotheosis.

Climax and Anticlimax in Sibelius's Fourth and Fifth Symphonies

The striking passage of cadential chords that concludes Sibelius's Fifth Symphony confirms closure with all the sforzando gusto of a Beethoven Symphony. This

passage might all too easily have sounded predictable and perfunctory, but Sibelius manages to make the cadential formula sound unique by separating each chord from the next with an unpredictable silence, resulting in a sequence of adjacent *aposiopeses* (Ex 8.0.ii). These chords are designed to throw off our sense of pulse, creating uncertainty on a metric level while ensuring an expectation of closure on the harmonic plane (see roman numerals in Ex 8.0.ii). However, this is not the *real* moment of syntactical climax but only a kind of ceremonial confirmation of the E♭-major tonic that was reached at the apex of the final climax of the movement. This earlier climax represents the crowning glory of the symphony as a whole. It follows an unstable chromatic rendering of the movement's second theme in the tonic minor so that, although the final section makes E♭ major its point of departure (see the beginning of Ex 8.0.i), it is only at the highpoint marked by the asterisks in Ex 8.0.ii that this E♭-major tonality is confirmed as the outcome of a process, namely a climactic process of intensification in the parameters of dynamics, registral compass and orchestral density.

The Fifth Symphony thus represents the kind of 'high Romantic' shaping of climaxes noted by Meyer, with its grandest climax occurring very late in the form as a simultaneous syntactical-statistical climax. It would be naïve to assert that Sibelius was thinking directly in terms of Beethoven when he wrote this ending; the textures and contrapuntal procedures are uniquely his own. However, there is a formal kinship between the two composers, both being esteemed in the analytical literature as paragons of 'goal-directed' thinking. Hepokoski sees cyclic rotation and fulfilment through climax as the key to Sibelius's concept of symphonic form. The rotations (or cycles)

> serve as a medium within which a different idea is planted, 'grows into life', and is eventually revealed or 'born' in a fully formed *telos* (or goal) that is normally the climactic utterance, the single point toward which the composition has been moving. Once this process of teleological genesis has reached its end-point with the revelation of the *telos*, the gestational matrix, its purpose having been served, normally decays or recedes into the background, signalling the end of the composition. (Hepokoski 1996: 128-9)

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This provides a link with the Beethovenian model, or at least with the way some have come to interpret it, in which 'closure becomes culmination, and music is conceived of as a developmental, end-oriented process' (Burnham 1995: 128) while Hepokoski's rotations are analogous to Burnham's action-reaction cycles mentioned earlier.

It is perhaps surprising that Sibelius attempted such an affirmative climactic diatonic ending at a time when atonality was forcing many to view this kind of tonal ending as an outmoded anathema, and particularly so after the cold and untriumphant conclusion of his Fourth Symphony. The two symphonies inhabit different emotional worlds, the Fourth quite bleak, sparsely orchestrated, and dominated by the interval of the tritone, while the Fifth is full of sunny major harmonies and resplendent orchestral textures. What is fascinating about these two works is that, despite differences in mood, their final climaxes exhibit many similar features, especially in terms of orchestration, texture and line. A comparison of the upper violin parts of Ex 8.0 and 8.1 (from the third stave onwards in the latter) reveals an identical use of syncopated neighbour-note lines (striving upwards to the high E♭ of the perfect cadence in the Fifth Symphony, and moulded into an arching upward and downward curve in the Fourth). Also, both climaxes evolve with an exaggerated sense of slowness compared with the preceding faster part of the finale. And both are based on an irregular sequential elaboration of motivic units of the main theme on winds and brass in the inner voices. In addition, the Fifth uses the timpani to punctuate the syntactical harmonic resolution of the climax (in a familiar I-V-I configuration) while in the Fourth the sense of arrival is signalled in a similar way by a change of instrumental colour – the addition of the glockenspiel – which coincides with the attainment of the long-held A-major harmony (see the asterisks in Ex 8.0.ii and 8.1.ii).

There are significant differences in the tonal orientation of these climaxes, however. In the final climax of the Fifth Symphony the grating dissonances between the brass and strings eventually converge on the tonic, E♭, after a long struggle between divergent chromatic lines (prior to the first asterisk in Ex 8.0)[3]. Once this convergence is achieved and repeated in what has now changed from a 'statistical' into a 'syntactic' harmonic climax, the symphony has nowhere else to go, and

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[3] This recalls the convergent contrapuntal model of closure outlined in Chapter Three.

alternates between primary triads (I-V and IV) before confirming the cadence with the final ceremonial gesture. This corroborates Hepokoski's assertion that 'once this process of teleological genesis has reached its end-point with the revelation of the *telos*, the gestational matrix, its purpose having been served, normally decays or recedes, signalling the end of the composition', and echoes Susan McClary's speculation that the cadence 'always spells a kind of death – the cessation of the energy flow that up until that point in the piece had seemed to organize all subjectivity.' (McClary 1991: 127)

For the Fourth Symphony, based as it is on the disruptive influence of the tritone, the tonal resolution of its climax is problematic, and the key difference between this symphony and its successor is that its climax fails to bring about a triumphant form of tonal closure. To be sure, it climaxes dynamically, triple forte (as does the Fifth Symphony), but the harmonic progression that accompanies the peak of this crescendo - from a first inversion F#-major chord to a first inversion A-major chord – hardly constitutes traditional tonal closure. The syncopated violin line again rides the highest register here, but, unlike the Fifth Symphony, in which the strings attain $\hat{1}$ at this moment, here in the Fourth they oscillate uneasily between $\hat{6}$ and $\hat{5}$ (Ex 8.1.ii at the asterisk). In the Fifth Symphony the repetition of the strings' ascending line brings about a resolution of the syncopation on the downbeat (at the second asterisk in Ex 8.0.ii); in the Fourth the syncopations are not resolved but continue into the protracted coda-like section that follows. The persistent rumble of the third in the bass makes the A-major chord of arrival hang uncertainly in the air, unlike the stablising effect of the outer-voice octave consonance at the corresponding point in the Fifth Symphony (at the asterisks in Ex 8.0.ii).

All these surface features undermine any strong sense of syntactical climax and closure in the Fourth Symphony, and an analysis of the harmonic context surrounding the peak of this climax reveals a further rift in the closural harmonic syntax. Ex 8.2 shows a prolongational analysis of the final stages of the climax. The first page of this example indicates a prolongation of B minor, the supertonic of the Symphony (all scale degrees indicated in Ex 8.2 refer to the local sense of tonality rather than to the background tonic of A). The arrival on the tonic first inversion A on the second page (marked by an arrow in Ex 8.2) coincides with the dynamic triple forte climax, but only those listeners with a reliable sense of perfect pitch will hear this chord with any

sense of tonal closure, since A major has not been heard since the middle of the reprise – 16 bars after figure L – and then only fleetingly. Sibelius could easily have oriented the climax more comfortably towards this A major goal; the cycle of fifths identified in the second stave of Ex 8.2 could have been extended so as to culminate on the tonic (with notional roots D,G♯,C♯,F♯,B,*E,A*). Instead, as shown by the second page of the analytical reduction, the composer dislocates this progression by slipping through chromatic voice-leading into the remote enharmonic territory of E♭ major/minor, the tritone opposite of A. It is this tritone pole that interferes with the diatonic expectations throughout the symphony, and which now rears up again to derail the climax.

The 'unsuccessful' harmonic resolution of the Fourth Symphony with its irresolute syncopations results in a further difference between the two endings: the climax of the Fourth does not proceed directly to a final victorious confirmation of tonal closure as the Fifth does, but disintegrates into a protracted and gloomy coda. Thus, while the Fifth struggles towards and then triumphantly attains the reward of the tonic, and is hence literally over, the Fourth does cannot extinguish itself with such certainty. Instead it ends with a kind of anticlimax viewed from stance of the heroic Beethovenian model - a fact which no doubt contributed to the difficulty it found gaining popularity with audiences - and this lack of confident tonal breakthrough, except in the C-major kernel of the finale, afflicts the entire work.

Sibelius at least remained true to the spirit of the work in not offering a naïve 'happy ending' of the *deus ex machina* kind. Rather, the piece finishes where it began, in darkness. Its extensive coda wanders into remote regions- D major, E major, F major - as if searching for an adequate way to cadence (Ex 8.3 at (1),(2) and (3)). The first two of these cadences are distorted by the addition of the major seventh in the chord of resolution, and this interval becomes linearised as a $\hat{7}$– $\hat{1}$ motif that can only remotely be heard as a cadential leading-note-to-tonic progression (Ex 8.3 after (1), and later at (7),(8) and (9)). The cadences of the strings are continually interrogated by an insistent motif of a rising minor third in the woodwinds, which seems to mock their attempt at closure (Ex 8.3 after (2) and (3)). Just when the strings do manage to find a cadence in the dominant of the Symphony, E, the mocking woodwind motif enters again and Sibelius adds the menacing sounds of '*cuivre*' French horns alternating C minor and B minor first inversions, intentionally jarring the tonal

trajectory (Ex 8.3 at (4)). But the strings are determined, and lead through spare three-part harmony to a chilling unison A. This gesture is expanded in a higher octave, the upper line leading down chromatically from A5 to A4, supported by a cycle of fifths in which every other harmony is the tragic 'Tristan' chord (Ex 8.3 at (5)). When this A is attained, after an articulating comma, it is the weakest tonic one could imagine – unison, triple piano, and with tremolando bowing – the polar opposite of the Fifth Symphony's triumphant perfect cadence (Ex 8.3 at (6)). Death and closure are one and the same here. The basses outline a bare ascending melodic minor scale in the key of A minor, but this culminates on a first inversion of the tonic, the minor-key counterpart of the tonic major first inversion that occurred at the height of the climax.

This quiet but far-from-peaceful epilogue is like a ghost stalking about on earth after death, with a sense of unfinished business, a sense in which its life has been cut short without a proper conclusion. Perhaps this is how Sibelius himself felt: having aspired to absorb the tritone - the very devil in music - not just as a marginal element but an agent of theme and form, his tonal language and its ability to imply diatonic closure were challenged to the point where the inevitable triumph of a single key in the typical symphonic 'war of tonalities' was rendered questionable. So fluent is Sibelius's technique that E♭ and the tonic A are constantly interlocked, the one always appearing in the context of the other and usurping it, with the main theme finally wrenched into E♭ during the recapitulation (between rehearsal figures M and O). This is a far cry from the Classical aesthetics of monotonality, but crucial to the jagged uneven landscapes that seem to bespeak the aesthetic doubts of the age. Even though the coda finally gives in to familiar dominant-tonic alternations (Ex 8.3 from (10) onwards), they are reluctant in spirit, the opposite of the strident cadential close he would use in the subsequent Fifth Symphony. The final A-minor chords are cold, lifeless, stubbornly repeated, not even peaceful but mezzo forte! I know of no contemporaneous symphonic work that ends with such a non-committal dynamic.

A decade earlier the young Schoenberg had wrestled with similar problems in his so-called 'transitional' works. For example, in his two chamber symphonies the extreme chromaticism and 'vagrant tonality' cause the musical argument to lose that easy confidence in tonic homecoming characteristic of the 'first' Viennese school. Closure is in doubt, and Schoenberg faces the problem of how to restore the sense of

tonal centredness, often resorting to extreme measures: 'Cadences or cadential figures are often repeated, as if insisting on closure in the face of skeptical disbelief...Schoenberg seems to be exploring the possibility, or the adequacy, of closure in a complex, tonally advanced composition.' (Frisch 1993: 246-7) The Fourth Symphony was Sibelius's own attempt to explore 'the adequacy of closure in a tonally advanced composition' - his own brush with the modernist aesthetic - but in his subsequent compositions (including the Fifth Symphony) he stepped back from the abyss to a more secure footing in tonality and modality. Together the two endings of the Fourth and Fifth symphonies express the two kinds of climactic conclusion alluded to at the outset of this study, the former tragic and the latter affirmative. Although this tragedy in the Fourth seems to take hold in the haunting and fragmented tone of the coda, it is the inability of the final climax – the traditional point of integration - to break through and attain resolution, that brings about this final dispersal and loss of direction. Thus, the denial of closure becomes a compositional means through which to express tragedy and effacement.

Scriabin and the (Un)fulfilment of Cadential Desire

> But what casts a shadow
> Over this happy moment?
> *It is the fact that*
> *Its goal is won.*
> It laments
> The end of the struggle;
> And for a moment
> It feels boredom,
> Despondency, futility.
>   (Alexander Scriabin)[4]

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[4] Excerpted from Scriabin's *Poème d'extase*, translated in MacDonald 1978: 26.

A significant factor that contributes to the violence of tonal procedures is that the actual reward – the cadence – can never be commensurate with the anticipation generated or the effort expended achieving it. The cadence is, in fact the most banal, most conventionalized cliché available within any given style. Moreover, its appearance always spells a kind of death – the cessation of the energy flow that up until that point in the piece had seemed to organize all subjectivity. At the end, the imaginary object of desire remains elusive, and attaining its cadential surrogate necessarily disappoints. (McClary 1991: 127)

Here are two quotations from an unlikely duo - Alexander Scriabin and Susan McClary – and both seem to be circling a similar existential problem. Before examining the music and poetry of Scriabin's *Poème d'extase* in a little more detail I would like to go over some of the main points of McClary's provocative argument. She distinguishes between two types of erotic metaphor in seventeenth-century music (the historical period in which, in her understanding, the drive to the cadence becomes the primary means of organisation). In the first, 'a quality of timeless, sustained hovering…could be produced through the popular device of ostinato, in which each potential moment of closure is simultaneously the moment that guarantees continuation'. The second is characterised as 'desire…for the satisfaction of what is experienced as an intolerable lack' (*Ibid.* 127-8). McClary also draws attention to the connection between these two types of metaphorical eroticism and the genders which are represented by them on stage, the timeless 'ostinato' type being associated with female roles, and the urgent desire for the cadence allied to male characters. Often these two types of expression are contrasted dramatically. Throughout McClary's essay, closure is envisioned as part of a libidinal mechanism of release. Her favourite expression is that we become 'libidinally invested' in the music by this drive towards the cadence, though it is unclear whether she is speaking from a Freudian or Jungian point of view. The latter would certainly be more appropriate given Jung's wider definition of 'libido', which may be 'understood in so an innocuous a sense that

Clarapède once remarked to me that one could just as well use the word "interest"' (Jung 1913: par. 273).[5]

According to McClary, 'the principal innovation of seventeenth-century tonality is its ability to instill in the listener an intense longing for a given event: the cadence' (McClary 1991: 125). Two hundred years later this metaphor became overtly realised in *Wagner's Tristan und Isolde*, where suppression of closure in the domain of compositional technique becomes a direct expression of sexual longing on the stage.

