

Review

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Lawrence M. Zbikowski. *Conceptualizing Music: Cognitive Structure, Theory, and Analysis* New York: Oxford University Press, 2002.

REVIEWED BY JUSTIN LONDON

With apologies to Deryck Cooke, the way that we talk about music doesn't just come (or even mainly come) from the music itself. But where, exactly, does our discourse about music come from? And just how do we make connections between our musical and our non-musical thoughts and experiences? In *Conceptualizing Music*, Lawrence Zbikowski gives these questions careful consideration, drawing on a rich and thorough understanding of cognitive science, the philosophy of language, developmental psychology, and of course, music theory and analysis. One finishes this book with a clearer idea of what we are doing when talk about music, and for music theorists this is especially salutary.

Conceptualizing Music is written with a broad readership in mind—not just musicians and music theorists, but also researchers in cognitive science, metaphor, and philosophy. Theorists will appreciate the analytical details he provides throughout his discussion, as well as the wide variety of repertoire he considers, from Palestrina and de Wert to Brahms and Gershwin. Non-theorists will be able to follow Zbikowski's analyses, as he gives a clear explanation for each of his scores and graphs. For readers wanting more information about a particular topic, whether a source in cognitive science or a musical analysis, Zbikowski provides copious references and comments in his footnotes.

The book is well organized, with helpful summaries at the end of each section and chapter. While Zbikowski intro-

duces a good number of terms (type-one categories, cross-domain mapping, conceptual integration network, and so forth), their meanings are always clear in context. Last but not least, Zbikowski has a lively and engaging writing style, with literary examples ranging from Proust to Winnie the Pooh.

Zbikowski rightly presumes that the way we hear and understand music must be in accord with our more general capacities of perception and cognition. First, this means that we perceive and understand the world in terms of *categories*—not as raw bundles of sight, sound, smell, taste, and touch, but as coherent entities, and most often, as instances of this thing or that: a chair, a lamp, a face, a cloud, a tune, and so forth. Our perceptions may be static objects in the visual field, moving sound sources in auditory perception, and so on. Second, while our perceptions occur within a particular sensory or cognitive domain, they don't just stay there. *Cross-domain mapping* is the “process through which we structure our understanding of one domain (which is typically unfamiliar or abstract) in terms of another (which is most often familiar and concrete)” (13). To cite Zbikowski's example, we understand the relatively abstract notion of electrical conductance in terms of more familiar hydrodynamics, and so we talk about electricity as “juice” or as a “current” that “flows” through a wire (13–14). Third, we collate various categorizations and cross-domain mappings around a particular phenomenon or object to create *conceptual models*. In turn, conceptual models serve as the building blocks for *theories*, and these can be theories of anything and everything from zoology to physics to music.

Zbikowski lays out the main tenets of his approach—Categories and Categorization, Metaphor and Cross-Domain Mapping, and Conceptual Models and Theories—in the first three chapters of the book. In the remaining chapters these tenets are applied to a variety of contexts in music theory and analysis: Categorization, Compositional Strategy, and Musical Syntax (Ch. 4); Cultural Knowledge and Musical Ontology (Ch. 5); Words, Music, and Song:

The Nineteenth Century Lied (Ch. 6); and Competing Models of Music: Theories of Musical Form and Hierarchy (Ch. 7). In the remainder of this review, I first go over chapters 1–3 in some detail, both to give the gist of Zbikowski's approach as well as to offer some specific comments. Next I give a few brief comments on chapters 4–7, and then I conclude with some more general criticisms and questions.

