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MATTHEW RILEY

## THE 'HARMONIC MAJOR' MODE IN NINETEENTH-CENTURY THEORY AND PRACTICE

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The ambivalent relationship between music theory and compositional practice is all too familiar to historians of theory and aspirants to 'historically informed' analysis. The problem is especially acute when studying theorists who conceived their work as a discrete discipline, at least partly independent of (for some, even superior to) practice. One such strand of thought is embodied in the systematic, semi-speculative treatises of nineteenth-century Germany by authors such as Moritz Hauptmann, Arthur von Oettingen and Hugo Riemann. The development of Neo-Riemannian theory in the United States over the last two decades has re-focused interest in this work and encouraged us to read it with new eyes. Despite the theorists' various commitments to such abstractions as Hegelian dialectics and the putative 'undertone' series, and notwithstanding the general dearth of illustrative examples from musical literature in their writings, their ideas have been shown to be newly relevant to the music of their time. But the very success of Neo-Riemannian theory has simultaneously highlighted once again its antecedents' problematic relationship to practice by the very fact that so much that was essential to Riemann's viewpoint has been altered: harmonic dualism is jettisoned, equal temperament and enharmonic equivalence are assumed, and Riemann's functions are converted into group-theoretical transformations independent of any tonic.<sup>1</sup> The 'Neo' tells a long story.

This article examines a nineteenth-century theoretical concept which should give pause to the modern analyst, for, although lost to today's theory, it elegantly explains certain passages of nineteenth-century music and suggests that we might usefully redeem the perspective that produced it. The concept is the so-called 'minor-major' or 'harmonic major' mode: the major mode with a lowered sixth degree (or, in a triad-orientated view of tonality, the key system with major triads on the tonic and dominant and a minor triad on the subdominant). However, a study of harmonic major also highlights the difficulty of interpreting the sources under examination. On the one hand, theorists ask this unusual mode to bear a theoretical weight that is hardly justified by its importance in compositional practice, while, on the other, it is left underdeveloped and underillustrated in theory. Harmonic major is never fully drawn into the theoretical systems of the day, leaving the reader uncertain whether it is central or peripheral, primary or secondary, normative or exceptional.

The first part of the article is therefore made up of a succession of discrete perspectives on the problem, which mirror the fragmentary treatment of the mode by the theorists themselves. The second part discusses a number of musical extracts in order to illustrate the advantages, disadvantages and implications of invoking the mode as an analytical tool.

## I

### Hauptmann's *Moll-Dur*

One of the more curious quirks among nineteenth-century attempts to shape a theory of tonality is found in Moritz Hauptmann's treatise *Die Natur der Harmonik und Metrik* (1853). Rather than proceed on the basis of an informal duality of major and minor, as most of his recent predecessors had done, Hauptmann introduced a third mode, the 'minor-major' (*Moll-Dur*). Since he generated his account of tonality from major and minor triads rather than from scales, the new mode required the definition of a system with major triads on the tonic and dominant degrees and a minor triad on the subdominant. 'By this there is formed a key-system which contains in essence and effect the major and minor notions joined.'<sup>2</sup> Admittedly, Hauptmann did not grant the minor-major quite the same status as its two familiar counterparts. In particular, the idea of 'joining' major and minor principles did not imply a three-stage process of Hegelian dialectics akin to those through which he had derived the major and minor triads and keys. Although the early stages of his treatise are certainly tripartite in structure, the minor-major mode eventually falls out of the discussion of tonality, on account of the fact that its nearest triadic relations are the same as those for conventional minor, as Hauptmann sees it (major relations on the dominant side, minor on the subdominant side). Moreover, Hauptmann argues that the appearances of minor-major in actual compositions tend to be fleeting, and even denigrates its effect. 'Although it is unusual for the minor-major mode to be made formally the basis of a piece, it nevertheless occurs in the course of one not infrequently; more often in the sentimental type of modern music than in the older. Wherever the diminished seventh chord [on the leading note] is resolved to the major triad as tonic, this mode is present'.<sup>3</sup> (The denigration is only implicit, but may be inferred on account of Hauptmann's notoriously conservative taste.) Yet, if the function of the new mode was merely to account for what today we would regard as passing chromaticism, the question arises as to why Hauptmann – who did not even like its effect – should have given it such prominence in the early part of his treatise.

Hauptmann's treatise is orientated towards metaphysics and is much concerned with the orderly derivation of theoretical concepts; there is relatively little scope for digressions into issues of aesthetics or repertoire (the citation

## Ex. 1 Schubert, Piano Sonata in C minor D. 959, I, bars 85–98

The musical score for Schubert's Piano Sonata in C minor, D. 959, I, bars 85–98, is presented in three systems. The key signature is C minor (three flats). The time signature is 3/4. The score includes dynamics such as *pp*, *decresc.*, *dimin.*, and *f*. The melody is in the right hand, and the bass line is in the left hand. The phrase is based on a clear  $E_b$  tonic and eschews  $C$  naturals in favour of  $C$  flats. The phrase is reinstated in the final bars of the exposition, where conventional  $E_b$  major returns.

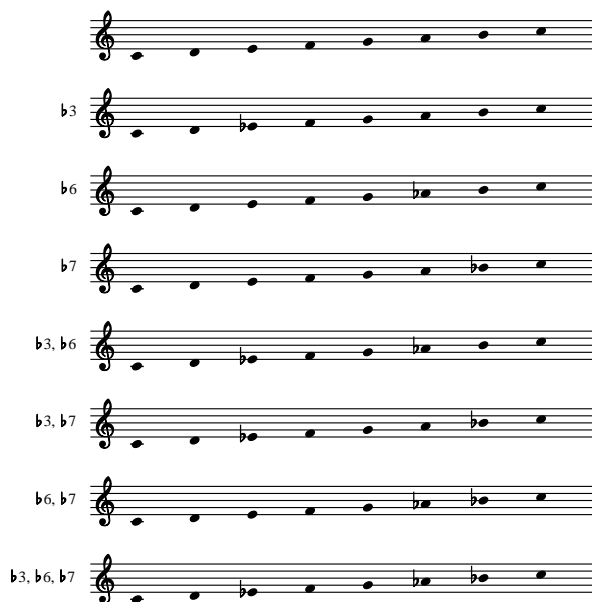
above is one of the few), and there are no musical examples. It is possible, therefore, that his aims will always remain rather obscure.<sup>4</sup> But it is tempting to ascribe a practical motivation to the theorist. While it is certainly rare to find examples of the minor-major being ‘made formally the basis for a piece’ in the nineteenth century, it is nevertheless the case that relatively extended passages can be identified which are ‘in’ the mode in the sense of being largely restricted to the collection of pitch-classes that it defines.