> One thing alone left living: longing, longing unquenchable, desire forever renewing itself, craving and languishing; one sole redemption: death, surcease of being, the sleep that knows no waking! (Wagner 1899: vol.8, 386)

This emphasis on unquenchable longing is accompanied and overwhelmed by music that seems equally insatiable, whose chromaticism is in constant search for closure, but which nearly always ends up poised on dominant harmony, deferring the tonic until the very end of the opera. There, the final cadence takes on a plagal colouring, relying on historical associations for its closural power. More significantly from McClary's point of view of the cadence as 'cessation of energy flow', this final cadence is quite literally on the cusp of death, Isolde's *Liebestod* or 'love-death'.

Scriabin's *Poème d'extase,* Op. 54 (1908) is infused with a similarly Tristanesque mode of expression, and while it has become something of a set-piece for the modern symphony orchestra, the poem from which it takes its title and inspiration remains relatively unknown. Nor is it really suitable for inclusion in any but the most lavish of programme notes, for it is virtually a libretto in its own right; sprawling, mystical, prophetic, obsessive, and downright erotic, its qualities mirror the music that it inspired. There is no hint of a Wagnerian story or plot within this dream-like symbolist universe. We begin with the 'playing spirit', which 'abides in languor' and gradually through increasingly animated figures we reach 'light exertion', 'longed-for victory', 'gallops and frisks'. The verse gains momentum and accumulates into a

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[5] However, since sound is a physical phenomenon as well as something that operates in the cognitive domain, it is possible that the various shivers, chills and tingles that reportedly accompany many listeners' experience of music, are accountable in terms of libidinal forces. Indeed it would be an interesting topic for future psychological research to observe to what extent such reactions are affected by musical climaxes and closure.

climax with sadistic overtones, 'a hideous gathering/Of savage torments' that 'threatens to devour all things'. Three times the verse rises to this excruciating ecstasy, 'nears the chasm of oblivion', and then returns to its initial languishing, only to rebuild strength through a further climactic cycle. This, as it happens, is also a fairly accurate description of the dynamic and harmonic climaxes of the poem's musical counterpart, which is at times equally excruciating (except that there are many more cycles than just three in the music).

Although death and annihilation are glimpsed several times throughout the course of the poem, the extract at the head of this section stands out from the rest. It introduces a note of irony and self-awareness into an otherwise confident and egocentric outpouring. For a moment it looks as if 'the goal is won'. The soul 'laments the end of the struggle' and the longed-for goal turns out to be disappointing. This verse takes place about half way into the poem, and could be seen to parallel a number of points in the music in which the striving sequences suddenly fall back into languor, unable to reach satisfactory completion. Of course, this is a familiar enough tactic, not only in late nineteenth-century music, but as a generalised aesthetic within large-scale forms that sustain our interest by promising a breakthrough and then falling back, only to develop greater climaxes, and so on, towards a final culmination (and these are related to the action-reaction cycles identified by Burnham in relation to Beethoven's music). Scriabin's literary *Poème d'extase* exposes this inherent wave-like musical dynamic in a rather uncomfortable way, especially because his text makes an explicit connection between musical and erotic climax. (It is worth pointing out at this point that the composer originally intended the work to be entitled '*Poème orgiastique*.')

The poem, like the music, repeats obsessively the same climactic pattern, with arbitrarily varied imagery on each cycle. There is always a strong polarity of poetic imagery between the feminine, languishing sections, and those that stir up into a frenzy. This aspect is also mirrored musically: the peaceful oceanic states lack strong rhythmic contour, are harmonically static, only mildly dissonant and frequently adorned with arabesques, a typical motif of the exotic and feminine in *fin-de-siècle* music. Scriabin then galvanises the listener with the musical equivalent of desire, a momentum generated by elementary musical means – periodic two- and four-bar phrase units, harmonic sequences and dynamic build-ups. Fanfare figures (symbols of male conquest) with clearer rhythmic outlines intrude, and the stasis turns into endless rising harmonic sequences, which usually end in a percussive explosion at the

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peak of their crescendo, followed by a rapid collapse of the texture back to a lesser level of ferocity. It is this fairly rapid (one or two-second) release that perhaps invites the strongest comparison with the (male) sexual orgasm. There are hardly any sustained decrescendos: the musical tumult steadily rises and either suddenly drops back or leads to a silent pause or comma, before initiating another cycle of growth. Perhaps these moments of sudden trailing off account for the fact that Scriabin's literary poem tails off into premature release and boredom.

The reader may by now be forgiven for asking what these somewhat lewd speculations have to do with our sense of an ending. The answer is that Scriabin does finally attempt to produce the ecstatic release he has been promising through ever-greater cycles of climax and dissolution. For sheer hedonistic orchestral splendour the ending is unsurpassed, and yet once the effect of this opiate texture wears off the result is, intellectually considered, so pathetically overblown that none but the most naïve twenty-first century listener could listen without a wry expression. Scriabin attempts a kind of 'tantric' prolongation of his final musical orgasm. The entire final three minutes consist of a harmonically enriched plagal cadence in C major over a tonic pedal. This delivers syntactic (tonal) closure, semiotic closure (through the nineteenth-century tradition of the 'Amen' cadence) and climactic-dynamic triumph all at the same time. And yet for all that Scriabin's *Poème d'extase* ends up on a very worldly C-major chord, in complete aesthetic contrast to the five and six-note harmonies that constitute the normative sonorities of his style. This is where McClary's provocative assertion comes in: 'the cadence can never be commensurate with the anticipation generated or the effort expended achieving it' she tells us. 'At the end, the imaginary object of desire remains elusive, and attaining its cadential surrogate necessarily disappoints' (McClary 1991: 127).

Scriabin's last completed piece for the orchestral offers a similar incongruity in its triadic final bars. The internal construction of *Prometheus* (1910) is more atonal (that is to say, more symmetrical) than the *Poème d'extase*, rhythmically more fluid (like the later piano music), and the use of wordless chorus, not to mention the notorious 'light organ' intended for its performance at the end of the world, combine to create an intensely apocalyptic and transcendental effect. The fact that there is not a single triad before the F# major of the last few bars makes the latter sound disappointing in exactly the way McClary describes. In *Prometheus* McClary's paradox - the fact that the cadence can never deliver what it promises - is laid bare. And as though aware of

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the problem Scriabin does not prolong the final major triad as he did in the earlier *Poème d'extase,* but cuts it off quite abruptly after only a few seconds, a factor that only serves to emphasise the self-conscious artificiality of this conclusion. As Richard Taruskin puts it, there is an 'evident lingering need to impose a sense of dynamic unfolding, of teleological form on the composition – perhaps, too, a wish to repeat the grandiose success of the *Poem of Ecstasy,* even though his evolving musical means and aesthetic aims had rendered such a rhetoric of hyperbole superfluous.' (Taruskin 1997: 344)

In fairness to Scriabin, his piano miniature, Op.57, and the Fifth Sonata, both from around the same time as the *Poème d'extase,* suggest a more open-ended continuation of desire beyond the frame of the work, and this anticipates a later trend in the solo piano music. Scriabin makes no concessions to banal triadic endings in Op.57; the dissonant 'mystic' chord[6] unfolded over the course of the piece, with its crushing desire for resolution, is superimposed on the final perfect cadence of the lower voices, rather than being resolved into it. It behaves like a suspended chord cadence, but without the final resolution (Ex 8.4). The twin poles of desire and death that mark the poetic journey of the *Poème d'extase* are blended here into a volatile 'unresolved' sonority at the end, which frustratingly embodies the contradiction between 'correct' syntactic closure and renewed desire. The piece, appropriately enough, is called *'Désire'.* A similar suspended chord cadence marks the final climax of Scriabin's Fifth Piano Sonata (the passage marked *'estatico')* but again this statistical climax does not offer syntactical harmonic resolution, instead collapsing into the same remarkably atonal gesture of dissolution from which the work initially sprang (Ex 8.5), the effect of which anticipates the 'torn-off' endings of which Ligeti was so fond (particularly since it seems to shoot off the end of the instrument in a manner redolent of Ligeti's piano Etudes).

Such irresolute endings that do not attempt artificial closing-off of the work have certainly become more common in later twentieth-century music, but for the earlier part of the century there often appears to be evidence of compositional anxiety over how much 'tonic' to provide at the end, not to mention the aesthetic contradiction between evolving atonal methods and pre-existing 'rules' of tonal closure. The formal curtsey to a tonic that never really asserted itself through the piece, except by

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[6] Equivalent to the set **6-34** [0,1,3,5,7,9].

its conspicuous absence, comes across as a rather inconsistent way of ending. Indeed, hearing the final cadence of Scriabin's *Poème d'extase* while reading over his strange little verse about 'boredom' alongside McClary's critique, one cannot help feeling that grandiose goals and predictable cadential endings constitute some of the least memorable moments in the symphonic repertory, and that the enjoyment invariably lies more in the struggle rather than in the final arrival.

Burnham's elucidation of *'Goethezeit'* reveals the extent to which my aesthetic interpretation here is bound up with romantic thought: 'Schiller's "sentimental" artist is one who imperfectly aims at that distant ideal, rather than one who perfectly portrays present reality (the "naïve" poet). Actually getting there would be antithetical to romantic thought.' (Burnham 1995: 115) At the same time, this statement also serves to illustrate the extent to which the legacy of nineteenth-century philosophy and poetry was only truly realised in some of the paradoxically open-ended endings of twentieth-century music - for example, in the 'gestures to infinity' of Scriabin's Fifth Sonata, Schoenberg's *Erwartung*, Varèse's *Density 21.5* and Ligeti's Second String Quartet (the latter three having been discussed in Chapter Two), and in the aleatoric formal construction of works like Cage's *Music of Changes* and Boulez's (still-to-be-completed) Third Sonata.

By contrast, the cadential assertions that occur at the end of many tonal pieces attempt to reassure us with their projection of a stable centre: '"Tonal centre" implies a veritable Copernican revolution in terms of the subject: I am at the centre, and these tones which I perceive as swirling around this centre have significance because of my presence which sustains them.' (Clifton 1983: 35) Beethoven's endings – especially the ending of the Fifth Symphony - have received much criticism for their banal dwelling on the tonic, while others have considered them necessary to balance the proportions of the work as a whole[7]. Burnham admits that we are hard pressed 'even to distinguish with confidence between cases in which the banal is inflated to the monumental and those in which the monumental is deflated by the banal'. (Burnham 1995: 141) What is of particular interest from the standpoint of this chapter is that it is not just critics who have grappled with Beethoven's endings, but also those twentieth-century composers influenced by the symphonic tradition. The vision of

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[7] See Agawu 1987: 2-3 for a summary of these criticisms.

utopia that such affirmative tonic endings create inevitably jars with the post-romantic aesthetic of continual 'becoming' – as we have seen in connection with Scriabin's symphonic conclusions – as well as with the modernist's search for freedom from convention. In the next stage of this chapter I will consider further symphonic examples whose sense of striving is not rewarded by affirmative breakthrough but rather displaced by collapse and disintegration.

Beyond Utopia: Mahler's Sixth Symphony and Varèse's Amériques

In the finale of Mahler's Sixth Symphony, as with Scriabin's *Poème d'extase*, a sense of frustration is generated by the repeated but unsuccessful attempts at syntactical climax. Tonality itself is traditionally the primary mechanism for generating such frustrations; for example, Agawu characterises Chopin's Prelude No.22, Op.28 as 'akin to a series of waves whose course meets with a number of resistances. The function of these resistances is to postpone closure, while their effect is to heighten the tension resulting from frustrated expectations' (Agawu 1987: 5). This deferral of goals finds an analogy in written narrative; Robert Scholes writes, for instance, that 'when we look at fiction with respect to its form alone, we see a pattern of events designed to move toward climax and resolution, balanced by a counter-pattern of events designed to delay this very climax and resolution.' (Scholes 1979: 58)[8]

It is this drive towards resolution and its counter-pattern (towards disintegration) that play a determining role in Mahler's finale. Unlike Scriabin's eventual resolution to C major in the *Poème d'extase* or Sibelius's tonal triumph in the Fifth Symphony, Mahler's finale never manages to reach the affirmative perfect cadence which some of its climaxes seem to promise. Instead it grudgingly gives in to the tonic minor at the end in a gesture of resignation similar to that at the end of Sibelius's Fourth Symphony. The sense of disintegration reaches its most desperate levels within what Adorno refers to as 'dissolution fields', spans of music in which vigorous development leads to chaos, rather than integration, creating an impression in which 'the insatiably ecstatic intensification of the feeling of living consumes itself.' (Adorno 1992: 100) And he identifies four such dissolution fields within the central

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[8] Quoted in McClary 1991: 126.

development of this finale. Adorno might be alone in coining a technical term for this, but Schoenberg's account of Mahler's Sixth gives a perfect description of what Adorno might actually be trying to convey emotionally.

> Where it grunts and groans, the themes and harmonies grunt and groan, but where it crashes, gigantic structures clash against one another, the architecture crumbles, the architectonic relationships of tension and pressure are in revolt. (Schoenberg 1984: 463)

Pattern and counter-pattern once again! The process is intensified more than in other symphonies by the dramatic addition of a literal hammer blow at key structural points, points where one might have expected harmonic resolution. The hammer blow stands in for perfect cadences on all three occasions on which it occurs. At these points, shown in 'Table 1' below, there are harmonic and melodic gestures that gather towards the cadence, but the harmonic arrival which they seem to promise is replaced by the ominous hammer blow. On two occasions these hammer blows are followed by the Leitmotiv of fate, which reinforces this gesture of denial and negation harmonically with a major-minor turn of phrase of the sort Mahler also used to poetic effect in the Second Symphony. The positioning of the hammer blows within Mahler's structure is revealing, for they are consistently associated with passages in the major that attempt to resolve the pressure that has built up during climactic sections of the development (and later in the region of the ending itself) [9]. There are other cadences that resemble these elsewhere at structural divisions of the movement (see Table 1). Though not displaced by hammer-blows these too promise the major key, but instead turn out to be deceptive cadences. Each has a wayward element, an elision or harmonic imperfection, that ruins and side steps resolution, as summarised in the 'cadence' column of the table (following page).