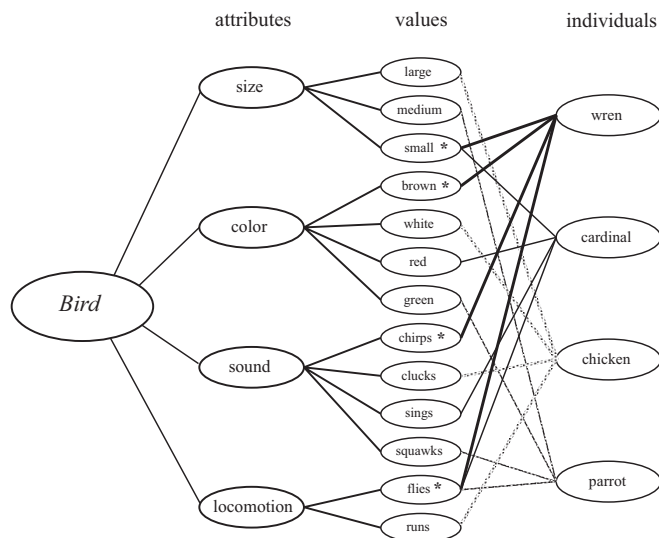
CATEGORIZATION

When we think of the notion of category, we tend to think along the lines of “*x* is an instance or member of some category *C*.” One can determine whether an object belongs in a particular category by giving the philosophically familiar set of “jointly necessary and sufficient conditions” for its membership. The classical view of categories is that they are given by nature, are stable, and are universal. This view of categories was famously criticized by Wittgenstein, who pointed out that the category “game” is not given by nature and stubbornly resists definition by a set of necessary and sufficient conditions. Subsequent research, especially that of Eleanor Rosch in the 1970s and 1980s, has led to a new view: as Zbikowski puts it, “Categories through which humans organize their understanding of the world came to be seen as ways of *having* knowledge, rather than as reflecting what could be known” (30, emphasis Zbikowski's). These categories are known as “natural” categories, based on their emergence from the interaction of humans with their environments (39). Zbikowski calls these *type-1* categories to avoid certain associations with the term “natural.” Type-1 categories stand in contradistinction to “classical” categories that are defined in (the aforementioned) terms of jointly necessary and sufficient conditions. Classical categories are dubbed *type-2* categories by Zbikowski, and he notes that type-2 categories often represent a sub-species of type-1 categories. That is, type-2 categories, if they are given by nature, exist apart from human perception and understanding; in framing their necessary and sufficient conditions we are

simply “carving nature at her joints,” as it is said. But this does not preclude the content of a type-1 category from being congruent with a type-2 categorization: by having knowledge in certain ways, one may come to understand some domains in terms of classical categories, as, for example, in the case of our having knowledge of physics or chemistry via empirical science. (I will have more to say on this relationship below.)

The nature and function of type-1 categories becomes clearer when we consider the notions of *basic levels* and *prototypes*. Consider the noun (that is, the category) “bird.” If we see a bird, we are apt to say (should the occasion warrant), “Look, there's a bird.” We don't say “Look, there's a vertebrate” (too general, and probably not relevant), or “Look, there's a blue-footed booby” (too specific, even if it is a blue-footed booby). Now, if those other levels of categorization are relevant, then we make use of them, especially the more specific categories. So, for example, if I am out with the Northfield Bird Watching Society, I may well say “Look, there is a blue-footed booby” (especially as it would be wildly out of habitat). But in most discursive contexts, we would simply say “Look, there's a bird.” This is because “bird” is a *basic level categorization* of a class of living creatures, one that is neither too general nor too specific. Our knowledge of birds and the conceptual category “bird” is not abstract in its origin or usage, but grounded in our perceptions of birds and knowledge of particular bird facts. We organize this knowledge in terms of a *frame* for the category “bird.”

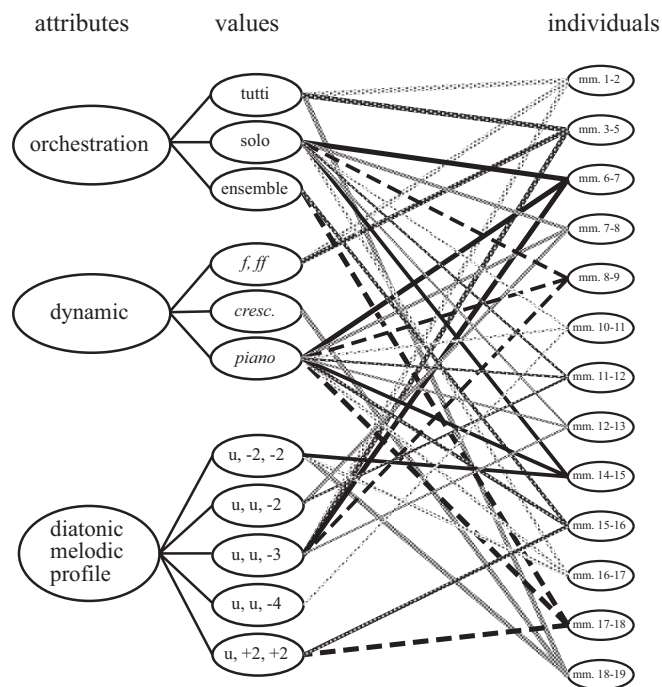
Zbikowski's Figure 1.1 is given in Example 1. Here the category “bird” is organized into sets of attributes which take particular values, and this framework guides our encounters with individual birds. Moreover, not all birds are categorically equivalent. When we think of the basic category “bird,” we typically don't think of a hummingbird, an eagle, or a blue-footed booby. Research by Rosch and others has shown that species like wrens and robins are regarded as the most central exemplars of the category “bird” (see Zbikowski 38, fn); these are the *prototypes* of the category. If we have a sense



EXAMPLE 1. *A partial frame for the category bird.* (Zbikowski 2002, Figure 1.1, 42). By permission of Oxford University Press, Inc.

of a prototypical member of a particular category, we can then speak of *prototype effects*, whereby a particular individual can be judged as more or less dissimilar to the prototypical set of values for the attributes of members of a category. Thus category membership is not an all-or-nothing affair, but rather is graded, and we can speak of an individual as better or worse example of a given category.

