

CHAPTER 50

Beyond music psychology

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ALTHOUGH music psychology in the latter part of the twentieth century was dominated by the principles of cognitive–psychological thinking, these never completely drove nor, indeed, constrained this domain of research: even in 1970s, 80s and 90s, before the explosion of activity related to music and the cognitive sciences that has characterized the early years of the twenty-first century, music psychology did not function as a tightly defined academic discipline operating within a single, clear-cut epistemological framework. One can speculate as to the reasons why this should have been so. Partly, no doubt, different views as to what constituted valid music–psychological ‘evidence’ arose as a consequence of the heterogeneous and constantly evolving nature of musicological discourse, which provided a starting point for some who were seeking to adopt a psychological approach. The lack of an homogeneous depth to the corpus of music–psychological research may be attributable to the relatively few participants who were active in the area, and their diverse disciplinary and institutional locations. Also, the field may have attracted visitors whose concerns lay primarily at the periphery of mainstream music–psychological work because they could find no other home for their theoretical or empirical endeavours. Finally, the very interdisciplinary nature of music psychology itself meant that as a conceptual territory it had extensive borders that offered many opportunities for intellectual interlopers to cross.

It is notable that the first journal to be devoted exclusively to the subject (*Psychology of Music*,

which dates from 1973)¹ was founded by the (then) Society for Research in Psychology of Music and Music Education,² conferring on the publication a multidisciplinary focus that it has maintained ever since. Today, the stated aim of *Psychology of Music* is to ‘increase scientific understanding of all psychological aspects of music and music education’, a desideratum which ‘includes studies on listening, performing, creating, memorizing, analysing, learning and teaching as well as applied social, developmental, attitudinal and therapeutic studies’.³ This breadth of intention is fully reflected in the journal’s content. Of the 471 papers published between 1973 and the first half of 2007, an informal classification suggests that only 207 (44 per cent) can reasonably be defined as falling within the realm of cognitive psychology (including the measurement of musical abilities, the perception of musical sounds, the cognition of musical structures, learning, memory and the development of music-related skills). Sixty papers (12.5 per cent) are concerned with issues pertaining to performing (including improvisation and performance anxiety). Notwithstanding the journal’s stated aims, only 55 articles (11.5 per cent) relate directly to music education, although a further

¹ Until that time publication was solely in mainstream psychology journals.

² Italics added; from 2003 known as ‘SEMPRE’—the Society for Education, Music and Psychology Research.

³ From the journal’s ‘aims and scope’, *Psychology of Music*, 35(2), 2007.

15 (3 per cent) investigate the use and potential effect of music in wider educational or developmental contexts. Fifty-four (11.5 per cent) explore aesthetics or affective response to music in one form or another. Thirteen articles (3 per cent) are primarily ethnomusicological in content. Eleven (2.5 per cent) engage with issues of epistemology or methodology (matters to which we shall return). Eight (1.5 per cent) involve research in music therapy. Seven (1.5 per cent) have a music-theoretical focus. The remaining 41 (9 per cent) are not readily categorizable, by virtue of small numbers or idiosyncratic content—ranging from the philosophy of melody to a consideration of the potential relevance of music to extra-terrestrials!

Music Perception, which first appeared in 1983 under the editorship of Diana Deutsch at the University of California, while having cognitive-psychological research as its primary focus, was always more explicit than *Psychology of Music* about its wide-ranging academic purview, which has changed little over the last quarter of a century. Today, *Music Perception* is overtly interdisciplinary in nature, with an editorial policy that seeks to publish ‘theoretical and empirical papers, methodological articles and critical reviews concerning the study of music’, incorporating articles from a broad range of disciplines, including ‘psychology, psychophysics, neuroscience, music theory, acoustics, artificial intelligence, linguistics, philosophy, anthropology and cognitive science’.⁴ Similarly, *Musicae Scientiae*, the journal of the European Society for the Cognitive Sciences of Music (ESCOM), which first appeared in 1997, is interdisciplinary in nature too, although cognitive psychology is, once again, the predominant strand in its fabric. *Musicae Scientiae* accepts ‘empirical, theoretical and critical articles directed at increasing understanding of how music is perceived, represented and generated’. Consideration is given to any ‘systematic work within the domains of psychology, philosophy, aesthetics, music analysis, historic musicology, cognitive science,

education, artificial intelligence, modelling and neuropsychology’^{5,6}

The broad church espoused by the three specialist journals currently active in the field of music psychology is reflected in conferences and seminars organized by its proponents. Chief among these, the International Conference of Music Perception and Cognition (ICMPC), which was first staged in 1989, and since 1992 has occurred biennially, attracts a remarkable breadth of contributions.⁷ For example, ICMPC 9, which was held in Bologna in 2006, called for presentations on the following topics: pitch and tonal perception; rhythm, metre, and timing; aesthetic perception and response; computational models; timbre and orchestration; emotion in music; memory and music; neuroscience; development; education; music, meaning, and language; performance and composition; the singing voice; acoustics and psychoacoustics; the social psychology of music; cognitive musicology; and music therapy. These were realized in some 526 papers, posters, workshops and symposia (a fivefold growth over the 17 years since ICMPC 1).