Adorno writes that 'freedom is only sanctioned in that each main section, which very precisely develops its models, soars expansively towards its end... The great rhythm of the development becomes one of necessity and freedom. Each exertion is, in a sense, rewarded.' (Adorno 1992: 99). And where does the music want to arrive

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[9] There were originally to be four hammer blows, but Mahler superstitiously omitted the final one after fate dealt him three personal blows: the death of his son, the fatal diagnosis of his heart disease, and Alma's affair with Walter Gropius.

but its Utopian D major - the perennial key of classical festivity associated with trumpets and drums, as well as the triumphant goal of the Mahler's earlier Fifth Symphony. The second subject begins with an abrupt shift into D major, and prolongs the key up until the development, which interrupts it with a deceptive resolution to D, but only in the bass, supporting a B♭ first inversion (Table 1). The first phase of development intensifies the second subject and settles on a lengthy dominant A that is finally resolved just as the hammer blow intervenes, onto a chilling tutti unison D. The third section terminates with another interrupted cadence, this time in D minor, V-♭VI, with the attendant hammer blow. The re-entry of the introduction that signals the recapitulation is also articulated by the V-I motion of the bass in D, but thwarted by the harmony above, as already noted[10]. A kind of circularity ensues, in that the music is pursuing D major in the hope of attaining its vision of perfection, but each time it arrives its promised utopias are deflected, the would-be cadential assertions of D major being deflected either by non-functional harmonic progressions, chilling unisons, or hammer blows.

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[10] The other work that exhibits extreme harmonic disjuncture at the moment of recapitulation is the Fourth Symphony, which is also 'about' sonata form. (See Adorno 1992: 86). Samuels notes that Mahler 'presents this formal return as a disjunction, the harmonic grammaticality as an alienating, "quotation-mark" device.' (Samuels 1995: 156))

Table 1: Deflections of Utopia
(Cadences, Fate and Hammer Blows)
in the Finale of Mahler's Sixth Symphony

Location	Formal Function	Cadence	Fate motif	Hammer
Fig.120	Close of second group/ Return of introduction	A7-Gmin7 Context=D major		
Fig.129	End of first section of Development	A7-D unison+Bb Context=D major	Yes (Gmaj/min)	Yes
Fig.131	Middle of second section of development	D-A in bass Context=A major		
3 before Fig.134	End of second section Of development	G7-Cmajor	Yes (Cmaj/min)	
Fig.140	End of third section of development.	A7(#5)-Bb D Context=D major		Yes
Fig.143	Close of development Return of introduction	A(#5) _ Ab7 A D	Follows shortly (C maj/min)	
Fig.163	Recalls A major vision (Fig.131) in middle of development.			
Fig. 164	Final return of introduction.	Linear cadence E7 (V) – F7 A	Follows shortly (A maj/min)	Yes

The table above chronicles the story of these shifting and ever-deferred utopian arrivals. The indication of the bass notes shows the consistency with which the A/D axis of the second subject tries to reassert itself throughout the rest of the movement. The shading of the G/C tonal areas in the table has been done to throw the more important A/D regions into relief[11]. The black rectangles indicate a correspondence between two 'Utopian' or apparently affirmative passages. The second section of the

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[11] The G/C tonality is associated with the fate motif in the opening introduction. This in turn articulates a double tonic complex A/C that can be felt throughout the work.

development has at its core an island of A major that transforms into an incandescent F# major before fading into F minor. This passage returns as the exultant peroration of the polyphony near the end (rehearsal figure 163), but this achievement is inevitably transformed by the jolt of the cadence, which this time transforms the A major tonic first into an F dominant seventh in first inversion (at figure 164). It is then transformed into A minor through the intervention of the 'fate' motif and hammer synchronised for the first time. The symphony's hopes are here literally devastated. The impulse to develop is curbed by the static A pedal that underpins the entire passage, and the lines relinquish their identity by returning to long held notes and bare octave leaps. It is here that the symphony seems to forget its capacity to develop and refutes it in the face of its impending end, immobility and death.

The conflation of catastrophe (the hammer blow and fate motif) with dynamic climax and the triumphant major key (the would-be cadences) resonates with McClary's critique of Mahler as a composer who exemplifies her theory of what might be called 'cadential masochism'. The hammer blows themselves accompany the deceptive resolutions (or should that be non-resolutions?) but also reveal the connectivity between cadence and death, 'the cessation of energy flow'. The hammer is the accomplice of the cadence, the impeding, arresting and anti-developmental force in music, and it epitomises the kind of violence which results from a lack of closure. This parallels with Susan McClary's provocative critique: 'if the degree of frustration created by [the cadence's] postponement is relatively minor, the cadence when it finally occurs may seem like the inevitable effect of rational causes...But Beethoven and Mahler quite regularly push mechanisms of frustration to the limit, such that desire in their narratives frequently culminates (as though necessarily) in explosive violence' (McClary 1991: 129). Or, as Adorno puts it,

> The catastrophes coincide with the climaxes. It sometimes sounds as if at the moment of the final conflagration humanity grew incandescent again, the dead came to life once more. Joy flares high at the edge of horror. (Adorno 1992: 126).

These cadential moments that promise but do not deliver are perhaps the reason why this movement is the longest of all Mahler's Symphony movements: the movement and the sections of which it is comprised are not allowed to close properly,

and so the movement goes on, spinning out into epic proportions, pattern and counter-pattern generating endless desire for some kind of equilibrium. In the end, that endless desire depends on the willingness of the listener to respond to the frustrations, rather than to get annoyed with Mahler's increasingly violent evasions of the major resolution we want to hear (but that never comes). Like Scriabin's *Poème d'extase* and *Prometheus*, Mahler's finale hovers forever on the brink of resolution, but whereas Scriabin's music finally gives in to affirmative closure, Mahler's Sixth - like the ending of Sibelius's Fourth Symphony - admits defeat.

Varèse's *Amériques* outdoes even Mahler's Sixth in its sense of climax and catastrophe. The work seems to defy formal analysis, the only recurring element being the brief reprises of the opening melody that are scattered throughout the piece. In Adorno's terms, the entire work is one long and extremely chaotic 'dissolution field', with statistical climaxes occuring more frequently in the second half, but also bursting through at times in the first.

> [Varèse] feels himself profoundly moved by the tragic meaning which he perceives in the implacable rhythm of its labor, in the teeming activity of the docks, in the crowds at noon, in the bustle of Wall Street....He will not attempt to create a score that will convey the external or picturesque side of American life, but rather throw himself courageously into the discovery of new horizons. [12]

The original version of *Amériques* even incorporates a train-whistle suggestive of the enormous program of railway-building, and then there are also the air-raid sirens that were to become a favourite with Varèse. When *Amériques* was premiered the audience reacted negatively, unwilling to behold the mirror it held up to the 'tragic meaning' of industrial progress. When the work was taken to New York`s Carnegie Hall a few days later, the demonstration lasted at least five minutes[13]. The piece is characterised by an explosive violence that threatens to overwhelm the music at every turn, not too distant in expression from Mahler's Sixth. Tonal goals as such are

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[12] 'Edgard Varèse', from a review of *Ameriques* appearing in *le Cahier*, Paris No. 8, 1929, pp 31-32, author unknown.
[13] According to the Philadelphia Evening Public Ledger, April 10, 1926.

absent, and although the diverse musical materials each seem to possess a kind of tonality of their own, this tonality is rarely perceived with any clarity, each layer being superimposed relentlessly upon other layers in a polytonal collage.

The fragility of the opening solo flute melody suggests nothing of the violence that enters suddenly only half a minute into the work. The stasis and pan-like innocence of this theme are repeatedly challenged by increasingly violent outbursts, culminating in a fate-like rhythm in the percussion section (akin to Berg's rhythmic 'fate' motifs in the *Three Orchestral Pieces* and *Lulu*). The opening 'nature' theme - strongly reminiscent of the opening of Stravinsky's *Rite of Spring* - is later appropriated by an off-stage trumpet, which evokes military conquest and is perhaps an allusion to the appropriation of the Americas by the white settlers. There is then a quieter section with irregular chorale-like material that is riddled with frequent interruptions and outbursts, after which the return of the opening theme, again given to the off-stage trumpet (about ten minutes into the work), heralds another sequence of violent climaxes. Eventually this gives way to a passage reminiscent of Stravinsky's *Rite* in its brutal ostinati, a hideous kind of march which finally disintegrates with the sound of a sardonic, laughing trombone (over the part of which Varèse actually writes 'Ha-ha-ha'!). A solo cor anglais returns to the opening theme of the work, at first only hinting at it, as if recalling a distant memory of the vision of arcadia evoked by the opening flute melody. A more subdued section ensues, passing around melodic fragments of the half-remembered theme between orchestral sections, with the sound of previous riots forever rumbling in the background. The offstage mob gets closer and closer, but again withdraw with the onset of another soloistic section concentrated around the woodwind. The music develops into a diabolical dance, with hints of oriental ornamentation and middle-eastern harmonic-minor configurations, with a flavour somewhere between the culminating dance of Ravel's *Daphnis et Chloe* and the sacrifical dance of Stravinsky's *Rite*. Then comes one of the first *tuttis* in the work, in which brass and percussion try to bring this dance music to a close with a cadential gesture (summarised in Ex 8.6.i and ii).

Since the listener is by now some nineteen minutes into the work, and has already taken quite a buffeting, the sudden unification of the texture comes as a kind of relief, and thus gives one the sense that the music is drawing to a close. Moreover, even though the chords of this cadential progression make no reference whatever to the world of the triad, they do exhibit the property of abatement, in as much as the second

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resolving chord is less dissonant and dense than the preceding chord of tension (Ex 8.6.i shows this in terms of the semitone content of the two chords). The shift of register between the two chords – low to high – also helps to give a quasi-cadential profile to the gesture, as does the iambic long-short rhythm applied to the two chords, with a tension-building crescendo on the first followed by a dissipating staccato accent on the second. Referring to Ex 8.6.ii the reader will notice that, as in a typical closing formula of Classical music, this cadence is repeated, with chord A intensified over a longer duration. The material that intervenes between these two cadences is labelled as a 'percussive interpolation', and its rhythmic detail is reduced to summarise the effect. The quasi-cadential progression sounds twice more in alternation with this percussion interpolation, its dynamic contour and proportions mercurially varied to add to the tension (see Ex 8.6.ii).

I wonder whether, if there was anything resembling silence in the auditorium in the rests after Fig 42 in Ex 8.6.ii, any listeners who were enthusiastic about the work were poised to applaud. This is the first silence in the work, albeit brief, and within the context of a passage of repeated cadential progressions some nineteen minutes into the work, it could be the end. Perhaps Varèse's contemporaries might have stopped here. Imagine if Stravinsky had added another section to the end of the sacrifical dance in *The Rite of Spring*, completed only five years before Varèse began *Amèriques*. There, given the saturation of orchestral virtuosity and climax, the addition of any more musical material would have been structurally and aesthetically superfluous. However, the point of *Amèriques* would surely have been missed if Varèse *had* stopped just here, and the 'tragic meaning which he perceives in the implacable rhythm of [America's] labor' would have been traded in for the aesthetic order of the old world that Varèse wished to escape (this being the main reason he moved to America).

Instead, the silence after Fig 42 is superseded by another statement of chord A, this time with the upward whoop of a siren added, perhaps suggesting that this will be the final culminating cadence. However, the *coup de théâtre* comes when this rendition of chord A is suddenly followed by a percussive outburst instead of the expected chord B. Thus, the two-stage cadential progression is not allowed to close, but is elided with new material (the 'nervous percussion' in Ex 8.6.ii), which gives way to the most violent music so far. The work continues five minutes beyond the boundary marked by the cadential phase of Ex 8.6 and this final section is devastatingly brutal,

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its occasional hints at triple time coming across like a distorted version of Ravel's *La Valse*. The unified tutti gestures from Ex 8.6 are at last deployed once again, and this time the imposed downbeats are so colossal that they manage to shock the piece into a standstill (Ex 8.7). There is no harmonic progression as such: the vast eleven-note chord is simply repeated in the manner of tonic repetitions found in tonal symphonies, except that there is no audible metric regularity here - nor indeed any sense of tonic - making the sense of obliteration even more profound. All that remains is the husk of syntactical climax – the unification of texture, repetition and iambic final downbeat and fermata. Notice also Varèse's instruction to the trumpets to play with the bells held triumphantly upwards. Given the former deceptive ending, Varèse perhaps felt he needed this visual symbol to confirm that this was the 'real' ending (and he uses the gesture elsewhere - for example at the end of *Octandre*).

The failure to end after Fig 42, despite giving all the right signals (liquidation, cadential progressions, repetitions of the iambic upbeat-downbeat and silence) resonates with McClary's radical view of the gestures of post-Renaissance music, gestures that are designed 'to expand horizons and to defy social convention, gestures that trade the very hope of future stability for a never-ending chase after the elusive chimeras of progress, change, and finally the transcendence and obliteration of time.' (McClary 1991: 119) Varèse's own comments on *Amériques* bear witness to this parallel: 'I did not think of the title of *Amériques* as purely geographic but as symbolic of discoveries – new worlds on earth, in the sky, or in the minds of men.'[14] It is excess that characterises this work, and its primary qualities are 'masculine' elements of power, violence and domination, especially the domination of the innocent opening theme. *Amériques* remains an extraordinary achievement; its subject is nothing other than the male archetype of expansion, with the New World as its very title and an orchestra which itself seems to represent a whole continent, comprising twenty-seven woodwind, twenty-nine brass, and the largest percussion battery of its day.[15] The work exceeds its own boundaries, moving past the first traditionally articulated ending around Figs 40-42 into a vision of limitless future expansion. Only in the *Poème Électronique* would Varèse be able to generate an even

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[14] From a note to Odile Vivier, quoted in Ouellette 1973: 56.
[15] Although some readers may find the term 'male archetype' to be obscure, the gendered aspect of this archetype of male conquest is clearly adumbrated in McClary's essay, as can be witnessed in the earlier discussion of Scriabin's music. The dualistic opposition of male/female archetypes and their meanings has also been controversially explored in relation to art history (see Arguelles 1991).