Zbikowski makes good use of categories, frames, and prototypes in one of the traditional occupations of musical analysis, namely, the demarcation of motivic relationships. Example 2 is his diagram of the category “motive forms from the opening 21 measures of Beethoven’s Fifth Symphony.” As in the previous figure, here the various presentations of this familiar motive are characterized in terms of particular values of relevant attributes. Moreover, Zbikowski notes that while most of the statements of the motive are stated by in-



EXAMPLE 2. *Diagram of the category motive forms from the opening of Beethoven’s Fifth Symphony, mm. 1–21* (Zbikowski 2002, Figure 1.2, 44). By permission of Oxford University Press, Inc.

dividual instruments or sections, in an imitative texture, and at piano dynamic level, our intuition is that the prototypical form of the motive is given in the opening, fortissimo tutti. Thus a prototype is not necessarily (or even usually) the most statistically-prevalent form of a motive. Rather, our knowledge of Classical style and musical rhetoric informs our sense of motivic prototype. In the first chapter, Zbikowski also discusses the various forms of the *Leidensmotive* from Wagner’s *Tristan*. Here the situation is, categorically-speaking, different, as Wagner is “both playing with and

relying on our capacity to remember the motive, a capacity directly related to our ability to categorize it" (57). Wagner's ever-changing presentations of this motive especially resist categorization precisely because we can't nail down the values of its relevant attributes.

CROSS-DOMAIN MAPPING

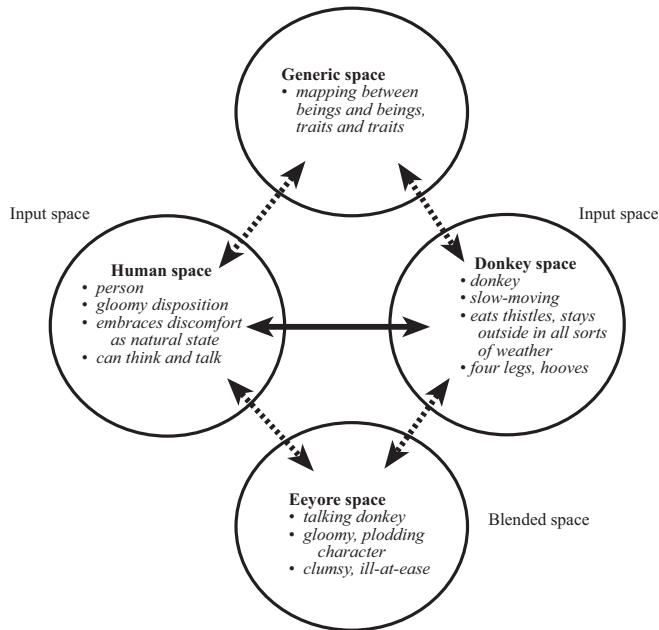
When Shakespeare writes "Juliet is the sun," he characterizes one thing (a young girl) in terms of another (a star, a source of light and warmth). This is, of course, metaphor, but more broadly it is *cross-domain mapping*. Cross-domain mapping is not just a feature of language, but as Lakoff and Johnson (1980), among others, have argued, it is a pervasive aspect of how we structure our understanding of the world. Johnson (1987) has argued that a good deal of our "source domain" knowledge comes from our bodily experiences in our environment, and these give rise to *image schemata*. For example, there is the VERTICALITY schema, which provides an axis of orientation (up vs. down) and structures our source domain; we use this schema when we speak about "feeling up" versus "feeling down" (or even worse, "feeling depressed"). And of course, we commonly speak of pitch relationships in terms of up and downward relationships in an imaginary musical space. Susanne K. Langer (1953) described this as the "virtual space" for musical motion, and more recently Roger Scruton defined an "acousmatic" space for musical phenomena, wherein we "spontaneously detach the [musical] sound from the circumstances of its production and attend to it as it is in itself" (1997, 2–3). Zbikowski discusses the up-down mapping of pitch at some length, noting how in part it may stem from our bodily experience of pitch (low sounds from the chest vs. high sounds from the head, 69); and he demonstrates how the VERTICALITY schema relates to text painting in Palestrina (on the word "descendit" in the Credo of the Pope Marcellus Mass; 82–83). Zbikowski takes care to show the cultural contingency of the VERTICALITY schema. Hence he notes that while our

bodily experiences of up-down relationships are (presumably) universal, other cultures may nonetheless use other schemas to contextualize pitch relationships, as in the music of Bali where a SIZE schema (large vs. small pitches) is employed (67–68).

Cross-domain mappings can lead to *conceptual blendings*. Anthropomorphism is a familiar form of conceptual blending, and Zbikowski illustrates the way non-human objects and creatures take on human attributes with an example, shown here as Example 3, from Winnie the Pooh. The cross-domain mapping takes place within a *conceptual integration network*, where concepts from two particular "input spaces" (here human and donkey/animal attributes) are combined to create an "Eyore space," a *blended space* in which we can coherently imagine gloomy, talking donkeys. Zbikowski argues that blended spaces play an important role in our understanding of song and program music. Through such blending, a text and its related music become more than the sum of their parts. Indeed, Zbikowski suggests that without recourse to such conceptual blends, one cannot fully understand text-music relationships, programmatic music, or the coordination between sound- and image-tracks in film. In the case of Palestrina's Credo, Zbikowski claims that without blended conceptual models of (melodic) descent and linguistic meaning, listeners will get no further than understanding the music as generally "sad" or as "losing energy" (89).