Surely (it could be argued), such eclecticism is unreservedly a good thing, presumably resulting in a rich cross-fertilization of ideas and approaches, yielding new, broad-based research that is rooted in a range of epistemologies and utilizing a variety of methodologies? Actually the position turns out to be much more complicated than this: as we shall see, conceptual cross-pollination often proves to be difficult to pull off; and where some see epistemological hybridization as a strength, others are wary of diluting the relative purity of purpose and procedure characteristic of a single discipline.

Given such issues, it is hardly surprising that the manner in which music psychology could

⁴ From ‘Information for authors’, *Music Perception*, 24(4), 2007.

⁵ From ‘Information for authors’, *Musicae Scientiae*, 11(1), 2007.

⁶ The interdisciplinary output of *Psychology of Music*, *Music Perception* and *Musicae Scientiae* contrasts with that of the fourth specialist publication in the field, *Psychomusicology*, which, styling itself as a ‘journal of music cognition’, first appeared in the US in 1981 and continued to appear until 1997. Throughout these 16 years, *Psychomusicology* adhered closely to its initial editorial brief.

⁷ See <http://www.icmpc.org/organisation.html#history> for a brief history of the ICMPC series.

and should relate to its sister disciplines has exercised a number of those working in these fields over the years. An early and perhaps inevitable tension that emerged in *Psychology of Music*, which was articulated by John Sloboda (then editor) in his ‘open letter’ of 1986,⁸ was between music psychology and music education. In particular (to make explicit what was implicit in Sloboda’s statement), one could sense a certain discomfort in his having to consider for publication certain music *education* research within the context of a music *psychology* journal, with its rather different perceptions of what constituted an appropriate level of rigour and objectivity. With their distinct epistemologies, could the two disciplines ever work together productively? Was the latter ever likely to be of value to the former? A number of responses to Sloboda’s letter were made, including one by David Hargreaves,⁹ who, in looking back over the first decade of *Psychology of Music*’s output, acknowledged that ‘Contributions tend to be *either* psychological or educational, and those which combine theoretical and practical concerns tend to be few and far between.’ He concluded that ‘the end result is something of a shotgun wedding’. Hargreaves suggested that the most fruitful way forward might lie in the *developmental* psychology of music, an area to which he gave a focus and impetus in the mid-1980s, and which has flourished ever since—particularly in relation to the early years (see, for example, Deliège and Sloboda 1996; the special issue of *Musicae Scientiae* 1999/2000; McPherson 2006) and, more recently, special educational needs (for example, Pring and Ockelford 2005; Ockelford *et al.* 2006; Ockelford 2008). Beyond developmental psychology, in the 1990s, a number of new fronts opened up between music psychologists and educationists in what has proved to be a highly fruitful union (Parncutt and McPherson 2002; Williamon 2004). For example, research of relevance to those learning to perform has been undertaken in the areas of practice and the acquisition of expertise (Hallam 1995, 2001; Jørgensen 2004); memorization (Ginsborg 2007); sight-reading

(Lehmann and McArthur 2002; Thompson and Lehmann 2004) and improvisation (Kenny and Gellrich 2002).

Returning, for a moment, to the 1980s, further contributions followed in *Psychology of Music* on other interdisciplinary issues, including the report of a seminar held at The City University, London, in 1987 concerning the relationship between music therapy and music psychology (whose discussants were Leslie Bunt, Ian Cross, Eric Clarke and Sarah Hoskyns).¹⁰ With echoes of the perennial quantitative/qualitative dichotomy, key elements in the debate were the relevance to therapy of what was measurable in psychological terms, and, conversely, the psychological status of the inferences that therapists were content to accept as admissible evidence. It was agreed that what mattered was whether the insights so gained—which, ideally, should be couched within a theoretical framework—were relevant and interesting rather than ultimately ‘provable’. The long-term impact thinking such as this can be felt today in collected editions such as *Microanalysis in Music Therapy* edited by Thomas Wosch and Tony Wigram (2007). Here, as Barbara Wheeler notes in the Foreword (p. 11), the common thread linking the contributions is a new-found rigour in analysing therapy sessions, involving the study of ‘specific responses and experiences and precise musical and behavioral responses and interactions’ (see also Ockelford 2008).

During the 1990s, comparable interdisciplinary discourse rumbled on in other areas too, leading, for example, to Elizabeth Tolbert’s (2001) exploration of the evolution of musical meaning through an attempt to bridge ethnomusicological and psychological approaches (between which she considered there had been little rapprochement up to that time). In particular, she pointed to differing perspectives on the relative importance of individual as opposed to collective meaning, and divergent views as to the significance of universal rather than culturally embedded musical processes and structures.

Arguably the interface about which there has been most vociferous debate in recent years,

⁸ *Psychology of Music*, 14(2), 144–145.

⁹ *Psychology of Music*, 14(2), 83–96.