One such passage is the coda to the exposition of the first movement of Schubert’s Piano Sonata in C minor D. 959 (Ex. 1), where a repeated four-bar phrase, based on a clear  $E_b$  tonic, eschews  $C$  naturals altogether in favour of  $C$  flats. The  $C$  naturals are reinstated only in the final bars of the exposition, where conventional  $E_b$  major returns. It is plausible here to speak of an alternative mode, especially since the exposition has already deployed contrasting variations on the second main theme in  $E_b$  major and minor. The first 10 bars of Ex. 1 stand between the two extremes, employing the  $G$  naturals of the major mode but the  $C$  flats of the minor.<sup>5</sup>

### Mode or Mixture?

Theorists today – at least in the Anglophone world – are likely to account for instances of chromatic alteration in most tonal music in terms of local ‘mixture’, a perspective they derive from Schenker. In his *Harmonielehre*

## Ex. 2. Schenker on 'the six products of combination'



(1906), Schenker claimed that all compositions should be regarded as inhabiting a 'major-minor' system. (He explicitly distinguished this from Hauptmann's minor-major *mode*.) A piece in C would thus be in C major/minor, with any amount of mixture permissible on  $\hat{3}$ ,  $\hat{6}$  and  $\hat{7}$ . Schenker lists the various mixed scales (Ex. 2), including the major scale with  $b\hat{6}$ , but sees them as self-sufficient only in the weakest sense. They inhabit a space between pure major (top) and pure minor (bottom), and are evidently not to be taken as independent ontological entities that could serve, even conceptually, as the basis for whole pieces or indeed even for extended passages. The plentiful illustrations that he draws from the eighteenth- and nineteenth-century literature show many chromatic alterations taking place in quick succession, with no single scalar formation remaining in place for long. In particular, the major scale with  $b\hat{6}$ , although it 'offers the artist the possibility of rich colouring', is ultimately to be understood as a local deformation of major or minor, depending on context.<sup>6</sup> From this perspective, there is no need to posit anything so cumbersome as a separate mode to account for the formation in Ex. 1. It simply represents the prolongation of a chromatic alteration applied to the underlying  $E_b$  major collection.

The difference between the viewpoints of Hauptmann and Schenker stems from their differing accounts of the nature of tonality itself. Hauptmann proceeds from the starting-point of 'things directly known', which for him are

intervals of major and minor thirds, arranged into major and minor triads, which in turn collectively define keys through their roles as tonic, dominant and subdominant. There are several such tonal systems (three, in fact, as explained above), according to the possibilities for arranging and combining the intervals and triads. Since harmony generates these systems, any chromatic alteration in a piece, however fleeting, represents a change of system in the course of that piece. By contrast, Schenker is content to allow quite different explanations for the major and minor systems, describing the one as 'natural' (albeit shaped by human intervention) and the other as 'artificial'. Thus the minor-major formation is one incidental scalar pattern among many, all of which exist relative to an artist's intentions rather than a rigorous derivation from first principles.

### A Gap in the System

In the decades following Hauptmann's treatise, the minor-major mode was frequently referred to in theoretical writings, especially those from Germany. Many such references are relatively fleeting, and it is tempting to attribute their existence merely to Hauptmann's prestige. Yet, on closer examination, they fulfil a further, more substantial, purpose. For the minor-major serves to fill what would otherwise be an awkward gap in systems that are founded on various kinds of major/minor dualism.

The term 'dualism' is conventionally applied to strict 'harmonic dualists' such as Arthur von Oettingen and Hugo Riemann, who generate major chords and major tonality 'upwards' by means of overtones and minor chords and minor tonality 'downwards' – in Riemann's case by means of 'undertones'. By taking a single set of abstract musical principles and relationships and applying them in two different ways, harmonic dualists aim to produce two distinct but structurally isomorphic systems: major and minor. For present purposes, however, 'dualism' will also refer to more pragmatic nineteenth-century theorists who simply want a neat correspondence between the major and minor systems, however they are derived. In each case, the theorists find themselves confronted with a problem insofar as there are several types of minor scale (and of minor harmonic relationships). It is easy enough to pair off diatonic major and minor, but what in major can correspond to harmonic minor?

One solution is to introduce a major scale with lowered sixth degree. Not only does the augmented second between  $b\hat{6}$  and  $\hat{7}$  recall harmonic minor, but, if the scales are derived harmonically, there is a certain symmetry between the substitution of a major triad on the dominant in harmonic minor and that of a minor triad on the subdominant in the new major scale. Hauptmann's student Carl Friedrich Weitzmann called these scales 'harder minor' (*härterer Molltonart*) and 'softer major' (*weicherer Durtonart*) respectively (thereby

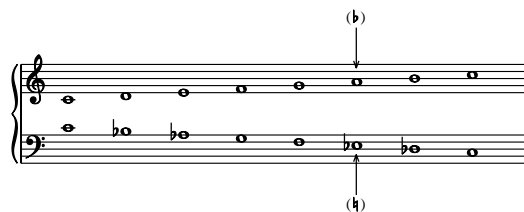
Ex. 3 Rimsky-Korsakov's illustrations of the use of the subdominant in natural and harmonic major



playing on the original meaning of *Moll* and *Dur* as 'soft' and 'hard').<sup>7</sup> In his treatise on harmony, Rimsky-Korsakov called the diatonic scales 'natural' major and minor, and the scales with the augmented second 'artificial' or 'harmonic' major and minor.<sup>8</sup> (I shall henceforth adopt 'harmonic major' rather than 'minor-major', since most theorists after Hauptmann introduced the system as the dual of harmonic minor.) Rimsky-Korsakov provides many worked examples which treat harmonic major as an independent mode on an equal footing with diatonic major, using bracketed flat signs in front of each  $\hat{6}$  to imply two parallel versions of each progression. Ex. 3 shows the use of the subdominant in the two forms of major. (He gives further, analogous examples demonstrating the seventh chord on the leading note and the dominant ninth chord, all with bracketed flat signs as appropriate.)

