Musicology, Cognitive Science, and Metaphor: Reflections on Michael Spitzer's *Metaphor and Musical Thought*

LAWRENCE M. ZBIKOWSKI
UNIVERSITY OF CHICAGO

Musicology has long regarded the hard sciences with both skepticism and envy. The skepticism reflects a mistrust of the sort of sharply circumscribed questions that are amenable to empirical study, as well as reservations about the lack of attention paid to the historical and cultural contexts that might frame these questions. The envy reflects admiration for the rigorous methodology of the sciences, a methodology focused on sturdy truths and giving glimpses of a type of knowledge that transcends the limitations of the human intellect. The history of musicology is one that traces a course between these forces of attraction and repulsion. With the comprehensive sweep of Guido Adler's *Musikwissenschaft*, with research in music psychology during the late nineteenth and early twentieth centuries, and with the press toward positivistic methodologies in the period after World War II (Kerman 1985), the study of music has come very close, in both spirit and method, to the study of the natural world. But musicology has more often shunned any claims to science, reckoning itself a thoroughly humanistic endeavor beyond the reach of dry empirical study.

The tension between musicology and the hard sciences is, to some extent, symptomatic of what C. P. Snow famously called the two cultures (Snow 1964): scientific inquiry belongs to one culture, and humanistic inquiry to another. Although Snow located the source of the split be-

tween the two cultures in educational practices that developed over the course of the twentieth century, it must be acknowledged that the different world views entertained by these cultures are not simply a consequence of secondary school training and university examinations. As long as the sciences kept to their pursuit of hard truths and the humanities to their exploration of the products of human culture, there was little reason for the two cultures to develop a sustained dialogue about the nature and course of knowledge. In the post-World War II period, however, there was a revolution within scholarly thought that brought together work in philosophy, language, and creativity with work in psychology, neuroscience, and cybernetics, and gave rise to what came to be known as cognitive science (Gardner 1985; Bechtel, Abrahamsen, and Graham 1998). Through the 1980s most work in cognitive science focused on issues and made use of methodologies more typical of scientists than humanists, but this situation gradually began to change as it became evident that the model of the brain as a kind of computer—operating within a biological framework regulated by neurochemicals, but whose operating principles were functionally the same as those which allowed electrons and silicon to perform calculations at incredible speeds—was simply inadequate. This led to what some have labeled the second cognitive revolution (Harré and Gillett 1994; Sinha 2007), but in truth the change that occurred was an inevitable consequence of the tradition of inquiry set in motion by the initial revolution. As one example, early work in cognitive science rarely if ever engaged with the issue of meaning, believing that it was sufficient to show correspondences between symbolic structures and states of the world. Mark Turner observed that within this perspective:

> Meaning is conceived . . . as essentially anchored in states of affairs in objective reality, with the consequence that the meaning of an utterance must be the reality to which it refers. This leaves the human person out of the loop altogether: A semantic express train shoots straight from . . . symbols to an objective reality without passing through the human brain, let alone stopping in the human brain, let alone taking its entire journey there (Turner 1994, 91–92).

During the 1980s things began to change as linguists started to draw on research from cognitive science to build accounts of linguistic grammar that incorporated both syntax and semantics (Langacker 1987; 1992; Lakoff 1987), as philosophers began to make a place for the body in their accounts of knowledge (Johnson 1987), and as neuroscience began to come to terms with how the emotions shaped thought (Damasio 1994). The result has been a version of cognitive science that fits much better with the interests of humanists, a version that can not only encompass meaning but that can also more easily accommodate the way cultural context and historical moment shape human knowledge.

Despite this change the humanities have, until recently, shown rather little interest in the discoveries or resources of cognitive science. There are signs this situation is beginning to change: during 2006–9 the National Humanities Center in Research Triangle Park, North Carolina sponsored a project entitled "Autonomy, Singularity, Creativity: The Human and the Humanities" aimed at exploring how recent discoveries in the sciences will reshape the humanities. Although not focused exclusively on cognitive science, the preponderance of the scientific work re-presented in the project concerns the mind sciences and the brain sciences. There is also a new generation of scholars much more open to what cognitive science has to offer to humanistic inquiry, and whose work is beginning to reshape academic discourse. For the most part, however, the humanities have ignored developments in cognitive science, and musicology is no exception. A case could be made that the general framework of Fred Lerdahl and Ray Jackendoff's *A Generative Theory of Tonal Music* (1983) is one that encompasses a cognitive perspective, but as influential as that theory has been the assumptions it makes about cognitive processing have never been explored in any detail. Similarly, much work that currently goes under the name of music cognition (such as Dowling and Harwood 1986 or Krumhansl 1990) is in truth simply an extension of previous work in music psychology which in some cases encompasses a slightly broader outlook but in other cases is changed only in its adoption of an information processing model now largely abandoned in cognitive science as a whole. Nonetheless, there is a group of scholars—including David Borgo,