¹⁰ *Psychology of Music*, 16(1), 62–70.

however, is that between music psychology and music *theory* (as it is generally known in the US) or music *analysis* (the term most widely used in the UK). Why the contention? Perhaps because proponents from the two camps feel that they have an equal claim over a common territory: an understanding of how music ‘works’. Their aims, though, are quite different, and this appears to be where the difficulties arise. Writing in 1989, Eric Clarke put it like this:

Broadly speaking, the aim of musicologists and composers in tackling issues of musical structure can be characterized as the attempt to formulate theories of the structural relations within and between musical works, and their origins, development and effectiveness as formal devices. A correspondingly brief summary of the aim of psychologists of music is the development of theories of the mental processing of musical events, or the relationship between the listener, performer or composer and the musical environment. In a number of respects these aims are quite complementary, but the different disciplines that they represent come into conflict in the way in which they describe their material, and in what they extract and evaluate as significant findings.

Clarke (1989, pp. 1–2)

At times this conflict has become quite heated. In his ‘Fortenotes’ that appeared in *Music Analysis*, 17(2) (a tribute volume to the Yale music theorist Allen Forte, who introduced ‘pitch-class set analysis’ to musicology in his seminal book *The structure of atonal music* [1973]), Jonathan Dunsby satirizes music psychologists as would-be enforcers of an imaginary law which dictates that musicological validity necessarily equates to perceptibility:

I cannot be alone in having taught, *StrAMly* [*The structure of atonal music*], surreptitiously, ‘hunt the hexachord’. That’s the way you make a set complex work, asking a student to interrogate whether that embarrassing challenger-set really mattered so much and could not perhaps be excluded as a feature of the music, or whether there were not many more lurking hexachords that s/he had heard/seen (I am almost tempted to add ‘/played’, but

presumably in this forum I can write shielded from the Perception Police).

Dunsby (1998, p. 179)

In order to understand how academic discourse on music could have become so polarized, one has to appreciate that groups within the music-theoretical community had felt themselves under attack from music psychologists who had shown, for example, that the perception of octave equivalence in pitch sequences—a ‘given’ in the composition of serial music and pitch-class set analysis—was by no means a ‘given’ to the musical ear operating in the absence of a score (Deutsch and Boulanger 1984),¹¹ and that the measures of similarity between pitch-class sets as developed by Robert Morris (1979–1980)—measures that lay at the heart of this music-theoretical enterprise—did not accord with similarity judgements made aurally.¹²

However, the traffic was not all one way. Still on the subject of differing perceptions of similarity, in 1994, Nicholas Cook launched a scathing attack on Rita Wolpert’s (1990) research, in which musicians and ‘non-musicians’ (so-called) were asked, among other things, to compare a tune and accompaniment played (a) on a different instrument and (b) on the same instrument as the original, but with the accompaniment transposed down a fifth. The musicians consistently chose option (a)—for them, playing the accompaniment in the wrong key made a bigger difference than playing the music on a different instrument—whereas the non-musicians almost exclusively opted for (b): for them, the identity of the instrument outweighed any changes they noticed in the accompaniment. According to Wolpert, these findings show that musicians do not listen in the same way as non-musicians: their choice of instrumentation over correct harmonic accompaniment ‘suggests a profound overestimation of what most listeners hear’. As Cook points out, though, this is a far-fetched conclusion: what Wolpert’s experiment actually reveals is that listeners with different backgrounds respond in different ways to questions

¹¹ See also the psychologically inspired critique of serialism by Fred Lerdahl (1992).

¹² Cheryl Bruner (1984).

as to whether one musical extract is more or less like another (1994, p. 68).¹³

These two examples bring sharply into focus just how different the aims and values of music psychology and music theory continued to be in the years that followed Eric Clarke's (1989) exhortation to researchers to seek to establish a rapport between them.¹⁴ In 2003, David Temperley summarized the ongoing division thus:

music psychology tends to focus on how people typically hear (or play or compose) pieces, tending towards generalities or commonalities; whereas music theory and analysis usually seek to discover what listeners could (or should) hear, and bear largely on specific compositions.¹⁵

In similar vein, in reviewing Kevin Korsyn's *Decentering Music* of 2003, Elizabeth Margulis (2005) wrote:

Music cognition tends to explore those aspects of musical experience that are relatively robust and shared across large populations (betraying a dependence on what Korsyn sees as the problematic construct of 'normalcy'), rather than those that are unique and more amenable to the committed introspection of a single listener. ... Music analysts who rely on introspection as a methodology might manifest a commitment to music as an individual experience, constructed as fully by the listener as by the composer and performer. This vision elevates the specialist, and promotes the importance of training. Researchers who rely on empirical methodologies might reveal a commitment to music as more of a shared experience, with invariant features that characterize the hearing of a neophyte as much as a person with decades of training.