CONCEPTUAL MODELS AND THEORIES

Zbikowski introduces conceptual models and theories by reviewing Jean Bamberger's work (1991) on musical development. In her study, Bamberger had children play familiar melodies (such as "Twinkle, Twinkle Little Star") using a set of Montessori bells. A Montessori bell set is comprised of seven diatonic bells and twelve chromatic bells, all within the same octave. Thus there are two bells for each diatonic pitch. All of the bells are of the same size and shape, though the diatonic and chromatic subsets are differentiated by color.



EXAMPLE 3. *Conceptual integration network for A. A. Milne's Eeyore (Zbikowski 2002, Figure 2.2, 79). By permission of Oxford University Press, Inc.*

After having chosen the bells they needed, Bamberger told each child to arrange them in a manner that would enable them to play the melody and to instruct another child to do the same. Given the limited number of bells, the challenge is how to handle repeated or recurring pitches in a melody.

Zbikowski goes over one case in particular, that of an 8-year old boy Bamberger refers to as “Jeff” (a pseudonym). Jeff played the first phrase of “Twinkle, Twinkle” by choosing using a set of bells which included two of scale degree $\hat{5}$ and two of scale degree $\hat{1}$. This enabled Jeff to have a simple linear path through his bell set, though most bells had to be struck twice to produce the repeated tones of the melody. Bamberger then took away the chromatic set, leaving only

the diatonic. Of course, Jeff now had to follow a different path—one involving various switchbacks—through his bell set. In each case Jeff had to figure out how the bell set related to the tones of the melody. Both Zbikowski and Bamberger claim that Jeff’s bell arrangements each represent a kind of mapping of pitch space, since playing the tune requires a pathway through each particular pitch space.

Zbikowski gives an extended account of how Jeff initially developed a conceptual model for pitch and then changed it, in accordance with the changing relationships between pitches and the objects which could generate them (99–106). But while it is true that Jeff had to develop a theory that took pitch relationships into account, it is not clear to me that Jeff’s bell arrangements represent a mapping of a more abstract pitch space. For what Jeff had to come up with was not a theory of pitch, but a theory of bell playing. His task was to use the available resources to produce the melody for “Twinkle, Twinkle” in an efficient manner. We cannot tell from Bamberger’s experiment whether Jeff heard and/or conceived of pitch in terms of relative height, whether he was sensitive to melodic distance and contour, or whether Jeff had a strong sense of pitch recurrence. For does returning to the same bell really mean he is conceiving of the same pitch? What if the harmonic context is different, for example? Bamberger’s experiment is task-driven, and what had to change in the second case was the nature of the task, given Jeff’s more limited instrumental resources. In neither case do we have a clear insight into Jeff’s conceptual model for pitch.

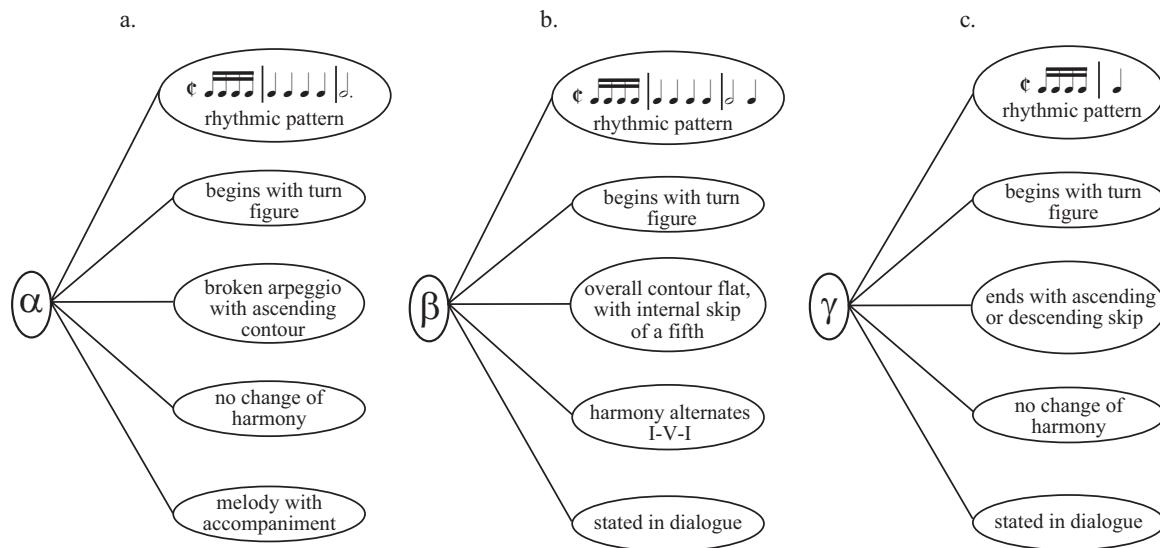
Zbikowski notes that conceptual models involve a limited set of correlations between a domain-specific set of concepts, with those correlations functioning as our “working knowledge of reality” (111). This working knowledge comes from two sources: from culture, chiefly from our observation and imitation of others, and from cross-domain mapping, for if we can efficiently structure knowledge from one domain in terms of another, we have a new conceptual model. *Theories* coordinate a number of conceptual models to give a more