Candace Brower, Martin Clayton, Arnie Cox, Ian Cross, Zohar Eitan, Robert Gjerdingen, Ole Kühl, Steve Larson, Adam Ockelford, Marc Perlman, Mark Reybrouck, Janna Saslaw, Bob Snyder, and myself—who have attempted to use research in cognitive science to inform music scholarship. The value of this approach—which is now often referred to as cognitive musicology—lies not only in expanding the reach of the humanities through the resources of the sciences but in better understanding what it means to be human and what it means to have culture, and in providing another way to trace the structure of broad patterns of thought sustained over historical epochs.

It is in terms of this context—including both the equivocal relationship musicology has had with science, and the emerging scholarship of cognitive musicology—that I would like to consider Michael Spitzer's *Metaphor and Musical Thought*. On the one hand, Spitzer draws on work in cognitive science and cognitive musicology to frame his argument and the theory of metaphor he aims to put forward; on the other hand, he ultimately rejects this work, concentrating instead on the theory of metaphor developed by Paul Ricoeur in *The Rule of Metaphor* (1977) and using a modified version of this theory to explore the development of musical thought over the course of the eighteenth and nineteenth centuries. This is a perfectly reasonable way to organize an argument—after all, the resources cognitive science has to offer the humanities can prompt as many questions as they might resolve—but in this particular case I believe that there is a missed opportunity. It is not so much that cognitive science can tell us everything we need to know about metaphor as it is that what it *can* tell us about metaphor is, for the most part, ignored in Spitzer's book. In what follows I shall first review recent work on metaphor done from a cognitive perspective, and then turn to Spitzer's account of the relationship between metaphor and musical thought.

The Contemporary Theory of Metaphor
and Cognitive Musicology

It will be well, at the outset, to distinguish two different approaches to metaphor. The first involves the study of rhetoric, and in particular the role of figurative language in literature: metaphor is regarded as simply one of a number of rhetorical figures to be used in the service of argument, persuasion, illumination, and entertainment. As a figure, metaphor is interesting because the process of meaning construction it sets up seems to be open-ended: when we say that Achilles is a lion we are most definitely *not* describing the genus and species to which he belongs, but are we describing his courage, or his ferocity, or his relationship with others, or the way that he moves in battle? The second approach to metaphor involves the study of language, and in particular the use of linguistic constructions to refer to things or events in the world. Here metaphor is a problem: what sort of reference to things or events in the world is in operation when we say that Achilles is a lion? (It is well to keep in mind that, in the present case, we are not dealing with a lion named Achilles, although we might be dealing with a housecat named Achilles.)

The questions associated with these two approaches were brought together by George Lakoff and Mark Johnson in their 1980 book *Metaphors We Live By*. Lakoff and Johnson argued that metaphor, far from being an exceptional use of language or a violation of the rules of reference, was in fact an extremely common way of structuring thought. They pointed out that expressions like "I'm feeling *up*," "My spirits *rose*," "I'm feeling *down*," "I *fell* into a *depression*," or "My spirits *sank*" are concerned not with a literal orientation of an individual in space but are instead evidence of a consistent pattern of thought in which emotional states are correlated with orientation in space. According to this pattern UP is correlated with an elevated emotional state ("happiness" or "joy") and DOWN is correlated with a depressed emotional state ("sadness" or "despair"). This pattern—which Lakoff and Johnson called a conceptual metaphor—provided the structure for manifold different linguistic expressions, and also constrained the inter-

pretation of these expressions: "My spirits *sank*" thus gives cues about a person's emotional state (including the person's physical appearance) but does not entail any belief in the actual buoyancy of inner emotional states. For Lakoff and Johnson, describing metaphors as "false"—that is, analyzing the statement "Achilles is a lion" as untrue—simply misses the point of metaphor. The "truth" of statements like "Achilles is a lion" lies in the strength and variety of connections that can be drawn between concepts associated with "Achilles" and those associated with "a lion."