Margulis (2005, pp. 334–335)

Joshua Mailman (2007), in his review of Adam Ockelford's *Repetition in music: theoretical*

and metatheoretical perspectives (2005a) refers to the music-cognitive approach as 'populist', as opposed to the 'progressive' tack taken by theorists and analysts, which seeks to extend the boundaries of musical understanding, rather than defining what may be 'typical' or 'usual'. Mailman cites Joseph Dubiel (1999) in support:

The crucial condition for any increase in musical knowledge is to keep yourself ready to be struck by aspects of sound that you weren't listening for. [This means that] the value of analyses will ultimately be their value as ear-openers.

(p. 274)

In accordance with this sentiment, Mailman takes Ockelford to task for his critique of David Lewin's analysis of the opening of the development section of Mozart's Symphony No. 40, K. 550, which had appeared in Lewin's landmark text *Generalized musical intervals and transformations* (1987)—a mathematically based theory of musical structure. The passage in question, Lewin had observed, can be interpreted as a chain of retrograde inversions (RICH); see Figure 50.1.

However, the ontological status of this pattern is unclear. As Ockelford (2005a, p. 99) asserts: 'There is no evidence that Mozart conceived the passage in this way, nor that listeners perceive it so, nor even that analysts typically construe the sequence as being structured thus,¹⁶ although there are precedents.'¹⁷ Ockelford hypothesizes that listeners would be more likely to make sense of the passage by (subconsciously) modelling its structure as a series of transpositions: a more direct interpretation than Lewin's, which requires less cognitive manipulation of the musical information that is available.

Mailman, however, considers Ockelford's approach to the passage to be 'too narrowly conceived' (op. cit, p. 369), contending that he

overlooks what we gain from Lewin's discovery of RICH in Mozart's symphony: when we notice RICHs in Webern's 12-tone works, we

¹³ Ironically, Cook himself comes in for comparable methodological criticism in relation to his foray into experimental psychology which investigated the perception of large-scale tonal closure (1987); see Gjerdingen (1999).

¹⁴ In 'Mind the gap'—see note 10.

¹⁵ Personal communication to Adam Ockelford, cited in Ockelford (2005b).

¹⁶ See, for example, Saint-Fox (1947), Dearling (1982) and Abert (1990).

¹⁷ For instance, Keller (1966, p. 97).

Mozart: Symphony No. 40, K. 550; 4th Movement

Violins

127

RI

RI

RI

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RI

RI

Fig. 50.1 'RICH' in Mozart, K. 550 (after Lewin 1987, p. 230).

Mozart: Symphony No. 40, K. 550; 4th Movement

Violins

127

TRANS

TRANS

TRANS

Fig. 50.2 More straightforward interpretation of the structure of the passage as a series of transpositions (after Ockelford, 2005a, p. 102).

can relate these conceptually to the RICHs in Mozart—a lucrative inter-repertoire link ... Abstractions like RICH push beyond the everyday experience of repertoire that the 'populist' approach often assumes.

However, as Ockelford points out, in a conceptual thread that weaves its way through *Repetition in music*, there is a serious problem with this line of thinking. To understand why, let us first take a step back to the theory that

lies at the heart of the volume: namely, that all internal musical structure relies ultimately on repetition, in one manifestation or another. For example, as Sloboda noted in his first book *The musical mind: the cognitive psychology of music* (1985), for music perception to 'get off the ground', there is a need for a framework of discrete and re-identifiable locations in pitch and perceived time, without which the dialectics of tension/resolution and motion/rest could not

exist (pp. 154 and 259). That is to say, in order for our perceptual and cognitive processing abilities not to be overwhelmed, composers have to work within tight constraints, whereby the number of different categories of pitch, interval, and the time between the onsets of successive notes is limited. This means that a high degree of ‘background’ repetition is inevitable in any piece. Furthermore, while the burden of the musical message tends to be conveyed by characteristic combinations of pitch and rhythm, further background restrictions typically apply to other qualities of perceived sound too, such as timbre and loudness. These almost invariably fulfil a secondary role as ‘carriers’ of the principal stream of information, and as a consequence tend towards coherence based on uniformity or incremental change—features which, once more, are founded on repetition.¹⁸ Hence, behind the creation of every work lie constraints that mean that many musical events, and the relationships between them, will be the same, regardless of the subsequent choices of the composer. A key issue, therefore, for those trying to fathom how we make sense of musical structures is not so much about the discovery of sameness and similarity per se, but of analysing the *significance of commonality in different contexts*.

To give an idea of the scale of this issue, take, for example, Chopin’s Prelude in B minor, Op. 28, No. 6, which comprises 403 separate notes that are played on the piano, typically within a period of two to three minutes. If one considers the relationships between (any) pairs of pitches the same as being of potential structural significance, then the analyst is faced with around 13 000 candidates. If it is the relationships between pairs of *intervals* the same that are thought to be of possible structural relevance, then she or he would have 500 *million* to choose from. And this is in just one domain: pitch.