For Oettingen and Riemann, the duality works rather differently. The diatonic collections of C major and F minor can be considered duals insofar as the one can be harmonically generated from C in one direction, the other by reversing the procedures. The sequence of intervals measured from C is the same in each case, ascending for C major, descending for F minor (Ex. 4). Raising  $\hat{7}$  in F minor now corresponds to lowering  $\hat{6}$  in C major. Riemann regarded the two 'mixed' systems – major with minor subdominant and minor with major dominant – as analogous: he called them 'minor-major' and 'major-minor' respectively.<sup>9</sup> In each case, the so-called 'antilogical' member of the three primary triads of a key (subdominant in major, dominant in minor) is replaced by the *Gegenklang*, the result of a relationship known as *Seitenwechsel*

Ex. 4 The duality of C major and F minor scales



(literally 'change of side'). *Seitenwechsel* refers to the way that a triad, when considered as the first order of overtones of a certain note, is related to the triad that notionally consists of the first order of 'undertones' of the same note. The C major and F minor triads are thus *Gegenklänge*, as is apparent from Riemann's functional notation for those triads:  $c^+$  and  $^{\circ}c$ . The two mixed systems are produced by substituting the tonic's *Gegenklang* for the dominant in minor and for the subdominant in major.<sup>10</sup>

Both Oettingen and Riemann hear the progression *Gegenklang*→tonic as a more forceful, satisfying close than the straightforward progressions (minor) dominant→tonic (in minor) or subdominant→tonic (in major).<sup>11</sup> This is attributed to what they call an 'antinomic' opposition – that between major and minor triads in general – as well as to the semitone steps  $\sharp\hat{7}-\hat{8}$  and  $\flat\hat{6}-\hat{5}$ . Implicit in this interpretation is a strong claim concerning the *Gegenklang* (i.e. what we would call the subdominant minor) in major keys. It is said to fulfil the same role as the dominant major in minor keys – in other words, a crucial one, especially when it comes to cadences. Riemann follows the example of Weitzmann in portraying the iv–I cadence in major as analogous to the V–i cadence in minor; see Ex. 5.<sup>12</sup> The duality is here complete. Of course, this neat theoretical symmetry does not quite reflect nineteenth-century practice. The iv–I cadence was certainly used, but was hardly as intrinsic a part of musical vocabulary as V–i. As the theorists Rudolf Louis and Ludwig Thuille aptly put it several decades later, the dominant major is a necessity in minor,

#### Ex. 5 Parallel cadential progressions in major and minor

##### a) according to Weitzmann

Moll:

Dur:

##### b) according to Riemann (including translation into Roman numeral notation)

C major:

- 1  $c^+ - g^+ - c^+$
- 2  $c^+ - f^+ - c^+$
- 3  $c^+ - ^{\circ}c - c^+$

- I — V — I
- I — IV — I
- I — iv — I

A minor:

- 1  $^{\circ}c - ^{\circ}a - ^{\circ}c$
- 2  $^{\circ}c - ^{\circ}h - ^{\circ}c$
- 3  $^{\circ}c - e^+ - e^+$

- i — iv — i
- i — v — i
- i — V — i

← analogous

whereas the subdominant minor in major is merely a possibility.<sup>13</sup> On an unsympathetic reading, then, Riemann and his fellow theorists could be accused of inflating the importance of harmonic major for the sake of a precarious theoretical construct – harmonic dualism. More generously, this strand of harmonic theory might be said to embody a certain bias towards – or perhaps a heightened sensitivity in registering – any potential traces of harmonic major in tonal compositions.

### A Theoretical Norm

This suspicion is confirmed by several of Riemann's remarks that seem to privilege his 'mixed' systems over the conventional diatonic ones. In his *Handbuch der Harmonielehre* (1898), he argues that the three primary tonal functions on which he founds his harmonic theory – tonic, dominant and subdominant – are a logical outcome of acoustic dualism. He maintains that, since ascending relationships yield not only the major triad but also its dominant, and descending relationships not only the minor triad but also its subdominant, all dominant relationships are in some sense 'major' and all subdominant relationships 'minor'. 'This is already apparent in the attempt to give the minor mode a major dominant and the major mode a minor subdominant, while the opposite (major subdominant in minor and minor dominant in major) is out of the question.'<sup>14</sup> In this sense the mixed systems with *Gegenklänge* are, as it were, truer to the nature of tonality than the diatonic ones. In an earlier work, his dissertation *Über das musikalische Hören* (1874), Riemann had adduced different evidence to make a similar point. 'The most perfect scale with regard to tonality is evidently minor-major. Tonic and dominant are primary triads of the first and second orders of overtones; the [minor] subdominant is the primary triad of the first order of undertones.'<sup>15</sup> This time, the criterion for privileging the mixed systems is simplicity of theoretical derivation. As Rameau and his theoretical successors had discovered, to ground the subdominant triad in the physical resonance of the tonic note is not a straightforward proposition. For Riemann, the derivation of the tonic's *Gegenklang* is much simpler and more elegant.

### A Restriction of Meaning

In another treatise, *Vereinfachte Harmonielehre* (1893), Riemann takes a rather different perspective on the mixed modes. He now places a restriction on the use of the subdominant minor in major (and of dominant major in minor). This is not a practical restriction on composers, but a restriction on meaning. He explains that the progression tonic→*Quintklang* (i.e. dominant in major, subdominant in minor) represents only a further establishment of the tonic.