Conceptual metaphor, then, concerned patterns of thought, and linguistic metaphors were the expression of these patterns through various linguistic constructions. In subsequent work, Lakoff proposed that conceptual metaphors reflected mappings between different domains (Lakoff 1993). In the case of "Achilles is a lion," attributes from the source domain LION are mapped on to the target domain ACHILLES such that we understand Achilles to be fierce, to dominate others, and to move with grace and power in the attack. Note that we do *not* understand Achilles to have retractable claws, to have a tail, or to have reverted to quadruped locomotion. According to a theoretical framework developed by Mark Johnson (1987) and formalized by Lakoff (1990) and Mark Turner (1990), cross-domain mappings are understood to draw on shared structure between the two domains that are brought in to correlation. Thus fierceness and grace, as attributes associated with certain large mammals, are easily mapped between the lion and Achilles, but claws and a tail are not: Achilles's weapons are the sword and spear rather than claws, and he (as is the case with other humans) does not have a tail. Work on analogy (which can be seen to underlie the process of cross-domain mapping basic to metaphor) has also shown that mappings between domains are motivated by the goals of discourse (Holyoak and Thagard 1995): there are in fact any number of similarities between Achilles and a lion (both are mammals, both drink water, both are recumbent in sleep) but only those relevant to the purpose at hand—here, the characterization of a great hero—are employed in the mapping. Finally, note that the notion of courageousness associated with the linguistic metaphor "Achilles is a lion" is itself a consequence

of a prior (and culturally informed) cross-domain mapping in which a human attribute—in this case, courage—is ascribed to a particular animal.

The approach to metaphor epitomized by Lakoff and Johnson's work (often called the contemporary theory of metaphor, and now broadly used in cognitive linguistics; cf. Grady 2007) is, of necessity, limited. On the one hand, there remain significant questions about the relationship between analogy and metaphor (Gentner et al. 2001), and we have much to learn about the cognitive processes basic to both; on the other hand, more complex metaphors can challenge the relatively straightforward model of mapping structure between two domains, and may be better explained through models that involve mapping between multiple domains (Fauconnier and Turner 2002, chap. 7). Nonetheless, conceptual metaphor theory has two important benefits. First, it assumes a pragmatic, rather than truth-conditional approach to language. As a consequence, the distinction between literal and figurative uses of language becomes less important: the difference between everyday language and poetic language is not one of kind but of degree. Second, it provides a general framework that extends the discussion of metaphor beyond language: metaphor, construed as one of the basic resources of human thought, is evident in all domains of human experience, not just those circumscribed by language.

It was with this last thought in mind that music scholars began to apply conceptual metaphor theory to musical understanding. Although Steven Feld's analysis of the metaphorical basis for the musical thought of the Kaluli of Papua New Guinea is undoubtedly the earliest example (Feld 1981), it was more often the case that researchers used conceptual metaphor theory to explore aspects of Western musical thought. An early and representative example was Janna Saslaw's account of the metaphors that provided the conceptual underpinning for Hugo Riemann's theory of modulation (Saslaw 1996). As Saslaw showed, Riemann conceived of harmonic progressions as moving from a source through a path toward some goal. Although we have no trouble understanding this image, it is in fact foreign to music: chords do not move, but simply succeed one another. The notion of movement recruited by Riemann

relies on a cross-domain mapping between CHORDS (as groups of simultaneous pitches) and PHYSICAL SPACE, shaped by the conceptual metaphor CHORDS ARE POINTS IN SPACE. Different chords thus represent different points in space, and successions of different chords represent movement between different points in space.

While cognitive musicologists have found ample evidence that humans' construals of music reflected how general patterns of thought were specified for music, in almost every account music served as a target domain rather than a source domain. This raised the question of whether music was a properly conceptual domain: that is, if our notions of "music" were, in all cases, a consequence of mapping concepts from non-musical domains onto music, in what sense could we speak of properly musical concepts? Although I have attempted to address this issue in various publications (Zbikowski 1999; 2002), the fact remains that in most accounts of the role of conceptual metaphor in musical understanding the domain of music is one whose structure comes from non-musical domains, and the evidence for such structure comes principally through language. This was the situation Spitzer confronted in his exploration of the cognitive bases of metaphorical thought, and one reason why he rejected this approach in favor of one based on Ricoeur's theory of metaphor.