Arresting statistics, one might think, but of no possible musicological value, since they ignore two key factors in the creation of musical structure: the sequence of events and their associated rhythm. Yet that is exactly what Allen Forte’s set theory, alluded to above, does. The theory was originally intended to offer a mechanism

through which the structure of the atonal music of Schoenberg, Webern and Berg and other composers written at the beginning of the twentieth century could be explained systematically. In undertaking set-theoretical analysis, one makes the initial assumption that all pitches and intervals (unlike those in tonal music) are potentially equal in structural terms. Hence the immediate analytical challenge posed is one of scale: how to reduce the available data to manageable proportions. To tackle this problem, a process of reduction was devised that borrowed a number of concepts from Schoenberg’s ‘serial’ compositional procedures. This holds that one set of pitches can be regarded as equivalent to another, irrespective of transposition or inversion, the octave in which values are realized, whether or not they are repeated and, additionally, the order in which they occur. Ferreting out equivalent sets (as the citation from Dunsby above indicates) is fundamental to this type of analysis. But how is it to be done? Although some sets can be isolated as units ‘by conventional means, such as a rhythmically distinct melodic figure’ (Forte 1973, p. 83), such techniques do not necessarily ‘adequately reveal structural components’, since methods of segmentation may be ‘concealed’ (ibid.). In order to uncover the hidden organization of pitch, Forte recommends a procedure termed ‘imbrication’: ‘the systematic (sequential) extraction of subcomponents of some configuration’—that is, listing all the pitch-class sets contained within a passage in the hope that this will reveal relationships that were not otherwise apparent.¹⁹

While it is conceivable that such a process may uncover pitch structures of musical interest that listening alone would have failed to detect (and which may inform subsequent audition), there remain a number of problems with this technique. For example, sets may not have been apparent in the first instance for the very good reason that they could not be extracted perceptually from large and complex aggregations of notes—and how, therefore, could they *ever* be structurally relevant to any listener, novice or expert? Again, the scale of the enterprise presents a huge problem. Take, for example, Schoenberg’s

¹⁸ See, for example, Boulez (1963/71, p. 37); Erickson (1975, p. 12).

¹⁹ See, for example, John Roeder’s (1988) analysis of Webern’s Piece for Cello and Piano, Op. 11, No. 3.

Three Piano Pieces, Op. 11, No. 1—one of the first atonal works to be composed. The opening 4½ bars comprise 24 events in the form of a right-hand melody supported with discrete chords and traces of counterpoint, together lasting no more than 10 seconds. Forte (1981) undertakes an analysis, in which he identifies 14 different pitch-class sets, occurring in total 28 times. However, by adopting a systematic approach, using Forte's recommended technique of imbrication, it becomes apparent that all of the 208 possible pitch-class sets are actually present! These occur with mind-numbing frequency: for example, there are 262 appearances of 3-note sets, 884 4-note sets, 3152 5-note sets and (preliminary analysis suggests) over 10000 6-note sets. How is the analyst ever to make sense of these data? Presumably by reverting to the musical intuitions that were abandoned in the first place in the interests of scientific rigour!

Although analysis of this type occupies only one region in the broad domain of music theory—arguably in an area that is furthest away in epistemological and methodological terms from music psychology—the issues of perceptibility and relevance for different groups of listeners apply to other music-theoretical approaches too. For example, Heinrich Schenker's multilayered analyses, which are based on the notion that, in the context of tonal music, some pitches and harmonies can structurally 'prolong' others, are not contentious in music-psychological terms when the prolongations are relatively near to the musical 'surface' and last only a few seconds.²⁰ However, Schenker's own application of this principle deep into the structural foundations of a piece, whereby it is asserted that single chords may in some sense control events lasting many minutes, has found no empirical support (see note 13). Unlike much pitch-class set analysis, however, it is conceivable, particularly for those with 'absolute pitch', that pieces *could* be heard as Schenker analyses them—as long-term prolongations of the tonic and dominant chords—if expert listeners chose to do so.

²⁰ As the recent empirical work of Isabel Martinez shows (The cognitive reality of prolongational structures in tonal music, unpublished Ph.D. dissertation, University of Roehampton, 2007).

The same applies to other music-analytical approaches too. Take, for example, Rudolph Rétí's *modus operandi*, as set out in *The thematic process in music* (1951), through which he seeks to unearth (typically) 'hidden' motivic relationships that he claims exist within and between the movements of pieces, subconsciously unifying them in the ears of listeners. Again, despite the feeling that Rétí may be confusing the 'background' repetition that, as we have seen, is inevitable in any comprehensible piece of music, with the 'foreground' that a composer may choose to overlay upon it, it is conceivable for expert listeners to hear music in line with Rétí's analyses if they elect to do so.

Where do approaches such as this leave the relationship between music psychology and music theory? Let us return to Eric Clarke's proposed 'rapport' of 1989, which, he suggests, could be achieved by developing a kind of description that recognizes the mutual relationship between a perceiver and his or her environment.

