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PART I: TEXT

Chapter 1: Beyond Black-and-White (An Introduction)

❖ Do Adjust Your Set

Imagine this possibly familiar situation: You are driving your new car, and you decide to test the radio. You begin flipping through stations, searching for one you like. You stay on each station for a couple of seconds at most, but this is long enough for you to discern what style of music you're hearing. You aren't consciously analyzing this music. But each time you change frequencies, an awareness of the new station's style—and the wealth of cultural associations that go with it—floods your senses entirely involuntarily. How do you perform this remarkable feat? What signals are you detecting?

Ask most music theorists to explain this commonplace occurrence, and the answer would be unsatisfying. For we tend to focus on harmony, rhythm, and form, the building blocks of its *syntax*. But a vast realm of musical meaning stretches beyond syntax. You reached it in that car. Those few seconds you spent on each station were too short for syntax. During each interval, you likely heard harmonic and rhythmic combinations common to myriad styles. And yet, every time, you were instantly transported to a very precise location in the musical landscape. What you latched onto was not syntax, but *sonority*. This includes the timbre of each chord, but also the registral spacing of the chords—how their constituent pitches are spread across pitch-space. Sonority is what granted each sound you heard its specificity—its color, its density—as laden with connotation as the taste of dark chocolate or the smell of that new car's seats.

This distinction between sonority and syntax might call to mind another distinction: Leonard Meyer's division of musical parameters into "primary" and "secondary" ones—terminology that he introduced as early as 1973 in *Explaining Music*, but first fully elaborated it in 1989's *Style*

and Music (reprinted in 1996). According to Meyer, primary parameters are those that "result from the organization of, and interaction between, pitches and durations" while undergoing "syntactic constraints" (1996, 14). These include, most notably, pitch and rhythm. Their capacity to bear syntactic functions—establishing "functional relationships [...] and specific kinds of closure [...] that make hierarchic relationships possible" (209)—is due to their ability to be "segmented in constant, nonuniform, proportional ways" (14). Secondary parameters are those musical elements that are quantified by relative amount (e.g. louder/softer, brighter/duller), but cannot be segmented. This resistance to segmentation makes them, according to Meyer, "statistical" rather than "syntactic" (15).

Though Meyer's claims about the stylistic primacy of syntax are contrary to mine, he serves, not as an antagonist of this dissertation, but rather as one of its two chief progenitors. If Meyer was granting "statistical" parameters only second-class citizenship, he was nonetheless admitting them into the analytical dominion—something that music theory has only rarely done then or since. He was one of the first scholars to claim increased importance of secondary parameters as a defining feature of musical Romanticism. And he took this trend seriously enough that he treated it as evidence of declining audience sophistication in the early nineteenth century. Composers, he suggested, placed greater emphasis on sound to allow them to communicate with an audience that had rapidly broadened to include people uninitiated in the niceties of Classical syntax (208–10). We might question the assumption that aristocratic patrons were more syntactically sophisticated than the emerging paying audience of middle-class listeners. But a large body of cognitive research

supports the claim of greater communicativeness: timbre and texture are what inexperienced listeners attend to most readily and rely upon to shape their experiences.[1]

Meyer's primary/secondary division does not map perfectly onto mine, because registral spacing is still pitch-based, which makes it therefore still primary. And yet we do not treat spacing as syntactic. Reductions regularly omit or alter inner voices. Even a method like Schenkerian analysis, which places a supreme emphasis on linear voice-leading, frequently prunes away voices that are deemed dispensable when dealing with thick enough scores (as in much orchestral or chamber music). To find a more direct predecessor for my distinction, we must turn to the other great Leonard of twentieth-century music theory: Leonard Ratner.

Ratner's legacy in contemporary theory rests largely on his 1980 book *Classic Music: Expression, Form, and Style*, which spawned the sub-field of topic theory. However, that book's 1992 sequel, *Romantic Music: Sound and Syntax* has received little attention, especially not if we gauge that by citation count. Despite that neglect, its contribution is valuable. As its subtitle suggests, it was an early attempt to treat the sonic and syntactic aspects of Romantic music on equal footing, and to analyze the effects they create in conjunction with each other. According to Ratner, the years 1815–1900 produced a "climate of sound" for music, in which the sonic aspects of music—tone color, dynamics, instrumentation—became a focus for composers. What he calls sound is what I call sonority, a term I prefer only because it is far less general and prone to be misunderstood. A phrase from Ratner's book best summarizes the phenomenon that I aim to study: the "interaction of innovative sound and traditional syntax" (xiv-xvi).

[1] See Gromko 1993, Pollard-Gott 1983, Thorisson 1995, Thorisson 1998, Thorisson 2003, Wolpert 1990.