The primary note in the new triad is contained in the second order of the tonic's harmonic relationships (either overtones or undertones, as appropriate). By contrast, the progression tonic→*Gegenquintklang* (subdominant in major, dominant in minor) represents a 'powerful driving back behind the point of departure of the harmonic relationships'.<sup>16</sup> In other words, the primary note of the *Gegenquintklang* is not contained in the overtones (respectively, undertones) of the tonic, but contains the tonic in its own harmonic relationships. The result is 'an artistic tension' which makes 'a stronger forward motion to necessity'. In major this tension is a pressing down which then drives the harmony back up to the dominant and then back to the tonic in a perfect cadence that resolves the tension; in minor the reverse. (This conception represents a development of Riemann's early understanding of all music in terms of I–IV–I–V–I cadences that proceed through the dialectical stages of thesis, antithesis and synthesis.)<sup>17</sup> In *Vereinfachte Harmonielehre*, however, the *Gegenklang* – the chord that produces mixed modes – does not represent such a pressing beyond the origin of the tonic's overtones, for it shares its primary note with the tonic itself. Its meaning within an overall progression from and to the tonic therefore cannot be the same as that of the *Gegenquintklang* – it may not simply substitute. 'The *Gegenklang* is primarily to be seen not as being in the place of the *Gegenquintklang*, but rather as coming next to the plain *Quintklang*, as a different means of attaining the most perfect cadence formation – a means that has been borrowed from another mode ...' He continues: 'to want simply to put the *Gegenklang* for example in the place of the *Gegenquintklang* in either of the complete cadences  $T-S-D-T$  and  $^{\circ}T-^{\circ}D-^{\circ}S-^{\circ}T$  [see Ex. 6a for my realisation] would not be right. One would thereby get rid of a highly significant element of the cadence (the tension of the *Gegenquintklang* cannot be replaced through the *Gegenklang*)'.<sup>18</sup> In fact the *Gegenklang* can substitute much more readily for the *Quintklang*, and Riemann is prepared to accept the progressions  $T-S-^{\circ}S-T$  and  $^{\circ}T-^{\circ}D-D^{+}-^{\circ}T$  (see Ex. 6b). 'No one can deny that these two cadences actually contain just as much of the characteristic effect of that motion to a distant triad (*Gegenquintklang*) and the satisfying cadential effect (through the step *Gegenklang*–tonic).' The *Gegenklang* can even follow the *Quintklang*, resulting in an enhanced sense of closure ( $T-D-^{\circ}S-T$ ;  $^{\circ}T-^{\circ}S-D^{+}-^{\circ}T$ ; see Ex. 6c). That progression is common in minor, as Riemann observes. 'Ultimately', he concludes, 'the natural place of the *Gegenklang* is at the end of the cadence, even if that cadence has already used the *Gegenquintklang* and the plain *Quintklang*.'

This is a point about 'musical syntax' (to cite the title of another of Riemann's treatises). Wherever the *Gegenklang* occurs, its meaning is that of imminent closure, not that of setting up a tension which demands future resolution. If it occurs near the beginning of a musical phrase or period, this simply means that the music has not yet set up a full process of tension and

Ex. 6 Realisation of complete cadences using the *Gegenklang* according to Riemann

a) unacceptable

T   °S   D   T   °T   D°   °S   °T

b) acceptable

T   S   °S   T   °T   °D   D°   °T

c) acceptable

T   D   °S   T   °T   °S   D°   °T

resolution as Riemann conceives such a process. From this perspective, it is wholly appropriate that the instance of harmonic major in Ex. 1 comes in a coda at the end of a large section of the movement. On the other hand, Riemann's argument in *Vereinfachte Harmonielehre* diminishes the significance of the mixed systems. From the syntactic viewpoint, they are not really systems at all, because in terms of its meaning the *Gegenklang* does not substitute for the *Gegenquintklang*, and as such is not part of a collection of three functional triads that, for Riemann, are needed for the definition of a key system. Alternatively, one could say that pieces which employ the mixed modes are short-winded in terms of their musical logic; they seldom set up long-range processes of tension and resolution, opposition and synthesis.

## Ethos

Earlier in the discussion in *Vereinfachte Harmonielehre*, Riemann had complained that, because it lacks the 'strong tension' of the *Gegenquintklang*, the *Gegenklang* 'cannot be denied a certain artificiality and strainedness'.<sup>19</sup> In this instance he seems to be assuming precisely the substitution (*Gegenklang* for *Gegenquintklang*) that he later rules out – and is not altogether comfortable

with the prospect. Just as Hauptmann had linked his minor-major to ‘the sentimental type of modern music’, Riemann, explains that the minor subdominant, when used in a major key, provides ‘a melancholy view into the dark realm of minor relationships’.<sup>20</sup> The mixed modes are a discovery of the modern age – they were unknown to antiquity or to the medieval period. Riemann adds that ‘in comparison to these mixed modes (“minor-major” and “major-minor”), pure minor and pure major appear sounder, more unspoilt, simpler formations’.<sup>21</sup> There is, perhaps, an echo here of late nineteenth-century controversies over modern decadence and degeneration.

This interpretation of harmonic major’s aesthetic effect is echoed some years later by Ernst Kurth in his *Romantische Harmonik und ihre Krise in Wagners Tristan* (1920), albeit without the pejorative connotations that Hauptmann and Riemann give it. Although Kurth mentions the mode only in passing, it has a significant place in his account of the development of nineteenth-century harmony, which culminates in the chromaticism of *Tristan*. He deems the use of the minor subdominant in major one of the first steps away from Classical tonality (where, according to Kurth, major and minor are relatively clearly differentiated), towards the intensive chromaticism of *Tristan*. For Kurth, the mixture of two ‘leading-note tensions’, one rising, one falling, was characteristically Romantic. Lowering the third of the subdominant produces ‘a rather stronger and markedly darkening changeover towards the flat-key regions as opposed to the dominant and, even more, the mediant keys’.<sup>22</sup> It is notable that both Riemann and Kurth associate their ‘dark’ quality not just with the descending semitone step  $b\hat{6}-\hat{5}$ , but with the opening up of a certain set of tonal areas, perhaps for use elsewhere in a piece.

## Tonality

Today, our familiarity with Schenkerian ideas about motivic expansion means that explanations of large-scale key relationships through reference to earlier, local, chromatic alteration seem instantly analytically plausible. (In the case of harmonic major, the alteration would be the lowering of  $\hat{6}$ .) Nineteenth-century thinking on this mode, however, does not point towards Schenker’s manner of co-ordinating linear and harmonic parameters. Instead, the key relationship most obviously suggested by harmonic major involves *Seitenwechsel* – the switch from a major key to the key of the tonic’s *Gegenklang* or vice versa. Although none of the theorists explicitly connected this relationship with their interest in harmonic major, the two issues are intimately linked, since it is especially easy for music in a mixed mode to switch to the opposite mixed mode of its *Seitenwechsel* partner.