The aim of such an approach would be to describe musical events for a particular kind of perceiver [ranging, we may surmise, in Mailman's terminology, from a 'populist' listener to a 'progressive' theorist], taking account of the stimulus material, the perceptual systems that exist, and the cultural systems within which evaluations of musical function are made. This is in essence an argument for an ecological description, since it proposes that while there is an indefinite number of possible descriptions of the same state of affairs from a variety of different perspectives, and at a number of different levels, the kind of description that is of primary interest to us will be at a level, and of a breadth appropriate to human beings, their musical artifacts and activities, and the natural and cultural environment within which they are situated.

Clarke (1989, p. 12)

Ockelford (2005b) proposes a way in which such a description could be modelled. He suggests that all potential music-structural relationships²¹ can be considered to exist on a continuum with

²¹ That is, in terms of Ockelford's 'zygonic' theory, between events the same, where one could conceivably be deemed to derive from the other.

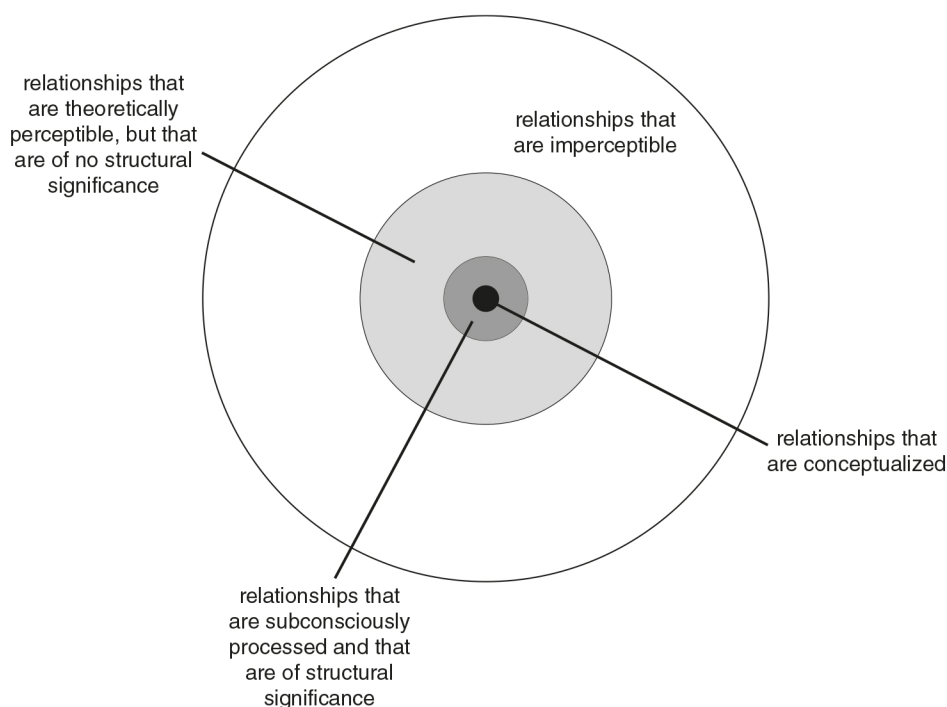


Fig. 50.3 Representation through different shading of a set of potentially structural relationships as they are hypothesized to exist in relation to mental processing.

three distinct sectors: those that are (1) imperceptible or non-cognizable; (2) perceptible but of no direct significance to musical structure (arising, for example, by chance, as a result of ‘background’ repetition); and (3) subconsciously processed and of direct relevance to the cognition of structure. Inevitably, the boundaries between these sectors are fuzzy, since which potential relationships actually become reified in cognition, and the significance of these, is, as Clarke’s ecological standpoint indicates, liable to vary from listener to listener, and even with the same listener on different occasions. However, where a given relationship is likely to reside on the continuum can in broad terms be predicted in relation to cognitive constraints and preferences that could be empirically tested (Ockelford 2002). A fourth condition—structural relationships that are consciously processed/conceptualized (by composers and theorists or analysts, for example)—is subject to even greater variation, having the potential to be overlaid anywhere on the other three regions.

This model can be represented graphically as shown in Figure 50.3. In order to interpret the diagram correctly, one has to imagine an exponential growth in the number of potential relationships as one moves outwards from the centre. Using the model, it is possible to capture visually the epistemological issues raised above and clarify some of the misunderstandings that are reported—a necessary step in seeking to resolve them.

First, we will use the model to depict the case of a listener relatively familiar with a piece and its broader stylistic context, though not approaching matters with a mindset to conceptualize what is being heard (an example of Mailman’s ‘populist’ perceiver). Intuitively, the music makes sense to the person concerned, and so we can surmise that he or she must be processing structural relationships subconsciously—a situation represented in Scenario A (shown in Figure 50.4). Turning next to Margulis’s neophyte, one could imagine that she or he would pick up on rather fewer structural relationships,