Spitzer's Reinterpretation of Metaphor Theory

The point of departure for Ricoeur's theory of metaphor was essentially the same as for Lakoff and Johnson's: as a rhetorical device metaphor provides nearly unbounded richness, but at the expense of violating the process of denomination basic to language. That is, whatever its other virtues the statement "Achilles is a lion" wreaks havoc with principles of understanding basic to the statement "Achilles is a man." But where Lakoff and Johnson focused on the broad patterns of thought evident in systems of metaphor (such as those that link emotional states with orientation in space), Ricoeur chose to concentrate on the singularity— one might even say the raw poiesis—of metaphorical utterance. Build-

ing on Max Black's interaction theory of metaphor, Ricoeur proposed that a metaphor was not simply the substitution of the name of one thing for the name of another, but part of a process through which new properties were attributed to a familiar subject (what Ricoeur called "predication"). As Ricoeur put it, "Metaphor . . . has to be described as a deviant predication rather than a deviant denomination" (1978, 145); borrowing a term from Jean Cohen, Ricoeur also referred to deviant predication of this sort as semantic impertinence. Although interaction theory helped to redirect the study of metaphor away from denomination and toward predication, Ricoeur noted that it provided no way to explain the transition from literal incongruence to metaphorical congruence, or how the two were related to one another. On the one hand, we know that Achilles is *not* actually a lion; on the other hand, we are able to productively attribute features of a lion to Achilles. Ricoeur argued that the vital force of metaphor came from keeping both in mind: "In order that a metaphor obtains, one must continue to identify the previous incompatibility *through* the new compatibility. The predicative assimilation involves, in that way, a specific kind of tension which is not so much between a subject and a predicate as between semantic incongruence and congruence" (1978, 148).

For Ricoeur, the key to the process of predicative assimilation was the imagination. As he saw it, discourse—and, in particular, poetic discourse—generated a rich and potentially contradictory assembly of images, and it was through the processes of the imagination that these images could be reconciled: "By displaying a flow of images, discourse initiates changes of logical distance, generates rapprochement. Imaging or imagining, thus, is the concrete milieu in which and through which we see similarities. To imagine, then, is not to have a mental picture of something but to display relations in a depicting mode" (1978, 150). What this process required, however, was a suspension of what Ricoeur regarded as "ordinary reference": for the statement "Achilles is a lion" to be productive, the usual process of denomination had to be expressly set aside. As Ricoeur observed, "poetic language is no less *about* reality than any other use of language but refers to it by the means of a complex strategy which implies, as an essential component, a suspension

and seemingly an abolition of the ordinary reference attached to descriptive language" (1978, 153).

This notion of suspension—or what Ricoeur, borrowing a term from Edmund Husserl by way of Marcus Hester, called *epochē*—was crucial for Ricoeur's theory of metaphor, not the least because it implicated metaphor in a process through which consciousness itself was transformed. As Hester put it, "The *epochē* allows us to accept all data on an equal footing, whether that data be contributed by the physical world or by our imagination, whether the data is objective or subjective" (1967, 118–19). It was, of course, the kind of split reference mentioned in Hester's formulation—involving both objective data and subjective data—that was important for Ricoeur, and that was made possible by the imagination.

> My contention . . . is that one of the functions of imagination is to give a concrete dimension to the suspension or *epochē* proper to split reference. Imagination does not merely *schematize* the predicative assimilation between terms by its synthetic insight into similarities nor does it merely *picture* the sense thanks to the display of images aroused and controlled by the cognitive process. Rather, it contributes concretely to the *epochē* of ordinary reference and to the *projection* of new possibilities of redescribing the world (Ricoeur 1978, 154).

The split reference of poetic discourse had its correlate in the relationship between emotions (as embodied processes) and feelings (as a reflection on those processes). Just as metaphor involves a suspension of literal meaning, feelings involve a suspension of (or, perhaps better, a standing-apart from) emotions (1978, 157). Both the understanding of metaphor and of feelings—especially as they accompany and complete imagination—thus fall within the domain of the psychological, which Ricoeur typically called the cognitive component. In Ricoeur's summary of his approach to metaphor he wrote, "The burden of my argument is that the notion of *poetic image* and of *poetic feeling* has to be construed in accordance with the cognitive component, understood itself as a tension between congruence and incongruence at the level of sense, between *epochē* and commitment at the level of reference" (1978, 158–59).