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more destructive apocalyptic final close based on the sounds of explosions and electronically realised sirens, distributed via one hundred and fifty loudspeakers and probably matched at that point by the images of atom bomb detonations that were apparently part of the cinematic accompaniment devised by Le Corbusier.[16]

Though their conclusions are different in tone, Mahler's Sixth and Varèse's *Amériques* both seem to effect an apocalyptic and catastrophic form of closure. In the final bars of the Sixth Symphony, Mahler's funerary polyphony suddenly flares up again into an unexpected fortissimo outburst of the major-minor fate motif, punctuated by a colossal downbeat, and this is all the more shocking since it interrupts what we are perhaps expecting to be an ongoing abatement into silence. Even though the final hammer blow that originally attended this moment was superstitiously removed (see footnote 10) Mahler brings the full force of the percussion section to bear on this downbeat. His use of the hammer was echoed in the last of Alban Berg's *Three Orchestral Pieces* (1914-15), where it was used to punctuate similar climaxes, and there attained a more fateful significance as the First World War broke out. Another significant similarity is that Berg also seems to be constructing his music out of similar 'dissolution fields', and the title of the piece, '*Marsch*', is reflected in a number of episodes that seem to directly parody the incessant march music of Mahler's Sixth. In fact the entire piece builds towards a statistical climax about three quarters of the way through, before tapering away and then finally flaring up in the final bars, again terminating with a percussive thud and hammer blow.

In both *Amériques* and Berg's *Three Orchestral Pieces* a negative image of urban culture is presented, underlined by Varèse's parody of the waltz in the final section of *Amériques*, and by a similar waltz-*ländler* parody in Berg's second movement ('*Reigen*'). Indeed, the waltz became a kind of topic for mutilation among composers coming to terms with the urban modernity, the world of Wozzeck's barracks and *Lulu*. It became an ironic symbol of the opulent veneer of urban life that conceals like a mask the decadence of the city – for example, there is also Bartók's *Two Portraits* of some years earlier, and Ravel's *La Valse*, though the latter contains a bourgeois nostalgia that Berg repudiates in '*Reigen*'.

Robert Samuels puts forward a comparison between the Mahler's finale in the Sixth Symphony and that of nineteenth-century works of literature such as Madame

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[16] See the summary in Oullette 1973: 195-206.

Bovary and Anna Karenina. His reading is not supposed to demonstrate an actual influence but merely a cultural affinity, evidence for a deeper commonality between two different art forms and the particular time and world view which they share. It leads Samuels to the conclusion that 'Mahler's Sixth represents the suicide of the Romantic symphony...Temporary or promised integration, and final extinction through effacement: these two narrative tropes describe equally well the characters of Tolstoy's and Flaubert's novels.' (Samuels 1995: 157) In other words, the pattern of climax and resolution gives way, in certain late nineteenth-century narratives (both literary and musical) to climax without meaningful resolution, to a situation in which the ending can no longer live up to the promise of integration that drives the reader/listener through the experience of yearned-for closure. Instead, works like Mahler's Sixth, Varèse's *Amériques* and Berg's '*Marsch*' end by invoking death itself, as symbolised by the hammer blows of fate (and in the case of Mahler's Ninth Symphony, through a protracted dying away[17]). And this brings us full circle to the idea of a gesture of ending rather than a process of closure: paradoxically, the end is signalled clearly by such an allusion to death, but it leaves the listener in a state of unfulfilled and disconcerted reflection. As Clifton points out, 'Heidegger writes that human existence itself ends in unfulfillment, or else "by having disintegrated and been used up". Is it the case that contemporary music is more attuned to man's condition, or do we have a second-level situation whereby the stopping of a composition provides fulfillment because it stopped unfulfilledly? Thus, you see the danger of making either fulfillment or unfulfillment into an aesthetic standard.' (Clifton 1983: 90) In my final case study I will show how this kind of tragic ending continued to echo through the later part of the twentieth-century.

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[17] Anthony Newcomb has also described the last movement of the Ninth Symphony as 'a constant turning-back-on-itself', a 'vortex of rebeginnings searching for the proper end, for the "quiescence of the origins"' (Newcomb 1992: 135). Adorno puts this in reverse terms: 'the Adagio Finale is reluctant to close, as was Berg's Lyric Suite after it, to the extent that it remained an artistic fragment.' (Adorno 1992: 164-65) In other words, rebeginning and the refusal to end are one and the same thing. The form of the finale is rich in full, perfect cadences at the beginning of the chorale-like sections, where they can be heard as initiating rather than concluding. However, the end of these sections always fragment rather than conclude, opening out into Adorno's 'disintegration fields'.

> The whole orchestra is given full scope only in the *Direct*: here the music flows and develops continuously, the earlier 'uncertainty', 'incompleteness' or 'reticence' quite disappears. The listener has had the right to expect this moment for quite some time before. To my mind the so-called completion can happen only once in a piece of music. Personally I dislike compositions which produce an effect like that of over-eating.
>
> (Lutoslawski, in Kaczynski 1984: 43)

What Lutoslawski seems to be advocating here is an aesthetic attitude towards closure apparently shared by many of his symphonic predecessors, as well as many analysts of this kind of music: the moment of closure - whether it entails a Schenkerian $\hat{2}$-$\hat{1}$ completion of the *Urlinie* or a rhetorical figure of completion in the musical narrative - should be singular and decisive. It should confirm the goal-directed motion of the symphony by fulfilling it, by arriving somewhere, by completing expectations. And it is clear from Lutoslawski's own views that the two-movement form of his Second Symphony enacts a process in which the uncertainty of the first movement, '*Hésitant*', is galvanised into action by the certainty of the second movement, '*Direct*'.

We have already seen in Chapter Four how hesitance is achieved in the first movement through the technique of interruption. The story of the second movement is that of a transition between the static textures of the first movement and an explicitly regular pulse that eventually gives the music a new sense of direction (hence the movement's title - '*Direct*'). The compositional method thus changes from the *ad libitum* technique of the previous movement to a conventionally notated metrical score, which now presents a continuous uninterrupted sound mass in contrast to the disruptive alternations of texture witnessed in the first movement. Most importantly for the argument of this chapter the second movement is organised around a gradual ascent towards statistical climax. However, Lutoslawski returns to the *ad libitum* technique just as the movement seems to be on the brink of its final climactic ascent. The otherwise continuous texture suddenly gives way to silence amid fast-

flowing music that appears not to have dissipated its momentum[18]: the music first stops in mid flow, in the midst of a repeating fortissimo twelve-note chord (at Fig. 151), one of many such chords that form the basis of the harmonic architecture of the piece (see Stucky 1981: 163). After this general pause, the metrical style attempts to continue as before but is interrupted immediately by the strings, which now borrow the improvised method of the first movement to create a static type of texture. The metrical style tries to assert itself again against the stasis of the strings, only to be brushed aside by another general pause (just before Fig.152).

Thus, the multiple hesitancy that continually disrupted the first movement is reintroduced at a critical point in the form of the work, and the composer appears to be using it to precipitate a crisis, a battle between continuity and discontinuity that is now expressed in the tone of a climactic struggle. The strings, seemingly static at first, plunge back into the metric style, and the earlier sense of pulse returns. This time we are given enough of the *a tempo* to lead us to expect that we are back on rhythmic ground, only to find the texture disintegrating into a spectacular cacophony engaging the whole of the orchestra, again in the *ad lib* style. This is intended as one of the most intense climaxes of the piece, '*tutta forza*' accompanying most parts before a sudden dying away to pianissimo. The strings return three times with dense, fortissimo stabs, as if trying to coax the movement back to the *moto perpetuo*, or as if trying to force it to some conclusion. With the arrival of the fourth stab (at Fig 157) the whole orchestra lands on two notes, F and E♭, at first reiterating these notes within the *ad lib* framework (Ex 8.8). The accented, hammering quality achieved here by the determined reiterations of single pitches (F or E♭) in each part (including the quite literal hammering of the vibraphone, bells and timpani) gives a sense of the music trying to pin itself down, to ground itself with the certainty of a tonic or centric point of arrival (and of course reminding us of the percussive finality that attends the ends of the works discussed in the previous part of this chapter). The marked change of harmonic colour from twelve-note chords to a two-note F/E♭ dyad reinforces this sense of centricity with a concomitant reduction of semitonal dissonance, though of course Lutoslawski could have made the passage sound much more resolved by using a cleaner unison texture. The textural unification of this dyad into a singular chordal

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[18] The movement has been building up to this fast pace so gradually that the sudden halt seems premature and disproportionate to the sense of impending climax.

attack at Fig 158 might be liberally interpreted as a syntactical climax, the preceding chaos of the *ad lib* texture being synthesised into a dramatic chordal downbeat (again, see Ex 8.8).

Is this the singular conclusion the composer referred to above? I do not thing any listener would have a problem if this were the final chord of the piece, and it seems for a few seconds after its sound disappears that there is nothing else to come. And yet the ominous finality of that chord, with its attendant harmonic simplicity, is contradicted by the subtle form of overlapping that we have referred to before as a kind of 'fool's ending', in which the reverberations of the '*tutta forza*' chord disguise the pianissimo material which follows (incidentally, this is exactly the same technique as Lutoslawski had used twenty years earlier to conclude the first movement of the First Symphony – see Chapter Four). Five more times the triumphant F/E♭ dyad comes crashing down, and each time leaves no impression on the strange, quarter-tone clusters that hang like a permanent echo in the background (Ex 8.9). The last two of these F/E♭ dyads grow progressively quieter, so that it seems the belligerent conclusion is not to be. The quarter-tone cloud of double basses and cellos persists, and against this two mournful double basses sing dying '*calando*' phrases, significantly alighting on long appoggiaturas, F and E♭. In these dying phrases there is a distant echo of that other work whose conclusion seems to linger so uncertainly at death's door – Mahler's Ninth Symphony.

These pitches are the same ones as first appeared some thirty minutes earlier at the start of the symphony, and which also crowned the would-be syntactical climax of the second movement. That the average listener really remembers those precise pitches and interprets them as a meaningful return to the conditions of the opening is highly unlikely, especially since they are not used as a marker elsewhere in either movement. Rather, they represent a compositional conceit, an attempt to bring the work full circle, finally reducing the vast twelve-note chordal style down to the same F/E♭ embryo from which the opening expands. That is not to say that the listener would be unable to respond to the gestural rhyme between the beginning and ending as an (initial) expansion and (final) contraction process. But there is an aesthetic tension between the attempt at a 'pseudo-syntactical' climax implying closure (in the form of the repeated F/E♭ dyad) and the *morendo* coda that is superimposed on it and which

has the last word. As one author puts it, the climaxes 'fail to bring about a conclusive resolution and so fail to keep faith with the grand artistic promise made' (Stucky 1981: 165)[19].

The quality of the climactic dyad in the Second Symphony is similar in function to the perfect cadence forms that occur in the first movement of the First Symphony analysed in Chapter Seven, even though the compositional method is different: the underlying similarity remains that the resolving chords in *both* works possess a lack of sensory dissonance relative to the generally acute level of dissonance elsewhere. However, the Second Symphony does not create an assortment of such punctuation marks that are experienced (or at least theorisable) in terms of a regulated hierarchy, and which distinguish the terminal points of formal sections. While we found in the earlier work evidence of a sliding scale of stable and unstable cadences, here the battle seems to be polarised between a generally emancipated language of dissonance and a suddenly conspicuously consonant dyad (i.e. conspicuous by *not* being a twelve-note chord). The singular deployment of this decisive harmonic event does indeed tie in with the composer's idea of a singular completion. Had this been introduced much earlier - for example before the first general pause at Fig 151 - the piece might have been tidily finished off without the ensuing battle between static and rhythmic textures

Despite symphonic pretensions, Lutoslawski does not grant the fulfilment to which the goal-directed momentum of the second movement seems to strive. It is tempting to name atonality as the culprit in this loss of direction, like the derailment caused by the tritone in Sibelius's Fourth Symphony, but in spite of the absence of traditional syntax the composer achieves extraordinary success in sustaining a symphonic sense of momentum through textural and dynamic parameters alone. The music could have been made to sound conclusive by simply ending on one of those percussive dyadic downbeats – as Varèse does by extending the chord at the end of *Amériques* with a long general pause - but Lutoslawski deliberately withholds such a definitive sense of arrival. Or rather, he matches the morbidity of his fateful hammer-like gestures with a morendo coda that gives the listener time to reflect on their ominous significance. Lutoslawski appears to be offering a critique of symphonic goals by investigating them from the perspective of an aleatoric technique of composition that is antithetical

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[19] Another author has also commented on the 'unsuccesful' nature of this conclusion (Rae 1984: 106)

to traditional goal-directed forms of symphonic development. His Second Symphony can be understood, like Mahler's Sixth and Sibelius's Fourth, as another instance of the suicide of the romantic symphony. Once again finality becomes enacted as a kind of death rather than through the arrival at utopian rejoicing of the sort suggested by the Classical *lieto finale*[20] - not the death of some imagined protagonist, but of the work itself as it reluctantly submits to stasis and the necessity of the frame, the necessity that 'all good things must come to an end'.