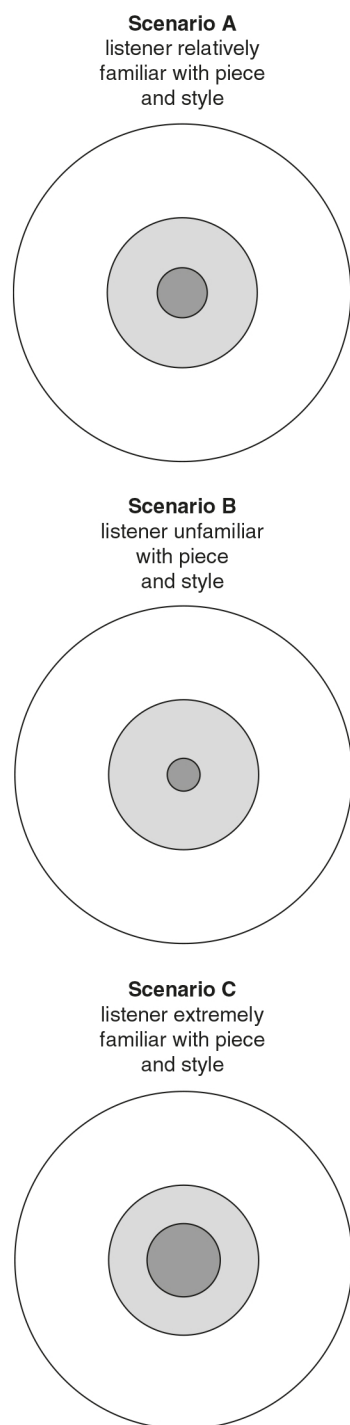


Fig. 50.4 Varying state of relationships hypothesized to exist in different scenarios pertaining to listening.

though still presumably enough for the music to be recognizable as abstract patterns in sound that in this case convey a certain, rather limited, meaning. This is depicted in Scenario B. Notice that that Sector 1 is diminished in size. Conversely, the situation with an expert listener, who is attending to piece without conceptualizing what is heard, may be illustrated with a somewhat larger Sector 1: Scenario C. It is important to appreciate that in Scenarios A, B and C, the processing of musical structure can occur within the absence of description or analysis of the organization that is present—indeed, without the listener having had any formal musical education—the recognition of perceived sonic patterns and the ascription of meanings to them being enabled purely through repeated exposure.

Naturally, when composers, performers or listeners, whether functioning as psychologists, theorists, educators, therapists or others, consciously *think about* music—or ask others to—the situation changes. Take, for example, Wolpert's experiment, mentioned above. Her results show that the musicians in her experiment were able to conceptualize structural relationships in the domains of pitch and perceived time that they would otherwise have been likely to hear subconsciously. Hence, the situation arose that is depicted in Scenario D (see Figure 50.5). However, it appears that Wolpert's so-called non-musicians, when required to effect the same comparisons, were drawn by the nature of the question they were asked: to conceptualize *different* perceptible relationships, this time in the domain of timbre, that are not generally considered by musicians to be 'structural' (rather, residing in the musical 'background'). Hence we have Scenario E. Clearly, both Scenarios D and E have a certain intrinsic validity (since they both represent sets of empirical findings), but the situations they model are quite different, and the danger occurs when the two are subjected to a common interpretational framework.

We move next to the scenarios engendered by the music analyses that have been discussed, beginning with Forte's account of Schoenberg's Op. 11, No. 1. Now it may be that some of the relationships between pitch-class sets of three notes, which we can assume would pass the great majority of listeners by unnoticed (and which