The *Seitenwechsel* relationship between keys was explored by both Weitzmann and Riemann. In Riemann’s examples (Ex. 7), a pair of progressions

Ex. 7 Riemann's illustration of *Seitenwechsel* in C major and F minor (condensed and annotated)

involving C major and F minor chords has the same sense in the C major and F minor keys (albeit with the meanings of the chords reversed).<sup>23</sup> This is an especially telling example because in both keys the progression is that which is said to carry the greatest force of closure: *Gegenklang*→tonic. Paradoxically, therefore, the harmonic progression in C major that is most definitive of that key can, with only a little rearrangement, become the most definitive of F minor and vice versa. Weitzmann called these chords (and keys) 'next-related' (*nebenverwandt*). In his ground-breaking treatise *Der übermässige Dreiklang* (1853), he considered the notes arising from a major triad built upwards from C, and a minor triad downwards from C: F, A $\flat$ , C, E, G. The *Nebenverwandtschaft* between the triads records the fact that they share what Weitzmann regards as the 'most important' augmented triad in their respective keys, formed from the central three terms in the sequence: A $\flat$ , C, E. This is precisely the augmented triad that contains what Weitzmann calls the most important *Nebenton* in each key, namely A $\flat$  and E respectively.<sup>24</sup> Once again there is a duality between  $\flat\hat{6}$  in major and  $\sharp\hat{7}$  in minor.

The close connection between chords and keys that stand in the relationship of *Nebenverwandtschaft* was illustrated graphically by Weitzmann. In his later treatise *Harmoniesystem* (1860), he proposed a network of tonal relationships in major and minor keys (Fig. 1).<sup>25</sup> Moving vertically down the diagram corres-

Fig. 1 Weitzmann's diagram showing relative proximity of keys in C major and A minor

Dur					Moll				
<i>C dur</i>					<i>A moll</i>				
F moll	F dur	A moll	E moll	G dur	D moll	F dur	C dur	E moll	E dur
		A dur	E dur				F moll	C moll	
		C moll					A dur		
As dur				Es dur	Fis moll				Cis moll

ponds to moving to keys more distant from C major and A minor. Thus the keys most closely related to C major include F major, A minor, E minor, G minor and D minor. But, perhaps surprisingly, F minor also appears on the first level of relatedness. Likewise, E major is closely related to A minor.<sup>26</sup> Despite quite different theoretical premises, Rimsky-Korsakov's treatise makes a similar claim. The most closely related keys to a tonic are those represented by triads on diatonic scale degrees (save the diminished triads on VII in major and II in minor), together with the subdominant minor in major and the dominant major in minor.<sup>27</sup> These systems mark a striking departure from conventional notions of maximal tonal 'closeness' – a concept often restricted to keys sharing all but one of the pitch-classes of their respective scales. A relationship between keys with a difference of four accidentals in their key signatures is now permitted at the first level of relatedness.

## II

### Examples of Harmonic Major

With this framework of ideas in place, it is possible to assess the alternative motivation of Hauptmann and the theorists of harmonic major: the response to compositional practice. Ex. 8 shows four excerpts where an interpretation in terms of a discrete mode seems plausible. Ex. 8a shows the final 16 bars of Chopin's Mazurka in B $\flat$  minor Op. 24 No. 3. Here  $\hat{3}$  (D $\flat$ ) is raised to D $\natural$ , while  $\hat{6}$  (G $\flat$ ) is retained. The passage consists of a 10-bar period comprising three two-bar phrases and a final phrase extended to four bars, followed by a codetta-like passage of six bars. The pitch-classes are largely confined to the harmonic major scale; the only exceptions are a raised  $\hat{4}$  in an inner part – a component of an

Ex. 8a Chopin, Mazurka in B $\flat$  minor Op. 24 No. 3, bars 131–46

Ex. 8b Dvořák, Piano Quartet in E $\flat$  Op. 87, III, bars 89–106

89

*f*

94

*mf* sul. G *poco a poco dimin.* *p* *dim.*

*mf* *poco a poco dimin.* *p* *dim.*

*mf* *espressivo* *poco a poco dimin.* *p* *dim.*

100

*pp* *morendo* *ff* *Fine.*

*pp* *morendo* *ff* *Fine.*

*pp* *morendo* *ff* *Fine.*

## Ex. 8c Mahler, Symphony No. 2 in C minor, III, bars 40–52 (reduction)

The musical score is a reduction of Mahler's Symphony No. 2, III, bars 40–52. It consists of three systems of staves. The first system (bars 40–44) shows strings playing a melody with a piano (p) dynamic and a clarinet (Cl.) playing a melody with a piano (p) dynamic. The second system (bars 45–48) shows strings playing a melody with a pizzicato (pizz.) dynamic and woodwinds (Vins) playing a melody with a pianissimo (pp) dynamic. The third system (bars 49–52) shows strings playing a melody with a pizzicato (pizz.) dynamic and woodwinds (Vins) playing a melody. The key signature is C minor (three flats) and the time signature is 3/4.

augmented sixth chord above a tonic pedal (bars 137–8) – and a lowered  $\hat{7}$  for the grace note before the  $G\flat$ s in the melody (in harmonic major, the latter is dual to the raised  $\hat{6}$  in ascending ‘melodic’ minor; see Ex. 4). Ex. 8b, which gives the final bars of the outer section from the scherzo of Dvořák’s Piano Quartet Op. 87, is comparable, even though the movement is in major, and thus  $\hat{6}$  is lowered rather than  $\hat{3}$  raised. Again, the only pitch-class from outside the harmonic major collection is a lowered  $\hat{7}$ , avoiding an awkward augmented second. Like the Chopin excerpt (and indeed the Schubert from Ex. 1), it is drawn from a coda, and thus supports Riemann’s contention in *Vereinfachte Harmonielehre* that the *Gegenklang* has a concluding meaning. Most significantly, Exs. 8a and b both deploy expressive resources in order to suggest a melancholy mood, corresponding with the theorists’ hints about the mode’s expressive profile. The melody in the Chopin excerpt moves upwards through the ‘bright’  $\hat{3}$ , before subsiding through the ‘dark’  $\flat\hat{6}$  to  $\hat{5}$ . Dvořák’s coda uses a motive (piano, bars 89–92) from earlier in the movement which had been first stated in the midst of much  $E\flat$  diatonic major, with only a hint of harmonic major. Now, in the following bars, harmonic major is emphasised, with several factors combining to create a mood of nostalgia that is characteristic of endings in Dvořák’s later music. Following a loud climax, the coda starts at *mf* before dropping to *pp* amidst the markings *espressivo*, *poco a poco dimin.* and *morendo*. The piano’s

## Ex. 8d Rachmaninov, Cello Sonata in G minor Op. 19, I, bars 49–61

The musical score is presented in four systems, each with a Cello staff (bass clef) and a Piano staff (treble and bass clefs). The key signature is G minor (three flats) and the time signature is 3/4.