For Spitzer, the significance of Ricoeur's theory of metaphor was twofold. First, it gave him a means to describe how music could generate, as well as be structured, by metaphors—that is, it gave him a basis for musical poetics. Second, through its grounding in phenomenology Ricoeur's theory provided an intellectual counterweight to the oftentimes relentlessly pragmatic framework of conceptual metaphor theory, and one with equal claims to a cognitive perspective. Both of these aspects can be seen in his analyses of works by Bach, Mozart, and Beethoven in the third chapter of *Metaphor and Musical Thought* (analyses that follow his summary of Ricoeur's theory of metaphor). In each case, Spitzer identifies distinctive compositional strategies and interprets them in terms of rhetorical tools adapted from Ricoeur's theory of metaphor. For instance, in the opening movement of Bach's *St. John Passion* (a work that Spitzer discusses in his first chapter), the chorus enters over the same material with which the orchestra opened the movement, but, in the case of the sopranos, the three invocations of God with which they begin ("Herr, Herr, Herr") outline a C minor triad, a sonority in direct conflict with the prevailing G minor tonality and the pedal G_2 in the bass. Referring to his earlier discussion of the dissonance treatment in the orchestra's opening material, Spitzer writes

> . . . the choral entry problematizes the dissonance treatment of the original ritornello, raising the ritornello's grammatical impertinences to the higher level of discourse through *epochē*. The choral material is built on top of the original material but takes away the original's primary reference. . . . The illusion is created simply by filling in the original harmony with a top G. Yet this G is enough to create the phantom of a descending C minor arpeggio in measure 19, an arpeggio that contradicts the measure's G minor framework. Since nothing in the harmony is really changed, the phantom C minor harmony is a trick of reinterpretation. Primary and secondary references are interlocked in a stereoscopic tension. The ear can only flicker between them (113–14).

In discussions such as this Spitzer's analysis moves smoothly between fine-grained accounts of the organization of musical materials to inter-

pretive observations that might be equally at home in literary criticism. As was Ricoeur, Spitzer is concerned not simply with discerning larger patterns, but with developing a framework for understanding the consequences of unique acts of poiesis, which, for Spitzer, involve the compositional strategies specific to a given musical work.

In the second portion of his book Spitzer moves from the small stage of the musical work to the large stage of music history. He proposes that the history of Western music starting in the seventeenth century should be read in terms of three systemic metaphors, each of which pairs an aspect of music with an extra-musical domain. Each such pair is associated with an historical period—harmony/painting with the music of Bach and his predecessors, rhythm/language with the music of Mozart and his contemporaries, and melody/life with the music of Beethoven and those who came after him. These pairs are then treated in separate chapters, but following a similar pattern of argument. For example, Spitzer's fourth chapter begins with a review of how harmony and painting structured discourse during the baroque, followed by a discussion of theories of music framed by these concepts, and concludes with analyses of works by Schütz and Bach informed by the relationship between harmony and painting. What emerges in this chapter and the two that follow is a richly textured account of the history of ideas, and a deeper understanding of how music both reflects and is constitutive of that history.

Musicology, Cognitive Science, and Metaphor

Spitzer's is a striking accomplishment, and there is much to learn from his accounts of the thought of music theorists as diverse as Gioseffo Zarlino, Christoph Bernhard, Johann David Heinichen, Heinrich Koch, and A.B. Marx, his analyses of works by Schütz, Bach, Mozart, and Beethoven, and the way he draws on theorists as varied as Ricoeur, Michel Foucault, and Jacques Derrida. As I suggested above, however, Spitzer's rather summary dismissal of conceptual metaphor theory as used by cognitive musicologists represents something of a missed opportunity.

Part of the problem may be that Spitzer misunderstood the aims of cognitive musicology; another part may reflect profoundly different ideas about what constitutes musical experience. In his third chapter, for instance, Spitzer writes, "Metaphor theorists who assume that we conceptualize music in the same way we conceptualize language are naïve, or at least ill versed in aesthetics. The watchword of aesthetics is particularity, which means that art affords a richly grained mode of experience that is valuable precisely because it cannot be subsumed by concepts" (77). I am not quite sure which metaphor theorists Spitzer had in mind, but those with whose work I am familiar have typically used language for diagnostic purposes rather than as a model for conceptualization. For example, Saslaw's analysis of Riemann's conception of harmonic modulation as a process of moving from a source through a path toward some goal starts with the language through which Riemann presented his theory, but with the understanding that Riemann's theoretical account reflects conceptual metaphors whose import is not restricted to language. This sort of approach, while in no way precluding analyses of the role of conceptual metaphors in the understanding of specific musical works, aims to discover general patterns rather than to explain individual instances. To criticize such an approach for not explaining individual instances is to misunderstand its intent. With regard to Spitzer's conception of musical experience, in the second sentence of the passage I quoted above he suggests that experience in some way transcends concepts; further, in the opening of the chapter he proposes that "musical experience shapes thought just as thought shapes music" (54). Both of these formulations suggest that musical experience is distinct from other kinds of thought, perhaps because it is non-conceptual. While this approach certainly has a long tradition (one that includes writers as diverse as Vladimir Jankélévitch [2003] and Ray Jackendoff [1987]), it also places a considerable burden on those who would adopt it *and* who would grant music some sort of cognitive status, for it requires developing a theory of the cognitive content of musical experience independent of a theory of concepts. This Spitzer does not do. In fairness to him it must be acknowledged that this is not his aim. Nonetheless, it seems ill-advised to criticize other scholars for not under-