Ratner's association of these ideas with "Romantic" music (broadly defined) is quite apropos. It was in this era that sonority came to carry ideas that were formally the provenance of syntax. We frequently read that Romantic music became more "chromatic." What is usually meant by this is that Romantic *harmony* became more chromatic. "Chromatic" here literally means "less diatonic" or "more semitonal," but metaphorically (and etymologically) means "more colorful." This sense of color comes partly from shading: the filling in of the gaps between scale degrees, like adding violet between blue and red. It also comes from the increased difficulty of parsing harmonic progressions: take away a chord's functionality, and the sense of the chord "as sound" is heightened. But those who say that Romantic music became more chromatic are righter than they realize: truly, it was *music*—in all its parameters, not just pitch—that became suffused with chroma.[2] Instrumental groups, no longer sequestered in stereotyped combinations, mixed freely as paints on a palette. Spacing became not merely a consequence of contrapuntal thinking, but a goal in its own right, which could make a major chord as dark and thick as tar or a minor chord as light and fragile as frost.[3]

Here, then, is the main problem at hand: Music scholars are fond of texts. And in the pursuit of finding a musical text as fixed as a novel or painting, we have reified the score as if it were actually music rather than a visual representation or a set of instructions. We read it, more slowly and more closely than mere audition allows. In doing so, we notice things easily seen but

[2] I mean this metaphorically. I am not using the word "chroma" as it is used in music cognition, in which it signifies the perceptual quality that allows us to perceive two pitches as belonging to the same pitch-class.

[3] Indeed, as William Caplin has noted (2018, 6–7), Romantic harmonic progressions are more liable than Baroque or Classical ones to feature long successions of root position chords. The greater variety in spacing therefore helps to make up for the lesser variety in inversions. (Of course, I am not saying that these phenomena are necessarily causally linked.)

hard to hear, and overlook things easily heard but hard to see, and we trade away awareness of music's true nature: as an art *performed* by players, and *perceived* by listeners. Sonority, I contend, is this paradigm's main victim. It is that which we scrub away in search of syntax. If we wish to stop reading in black-and-white and start listening in color again—like Dorothy emerging into Oz—sonority is exactly what we need to weave back into the fabric of everyday music analysis.

In this dissertation, I take a three-pronged approach to sonority: theoretical, historical, analytical. The theoretical chapters (Nos. 2 and 3) address a very general question: how can we talk about composing, performing, and listening practices in the same breath, especially when the latter two are so contingent upon the individual proclivities of a varying array of actors spanning a piece's lifetime (from its composition to the present day)? My answers to this question will have consequences not only for the study of sonority, but for any field of musical inquiry that concerns itself with the chain of potential communication that stretches from composer to score to performer to performance to listener. In the remaining chapters I will focus on music written between 1760 and 1830, with the historical chapters (Nos. 4, 6, and 7) focusing on the first forty years of that span and the analytical chapters (Nos. 5 and 8) focusing on the next thirty years. This is because composers' systematic experiments with sonorous parameters originate in the late eighteenth century, but the fruition of these experiments lies in the early nineteenth. (I cut things off at 1830, so as not to contend with the aesthetic changes from about Berlioz forward.)

But I have given only general indications of why sonority should matter, and not how it matters most or why we have been so loath to discuss it; and I have not yet explained why a historical approach (in addition to an analytical approach) is so important. These are the topics I will address in the remainder of this chapter.

❖ **Resounding Memories**

I began with an imaginary car ride. But I would like to describe a real event along similar lines—to illustrate in more detail the effects that sonority can have on a not-yet-expert listener, and to introduce some of the themes that I will pursue from here on out.

It is the year 2000, and I am about to have my first lessons in orchestral score-reading. Weeks ago, while vacationing with my family, I began listening to Beethoven's Fifth Symphony on a daily basis, and I have grown obsessed. My relationship to classical music has progressed from affection to passion. I ache to understand the piece that has so ensnared my innocent child's soul, and I have consequently begged my piano and composition teacher—Margarita Zelenaia—to teach me to read full score. She has assented.

My favorite movement is the third, and so it is with that movement that we begin. In the scherzo proper, we talk through the score and mark which instruments are carrying the melody (including those doubling it) and which the harmony. (Her annotations to the first system are shown in **Example 1.1**.) Where there is a contrapuntal line, we mark that too. My assignment for the next class will be to annotate the fugato on my own, marking each entrance of the subject.

It is the annotation to m. 115 that puzzles me whenever I follow along with the score **(Example 1.2)**. This is, at that time, my favorite moment. I always picture in my head something like the scene from the Disney version of *Sleeping Beauty* in which Maleficent's minions dance with diabolical jubilation around a burning fire **(Example 1.3)**. Only in this case, it is not a fire in the center but a stake with the captured prince bound to it. I hear the celli as the hostage, writhing piteously; the scampering first violins as those gleeful goblins (no, I have not read *Howard's End* yet, at this age); and the woodwind chords, incongruously mirthful in light of the celli's pain, as the

punctuations of their laughter. Our annotations suggest that my goblins have the melody, and my suffering prince the countermelody. But this is her hearing not mine. I have always heard the reverse.