- System 1 (Bars 49–51):**
  - Bar 49: Cello has a half note G<sub>2</sub> (*pp*), Piano has a half note G<sub>2</sub> (*mf*).
  - Bar 50: Cello has a half note A<sub>2</sub> (*mf*), Piano has a half note A<sub>2</sub> (*mf*).
  - Bar 51: Cello has a half note B<sub>2</sub> (*dim. e un poco rit.*), Piano has a half note B<sub>2</sub> (*dim. e un poco rit.*).
- System 2 (Bars 52–55):**
  - Bar 52: Cello has a whole rest, Piano has a whole rest. Tempo marking: **Moderato**.
  - Bar 53: Cello has a whole rest, Piano has a half note G<sub>2</sub> (*mf espress.*).
  - Bar 54: Cello has a whole rest, Piano has a half note A<sub>2</sub> (*mf espress.*).
  - Bar 55: Cello has a whole rest, Piano has a half note B<sub>2</sub> (*mf espress.*).
- System 3 (Bars 56–59):**
  - Bar 56: Cello has a whole rest, Piano has a half note G<sub>2</sub> (*p*).
  - Bar 57: Cello has a whole rest, Piano has a half note A<sub>2</sub> (*p*).
  - Bar 58: Cello has a whole rest, Piano has a half note B<sub>2</sub> (*p*).
  - Bar 59: Cello has a whole rest, Piano has a half note G<sub>2</sub> (*p*).
- System 4 (Bars 60–61):**
  - Bar 60: Cello has a whole rest (*un poco rit.*), Piano has a half note G<sub>2</sub> (*pp*). Tempo marking: **a tempo**.
  - Bar 61: Cello has a whole rest (*un poco rit.*), Piano has a half note A<sub>2</sub> (*pp*). Tempo marking: **a tempo**.



## Ex. 8d (continued), bars 78–93

78 *Un poco più mosso*

*Un poco più mosso*

*p*

81

*p*

85

*mf*

*p*

89

*pp*

*accel.*

*Tempo I*

*pp*

*accel.*

*Tempo I*

*mf*

alternating chords (and the passing of the motive between piano and violin) suggest a rocking rhythm, while the cello's tune resembles a folk-song. The effect, conveyed simply but effectively, might be described as a sudden memory of innocence that is nevertheless clouded by experience.

Ex. 8c, from the third movement of Mahler's Symphony No. 2, might at first seem rather less convincing as an illustration of harmonic major. Certainly, the distinctive thematic material and instrumentation that follows the unambiguous closure of the previous period in bar 44 encourage us to hear a new section, with C as the local tonic. Yet the relevant section is shorter than those in Exs. 8a and b, and could be regarded simply as a prolongation of the dominant of F minor, the key implied by the immediately preceding music (bars 40–44), especially in the light of the Dbs in bar 51. In fact, however, that very tonal relationship furnishes a strong argument in favour of invoking harmonic major. The ambivalence between C harmonic major and F minor (a partially 'mixed' F minor that ends on its major dominant) highlights the *Seitenwechsel* complex. The C on which the violin melody ends in bar 44 is the 'pivot', as it were, around which the 'change of sides' is effected.<sup>28</sup>

Ex. 8d shows two extracts from the second-subject group of the first movement of Rachmaninov's Cello Sonata Op. 19. This case is similar to Ex. 8c from the perspective of tonality, although the harmonic major formation lasts much longer. The movement's first subject is in the home key of G minor but, once established at bar 54, the D tonality of this example dominates the final 40 bars of the exposition. With the exception of bars 69–77, F is always sharpened, B always flattened. The result is a sustained stretch of harmonic major which persists through a variety of textures and thematic material, including even a process of thematic 'liquidation' in the final bars of the exposition (bars 78–93). The link between the presence of harmonic major and the large-scale *Seitenwechsel* relationship between the main keys of the exposition is confirmed by the convenience with which the two-flat key signature serves for the second subject group (the frequent F# accidentals do not detract from this point, for they would be needed in a G minor passage anyway – at least, any 'mixed' G minor that used the major dominant). The Ds of bars 50–53 represents the *Seitenwechsel* pivot. Rachmaninov squeezes every last drop of pathos from the mode, starting the melody with the descending semitone Bb–A, and swiftly contrasting it with the major third F#. Hauptmann would surely have found this music incurably 'sentimental' – a judgement from which it is hard to dissent, whether or not one minds the pejorative connotations attached to the term.<sup>29</sup>

A final example of harmonic major shows the way it can function in relation to the tonality of a whole movement. Ex. 9a gives the second half of the first-movement exposition of Schubert's Piano Sonata in A minor D. 537. Here the second subject (beginning at bar 28) is in F harmonic major, the submediant

## Ex. 9a Schubert, Piano Sonata in A minor D. 537, I

bars 28–57

28 *p*

33 *p* *mf* *f*

38 *pp*

43 *p* *cresc.* *f*

48 *cresc.* *ff* *p*

53 *pp*

## Ex. 9a (continued)

bars 58–75

harmonic major of the tonic, A minor. However, after the first five bars of the second subject, the D $\flat$ s are altered to D $\natural$ s (bar 33), and B $\flat$  major, the subdominant of F diatonic major, is tonicised (bars 34–6). F harmonic major returns at bar 39, and this time its continuation remains connected to D $\flat$ s. G $\flat$  major, the ‘Neapolitan’ of F, is now tonicised, with D $\flat$  acting as the dominant (bars 44–7). In bar 53, F harmonic major is again re-established. The two versions of F major (one with D, the other with D $\flat$ ) thus open up different tonal relationships, the harmonic major neatly illustrating Kurth’s point about the minor subdominant giving a glimpse of the ‘flat-key regions’.

In the first-time bars at the end of the exposition (bars 63–5), Schubert deploys his favourite device for returning to the tonic from the submediant (in major-key works the flat submediant), by adding a flat seventh to the local tonic chord, and interpreting the resulting seventh chord as a German sixth.

Ex. 9a Schubert, Piano Sonata in A minor D. 537, I  
bars 113–27

Here the E $\flat$ s of bars 61–2 function retrospectively as D $\sharp$ , with the D $\flat$  in the upper voice altered to a D $\natural$  as the modulation takes place (bars 62–3). Once again the D $\natural$ /D $\flat$  alteration is critical. In the second-time bars, by contrast, the seventh chord acts *as* a dominant seventh rather than an augmented sixth, launching the development section with a tonicisation of B $\flat$  minor, the *Seitenwechsel* partner of F harmonic major. Soon the even flatter G $\flat$  major is established, echoing the brief G $\flat$  major tonicisation in the exposition.