standing the essentials of musical experience if one cannot specify what constitutes those essentials.

One could also argue that, inasmuch as Spitzer aims at an aesthetic rather than a cognitive theory, work on conceptual metaphor would have little to add to the story he would tell about metaphorical imagination in European societies across centuries. And yet this work can do much to refine our understanding of which concepts are brought into correlation with one another within a given historical moment, and how this correlation is used to construct meaning. For example, as a way of initiating discussion of the two systemic metaphors that guide thought about music in the baroque—harmony and painting—Spitzer explores an instance of text painting by Schütz in his setting of the psalm "Herr unser Herrscher" (O Lord, our Lord), the third number of his *Symphoniae Sacrae seconda pars* of 1647. The image summoned by the text at this point is of the heavenly bodies—the moon and the stars—and, as shown in Example 1, Schütz's setting of "Sternen" employs an extended melisma. Spitzer comments,

> What we see, at first glance, is a long melisma on the word *Sternen*, aptly representing the scintillation of the stars by means of oscillating sixteenth-note figures . . . For the purpose of this sermon in tones, the figures help make the image conveyed by the text more palpable. At the same time, we can look beneath the physical light of these stars to the intellectual *lumen* of an underlying order that governs them, a harmony. The sixteenth notes elaborate the structural notes of a contrapuntal skeleton, indicated by Schütz's basso continuo. To penetrate these figures means to "see" an underlying sequence of thirds—E♭–C, D–B♭, C–A, B♭–G—with its implicit voice leading, a scale falling from E♭ to G (137, 139).

Spitzer notes that Schütz's harmonies trace a path through a circle of fifths around the key of C minor, and comments "The motion of the stars 'set in place' (*die du bereitest*) in their spheres is enshrined in the circle of tonality. Schütz paints a picture of a centered and functionally differentiated tonal universe" (139). Spitzer then sets out the impor-

tance of this compositional strategy for the larger view of musical style he wishes to develop: "To understand Schütz's figures means to practice 'hearing as' both cross-modally (music as painting) and intramusically (figuration as harmony). We must hear the figures as stars; we must also hear them as an elaboration of a contrapuntal model, circumscribing an imaginary tonal space" (139). The essentially dramatic character of this music relies both on the bringing together of disparate domains of knowledge and on a re-imagining of the resources of composition (which in this case views counterpoint from a harmonic perspective).

Example 1
Heinrich Schütz, "Herr unser Herrscher"
(no. 3 from Symphoniae Sacrae seconda pars, 1647), measures 60–65

In traditional accounts of text painting, the analyst identifies a striking passage from a vocal work, notes the image summoned by the text set in this passage, and then asserts, with little further critical consideration, a relationship between the two. Spitzer's analysis of the passage from Schütz's "Herr unser Herrscher" is well within this tradition. What is missing both in traditional accounts of text painting and in Spitzer's analysis, however, is some explanation of how sounds (in the case of Spitzer's example, oscillating sixteenth-note figures) can represent something that is visual (the scintillation of the stars) and which has no sonic component. Moreover, Spitzer's interpretation is but one of several that could be applied to this passage: the manifold notes of the melisma could also represent the plenitude of the heavenly bodies, or the expanse of sky that they cover, or the efforts of the eye to encompass their magnificence, or their diminutive appearance compared with the moon (the invocation of which, in Schütz's setting, initiates a series of repeated notes, which could be understood to represent, at least by comparison, mass and solidity). Indeed, Ricoeur's theory of metaphor offers no way to sort through these different possibilities: the similarity between two things is either regarded as an objective property or as a product of an endlessly creative (and conceptually disruptive) faculty of imagination. The conceptual theory of metaphor, by contrast, offers a way to explain how mappings between incommensurate domains such as sights and sounds are established and constrained, and thus affords a framework for understanding and evaluating different interpretive possibilities. Let me briefly explore how this theory could be applied to the passage from Schütz's "Herr unser Herrscher."