Finale

Although Lutoslawski's Second Symphony and Sibelius's Fifth Symphony are worlds apart, there can be no doubt that both have a similar rhetorical ploy in mind for their endings - fortissimo chords - and that in this respect both are alluding to a symphonic tradition that goes back to Beethoven, or is at least embodied in the acute sense of punctuation of many of the latter's endings. This approach is also reflected in the fortissimo endings of Varése's *Amériques*, Mahler's Sixth Symphony, Berg's '*Marsch*', and Scriabin's *Poème d'extase* and *Prometheus*. It is also the brute force of repetition that binds together virtually all the endings examined in this chapter, that same force which Charles Rosen found so distinctive in the closing subjects of the Classical style. In Scriabin it is the sheer duration of his three-minute plagal ecstasy in the *Poème d'extase*. Sibelius, in the Fifth Symphony, maintained the assertive approach of his idol Beethoven in this regard, firmly nailing down the ending to the tonic with repeated cadential units. The examples from Lutoslawski and Sibelius's Fourth Symphony show that this type of insistence can easily be derailed, creating endings that suddenly deflate as if unable to affirm their tonal destiny. Varèse also holds up the notion of finality to ridicule in *Amériques*, going beyond the seemingly final cadential repetitions in a *paean* to the vastness of that unexplored space which figures so deeply in his writings and music. Yet there are ironies too: Lutoslawski, though he causes the grandiose ending gesture to collapse, does lead this barely audible coda to the pitches F and E♭, the same dyad on which the climax happens, and the same dyad that opened the work, in an attempt to rationalise the symphonic journey, to make it circular and whole. And even if, as I have argued, Sibelius's

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[20] See Talbot 2001:52-80 for a discussion of the 'relaxant finale'.

Fourth Symphony is a work in a state of tonal doubt, it is still not radical enough to end on E♭ instead of the global tonic (A), even if there is a sense of despair and dissatisfaction with that conclusion. Varèse, though he supplements his cadential pseudo-ending with an apocalyptic tableaux that seems to bulge out beyond the would-be frame, gives us an ending that is bombastic and violent in a way that ultimately places it with the nineteenth-century symphony he is trying to outstretch (to his credit, he never wrote such an ending again).

It is perhaps surprising, given my remarks on the shadow cast by atonal procedures on traditional goal-directed thinking (both here and in Chapter Six), that the symphonic genre is still alive and well at the beginning of the twenty-first century, and not only in the form of regurgitated classics. Even at the beginning of the twentieth century it enjoyed more of the limelight in concert halls than much of the new music of the then avant-garde pioneers, which now appears perhaps to overshadow it from an intellectual point of view. However, the symphonic examples explored in this chapter (or rather, my readings of them) offer no more alternatives to the polarised affirmative or tragic ending scenario than did the nineteenth-century novel: according to one commentator 'even when later nineteenth-century novelists experimented extensively with fictional form, they rarely abandoned entirely the alternatives of marriage and death as culminating events' (Thickstun 1998: 2). On the other hand, the epic notion of a symphonic journey seems to demand endings that deliver climaxes of heroic or tragic magnitude in their final pages.

The polarisation of narrative endings into tragedy on the one hand, and comedy or affirmation on the other, reaches back into the Enlightenment and beyond. For the modern mind, such pre-determined outcomes are self-deceptions that jar with the 'contingency' (rather than accepted 'destiny') of events as we perceive them. McClary sees the deterministic plotting built into nineteenth-century musical culture by the force of tonality itself. For her, it is a disappointment that in Brahms's Third Symphony

> ...the chorale references at the end ...may imply apotheosis rather than defeat,
> a transcendence of the struggle. Yet the fact that tonal banality is the only
> form of closure available at the end of this and every other composition in the

tonal repertory means...that, in some important sense, the struggle was already an illusion. (McClary, in Solie 1993: 342)

By contrast, Frank Kermode reminds us that

> The End itself, in modern literary plotting loses its downbeat, tonic-and-dominant finality...and we concern ourselves with the conflict between the deterministic pattern any plot suggests, and the freedom of persons within that plot to choose and so to alter the structure, the relations of beginning, middle, and end. (Kermode 1966: 30)

If rationality can be thought to be embodied in the system of tonality, it is no accident that at the moment that atonality arrives, the process of ending suddenly becomes problematic, and can no longer be performed with the same effortless ease as it is in, say, Mozart; irrational music leads to irrational conclusions. Witness, for example, the extraordinary gesture that terminates Schoenberg's *Erwartung* (Ex 2.12 – Chapter Two). Few can deny that this seems to work as an ending, if only because the sound cuts off so decisively in every part at once, but it does not centre itself in the way a tonal ending does, it suggests nothing of the future of the tragic character on stage. If anything, it paints the very opposite of a tonal centre, striving in either direction, upwards and downwards, into infinity, away from any centre. Ligeti uses a similar gesture to terminate his Second String Quartet – some sixty years later - accompanied by a note: 'all four instruments: disappear suddenly, as though into nothingness.' Like the best modern poetry this ending, 'without sounding arbitrary, manages to avoid sounding conclusive.' (Herrnstein Smith 1968: 95) Similarly, we saw how Sibelius's harmonic experiment with the tritone in the Fourth Symphony pushed the conclusion not towards synthesis but towards disintegration and a seeming disillusionment with its would-be triumphant climax.

Of course, there are other twentieth-century works that do keep alive the Classical spirit of the rejoicing finale (including the affirmative conclusion of Sibelius's Fifth Symphony). Bartók says of his *Concerto for Orchestra* that 'the general mood of the work represents – apart from the jesting second movement – a gradual transition from the sternness of the first movement and the lugubrious death-song of the third, to the

life-assertion of the last one.'[21] Nor does pre-twentieth-century music preclude the notion of a 'valedictory finale', as Michael Talbot's recent book on the finale demonstrates (Talbot 2001: 106-126). However, there is a sense in which the latter came into its own in the twentieth century:

> Valedictory finales express a range of feelings, running from melancholia to nostalgia, from abstention to exhaustion, from fading out to passing away, that we easily identify with the twentieth-century condition. They represent a retreat from the public into the private sphere and strike a chord with twentieth-century individualism (and post-scientific mysticism). (Talbot 2001: 107).

In this chapter I have attempted to indicate the way that some symphonic endings can be conceived as the outcome of goal-directed climactic narratives. However, the aesthetic notion of closure as a resolving goal is contested in some of these works, in which closure is enacted not through resolution but through connotations of death (Samuels' 'suicide'). The possibility of this kind of hermeneutic reading may always be latent in abating endings (see the conclusion of Chapter Two), but it can also be created by final apocalyptic climaxes, climaxes with sinister overtones (for example, the fatalistic rhythms and obliterative percussion of Mahler, Varèse, Berg and Lutoslawski). These statistical climaxes may quite literally intimidate the listener, offering little foothold or syntactical climax to make sense of and resolve their inherent tension. In this sense they are also twentieth-century incarnations of the Romantic 'sublime'. The cadence emerges as one particular gesture whose finality is arrested or distorted as an image of syntactical completion in some of these examples, and McClary's critique of the cadence suggests that it can no longer answer to the demands of resolution placed on it by the continual deferral of desire evoked by later tonal practice. Other closing stereotypes that are contested include tonality (Sibelius's Fourth Symphony), confirmatory repetitions signifying arrival (Lutoslawski's Second Symphony), and final concordance (Varèse's *Amériques* and Scriabin's *Désir*), as

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[21] From Bartók's own commentary, published in the programme of the Boston Symphony Orchestra's concert of December 1944, quoted in Cooper 1996: 85.

well as the broader subversion of affirmative expectations that may be judged in relation to the culturally-defined 'tone' of an ending.

Ex 8.0.i   Sibelius, Fifth Symphony, finale – showing rise to final climax

Ex 8.0.ii Sibelius, Fifth Symphony (ending) – showing final climax
and resolution (continued from Ex 8.1.i)

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Ex 8.1.i Sibelius, Fourth Symphony (finale) – showing ascent to the final climax

Ex 8.1.ii Sibelius, Fourth Symphony (finale) – showing
peak of final climax (continued from Ex 8.1.i)

Ex 8.2 Sibelius, Fourth Symphony – an analytical reduction of the final climax

Ex 8.3 cont. – showing the end of Sibelius's Fourth Symphony

Ex 8.4 Scriabin, '*Désir*' Op.57 (ending)

Ex 8.5 Scriabin, Fifth Sonata (ending)

Ex 8.6 Varèse, *Amériques* (Figs. 39-42) –
showing profile and positioning of cadences

No. of semitones: 12 5

Ex 8.6 cont.
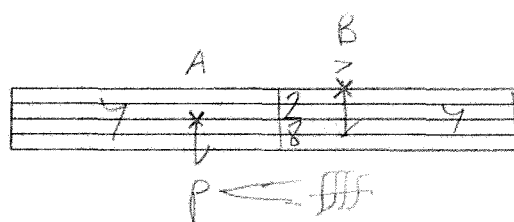
Percussive Interpolation
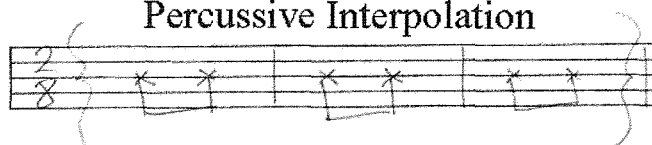
(Fig.42)

(subito quasi lento)

A   B missing!

'nervous' percussion >>>
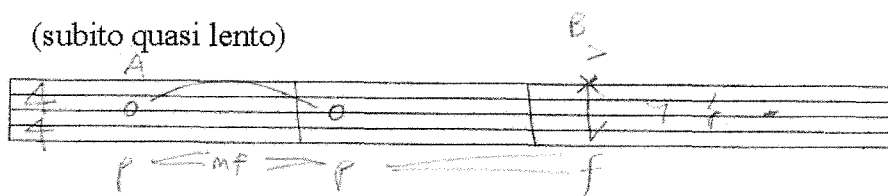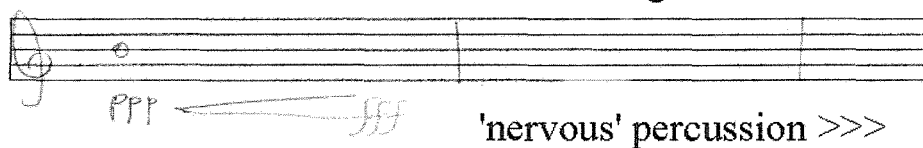
Ex 8.7 Varèse, *Amériques* (ending)

Ex 8.8 Lutoslawski, Second Symphony, finale – showing statistical/syntactical climax

Ex 8.9 Lutoslawski, Second Symphony (finale) – showing dissipation of climactic chords

1) The duration of the notes in celli 6–9 and basses 3–6 is determined by the length of the bow (one bow per note). The players are independent of each other. The left hand signs of the conductor (159a, b, c, d, e,) do not concern these lower strings.

Chapter Nine

Introduction II : (Re)defining Closure

> On the music stand there is always a piece of musical notations. They are in a state of revision, resembling a collage: all fragments, which he arranges, rearranges, displaces, cuts, glues, reglues, pins, and clips until they achieve a towering construction. I always look at these fragments, which are also tacked on a board above his worktable and on the walls, because they express the essence of his work and character. They are in a state of flux, mobility, flexibility, always ready to fly into a new metamorphosis, free, obeying no monotonous sequence or order, except his own. (Anais Nin 1969: 155-6)

So writes Anais Nin of Edgard Varèse's music studio, and her elegant description calls to mind the chaotic yet purposeful working methods of many other composers besides. Formal planning has always been part of the compositional process, whether that planning arises from pre-existent moulds and blueprints, or whether it develops anew for each work, 'obeying no monotonous sequence or order' as Nin puts it. Of all the people I have consulted on the subject of endings, composers have been particularly sympathetic to my quest. After all, it is they who have the ultimate burden of finishing a piece of music. It is very easy to begin. There is something wonderful about fresh, unclogged manuscript paper. But as sketches turn into phrases, phrases spill out over tens, perhaps hundreds of pages, the musical organism makes increasing demands on its creator. As a result, few composers are able to write fluently with ease and confidence from left to right, start to finish, without suffering an anxiety over the possibilities of the work, its formal disposition, its ideal sequence events, and the right place to stop. The compositional process becomes one of revising and repositioning, until something 'complete' emerges. But what defines this notion of completeness, and how does it relate to the experience of listening to that music? Rather than simply summarise the conclusions of each chapter here, I shall draw together some of the strands concerning both the 'art of ending' (as compositional process) and 'effect of closure' (as cognitive and aesthetic effect).

The diversification and individuality of musical languages in the twentieth century led to a remarkable variance in the approach to negotiating closure; at the same time, however, the dialectical play of modernity with past styles and conventions has emerged as an important theme in the re-appropriation of closure: to that extent certain conventions were reincarnated and given new life by composers who extrapolated their musical principles – both syntactical and formal - from the Romantic and Classical traditions in which they were initially steeped.

The kind of harmonically co-ordinated closure on which traditional tonality rests did not simply disappear in the wake of atonality. What is daunting is the sheer range and variety of harmonic progressions that any theory of closure must now grapple with, compared with the extremely narrow range of closing stereotypes from the previous tonal era (i.e. the perfect and plagal cadences). The insistence of traditional tonal analysis on an all-embracing harmonic syntax is problematic for a repertoire whose harmonic methodology is a 'work in progress' rather than a long-established system of composition (such as the pan-European language of the thoroughbass, which unified diverse national and generic styles throughout the baroque era, and effectively for a long time afterwards). While certain twentieth-century harmonic trends can readily be identified – modality, octatonicism, chromatic voice leading, polychordal harmony, tonal allusion etc. – they rarely occur as self-contained systems. Rather, they often interact with and displace one another during the course of even a single composition, so that it is impossible to view all musical processes by means of a single pitch-based analytical 'filter' through which the entire structure automatically falls into place (as it seems to when Schenkerian principles are applied to music of the tonal common practice era). Indeed, we have seen the inadequacy of the concept of monotonality in dealing with closure in Stravinsky's *Symphony in Three Movements* (Chapter Six).

This frustrating situation has lead to an oft-repeated pronouncement by analysts of post-tonal music, to the effect that each work must be considered to embody a unique set of rules peculiar to it, which it is the analyst's role to reveal. Edward Persall writes that 'it is possible to imagine a universe of post-tonal compositions where each composition defines its own harmonic structures and pitch hierarchy' (Persall 1991: 347), and indeed we have seen an example of this in Messiaen's '*Danse*' from

Quartet for the End of Time (Chapter Five). Is it not the case though, that many tonal and post-tonal pieces alike exhibit their own individual behaviour in relation to the backdrop of more conventional stylistic and generic features that belong equally to other works? Certainly the use of abatement and terminal modification explored in Chapter Two would seem to be supported across a diverse range of music. Furthermore, while we might have to adapt our listening habits or simply get used hearing a new work, it is at least processed by the same cognitive apparatus (i.e. our brain), even if our familiar modes of listening and expectation are challenged.