comprehensive account of the world. Zbikowski notes that conceptual models are immediate and not consciously evaluative, while theories are always evaluative. Zbikowski makes a distinction between *scientific theories* and *cultural theories*. The former serve as guides for reasoning and inference, provide answers to conceptual puzzles, and tend to simplify reality. Cultural theories extend scientific theories in two ways: they are manifestations of cultural knowledge (developed within a larger set of cultural, as opposed to just scientific, practices), and they can be implicit and nonverbal.

In Chapter 4, Zbikowski looks at motivic strategies in contexts ranging from 18th-century musical dice games (140–153) to Beethoven's Op. 18 quartets (169–198), a Cook's tour of "musical prototypes in action." Zbikowski's aim here is to demonstrate how a consideration of category and prototype can help our analysis of motivic function and

development. For instance, he gives a diagram, provided in Example 4, of the characteristic features of various presentations of the principal motive from the first movement of Op. 18 No. 6.

This diagram helps Zbikowski describe how one version of the motive is more or less like another, which version functions as the prototype, and so forth. He also discusses the relation between various versions of the motive and their formal functions (versions that function as beginnings versus those that are endings, and so forth). One slightly problematic aspect of Zbikowski's presentation here is that while he (presumably) wants to employ type-1 categories for our understanding of motivic relationships, he ends up sorting Beethoven's motives by way of a list of jointly necessary and sufficient conditions (i.e., type-2 categories). The result is that his discussion seems a lot like traditional analysis, as he



EXAMPLE 4. *Conceptual models for three forms of the principal motive from Beethoven's Op. 18, no. 6, first movement, mm. 1–30 (Zbikowski 2002, Figure 4.6, 172). By permission of Oxford University Press, Inc.*

chases down conformant relationships (substituting “category” for “motive” or “motivic variant”). I think his argument here would have been stronger (and its link with his earlier chapters clearer) if he had presented this information in a manner analogous to Example 1 above, showing how the different motivic forms in each movement relate to each other within a framework of various attributes.

In Chapter 5, Zbikowski offers a bold claim: “Solutions to the problems of cultural knowledge in general, and musical knowledge in particular, can be found in what we now know about the process of categorization” (203). That is to say, knowing that something is a piece of music “means knowing how to categorize sequences of sound events in accordance with conceptual models shared with other members of a culture. More specifically, each ‘work of music’ itself constitutes a type-1 category” (203). Zbikowski’s test cases for this claim are jazz standards, specifically the evolving relationship(s) among certain standards, their performers, and their audiences. He traces the composition and reception of Gershwin’s “I Got Rhythm,” first as a popular Broadway tune in 1930, then as a jazz standard in the following decade, and then finally to its more recent usage as a more abstract melodic and harmonic framework for improvisation and composition. The larger point here is that when I say “I heard a performance of ‘I Got Rhythm’ last night,” I may be saying any number of things. What I am saying depends not so much on the time and place of the performance as the particular conceptual model I have in mind: “I Got Rhythm” as a pop tune versus “I Got Rhythm” as a jazz standard versus “I Got Rhythm” as a set of “Rhythm Changes.”

Chapter 6 focuses on text-music relationships in 19th century lieder but in a manner analogous to the title of chapter 4, it might be subtitled “conceptual integration networks in action.” Zbikowski claims that in our understanding of song, *conceptual blending* takes place between the realms of the text and the music to which it is set:

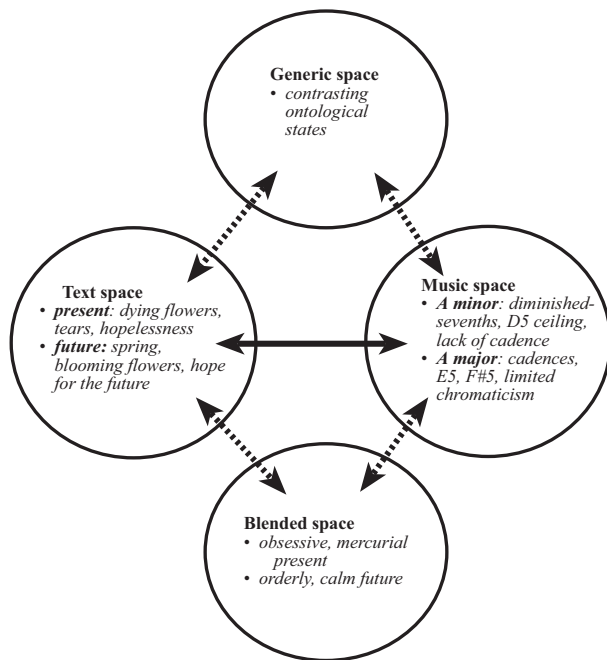
For conceptual blending to occur, the mental spaces that serve as inputs to the blend must have a shared topography. For the songs analyzed in

this chapter I have located this shared topography in the commonalities between the complete discourse structure set up by the music and the complete discourse structure set up by the text (285–86).