The end of the development section establishes A $\flat$  harmonic major (bars 108–11) and then A harmonic major (Ex. 9b, bars 113–17). The recapitulation begins in the latter key's *Seitenwechsel* partner, D minor (bar 125), the subdominant of the home key, A minor. (The use of the subdominant for the recapitulation of the first subject is not uncommon in Schubert's early sonata-form movements, especially those dating from 1815–19.)<sup>30</sup> The second subject is then recapitulated in A harmonic major, the *Seitenwechsel* partner of the first subject's key. The coda performs the necessary alteration of the mode, returning to A minor for the close.

It would be unconvincing to maintain that the presence of harmonic major on the local level determines or 'generates' the bold key-changes of this movement.

Such sudden, distant modulations are familiar components of Schubert's idiom, and are plentiful even in his pieces that do not touch at all on harmonic major. On the other hand, some of those modulations are rendered especially smooth by the presence of the mixed mode (the D $\flat$ s in F harmonic major anticipating the later moves to G $\flat$  major and B $\flat$  minor). It is tempting to push the argument a little further. Lurking beneath the smooth 'surface' of the piece (which supplies chords such as the German sixth and the dominant seventh to connect the different tonal areas) is a strange dualist symmetry. The development section is framed by two *Seitenwechsel* pivots (their status as such emphasised by their alternation of opposing 'mixed modes'), one on F, the other on A. It is as though the music goes through the *Seitenwechsel* looking-glass for the development and comes out again for the recapitulation. In this view, the move from F harmonic major to B $\flat$  minor is not really a harmonic progression at all, but merely the application of a single set of harmonic relationships in a different direction (and smoothed over by the dominant seventh harmony of bars 61–2). It is striking that in both first- and second-time versions, the end of the exposition leads to a modulation proceeding from an F chord to the chord that Riemann would call the *Leittonwechselklang*, i.e. f $^{+}$ – $^{\circ}$ e (F major back to A minor) and  $^{\circ}$ f–g $\flat$  $^{+}$  (B $\flat$  minor to G $\flat$  major) respectively. (The *Leittonwechsel* relationship pertains between a major triad and the minor triad produced by substituting the leading note for the tonic of the original triad.) The second-time bars thus lead to the same harmonic progression as the first (based on *Leittonwechsel*), but executed on the other side of the looking-glass.

## Conclusion

Of course, each of these interpretations is open to challenge from today's more usual analytical understanding of mixture. The D $\sharp$ s in Ex. 8a could be said to function as an extended *tierce de picardie*, with the lowered sixth degree retained in a manner familiar from the codas of many minor-key Baroque keyboard pieces. A similar point could be made about Ex. 8b. For a Schenkerian, even Ex. 8d could be explained without reference to an independent mode – the second half of the exposition tonicises the overall dominant, and does so without even altering the pitch-class collection of the tonic. An advocate of this view might maintain that an interpretation in terms of chromatic alteration and prolongation is the more effective and economical.<sup>31</sup>

Nevertheless, some of the observations that arise from the examples above – regarding syntax (coda function), hermeneutics (melancholy) and, most notably, tonal relations (*Seitenwechsel*) – resonate with the nineteenth-century theorists' ideas on harmonic major, and deserve our close attention. At the very least, they serve to highlight the complexities of trying to relate systematic nineteenth-century theory to practice. If a theoretical notion seems to fit

## Ex. 10 Hermann Schröder's inversions of familiar pieces

## a) Beethoven, Symphony No. 3, II, bars 1–8

*Allegretto – Fröhlich, naiv*

## b) Mozart, Symphony No. 40, I, bars 1–16

*Allegro molto*

contemporaneous compositions, especially if it has been forgotten by modern theory, how closely is it tied to the principles and assumptions that stand behind it? Can it be fully detached from them or should an analysis drawing on its insights pay its full respects to those ideas? In the case of harmonic major, the

basic problem arises from its appropriateness to practice but its ‘over-appropriateness’ to theory (filling a crucial gap by providing the dual for harmonic minor). Harmonic major reminds us that Hauptmann, Oettingen and Riemann devised elegant systems whose symmetries almost model the symmetries of major/minor tonality as practised in their time – but not quite. Perhaps, from their point of view, the most logical solution would be to demand a change in practice. Oettingen, indeed, suggested that mixed modes ought to be avoided altogether as the basis of compositions. ‘Pure’ major and minor would prevail – a notion that has revolutionary implications for minor-key music. An alternative approach was taken by a later theorist named Hermann Schröder in his sometimes bizarre treatise *Die symmetrische Umkehrung in der Musik* (1902). Convinced of the importance to music of symmetrical inversion in all its forms, one of his aims was to provide contemporary composers with new ideas, thus refreshing musical culture. Schröder knew well that music in the minor mode with major dominant, when inverted around the dominant note, would produce Hauptmann’s minor-major. He rendered the opening of the second movement of the ‘Eroica’ Symphony and most of the exposition of the first movement of Mozart’s Symphony No. 40 in this fashion, not neglecting to reverse most of the dynamics and expression markings, and, in the case of the Beethoven, the tempo as well (Ex. 10).<sup>32</sup> Here, the conflict between theory and practice is finally resolved. The result, however, is truly music from through the looking-glass.

## NOTES

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1. See Richard Cohn, ‘Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions’, *Music Analysis*, 15/i (1996), p. 12.
2. Moritz Hauptmann, *Die Natur der Harmonik und Metrik* (Leipzig: Breitkopf & Härtel, 1853), pp. 21–2. See also pp. 40, 42–3 and 62, and, for commentary, Peter Rummenhöller, *Moritz Hauptmann als Theoretiker: Eine Studie zum erkenntniskritischen Theoriebegriff in der Musik* (Wiesbaden: Breitkopf & Härtel, 1963), pp. 64–5; Dale A. Jorgenson, *Moritz Hauptmann of Leipzig* (Lewiston, NY: Edwin Mellen Press, 1986), pp. 131–3; and Daniel Harrison, *Harmonic Function in Chromatic Music: a Renewed Dualist Theory and an Account of its Precedents* (Chicago: University of Chicago Press, 1994), pp. 230–32.
3. Hauptmann, *Die Natur der Harmonik und Metrik*, p. 40.
4. In 1988 Mark P. McCune counted the source for the idea of the minor-major among the unsolved problems surrounding Hauptmann’s theory. See his review of Jorgenson, *Moritz Hauptmann*, in *Journal of Music Theory*, 32/ii (1988), p. 382.