The problem with Persall's stance manifests from within the act of theorising itself, of negotiating between the unique instance and the common trend. For if it is impossible to distil trends from a sample of cases then one can only ever discuss individual works. Twentieth-century musical analysis thereby risks limiting itself to the clandestine pursuit of the musical genius – becoming a discussion forum for alchemical compositional practices rather than a reflection upon the wider relationship between composer and listener. The phenomena of closure and endings are particularly suited to studying these relationships, and for charting the mismatches, ambiguities and interplay between the cognitive dimension of listening and the individual aesthetic of a given work, or between cognition and the various ideologies of analytical method.

What I have attempted to offer in the second part of this thesis is a number of schemes by which harmonic and centric forms of closure may be evaluated without tonal prejudices - a redefinition of tonality in terms of bottom-up rather than top-down processes. By peering into the mechanism of closure on the wider scale of entire movements in these chapters, I have hoped to suggest ways in which a moment-to-moment experience of music as it unfolds in time can be documented in terms of a formal account that distinguishes between strong, medium and weak types of closure in a qualitative open-ended continuum. This is distinct from a prolongational or hierarchical analysis, and while the two approaches happily coincide in the case of Bartók's Fourth Quartet - usefully demonstrating a relationship between the two - in other works they might not do so. The locus of the 'closural narrative' has been placed on cadences in these cases, but in other works different schemata could be identified and tracked in other ways, depending on what set of parameters are heard to be contextually responsible for enacting resolution.

A further stylistic convention of closure that is subject to rhetorical play in twentieth-century music is that of the reprise. Why does recurrence seem to create feelings of closure so strongly in music, as well as other art forms? This is a complex question indeed; in part it has to do with generic expectations: the convention of return is an important one in the tonal tradition, both in terms of thematic centre and tonal centre. We have seen in Chapter Three how harmonic return provides an important kind of economical conclusion in atonal music, even where overt thematic reprise is suppressed or significantly altered in the interests of a modernist aesthetic of continuous development. In Chapters Five, Six and Seven, the neo-tonal examples also engage with this generic archetype of return on various levels. There is also the psychological explanation that in music, as well as poetry and literature, recurrence represents the familiar and the expected, and as such is felt to be stable and rhetorically conclusive. As Meyer points out, 'there can be a return to a pattern only after there has been something different which was understood as a departure from the pattern. Because there is departure and return, recurrence always involves a delay of expectation and subsequent fulfilment.' (Meyer 1956: 152) From this point of view, the overall mechanism of closure is defined by its dialectical relationship with what might be called the opposite quality of 'openness' or 'becoming'. Herrnstein Smith also observes that poets use contrastive verse forms to disrupt expectations: 'we might feel annoyed, flustered, or perhaps "threatened," for the order which we had begun to assume would be destroyed and (because no new order would yet have emerged) we would be at the edge of a very minor chaos' (Hersteinn Smith 1956: 13) – and this statement describes rather well the sensations commonly induced by musical 'middles'!

The spectrum of twentieth-century music varies widely in its application of the dialectic between openness and closure. Some works remain aloof from the formal principle of closure entirely, merely signalling the end in an expedient manner, while others present a systematic balancing act between centre and perimeter, home and distant lands, which allows the analyst to trace a thread of closural narrative or hierarchical mechanism of closure. There are still other instances where such a thread may be only occasionally glimpsed in the body of the work, but where the ending suddenly alights on a thematic or pitch-based centre, giving the listener a sense of security and home coming that was never guaranteed (for example, Bartók's *Concerto for Orchestra* and the first movement of his Fifth Quartet, Boulez's *Dialogue de*

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l'ombre double, the first piece of Schoenberg's *Drei Klavierstücke*, Op.11, Scriabin's *Prometheus* and Varèse's *Ameriques*). Conversely, other works appear to offer this security towards the end, only to brush it aside with a gesture towards further development (Varèse's *Density 21.5*, Ligeti's Second String Quartet, Lutoslawski's Second Symphony and - with a grudging sense of the final tonic - Sibelius's Fourth Symphony).

Other works adopt the same principle on a larger scale, achieving a sense of dynamism by contrasting stable centric sections with unstable and open-ended sections in cyclic alternation (as with Bartók's Fourth Quartet and Lutoslawski's First Symphony). Indeed, tonal works also employ this cyclic dynamic as a formal tension-generating feature: the sonata principle is a case in point, where the sequence of exposition, transition, second group, development and recapitulation mirrors a complementary alternation and exchange between stable and unstable processes, augmenting the latter in the development section.

The rhyming of endings with beginnings gives a sense of homecoming to musical endings in a dramatic and formal sense. However, in drama itself the plot will rarely end with the same conditions as the opening, even though it may allude to the idea of a return (witness the last line of Tolkien's *Lord of the Rings*: '"Well, I'm back," he said'), and many musical conclusions also introduce strategic changes to their reprises in an acknowledgement of what has gone before. Kermode refers to this effect, in relation to a literary sense of an ending, as 'peripeteia' – an abrupt change circumstances – and notes that it is needed to make the novel realistic rather than simply mythical or ideal (Kermode 1966: 163). We have encountered a similar principle at work in the effect of terminal modification, as well as in endings that seem to negate the promise of an affirmative or pre-determined conclusion (Chapter Eight).

The conditions of symmetry on which the closure of Classical forms is predicated became marginalised in terms of large-scale formal enactment in the twentieth century, since no modernist worth their salt would permit the wholesale repetition required by a traditional recapitulation. Nevertheless, the closing implications of formal symmetry were often satisfied in a miniaturist fashion by compositions that eschewed overt reprises. Chapter Three gave a sense of this by exploring abstract framing sonorities, and elsewhere I have noted other hidden connections between beginnings and endings that betray consciously executed compositional symmetries

(for example, the F/E♭ dyad that begins and ends Lutoslawski's Second Symphony). The use of identical falling sequences in the closing moments of the first and final movements of Bartók's Fourth Quartet is another example of such economical symmetry, here transposed to the inter-movement level. In the final movement's aposiopesis there is also fragmentary backward glance at the scherzando second subject. Similarly, the ending of Messiaen's 'Danse' from *Quartet for the End of Time* manages to slip in a reference to its slower isorhythmic section as a last-minute gesture of reprise. Even in Ligeti's Second Quartet, which does not so much end as stop, the material that prefigures the end is a clear textural reprise of the opening of the movement. Another element of recall occurs in works that terminate with a clinching utterance of an important thematic motif, chord or melody (again, witness Messiaen's 'Danse'). These economical forms of reprise need not be expressed as an affirmative gesture of completeness. They can often suggest the possibility of open-ended cyclical recurrence, as with the return of the opening material in Scriabin's Fifth Sonata, which fails to provide a final centric downbeat. And in Stockhausen's *Kontakte* the final section comprises fragmentary off-cuts of earlier sections that creates an effect of disintegration rather than integration.

A second solution to the problem of the *verbatim* recapitulation is afforded by serial technique, which allows overt repetition to be disguised through serial transformation. According to Milstein 'Schoenberg's twelve-tone compositions often exhibit a major recapitulatory section...The beginning of the recapitulation generally coincides with the return of sets used at the opening of the exposition, and, in the case of the hexachordal compositions, the return to the opening hexachordal area' (Milstein 1992: 111-112). In some works this kind of recapitulation is audibly related to the textures and rhythmic or thematic contours of the exposition, and can therefore be heard clearly as a reprise. This kind of audible thematic reprise was also noted in relation to the ending of Boulez's First Sonata (Chapter Four). However, others of Schoenberg's works represent a more veiled approach to the reprise whereby changes of texture, tempi and melodic material serve to disguise the reprise of the hexachords and other serial thematics (for example, in the *Phantasy* – see Milstein 1992: 112).

The nature of serial endings has unfortunately not been considered in great depth in this thesis, and there is clearly scope for a thoroughgoing study of the way in which serial method might interact with aesthetic and cognitive notions of closure. One of the most obvious possibilities is that the last few bars of a serial composition are likely to express the total chromatic aggregate of the series in some concise or summative way. This does raise theoretical dangers however, since any kind of totally chromatic music is likely to give the impression of recurring aggregates throughout. Nevertheless, the aggregate is often expressed in terms of a coherent statement of the tone row that is thus thematic rather than being a chance occurrence. Stockhausen's *Gruppen* provided an example of this phenomenon in Chapter Three; the last chord of eleven notes was completed by the addition of the twelfth note as the final event of the piece, as part of a (subtractive) statement of the main series at T^4. However, since this serial integrity governs each formal group it merely serves to maintain a consistent kind of episodic closure throughout rather than one that is unique to the ending itself. Boulez's First Sonata also ends with a pentachord that completes the aggregate partially defined by the previous triplet configuration (Ex 4.7). This is not merely fortuitous, since there are no repetitions of notes within this closed statement of the chromatic aggregate. There is also a sense here in which the aggregate is being coalesced into increasingly dense vertical manifestations, first in rapidly succeeding three-note chords, and then in the final five-note arpeggiation. This imparts the effect of serial peroration that has affinities with the end of the first movement, where there is a climactic eleven-note gesture whose registral and chromatic saturation is sustained by the pedal. However, in that instance, although the aggregate is completed by the next note, the latter is itself followed by additional notes that only partially outline a new aggregate at the end of the movement. This would imply a formal lack of completion that aptly fits the unfinished character of the movement (as explored in Chapter Four), and underlines the intermediate nature of its close in relation to the two-movement scheme.

That such serial concepts of closure have any validity for most listeners is highly questionable, but they are important aspects of compositional design that betray an attempt to seal off the work in technical terms. There are also non-serial works that make use of this kind of pan-chromatic closure, including for example the eleven-note

chord that terminates Varèse's *Ameriques*. The ending of Schoenberg's *Klavierstucke* No.1, Op.11 includes a multiple pedal point (on A, G♯, D, C♯) that completes the aggregate outlined by two chromatic descents in the melodic voices above the pedal point (B, B♭, A, (C), A♭, G, F♯ and F, E, (G) E♭ respectively). It was also shown in Chapter Three how the final chord of this piece behaves as a verticalisation of important horizontal pitch-class sets. The idea of complete chromatic saturation as a compositional category of closure is problematic from the perspective of sensory theories of dissonance; far from representing a final unification of elements, such a saturation should come across as intensely dissonant and hence unclosed. However, in the example from Schoenberg this fact is mitigated by the abatement of register and dynamics as well as by the stasis implied by the gesture of the pedal point itself. In Varèse's *Octandre* we also witnessed the way in which the eleven-note climactic sonority is dissolved to a final three-note cluster at the end, and such a reduction of density (and hence dissonance) is paralleled in Stockhausen's subtractive approach to the final chord of *Gruppen* (Chapter Three).

The idea of simultaneity evoked by chromatic saturation is paralleled in a number of non-serial examples by a pandiatonic approach to final chords. This was noted in Chapter Three – where such chords were observed to possess a triadic underpinning – and also in Chapter Seven, where Bartók's complex approach to fifth-based sonorities in the finale of the Fourth Quartet raised further questions. Here again the overlap between perceptual qualities of closure and compositional strategies is somewhat blurred. The climactic reiteration of fifth-based diatonic hexachords (containing all the notes of the C-major scale except B) prior to the coda was seen as the resolution of earlier cadences that emphasised semitonally juxtaposed stacks of fifths (and as a verticalisation of the notional home key of the movement). The extent to which this resolution is 'eye based' rather than 'ear based' cannot be denied, and is especially evident in the light of Bartók's preoccupation with white-note and black-note configurations. I argued there that closure could be charted as much in terms of a compositional game – a balancing and synthesis of opposites – than as a perceptible psychological manifestation of closure.

A further abstract technical resource of atonality that can achieve closure is the interval cycle. It closes in melodic terms by moving through identical intervallic leaps until reaching the same pitch class from which it began, usually at a higher or

lower octave. In short contexts such closure in the domain of pitch may be readily perceivable in terms of the melodic principle of return, and it may also add an impression of coherence through its symmetry and uniform contour. This is very much the effect at the end of the fifth movement of Messiaen's *Quartet for the End of Time*, in which the cello traces a rising minor-third cycle (E, G, A♯, C♯, E), closing on the downbeat of the metre with stabilising E-major harmony in the piano part (Ex 3.2). During the retransition of this short form a similar third cycle was attempted but was not marked by any sense of closure either in terms of harmonic or metric arrival (bar 23); indeed, it was deliberately extended beyond the octave to avoid immediate closure (B, D, E♯, G♯, B, *D*). Berg is well known for his use of interval cycles, and the second movement of the *Lyric Suite* provides an example where octave closure of a downward minor-third cycle foreshadows the ending itself. Here the viola ornaments the structural notes of the cycle with auxiliary notes, the primary notes being emphasised by longer durations (B♭, G, E, C♯, A♯ - bb.145-6). However, any neat sense of resolution is avoided by the simultaneous stretto-like echoing of this phrase a major seventh lower in the second violin, together with the dissonant tremolando support of the cello. Yet this closed cycle does come across as a kind of attempt to straighten out the uneven and partial third cycles that occur elsewhere in the movement[1], and thus suggests a summative abating gesture of resolution (particularly as it can be found nowhere else in the movement).

Varèse's *Density 21.5* also makes use of the minor-third cycle, this time at the beginning of the work and in a less obvious fashion. The notes of the opening ten bars are almost entirely drawn from the octatonic scale beginning on E/F♯, and the final notes of each phrase outline successively higher rungs of one of the minor-third cycles embedded in that octatonic collection[2]. Together with the lowest note of the passage in bar 2 (C♯) this cyclic ascent completes itself in bars 9 and 10 with the attainment of D♭ an octave higher than the C♯ at the base of the cycle in bar 2, resulting in a closed cycle across the first nine bars of the piece (C♯, E, G, B♭, D♭).

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[1] For example, the D, B, G♯ succession in the first violin's theme in bar 5, and the spectacular cascades of thirds in bb.66-73.

[2] The initial F♮ lies outside this octatonic collection, but occurs only fleetingly as a neighbour note.