Zbikowski presents contrasting settings of the same text (Klein’s versus Schubert’s settings of “Trockne Blumen” and Schumann’s versus Brahms’ settings of “In der Fremde”), as well as Schumann’s setting of Heine’s “Im Rhein.” Each is given a structural analysis (of both music and text), and for each Zbikowski provides a diagram of the *conceptual integration network* we might use in understanding each setting. Example 5 provides the network for Klein’s setting of “Trockne Blumen.” As this diagram indicates, the tonal shift in the music is yoked to the shift of tense (from present to future) across the two sections of the poem. Of this approach to text-music analysis, Zbikowski says:

The theory of conceptual blending assumes that there are structural invariances between the input spaces of a blend: these invariances, encapsulated in the elements and relations of the generic space, are what make conceptual blends possible. In the case of songs, the invariances are between the mental space set up by the text and the mental space set up by the music. Put another way, the fact that combinations of text and music can give rise to conceptual blends suggests that there are syntactic correspondences between linguistic and musical discourse (254).

This claim raises several questions. First of all, I am not sure that major and minor represent “contrasting ontological states,” as indicated in Example 5, as I am not sure what “ontological state” major or minor tonalities indicate within a purely musical domain. More importantly, is it a *fact* that combinations of text and music give rise to conceptual blends? Elsewhere, Zbikowski is more circumspect about his claims, realizing that while these diagrams map out some of the functional aspects of our more complex cognition and understanding, they do not account for the specific mechanism(s) of cognition and understanding. So conceptual blending (at least the sort proposed here) would seem to be more of a working hypothesis than a fact. I am also not convinced that there are *syntactic* correspondences between



EXAMPLE 5. *Conceptual integration network for Klein's "Trockne Blumen"* (Zbikowski 2002, Figure 6.1, 254). By permission of Oxford University Press, Inc.

linguistic and musical discourse. Zbikowski defines syntax in very broad terms, as any “connected or orderly system” (138); even so, it does not follow that the correspondences between two such systems are themselves syntactic in nature. To support such a claim Zbikowski must show that there are significant correspondences between particular musical and linguistic categories and that they serve analogous functions; but he does not do this. Instead, Zbikowski shows (and quite convincingly) how composers are able to forge ad-hoc associations between music and text to achieve their expressive goals.

Finally, Chapter 7 examines competing models of music, aptly comparing music-theoretic discourse to the Mad Hatter’s tea party from *Alice in Wonderland*. For Zbikowski, music theory is a tea party:

... where music theorists from different nations and different historical periods gather around the table to discuss and dispute musical concepts. If we are to make sense of the conversation there, we need to understand how cross-domain mapping shapes this discourse—indeed, ... how it makes music theory possible (289).

Zbikowski shows how ideas about nature, complexity, energetics, and psychology (to name a few), if they are to be applied to music, must be translated from their source domains to their appropriate musical targets. Zbikowski’s tea party includes theorists ranging from Prout and Goetschius to Mattheson, Riepel and Koch to Momigny and Schenker. Topics of discussion include static versus dynamic models of musical form, top-down versus bottom-up approaches to musical structure, and chain-of-being versus atomistic hierarchies. This chapter is not only a tour-de-force tour of music theory from the past two and half centuries; it also draws on an impressive range of sources in intellectual and cultural history (from classical antiquity through Hobbes, Newton, and Leibnitz, as well as literature ranging from Proust to A. A. Milne). Zbikowski deftly shows how the various conceptions of form and hierarchy that we find in works of music theory reflect the political, cultural, and intellectual milieus of the theorists who wrote them.

SOME QUIBBLES AND QUESTIONS

Though it is perhaps churlish to complain of bibliographic omissions in a work that so thoroughly covers the waterfront of music theory, philosophy, and cognitive science, there were a few sources I would have enjoyed seeing Zbikowski engage more directly. First and foremost among them is Mark DeBellis (1995), whose work on categorization, especially his skepticism regarding the impact of music

theory on our musical perception, is directly relevant. In addition, a number of music theorists (e.g., Saslaw 1996) have explicitly discussed image schemas, metaphor, and cross-domain mapping, drawing on many of the same sources as Zbikowski. For example, Brower (2000) has discussed metaphoric schemas for CONTAINMENT and SOURCE-PATH-GOAL. As these schemas seem to have more conceptual content than the VERTICALITY schema that Zbikowski uses as an exemplar, they may not fit into a conceptual integration network in the same way. Likewise I (1996) have argued that in a MUSIC AS LANGUAGE schema, there are fixed aspects between the source and target domains, which would again affect the structuring of the conceptual integration network. There is also recent work in psychology (e.g., Clarke 2000, Shove and Repp 1995) which approaches categorization and meaning from an ecological perspective—that is, the way we make use of the organization of information that is already present in our environment (for example, correlations between the pitch and size of a sound source, between tempo and the velocity of a sound source, and so on). Likewise, there is recent work in neuroscience (e.g., Peretz and Morais 1989) which both supports and challenges Zbikowski's ideas about cross-domain mapping in music.