Spitzer's interpretation draws a correlation between the departures from and returns to pitches basic to Schütz's contrapuntal structure (E♭–C, D–B♭, and so on) and the variability of light from the stars. The cross-domain mapping behind this interpretation is between PITCH and LUMINOSITY, and the conceptual metaphor which structures the mapping is something like PROMINENCE OF PITCH IS DEGREE OF LUMINOSITY. Thus pitches that are particularly prominent (E♭, C, D, B♭, and so on) are "brighter" than pitches that are less prominent (such as those that serve as neighbor notes to these pitches), and suc-

cessions of more or less prominent pitches correlates with the changing luminosity (that is, the scintillation) of the stars. Although Spitzer does not make it explicit, it seems he also assumes that each focal pitch represents a different star, and that the connection of these pitches by harmonic relationships creates an analog for a path. This aspect of his interpretation involves another conceptual metaphor, in which pitches are correlated with points in space (a correlation similar to that behind Riemann's account of modulation). The cross-domain mapping in this case is between PITCH and PHYSICAL SPACE, guided by the conceptual metaphor PITCHES ARE POINTS IN SPACE; the succession of focal pitches thus correlates with movement along a path.

A shift from one conceptual metaphor to another of the sort that occurs in Spitzer's interpretation of Schütz's text painting is quite common in discourse, but in this case it points to a subtle change in argument. Spitzer's main goal in this chapter is to draw a connection between the auditory and the visual—thus the importance of the visual component of Schütz's text painting—but it seems clear that the kinesthetic is equally important. As a result, "painting" itself becomes metaphorical, taking on the meaning of "telling a story." Indeed, a case could be made that even the visual component of Spitzer's interpretation has this kinesthetic component, suggesting as it does that it is not only the portrayal of the stars that is important for Schütz but also providing a sounding representation for the changeability of their appearance. The kinesthetic aspect of Spitzer's reading points to an alternative interpretation of Schütz's text painting, one that not only consolidates conceptual metaphors but that also takes in more of the music. As Spitzer notes, the harmonic circle described by the Schütz's melisma begins and ends on C minor, but the circle itself is set off by the harmonic departure of "den Monden" and the harmonic arrival of "die du bereitest," moments which, with their repeated notes and more stately rhythms, contrast significantly with the melisma. The passage involving the melisma is also one that has its labored moments, such as in measure 62 when an A-C-E harmony follows an E♭-G-B♭ harmony, or when the E♮$_5$ in the Violin 1 part of measure 63 are followed by E♭$_5$ on the downbeat of measure 64. The musical context thus suggests that Schütz's melisma, rather than

portraying the twinkling of the stars, is intended to summon a trajectory—one that is at times labored—over a considerable expanse. The only cross-domain mapping required by this interpretation is the second one employed by Spitzer—that is, between PITCH and PHYSICAL SPACE—but the application here is to all of the pitches in the passage, not just those that outline way stations along a circle of fifths. While this interpretation sacrifices (or at least downplays) the visual component of Schütz's text painting, it accords better with the first-person experience of the power of the Lord that is the focus of this portion of the psalm text (and one that is highlighted by a fourfold repetition, in close order, of the words "ich werde sehen" [I will see] just prior to this passage).

I should want to acknowledge that the difference between my interpretation of Schütz's text painting and Spitzer's, at least so far as it concerns ideas about movement, is not great. Indeed, as I suggested above, it is one of a number of ways the passage from "Herr unser Herrscher" could be interpreted, and these other interpretations might well involve ~~on~~ cross-domain mappings every bit as compelling as the one I have described. There is, however, one thing I have left out of my discussion of cross-domain mappings specific to music that is important for understanding and evaluating such interpretations, and that is the direction of the mapping. As I have rendered them thus far, all of the mappings I have described are *from* some nonmusical domain (serving as a source domain) *onto* music (the target domain). Our understanding of music is thus structured by our knowledge of the luminosity of stars, or of how objects can be disposed in physical space. I would like to propose, however, that Schütz's text painting suggests how music can also serve as a source domain. The sequence of musical events set out by Schütz constitutes a dynamic process (that is, a coherent sequence of phenomena that is distributed over time and typified by parametric modulation or change), and it is the specifics of this process that are crucial to his text painting: we see the singer's gaze shift from the moon to the expanse of the stars, experience her effort and awe as she surveys this expanse, and join her in the culmination of this survey. Or, more precisely, we hear a sonic representation of the dynamic processes associated with these actions, and thus understand these actions through sound. I would thus

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argue that the correlation of the domains of PITCH and PHYSICAL SPACE sets up mappings that work in both directions: we may well conceive of pitches as analogous to points in space, but we understand the movement through space (whether actual or, in the case of the singer's gaze, virtual) in terms of a dynamic process set up by a succession of pitches.