But if the attainment of closure, through the octave, is an 'achievement' it is one that creates a crisis for the composer, as we can hear in his *subito* substitution of *mf* for the *fff* to which the crescendo sign seems to point in bar 9, and his inability, through two whole bars, to move beyond D♭ and C, the point of closure and its leading tone. Having closed the minor third cycle upon achieving the octave, the composer finds himself with no means of modulation or transition to another minor third cycle to some other type of harmonic structure. He can continue the composition only by wilfully breaking the symmetry that determines pitch relations in the first ten bars. That wilful break occurs in the sudden crescendo to *fff* which brings us to a new note, D, on the downbeat of bar 11 (Perle 1990: 12)

This wilful break occurs in tonal contexts too, where modulation provides a means of escaping the closed diatonic universe established by the opening key. It is infuriating from an analytical perspective that in *Density 21.5* Varèse does not end with a neatly closed interval cycle!

Perle's observations on the closural patterns engendered by such tightly closed interval cycles may account for the brevity of Scriabin's Preludes Op.74. In their frequently mentioned crystalline perfection these works end as soon as their symmetrical geometries are closed, their ends yoked to their beginnings. In the third of these preludes, for example, we find one of the most single minded of interval cycles; the entire piece is based on the transposition of the opening two bars in multiples of minor thirds. Taking the lowest notes of the bass as the foundation for this cyclic transposition, the first twelve bars chart a minor third cycle from F♯ through A and B♯ to D♯, and then down one notch back to B♯ (0 > 3> 6> 9> 6). Then the next twelve bars, which present a wholesale transposition of the first twelve bars a tritone lower, begin the same cycle at a different point so as to close back to F# (6 > 9> 0> 3> 0). Scriabin then just adds a couple of bars to reaffirm F♯ in bass octaves. Thus the piece achieves closure as soon as this interval cycle circles back to the F♯ from whence it departed; this situation parallels Perle's observation that, 'having closed the minor third cycle upon achieving the octave, the composer finds

himself with no means of modulation or transition to another minor third cycle to some other type of harmonic structure'. This Prelude thus simply stops at this point of completion rather than initiating new forms of development. The listener's ability to sense such symmetrical completion over longer spans of time may be called into question, and indeed it would be interesting to find out whether any incongruities could be sensed by listeners were Scriabin's second half to be transposed so as to end on another degree of the cycle. But that is hardly the point: the inherent geometric order of such patterns invites once again the idea that closure in music is also about structural balancing acts on the part of the composer.

To an extent these more or less hidden structures of closure have informed many of my discussions of individual works and endings. We might better conceive of this kind of closure as belonging to the inner alchemy of the composer's mind - a struggle towards abstract unification or a synthesis of materials that is specific to the technical resources engaged by a particular movement or work. The execution of this synthesis may involve anything from overt formal symmetry and reprise to more abstract relationships between beginning and end. It may neatly coincide with conventional centring devices and summative motivic utterances or it may involve more esoteric structural processes (such as the residual *Urlinie* in Bartók's Fourth Quartet). A multivalent analytical approach will sooner or later turn up clues that hint at the composer's apparent motivations for constructing an ending in a particular way. What remains problematic is the relationship and interaction between compositional closure in this sense and perceptual closure. Indeed, the atonality and complexity prized by many twentieth-century composers violates many of the cognitive laws of closure and coherence developed in the light of tonal music. The very idea of a closing note centre is inimical to the ideals of hard-line serial practice, whereby no particular note in the row is given prominence (though this is hardly feasible from a cognitive point of view). Rhythmically too, modernism has removed the sure footing of regular metre and symmetrical rhythms that organised the closing effect of hemiolas, syncopations and other rhythmic formulae in the tonal era. Chapters Four and Five have attempted to give something of a sense in which rhythm and duration can be used to effect closure even under chaotic conditions, but the issue of rhythmic closure has admittedly not been explored in great detail, and there are certainly theses to be written on this subject.

The following section will sketch a possible listener-oriented model of closure, drawing on the findings of each chapter. I have attempted to compress this model in diagrammatic fashion in Ex 9.0, which charts the phenomenon of closure in terms of three loosely defined temporal stages, each corresponding to the unfolding chronology of the musical work, which I will describe below in reverse order. The vertical axis does not carry any meaning, but the horizontal one is chronological from left to right. The arrows show a range of interactions between related concepts and their order of presentation.

The third and final stage includes the range of gestures found in the ending itself, the latter being defined either in terms of the last few seconds of a piece of music, or the final coherent unit of sound (i.e. a cadence, short phrase, sustained chord or texture etc.) Here I have focussed attention on 'clinching gestures' that point towards a relatively unambiguous punctuation of the ending, many of which were explored in the first part of this thesis. Even where disruptive devices are used – forms of terminal modification, for example – these can contribute to the clinching effect, although they might raise aesthetic ambiguities over the degree of resolution and satisfaction embodied by the ending itself.

It has to be admitted that the stability of such clinches is always verified in retrospect, after the onset of the final silence. However, Gestalt categories of closure serve to prepare and underline the repose of this final silence. These Gestalt patterns may involve a variety of features, often in combination; examples include: textural unification (Chapter Two), contrapuntal convergence and increasing consonance (Chapter Three), metric alignment, accentuated iambic downbeats, *aposiopesis* (Chapter Four), centric emphasis (Chapter Five), and the completion of pitch-based processes such as interval cycles, linear oscillations and harmonic syntax. Endings that drift into silence or have a less clear-cut rhythmic or cadential profile do not evoke so strongly the idea of a singular and punctuating clinch, but might still belong broadly within the paradigm of closed endings, especially through a sense of stasis (remembering one author's definition of closure as something 'that makes stasis, or the absence of further continuation, the most probable succeeding event' (Herrnstein Smith 1956: 34)).

The second stage represented in Ex 9.0 is entitled the 'intimation of closure' and refers to the events that directly precede stage three; depending on the musical context or analytical angle adopted this second stage may encompass a short or long span of music prior to the final gesture. Where the latter cannot be clearly isolated there may be a blurring between stages two and three, but the essential feature is that stage two begins to hint at the sense of an impending ending. In one scenario it could be useful to consider the entire coda as a formal block in which the listener is alert to the possibility of closure, at least where its formal definition is more obvious (i.e. in sonata movements), and in multi-movement works this notion could be transposed to the level of the finale itself. The phenomenology of stage two is in fact similar to stage three, though there is usually a difference of degree. The music may show tendencies towards abatement and/or stasis, especially through devices like liquidation, a slowing rate of change and the use of static harmonies or pedal points. This is important in cueing the sense of an ending, even where the latter may make an abrupt departure or avoid the clear sense of closure embodied by stage three.

On the formal level stage two may make a summative reference to earlier themes, or perhaps to the material or gestures of earlier sectional boundaries (with regard to the latter, note the rhyming endings of the first and second parts of Messiaen's 'Danse' from Quartet for the End of Time). In this way the second stage commonly reaches back into the body of the work (the latter being conceived in this scheme as 'stage 1', which may of course be broken down into additional formal units depending on whether it is the intention of analysis to show an ongoing 'mechanism of closure'). At the second stage, there may be evidence of 'unfinished business', or what I have termed 'residual resistance to closure' in Ex 9.0. Experiencing the sense of an ending is about anticipating the end rather than knowing exactly when a piece is over, and thus closure does not occur like a switch flipping over to the off position. Instead the sense of an ending seems to haunt the listener who suspects it but cannot be sure, and this fact allows the composer to play with expectations. It may often be the case that the third and final stage constitutes a resolution of the resistances and ambiguities presented in stage two, as with the breaking-off effect of the aposiopesis that is then resolved. Another common tactic is to suggest a possible locus of centricity during stage two, which is then consolidated through cadential repetitions and metric stress in stage three (both scenarios being included in Ex 9.0).

The first stage, which can be rather glibly described as the beginning and middle of the work, is often crucial to the enactment of closure in the later two stages. It may be said to set up 'paradigms of expectation' – in other words, modes of behaviour from which the listener may infer subsequent patterns of development; this particular tendency may be satisfied during stages two and three, effecting closure. We have encountered a number of different paradigms of expectation in this thesis that have an important bearing on the nature of endings. Music that moves in cycles of climax and release, tension and resolution, may reach towards a point of maximum tension near the end, providing a brief clinching resolution and perhaps continuing into a protracted post-climactic epilogue (for example, Lutoslawski's Second Symphony). Generalised tendencies may be set up in stage one – for example, the overriding impulse for pitch to rise in Varèse's *Density 21.5*, for which stage three in that work provides a dramatic summary by ascending across a maximal compass in the final phrase. The final piece of Ligeti's first book of piano *Études* reverses the direction: the gentle descent in the opening bars becomes gradually magnified until it thunders off the bottom of the piano in the final bars. Sometimes recurring motto themes or cadential motifs play an important role throughout the work, and they may be brought into line with abatement or given strong levels of Gestalt closure during stages two and three (Lutoslawski's First Symphony). Another paradigm of expectation is created by movements based around alternating episodes; an attempt is often made to give the final episode a retrospective or summary quality, referring to material from a variety of earlier sections. Where episodic forms are rondo-like it is likely that the final rendition of the refrain will have elements from stage two superimposed (as with the lugubrious version of the refrain heard at the end of the first movement of Lutoslawski's Second Symphony, or the return to the theme in Britten's chaconne finale of the Second Quartet). The final bars of a work also provide an opportunity to transform the nature of motivic and thematic material into a configuration that is more closed than during stage one (for example, the melodic line at the end of the revised version of Bartók's *Concerto for Orchestra* is related to the second bar of the opening motto theme; whereas the initial C-Lydian motto concludes with a questioning B♭, at the end the motif is worked into a centric pattern around F.)

The nature of the three-stage interaction put forward in Ex 9.0 offers a conceptual map of possibilities; there is nothing absolute about this framework, and there can be

few pieces which manage to encompass every attribute considered here. The arrows and lines are used to indicate possible forms of interaction across different stages, and to suggest interactions that may occur between different technical elements: for example, both stasis and abatement share a common phenomenological basis in the idea of a reduction in the rate of events, and are therefore connected by double-ended arrows in the diagram, since one is often be used to reinforce the other. In turn, stasis and abatement may be used to reinforce the sensation of centricity around a specific note centre (through liquidational repetition and/or durational lengthening). This centricity may be either confirmed during the final phase of the ending (by a clinching cadential gesture), or subverted by a de-centring gesture (as it is at the end of Ligeti's Second Quartet, for example).

The model is also broad enough to encompass tonal works, although in that instance it could be adapted by the addition of syntactical hierarchies. (Similarly, the individual syntax of a post-tonal piece might be overlaid in specific applications of this model). Moreover, it could apply in principle just as much to the morphology of individual phrases, sections and movements as it might to the level of the entire work. In this sense the model is potentially kaleidoscopic, and it will be down to the analyst to explicate the wider formal hierarchies to which this scheme might apply. For example, this tripartite model maps fairly clearly onto the first 150 bars of the finale of Bartók's Fourth Quartet, even though by this point there are still almost 250 bars of the movement to come: the first part terminates with clear intimations of closure followed by a final clinch and silence (the reprise of the opening 'interlock', extensive liquidation, durational abatement of the cadential clinch etc.). The only mitigating factor is that of generic convention, the 'paradigm of expectation' available to some listeners who sense that the movement is simply not long enough to be over at this point. This sense of openness may of course also be conveyed by the gestures of the performers in a live performance (i.e. by not putting down their bows or relaxing at this point). The same is true of the provisional ending of the first half of Messiaen's 'Danse' from Quartet for the End of Time.

It may also be valid to consider pre-knowledge of the work as an important paradigm of expectation, especially considering the extent to which works are listened to in repeated fashion with the aid of modern recording media. With repeated listening, one's memory of the work and knowledge of where the ending actually comes is bound to consolidate a personal sense of the aesthetic

correctness (or otherwise) of that ending. The truth is that endings only really emerge with clarity in retrospect, and yet they can come to represent a range of feelings that lend poignancy to the final silence; Ex 9.0 represents the processes by which clear and coherent forms of closure are created. An important feature is that the global ending often represents an expressive *heightening* of closural features found at other sectional points of termination, and this heightening will be the subject of the next section.

Iconic versus Iconoclastic Endings

An icon can be defined as a symbol resembling or analogous to the thing it represents. Many types of endings examined in this thesis can be conceived in these terms as 'iconic endings' – endings in which closure becomes so conspicuous as to suggest a symbolic self-referentiality, as with the story-telling gesture - 'The End'. For example, Burnham argues in relation to Beethoven's *Egmont* that the coda 'is not just closing; it is commenting on the act of closing by overemphasising and monumentalising the features – harmonic, thematic and rhythmic – of musical closure.' (Burnham 1995: 141). To an extent the first part of this thesis has been an investigation into such forms of ending: the exaggerated abatement and forms of stasis explored in Chapter Two often distinguish the final events or region of a piece of music. The supercharged final chords explored in Chapter Three are also manifestations of the iconic ending; rather like the repeated or long-held triadic perorations of tonal endings, they evoke images of primordial resonance, as do the pedal notes that are found with equal frequency close to the end of many pieces. Underpinned by triadic harmonies and richly orchestrated across a wide register, such final chords are also often static and of long duration; for example, this is often achieved in piano music by the use of the sustaining pedal to create a '*laissez vibrer*' haze. Final cadences can have a similarly iconic role: think back to the final plagal cadence of Scriabin's *Poème d'extase* (Chapter Eight) which is extended over several minutes and thus elevated to a grand gesture of finality. It draws attention to itself as the cadence to end all cadences, as if representing closure in a self-reflexive manner.

The stasis and self-sufficiency of such final moments creates an almost religious aura - a symbol of eternity or the void - that is at once a form of psychological resolution *and* a more mysterious and metaphysical icon. In some works this may be motivated by extra-musical factors: the golden enveloping light of the final chord of

Berg's Violin Concerto, with its gently ringing gongs, projects an image of heaven already hinted at by the work's dedication 'to the memory of an angel' (the angel in question was Manon Gropius, the deceased daughter of Alma Mahler). The ending of Messiaen's *Quartet for the End of Time* gives us a similar glimpse into the 'Immortality of Jesus' of the final movement's title, as does the extremely long dominant seventh chord at the end of his *L'Ascension*. In literature too there is evidence of this kind of transcendental ending; William Thickstun examines five works to this end in his *'Visionary Closure in the Modern Novel'*[3]:

> In the final section of each, a woman has a visionary experience that transcends full expression in language and that seems to make possible a concluding affirmation or image of order. Many critics have found these endings feeble, artificially positive, or inconsistent with the works in which they appear...I believe that these writers created in these novels an altogether new fictional form, drawing upon religious and Romantic traditions to attempt endings that would combine unconstricted vitality of character with the aesthetic demands of closure' (Thickstun 1988: 1).