One other quibble: at various times the layout is irksome. In some places (e.g., the analysis of Beethoven's 5th on pages 35–40) large musical examples fill most (but not all) of a page, with small snippets of text flowing around the bottom. These passages were hard to follow; a reduced score might have helped.

On to more substantive issues. Zbikowski's book, subtitled "Cognitive Structure, Theory, and Analysis," is not really about music per se, but rather about the way(s) we *talk* about music; the presumption is that the way we talk about music also reflects, in large part, the way we *think* about music. Hence in Chapter 1, in his discussion of leitmotivic relations in *Tristan*, Zbikowski states that "understanding Wagner—

or most music, for that matter—requires being able to think in terms of categories of musical events" (24).

Does it? That is, is our musical understanding grounded in "think[ing] in terms of categories of musical events?" First, what does "understand" mean? Jerrold Levinson (1997), drawing on the work of Gurney (1880), has argued that musical understanding centrally involves being able to apprehend the music as it occurs, as it unfolds and moves in time. Whether or not you agree with Levinson's skepticism regarding our apprehension of large scale musical structure (or lack thereof), he seems right emphasize that a central aspect of musical understanding involves our ability to grasp and keep hold of its discursive thread. This "understanding as being able to follow along" approach would not seem to require any categorization whatsoever. Instead, we might employ mechanisms such as the Gestalt principles good continuation and closure (as discussed by Meyer 1956) as we listen. Alternatively, while musical understanding may involve some kind of categorization, perhaps it is far looser than what Zbikowski maintains, that is, a more general sense of gesture and/or meaning. This is the sort of musical understanding Kivy (1990) discusses, using the various characters from E. M. Forster's *Howard's End* as foils. Kivy focuses especially on the musical experience of Mrs. Munt, the character who cannot read music, cannot hum or identify themes, doesn't imagine heroes or narratives when she listens, but can (nonetheless) follow along and can also give a "phenomenological" account of what she hears, something along the line of "oh, there's that anxious bit again." It seems to me that Mrs. Munt cannot be categorizing the music in way Zbikowski describes (as she could admit wildly divergent motives as "the anxious bits"), since Zbikowski's categorizations are grounded on the analytically familiar nuts and bolts of musical structure. Thus, while many listeners may well categorize music along the lines Zbikowski suggests (indeed, it is hard to imagine enjoying a theme and variations without such categorization), it is perhaps too much to claim that

musical understanding in *general* requires Zbikowskian categorizations of musical phenomena.

In his discussion of cross-domain mapping, Zbikowski explores how we understand pitch relationships in terms of an up-down VERTICALITY schema. But do we need *concepts* to have a VERTICALITY schema? It seems fairly obvious that fish and birds have a sense of up and down, but I doubt they possess concepts of “upness” and “downness.” In his discussion of text-painting in Palestrina, Zbikowski places the VERTICALITY schema in the context of a conceptual integration network that locates the “sound of descent” in the blended space of the network (83). This suggests that our sense that a passage is descending is the product of our conceptual consideration: first we hear series of tones with decreasing fundamental frequencies, and then, by virtue of cross-domain mapping with our verticality schema, we say (at some level) “Aha! It is descending.” If I am following Zbikowski’s argument correctly, this means that we grasp the series of pitches as descending by virtue of their serving as a *representation* of descent.

This strikes me as too much metaphor. Research in music perception and cognition has shown that we tend to hear a series of sounds from a common source as a coherent auditory stream (Bregman 1990). Moreover, if the sounds in that stream have the right temporal/rhythmic structure, we will hear movement (Gjerdingen 1994). That this motion may be illusory doesn’t matter—our perception of movement is grasped directly from the organization of the sounds we hear and does not require conceptualization. Moreover, musical tones (like most other sounds) are not just fundamental frequencies, but rather involve a broad range of the acoustical spectrum. Thus a melodic ascent or descent isn’t the simple series of discrete steps suggested by music notation, but a complex fluctuation of energies across a dynamic auditory spectrum.

Of course, we *do* have to conceptualize in order to describe (in language) what we have heard, and Zbikowski is well aware of this distinction. At the beginning of Chapter 2,

he is careful to note the distinction between conceptual metaphors and linguistic metaphors: “A conceptual metaphor is a cognitive mapping between two different domains; a linguistic metaphor is an expression of such a mapping through language” (66). He claims that our sense of “high” versus “low” pitches involves the conceptual metaphor PITCH RELATIONSHIPS ARE RELATIONSHIPS IN VERTICAL SPACE. But if we hear successive pitches as motion within the auditory domain itself, then there is no need for cognitive mapping between the auditory and our spatial (or any other) domains. Indeed, the connection between pitch and spatial relationships may be even more intimate than Zbikowski realizes. Spatial orientation is governed largely by our vestibular system, which is part of the inner ear (Todd 2001). Thus our sense of up-down orientation is part of our auditory perception at a pre-cortical level.