5. In the recapitulation there is a subtle difference in the expressive effect of this music. The second subject appears in C major (the tonic major), but the presence of its minor-mode variation makes C minor the predominant key in the recapitulation. The 'minor-major' music is thus heard in relation to minor, whereas, in the exposition, it is heard primarily in relation to major. In other words, the mode now sounds like a 'raised third' rather than a 'lowered sixth' mode. The coda, of course, cancels out even this concession to major.
6. Heinrich Schenker, *Harmony*, ed. Oswald Jonas, trans. Elisabeth Mann Borgese (Chicago: University of Chicago Press, 1954), pp. 86–7, 89. Harrison discusses the divergence between Hauptmann's approach and one based on mixture; see *Harmonic Function*, pp. 230–32.
7. Carl Friedrich Weitzmann, *Harmoniesystem* (Leipzig: C. Kahnt, 1860), pp. 7, 10. See also Richard Cohn, 'Weitzmann's Regions, My Cycles, and Douthett's Dancing Cubes', *Music Theory Spectrum*, 22/i (2000), p. 98.
8. Nikolai Rimsky-Korsakov, *Praktisches Lehrbuch der Harmonie* (Leipzig: M. P. Belaieff, 1895), pp. 6–7, 33–43.
9. Hugo Riemann, *Vereinfachte Harmonielehre* (London: Augener, 1893), p. 48. See also Rudolf Louis and Ludwig Thuille, *Harmonielehre*, 8th edn. (Stuttgart: Grönninger, 1924), p. 158.
10. On *Seitenwechsel*, see especially Riemann, *Handbuch der Harmonielehre* (Leipzig: Breitkopf & Härtel, 1898), pp. 49–50. For a concise explanation of the concept of 'antilog', see William C. Mickelsen, *Hugo Riemann's Theory of Harmony and History of Music Theory, Book III* (Lincoln, NE: University of Nebraska Press, 1977), pp. 36–7.
11. Riemann, *Handbuch*, p. 124; *Ueber das musikalische Hören* (Leipzig: Fr. Andrä's Nachfolger, 1874), p. 60; Arthur von Oettingen, *Das duale Harmoniesystem* (Leipzig: C. F. W. Siegel, 1913), p. 64. See also Louis and Thuille, *Harmonielehre*, p. 158.
12. Weitzmann, *Harmoniesystem*, pp. 51–2; Riemann, *Systematische Modulationslehre als Grundlage der musikalischen Formenlehre* (Hamburg: J. F. Richter, 1887), p. 9.
13. Louis and Thuille, *Harmonielehre*, p. 159.
14. Riemann, *Handbuch*, p. 215. Cited and translated in Mickelsen, *Riemann's Theory*, p. 61.
15. Riemann, *Hören*, p. 61.
16. Riemann, *Vereinfachte Harmonielehre*, p. 29.
17. See Kevin Mooney, 'Hugo Riemann's Debut as a Music Theorist', *Journal of Music Theory*, 44/i (2000), pp. 81–99.
18. Riemann, *Vereinfachte Harmonielehre*, p. 49.
19. *Ibid.*, p. 48.
20. *Ibid.* 'Ein wehmutsvoller Blick in das dunkle Reich der Mollbeziehungen'.

21. Ibid.
22. Ernst Kurth, *Romantische Harmonik und ihre Krise in Wagner's 'Tristan'*, 3rd edn. (Berlin: Max Hesses Verlag, 1923; repr. Hildesheim: Olms, 1998), p. 143.
23. Riemann, *Handbuch*, p. 50.
24. Weitzmann, *Der übermässige Dreiklang* (Berlin: T. Trautweinschen, 1853), pp. 16–17.
25. Weitzmann, *Harmoniesystem*, p. 17.
26. The positioning on the diagram of the tonics in relation to their most closely related keys is interesting: rather than being aligned with the central key of the five, they stand between it and the key to the right (for C major) or left (for A minor), as though there were only four keys. This might indicate a special status for F minor and E major.
27. Rimsky-Korsakov, *Lehrbuch*, p. 52.
28. See bars 13–31 for a similar relationship.
29. Harmonic major became something of a Rachmaninov fingerprint in 1900–1901; as well as the Cello Sonata, see the central section of the G minor Prelude Op. 23 No. 5 and the second theme of the finale of the Piano Concerto No. 2 (both however use  $\flat\hat{7}$  as well as  $\flat\hat{6}$ . The scale was in fact a favourite in Russian theory and practice, starting with Glinka. See Viktor Berkov, *Garmoniia Glinkii* (Moscow, 1948), pp. 104, 107; and Ellon D. Carpenter, 'Russian Music Theory: a Conspectus', in *Russian Theoretical Thought in Music*, ed. Gordon D. McQuere (Ann Arbor: UMT Research Press, 1983), pp. 22–5, 29 and 31. Richard Cohn suggests that Weitzmann may have been influenced by exposure to Glinka's music when he worked in St. Petersburg; see 'Weitzmann's Regions', p. 92.
30. For an overview of Schubert's tonally unconventional recapitulations, see Daniel Coren, 'Ambiguity in Schubert's Recapitulations', *Musical Quarterly*, 60/iv (1974), pp. 569–70. For criticism, see Malcolm Boyd, 'Schubert's Short Cuts', *Music Review*, 29 (1968), p. 14. Extended passages in harmonic major can also be found in the finale of another A minor Piano Sonata (D. 784).
31. This interpretation would be still stronger in the Rachmaninov G minor Prelude (see n. 29 above), where the meaning of the D bass pedal in the middle section hovers between overall dominant and local tonic.
32. Hermann Schröder, *Die symmetrische Umkehrung in der Musik* (Leipzig, 1902), pp. 25, 105–7. On Schröder, see David W. Bernstein, 'Symmetry and Symmetrical Inversion in Turn-of-the-Century Theory and Practice', in David W. Bernstein and Christopher Hatch (eds.), *Music Theory and the Exploration of the Past* (Chicago: University of Chicago Press, 1993), pp. 377–407. Note that the  $\text{B}\sharp$  in bar 4 of Ex. 10b, which contradicts harmonic major, corresponds to an  $\text{F}\sharp$  in the original – a moment when the mode is not 'mixed'.