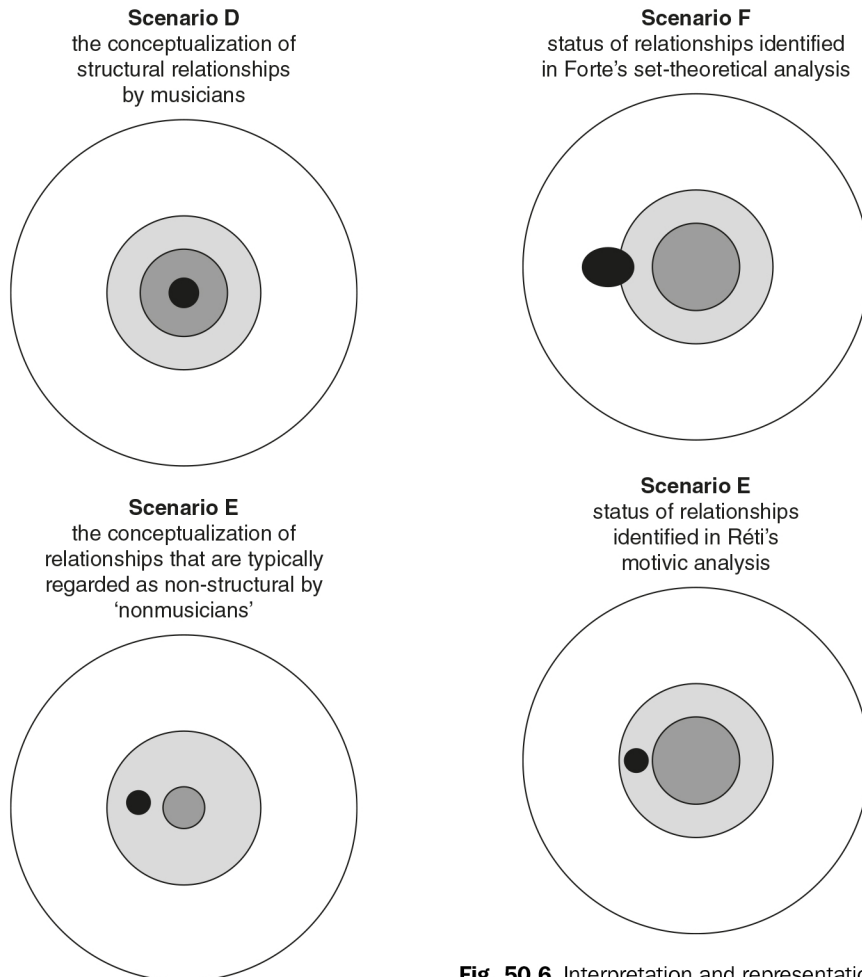


Fig. 50.5 Interpretation and representation of Wolpert's findings (1990).

would therefore in most circumstances be deemed structurally non-essential), could be perceived with practice, although there are others that would appear to be inaudible, no matter how well-prepared the listener were to be: for example, when the analysis decrees that a pitch within a four-note chord should be heard as functioning in three different four-note sets simultaneously. Hence it seems that Forte's analysis spans Sectors 2 and 3—see Scenario F (in Figure 50.6). Réti's analyses, on the other hand, would on the whole be perceptible once they have been drawn to listeners attention: hence Scenario G. However, these arguably

Fig. 50.6 Interpretation and representation of Forte's and Réti's styles of analysis.

imbue the regular warp and the weft of the musical fabric with significance over and above the melodic and harmonic patterns that composers have woven through it, and they have failed to gain acceptance among musicologists or musicians.

A similar situation holds in relation to Mailman's critique of Ockelford's assessment of Lewin's late-Mozart analysis, which is discussed above. In terms of the three-sector model, Lewin's approach, using the transformation 'RICH', conceptualizes relationships that would typically be in Sector 2, whereas it is possible to assign the same musical structure to transpositional relationships, which exist in Sector 1. To return to Mailman's argument, however, if we

are ever to *expand* Sector 1—to be ‘progressive’, which he sees as a crucial part of music theorists’ role—then we need to push out the boundaries beyond those which the ear would otherwise determine unassisted. That is, there is virtue in consciously seeking to claim structural territory from Sector 2. The implication is that conceptualization may affect perception and, in effect, a migratory effect is possible, whereby relationships that were once in Sector 2 metaphorically shift to Sector 1. Within limits, this seems reasonable enough. The first author can recall such an experience, when, having become acquainted with Schoenberg’s analysis of Brahms’s fourth symphony, motivic relationships became apparent that were subsequently embedded in listening experiences (1947/75, pp. 405–408). However, this is a long way from saying that much set-theoretical analysis could ever have intrinsically *musical* relevance, no matter now practised the listener. As we have seen, because all music is supersaturated with repetition, any piece contains a virtually infinite number of potential patterns, which will be of varying degrees of interest, no doubt, according to one’s point of view, but the majority of these should not be intellectually conflated with *musical* structure. Rather, they exist as a by-product of the way that music is put together in order for it to be comprehensible. It is surely at this point that the music psychology’s relationship with music theory reaches a boundary (and arguably where music theory itself becomes something rather different).

Summary

In summary, then, music psychology overlaps with a number of other disciplines, including music education, therapy, ethnomusicology, and music theory and analysis. There are tensions in each case, but, as the citations above have indicated, benefits too for those who are prepared to explore with an open mind. Ultimately, however, music psychology cannot be extended beyond the boundaries of its epistemological box, always granted that the sides are flexible and subject to change: indeed, such movement is likely to come about through the influence of adjacent disciplines. This has been shown, for example, in the groundbreaking

work of Aaron Williamon and his colleagues at the Royal College of Music in London—the first UK conservatoire to establish a music–psychological research centre, which has aimed to support students in improving their performance skills and managing the high levels of stress that are often induced by performing in public. In terms of the common space occupied by elements of music psychology and music theory, further developments may well mean having to accept that the initial research questions and the *evaluation* of data may well be guided by musical intuitions, but that the gathering and *analysis* of data should be rigorous and undertaken with a ‘scientific’ detachment. Two decades on from Clarke’s appeal to ‘Mind the gap’, there is now a greater clarity as to what this conceptual intersection might look like, how it might function, and even what it should be called: ‘empirical musicology’. According to Honing (2006), empirical musicology, which now has its own journal (*Empirical Musicology Review*) ‘grew out of a desire to ground theories on empirical observation and to construct theories on the basis of the analysis and interpretation of such observations’. And as Cook and Clarke put it in the introduction to their book *Empirical musicology: aims, methods, prospects* (2004), ‘Empirical musicology can be thought of as musicology that embodies a principled awareness of both the potential to engage with large bodies of relevant data, and the appropriate methods for achieving this’ (p. 5). Hence one senses that in this sphere of activity the influence of music psychology may be keenly felt in the next decade.

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