The feelings of awe evoked by such religiously iconic endings provide a sense of transfiguration that has been transposed time and again to the realm of non-programmatic music. The symbol of the void is equally the domain of opening gestures in a number of works – think only of the opening of Beethoven's Ninth Symphony or Nielsen's Fifth Symphony – but at the opening such a gesture is heard with a sense of expectation rather than fulfilment.

The criticisms noted by Thickstun have also befallen musical works that incorporate such transcendental endings. Berg's *Violin Concerto* again provides an example: in the final movement, the incorporation of Bach's chorale theme in the context of serial technique has proved a problematic attempt at resolution for some critics; Boulez writes that 'the materials are not of the same nature, the structure cannot but be without justification and without stability. This is cruelly apparent to the ear.' (Boulez 1948: 240[4]) I have already found myself leaning towards this kind of

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[3] The novels in question are Forster's *Howards End*, Lawrence's *The Rainbow*, Joyce's *Ulysses*, Woolf's *To the Lighthouse* and Faulkner's *The Sound and The Fury*.
[4] Translated in Pople 1996: 95-6.

criticism in the previous chapter, particularly in relation to the stylistic disparity at the end of Scriabin's *Prometheus* where the triadic final bars are in some sense out of character, both harmonically and in terms of the deferment of goals that constitutes the neo-Romantic aesthetic of the piece. Such criticisms can easily be turned on their head by suggesting that it is precisely the final contrast or transfiguration that communicates the sense of an ending so clearly, through the principle of terminal modification. At the same time, endings can surely provide clear points of articulation or emphasis while remaining unsatisfactory as points of closure, and stylistic incongruities may be a source of awkwardness depending on the stylistic sensibility of the listener. Such stylistic disparities are quite common as a result of the attempts of early modernists to place a seal on their works with grandiloquent gestures drawn from the tonal past.

By contrast, the wilder kinds of terminal modification explored in Chapter Two and the ambiguous 'negative aposiopesis' of Chapter Four create discontinuities of texture and character that provoke a sense of unrest even as they serve to emphasise the final rupturing of the work as it passes into silence. An image of the fashionable turn-of-the-century Japanese postcard print springs to mind here, its torn edges mocking the pompous 'closed' frame of Western art. Ligeti uses the phrase 'torn off' in some of his endings to communicate to the performers exactly this sense of ending (or rather, of stopping) *in medias res*. Here we move from the iconic ending to the iconoclastic ending, the ending that acknowledges the impossibility of ever closing off the work perfectly. It would be a mistake though to locate the origins of 'unclosed' endings in the twentieth century, although clearly the changing nature of compositional technique challenges the cognitive constraints on closure. Schoenberg acknowledges this difficulty even in relation to the tonal system: 'I do not believe it possible to fashion a close, an ending, in such way as to rule out every possibility of continuation' (Schoenberg 1978: 126). Ambiguous endings need not precipitate the kind of climactic existential crises identified in the previous chapter in connection with the symphony; on the contrary, a playful sense of ambiguity may provide an excellent means of creating humorous endings, like the surprise dissonance at the end of Ives's pastiche Second Symphony (in Chapter Two) or the mercurial figure that casts doubt on the ending of the first movement of Boulez's First Sonata (in Chapter Four). In Classical music much play is made of closing and of achieving humour and

even irony in this regard[5]. The Classical coda is often Janus-faced, looking back to earlier materials whilst revelling in new possibilities, tantalisingly pointing towards further developments that lie beyond the scope of the work itself. Consideration of such endings, which point in the direction of renewed development, reinforces the point made earlier that in narrative structures there exists a tension between the desire for the quiescence of origins and the need to progress from a point of origin to a transformed point of conclusion.

Closure and the Modern Listener

Rather in the way that former generations have levelled criticisms at the overdone ending of Beethoven's Fifth Symphony, the postmodern ear may find itself equally unconvinced by iconic forms of resolution, especially where they attempt to imbue an artificial sense of finality to long or challenging works, works in which tension is the norm and resolution is only faintly hinted at. Moreover, the norm of twenty-first century listening is governed by relatively new habits that affect the idealised status of closure: 'radio, records, and tapes allow the listener to enter and exit a composition at will. An overriding progression from beginning to end may or may not be in the music, but the listener is not captive to that completeness.' (Kramer 1988: 326). With the advent of radio stations such as 'Classic FM' the integrity of multi-movement works has also been dissolved by the broadcasting of 'bleeding chunks' of music. Not only that, but the ubiquitous popular forms of minimalism – including the dance music of contemporary culture – do not usually enact closure in a conspicuous manner (although that is not to say DJs do not organise their sets around temporal considerations such as increasing tempi or climactic finales).

Meyer suggests that 'music that creates no sense of further goals, of coming eventualities, exists almost exclusively in the specious present.' (Meyer 1994: 330). But why is the present specious (defined as 'deceptively attractive in appearance')? We have already encountered this question in Chapter Six, where Schenker considers Stravinsky's music to be effectively all surface and no background, which might be translated into the idea of it being all present and no future (or past). Opposing the restraints of such temporal order, Harvey paraphrases Stockhausen's plea: 'why

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[5] See especially the aptly titled 'The Nonsense of an Ending: Closure in Haydn's String Quartets' (Edwards 1991).

should the poor listener always have to connect the beginning of the piece to the end in one unbroken line?' (Harvey 1975: 85).

Whether voice-leading, set theory or semiotics is used, the process of analysis is always reductive, a division of the work into multiple units and layers by which processes and connections are teased out, and from which the sheer volume of the 'specious' present can be condensed into something that can be managed linguistically or represented spatially. Of course this can be a very enlightening method in terms of shedding light upon compositional practices, but to an extent it may go against the spirit of the composition (and the spirit of listening). An important property of much twentieth-century music is its resistance to such reductive divisions; Ligeti writes that 'my music is a continuous flow, unbroken by bars, like a Gregorian melody' (Ligeti 1983: 14). The lack of punctuation makes it difficult to deduce mechanisms of closure of the sort traced in terms of cadential relationships in Chapter Seven. It would also appear to negate the idea that global closure is the outcome of an internal sequence of partial or unfulfilled lesser closures, though such mechanisms can nearly always be teased out by the analytical imagination. (In connection with Ligeti, see Morrison 1985).

Part of the problem with the analytical enterprise from the perspective of much music of the later twentieth century, is its objective attempt to provide a temporal-spatial decoding of the musical work, a mapping out of its internal relations. Of course, the elucidation of unifying elements is a less pervasive quest in the present theoretical age than it was under the aegis of Romanticist organicism, but its spirit remains alive within the many attempts to explain musical processes as part of a reductive framework of finite relationships. The general category of closure, whether articulated through a narrative goal-directed trajectory or via a more abstract compositional process, is essentially a teleological construct that sits comfortably inside such structural paradigms. Perhaps closure therefore deserves to be recognised as a neo-Romantic concept, and one that works better for works situated within that culture of tension/resolution than it does for repertory that is 'moment centred' in Stockhausen's sense:

> In recent years musical forms have been composed to which one cannot from
> the present predict with certainty the direction of development; forms in which
> either every present counts or nothing counts at all; forms in which each now

is not regarded untiringly as a mere result of the immediately preceding one or as a prelude to the one that is approaching...but rather as something personal, autonomous, centred, independent, absolute...Forms in which the concentration on the now – on each now – makes, as it were, vertical slices which cut across horizontal time experience into the timelessness which I call eternity: an eternity that does not begin at the end of time, but that is attainable in every moment. (Stockhausen 1963: 198-99).

Such an approach to composition and the kind of meditative listening that it requires could be said to push closure aside or else paradoxically to bring about closure in every moment (it is revealing in this connection that Stockhausen uses the term 'centred'). Yet there is not necessarily anything new about this brand of musical phenomenology. The monumentalisation of closure of which Burnham speaks in connection with Beethoven's *Egmont* coda can certainly be heard as an affirmation of the glorious (or for some, specious) present moment, the composer 'splashing around in the sounds of triumph, revelling in the major third and the pleasures of an unproblematic dance around the tonic' (Burnham 1995: 141).

It can be no coincidence that many of the ending gestures I have outlined as iconic also have the quality of being 'autonomous, centred, independent, absolute', and therefore qualify as moments in Stockhausen's sense. Many of these final gestures are detached from the preceding music in some way – a fact that adds to their iconic status. For instance, some final cadences stand apart from the work as a whole, appearing in isolation or as part of a brief motivic utterance rather than being terminations of a more extended phrase or unit. This is true at the end of Lutoslawski's First Symphony and Bartók's Fourth and Fifth Quartets for example (Chapters Seven and Four), where the final cadences emerge as laconic distillations of the melodies and motifs that underpin the rest of the work. A similar tendency towards isolation can also be felt in the pointillistic gestures that terminate many pieces (again inviting further association with Stockhausen's 'moments'), gestures that seem to dwell in a universe all of their own as microcosms of stability, of 'nowness'. The final semibreve at the end of Messiaen's *'Danse'* from *Quartet for the End of Time* is one such example, as is the last chord of Boulez's First Sonata (see Chapters Five and Four respectively); both are preceded by a dividing silence, as if separated from the body of the piece itself, and both are dislodged registrally from the

preceding material to exaggerate this disjunction. The *aposiopesis* itself could be conceptualised as a fulfilling a disjunctive role in order to set the clinching final phrase in relief, to highlight it as the individual moment of closure. That such iconic resolutions convey the moment-like qualities of 'centredness' (the cadence) and 'autonomy' (the disjunct clinch) identified by Stockhausen, seems entirely logical in teleological pieces where they fulfil a dramatic role as expressions of arrival. Static endings, which are also very common, would similarly reinforce this by giving no sense of further goals and thus being situated in the moment. Think also, for example, of the three fortissimo low D1s with which Chopin's Op.28 Preludes come to a close. Each one seems to cry, 'here, now', marking time like a gong chiming the hours; it is inconceivable that Chopin would ever have begun a composition in this way, much less included such a gesture in the middle. And yet, at the end, this sense of presence - without future implications - wrests the listener from the illusion of forward motion.

The habit of repeated listening encouraged by modern recording media means that even the most obtuse endings can become naturalised and expected given sufficient familiarity, and this in turn encourages a dangerous analytical position (and admittedly one that I have had much recourse to in the second part of this thesis) whereby the ending can be heard and rationalised in terms of a mechanism of closure. In attempting to theorise endings it is easy to find oneself investigating them as if they automatically represent a presumed and satisfactory form of closure. How else can one perceive or explain the difference between silence that is part of the fabric of the piece and silence that cuts through the fabric of the piece, silence in the middle of and silence at the end of a section, movement or work? Even in works that suggest a weak or problematic kind of closure evidence can be found to support a closed reading. As one literary commentator observes: 'those open structures which we admire always turn out, on close inspection, to be "open" only in very limited respects; in so far as we think of them as great works, they somehow weave their various threads into a final harmony.' (Booth 1961: 298). At this point I find myself dissolving the whole topic of closure, as if it was a mere epiphenomenon, and it would thus seem a fitting place to close, but I shall resist just a little longer.

Codetta

The tendency of twentieth-century endings to gravitate towards iconic artifice on the one hand, and fragmentary iconoclastic utterances on the other, is symptomatic of an age where aesthetic and counter-aesthetic have continually displaced and transformed each other in the journey towards the musical unknown. This dialectical backdrop of modernity has proved an unwieldy beast to tame into any closed theory of closure, but it poses a marvellous riddle nonetheless. Like the mythical Ourorobous, the serpent that swallows its own tail, closure is in effect an open issue, a concept that is infinitely adaptable but also circular. Considered from the perspective of the open work, is this final chapter really a conclusion, or is it merely a revised introduction to interminable future research?

To be continued...

Ex 9.0 A Listener Oriented Model of Closure, in Three Temporal Stages

STAGE I: Main Body of Work
STAGE II: Intimation of Closure
STAGE III: Final Moments/Gestures of Ending

Abatement
Increasing consonance
Descending register
Ritardando
Reduction of components
Lengthening of durations

Fulfilment of abating tendencies

Increasing convergence of abating parameters and/or static features
Maximal durations and/or fermata
Historical reference to consonant ending

(Iconic Resolution)

Resistance to Closure
Continuity (elision, momentum, lack of extended silence)
Noncongruence of parameters
Development, variation and permutation
Injection of new materials

Stasis
Liquidation
Reduction of rate of change
Repetition

Suggestion of centricity

Paradigms of Expectation
Generic conventions and pre-knowledge of form (scale of movement and its position within multi-movement works)

Tension-resolution
Climactic cycles

Episodic alternation

Establishment of motivic boundary markers/cadences

Establishment of primary thematic identities

Intensification
Fulfilment of climactic tendencies (may lead to post-climactic abatement or coda)

Residual resistance to closure
Aposiopesis
Interruption/ambiguity
Coda-like redevelopment
Addition of new material or tangential ending
Off-tonic harmony

Clinching Gestures
Rhythm/metre
Aposiopesis followed by unambiguous resolution
Iambic stress and accentuation of final downbeat
Synchronisation of metre (hemiola figures, resolution of syncopations)
Synchronisation of tuplet groups

Motif
Motto or thematic material presented as terse epithet (perhaps repeated)

Confirmation of centricity

Formal Closure
Allusion to earlier types of segmentation and formal boundaries, with extra emphasis, exaggeration or extension

Elements of reprise: recapitulation, economical reprises and summative devices

Cadential Resolution/Contrapuntal Convergence
Textural unification and homorhythmic articulation
Historical cadential signification, allusion to tonal/modal cliché

Cadence as outcome of progressive cadential mechanism of closure

Theatrical gestures
Explosions, sudden transformation
Terminal modification (see Ch 2)

Framing devices (chords, textures etc.)
Allusion to opening

Iconoclastic or surprise ending
Possible loss of centricity

Opening gambit

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