On a larger level, I am skeptical of the notion of a “conceptual metaphor” that is non-linguistic, for both conceptions and metaphors are phenomena that are grounded in language. To put it in Zbikowski’s terms, the prototypical forms of concepts and metaphors are linguistic structures. I can imagine a tune in my mind’s ear; I can feel heat or cold; I can experience the movement of my body; I can see colors in my visual field. Do I need concepts to mediate my perception and/or knowledge of these things? Getting back to our musical example, then, while we may correctly describe Palestrina’s music as representation of descent, it is also, in our experience of it, a descent simpliciter. Indeed, it is precisely because the music-as-heard is a descent that it is an *iconic* representation of descent (Beardsley 1981).

If understanding music involves concepts, that is, being able to say what something is or what it is doing, then it is a kind of *declarative knowledge* (“knowing that”); declarative knowledge may be contrasted with *procedural knowledge* (“knowing how”). For example, I may know how to ride a bicycle, and while I can tell you what I need to do in order to ride the bicycle (keep my balance, keep pedaling, etc.) this isn’t the same as telling you how I do it. Zbikowski’s basic ap-

proach, with its emphasis on categories, concepts, and cross-domain mappings between different conceptual domains, gives pride of place to the declarative aspects of our musical knowledge. What I missed the most (and most look forward to hearing Zbikowski discuss in the future) is how his approach will work when applied to categories of behavior, to our procedural knowledge of music and the kind(s) of musical understanding that flows from our listening know-how. But I will let Zbikowski have the last word, as this passage sums up the significance of this important book better than I can:

If musical works are cognitive categories, and if music [itself] is a cognitive category, then music theory is about the study of categories or—more typically—the conceptual models around which musical categories are organized. Understood this way, music theory immediately escapes the gravitational force field of “the text” that has at times kept the literary criticism of the previous generation earth-bound (even while remaining relentlessly recondite). Thus liberated, music theory’s own traditions of high abstraction and unabashed pragmatism may yet find a place in contemporary intellectual discourse (242).

REFERENCES

- Bamberger, Jeanne. 1991. *The Mind Behind the Musical Ear: How Children Develop Musical Intelligence*. Cambridge, Mass: Harvard University Press.
- Beardsley, Monroe C. 1981. *Aesthetic: Problems in the Philosophy of Criticism*. Indianapolis: Hackett Publishing Co.
- Bregman, Albert S. 1990. *Auditory Scene Analysis: The Perceptual Organization of Sound*. Cambridge, Mass: MIT Press.
- Brower, Candace. 2000. “A Cognitive Theory of Musical Meaning.” *Journal of Music Theory* 44.2: 323–379.
- Clarke, Eric F. 2000. “Meaning and the Specification of Motion in Music.” Proceedings of the *Sixth International Conference on Music Perception and Cognition*. Keele University, U.K.
- DeBellis, Mark. 1995. *Music and Conceptualization*. Cambridge: Cambridge University Press.
- Gjerdingen, Robert O. 1994. “Apparent Motion in Music?” *Music Perception* 11.4: 335–370.
- Gurney, Edmund. 1880. *The Power of Sound*. London: Smith, Elder.
- Johnson, Mark. 1987. *The Body in the Mind*. Chicago: University of Chicago Press.
- Kivy, Peter. 1990. *Music Alone*. Ithaca: Cornell University Press.
- Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.
- Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.
- Langer, Susanne. 1953. *Feeling and Form*. New York: Scribners.
- Levinson, Jerrold. 1997. *Music in the Moment*. Ithaca: Cornell University Press.
- London, Justin. 1996. “Musical and Linguistic Speech Acts.” *Journal of Aesthetics and Art Criticism* 54.1: 49–64.
- Meyer, Leonard B. 1956. *Emotion and Meaning in Music*. Chicago: University of Chicago Press.
- Peretz, Isabel, and J. Morais. 1989. “Music and Modularity.” *Contemporary Music Review* 4: 277–291.
- Rosch, Eleanor. 1978. “Principles of Categorization.” In *Cognition and Categorization*, ed. Eleanor Rosch and Barbara B. Lloyd. Hillsdale, N.J.: Erlbaum Associates, 27–48.
- Saslaw, Janna. 1996. “Forces, Containers, and Paths: The Role of Body-Derived Image Schemas in the Conceptualization of Music.” *Journal of Music Theory* 40.2: 217–243.
- Scruton, Roger. 1997. *The Aesthetics of Music*. Oxford: Oxford University Press.
- Shove, Patrick, and Bruno H. Repp. 1995. “Musical Motion and Performance: Theoretical and Empirical Perspectives.” In *The Practice of Performance* ed. John Rink. Cambridge: Cambridge University Press, 55–83.
- Todd, Neil P. McAngus. 2001. “Evidence for a Behavioural Significance of Saccular Acoustic Sensitivity in Humans.” *Journal of the Acoustical Society of America*. 110.1: 380–480.