Spitzer's complaint about the application of the conceptual metaphor theory to music was that it could not reveal the specifics of compositional strategy demonstrated by given musical works. I hope that my analysis of the brief passage from Schütz's "Herr unser Herrscher" has shown that this is not the case, and that conceptual metaphor theory can in fact lead us much deeper into design features of such strategies. Perhaps more important, however, is the resource conceptual metaphor theory offers to critical theory: through tracing the patterns of cross-domain mapping on which rival interpretations draw we can better understand both the strengths and weaknesses of these interpretations, and come to a better appreciation of the musical phenomena they attempt to capture.

Conclusions

Music is a product of human culture, and of human culture alone. As such, its study will always be broadly humanistic. What cognitive science has to offer musicology is not a systematic sweep equal to Adler's *Musikwissenschaft*, nor a straightforward account of how the perception of sound leads to the complex interactions and behaviors typical of what Christopher Small called musicking (Small 1998), nor a compendium of objective data that might put the study of music on an equal footing with the study of physics. Not only is cognitive science an emerging discipline (or, perhaps better, set of disciplines), but it almost daily shows how little we know about human cognition. The discoveries of cognitive science are not the place to look for a coherent account of human musical endeavors, or how sound gets turned into music, or sturdy and incontrovertible data that captures the essence of musical ex-

perience. What cognitive science *can* provide to musicology is a framework for exploring some of the issues that have confronted musicologists, such as the relationship between music and other domains. The theory of conceptual metaphor is, after all, a *theory*, although one for which evidence has been accumulating for nearly thirty years. It is also a theory to which cognitive musicologists have made some important contributions (for a review, see Zbikowski 2008b), not the least of which is evidence for mappings between music and other domains of experience. And although Ricoeur's theory offers a similar framework for explaining the multiple levels of meaning typical of metaphor, it is much less clear what would count as evidence in support of his theory. This is due in part to the tension between objective and subjective knowledge that is part and parcel of his approach, but also to a conception of cognition that makes few concessions to the systematic study of human thought.

One of the challenges faced by applications of conceptual metaphor theory to music is showing how music can serve not only as a target for cross-domain mappings, but also as a source. Without such a demonstration it would be difficult to claim conceptual status for musical thought, in that musical thought could not be shown to have a structure independent from other domains of thought. As I noted above, in previous publications I have set out my own account of properly musical concepts; a somewhat different but promising alternative is offered by the intramusical mappings explored by Marc Perlman, which show how musical thought can structure further instances of musical thought (Perlman 2004). In more recent work, I have proposed that language and music may simply offer different resources for structuring thought: language excels at capturing objects, events, and the relations that hold between them, but is less good at representing dynamic processes; music, by contrast, excels at representing dynamic processes, but represents objects, events, and relations only under the most contrived circumstances (Zbikowski 2008a; Zbikowski 2009). This perspective guided my analysis of the passage from Schütz's "Herr unser Herrscher": where the text of the psalm gives us the moon, stars, and a sense of God's power, Schütz's music gives us a sonic analog for the lived experience of an encounter with the power of the Almighty.

Michael Spitzer's accomplishment in *Metaphor and Musical Thought* is an impressive one, not the least because it asks us to reconsider the ways musical thought has been shaped during different periods of musical history. But it is also an accomplishment that does little to deepen our understanding of how metaphor—as a cognitive capacity unique to humans—has shaped musical thought. Nonetheless, I remain convinced that there are aspects of Spitzer's project that are deeply sympathetic to the theory of conceptual metaphor, and that the subtlety and depth of his analyses of both music and musical thought point the way to a fuller understanding of musical experience, especially as it might be construed from a cognitive viewpoint.

The tensions between musicology and science are very real ones, and I cannot imagine that they will be reconciled any time soon. Indeed, reconciliation may be beside the point, for this might suggest bending one discipline toward the other in way that will benefit neither. More promising will be for each discipline to consider carefully what the other has to offer, especially as we try to further our understanding of the place music occupies within human cultures, and the resources music offers to the human imagination.

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