This is partly attributable to the recordings I listen to. My family owns two: David Zinman's with the Tonhalle Orchestra (1999 [rec. 1997]), which is a recent purchase; and George Szell's with the Cleveland Orchestra (1992 [rec. 1963]). I enjoy listening to them back to back, noting which instruments and lines I can pick out on each. (Part of my excitement in learning this score is in finally solving the puzzle of what these details are.) One thing these performances have in common, however, is that the prince's line sounds more prominent than the goblins'. Why, I wonder, are they the melody and he the countermelody when it is always he that I hear as central?

Over the next few years, I acquire more recordings. My third is Karajan's last one with the Berlin Philharmonic (1993 [rec. 1982]). He agrees with this balance. It is not until I buy my fourth in 2006—Dohnanyi's also with the Cleveland Orchestra (1988 [rec. 1987])—that I realize that some people believe the violins' line should be much louder than the celli's, that this might be what my teacher heard in her head when she marked my score. When I am much older, I will go on to hear Pierre Monteux's London Symphony Orchestra (1995 [rec. 1961]) recording and Stanislaw Skrowaczewski's with the Saarbrücken Radio Symphony Orchestra (2006 [rec. 2005]) and realize that some people seem to treat the celli line as not even a countermelody—just as an ordinary bass line!

What enchanted me then (and enchants me still) about this passage is not its harmony (just tonic, dominant, and subdominant) or its form (a sentence), not its melody or its rhythm

(conventional, both), but the interplay of its components—an interplay made possible by the distribution of the parts among the orchestra and within space.

There are three terms in this dissertation's sub-title: sonority, style, and meaning. Thus far, I have placed the most emphasis on the first of these. But the latter two already made an appearance in this chapter's opening vignette—in the car, you both identified the music's style and were saturated with its cultural meanings—and appear even more prominently in the two stories I have just told. The Beethoven scherzo could not have conjured up such specific images if orchestrated otherwise (indeed, the fact that the scherzo's reprise doesn't generate any of these images at all—save perhaps for our demon friends—is proof of this): plaintive vocal cries of a captive male are best portrayed by the celli in their high range, laughter by instruments that can make a "ha" sound. This picture is part of the passage's meaning, but the orchestration alone was not enough to paint it. Only some performances were capable of generating these impressions, because only some allowed the celli's suffering to be heard.

But why wasn't I taught how sonority does all this?

❖ In Search of Sonority

In *The Compleat Conductor* (1997), Gunther Schuller notes (correctly) that when a conductor like Pierre Boulez is praised as having "a terrific ear," this usually means a terrific ear for pitch. But, says Schuller, that is one of only seven ears that a good conductor should possess. The seven are: "(1) harmony; (2) pitch and intonation; (3) dynamics; (4) timbre; (5) rhythm and articulation; (6) balance and orchestration; and (7) line and continuity" (17–18). Now, I do not necessarily agree with how Schuller has grouped these. (For example, I do not think that rhythm

and articulation should be collapsed into one category.) But Schuller's underlying point strikes me as fundamentally correct, and it applies to far more than just conductors. We can see its ramifications in the typical undergraduate music curriculum.

Music majors in the American university system go through a theory sequence that typically includes a series of classes focused on harmony and voice-leading (e.g. Theory I–IV), which are paired with a parallel series of classes in musicianship / ear-training. But which ears are being trained? These classes typically focus primarily on developing the first and second of the seven ears that Schuller lists, and secondarily on developing the fifth. At some institutions, musicianship classes additionally consider continuity and dynamics—Schuller's third and seventh ears—when grading student performances on things like sight-singing exams. That leaves ears four and six: timbre and balance/orchestration. It is quite possible to graduate with a music degree from a reputable institution having never studied either of those topics at all.

What about the other major component of sonority: spacing? Some ear-training classes serve this topic by requiring that students write out all voices in a harmonic dictation, and not just the outer ones. Others do not. Over the course of a standard harmony class, students learn to write four-part chorales in a wide array of spacings, both open and closed. For example, for a chorale starting on a C major chord, students might start with (C3, G3, C4, E4) in one exercise and with (C3, G4, C5, E5) in another. The range of possible spacings is constrained by the vocal ranges of the imagined choir. But why explore these spacing possibilities to begin with? I do not presume to know how this issue is framed in the classroom at your local institution; but certainly, in the average textbook, no real justification is given. It is as if we play with these different combinations simply because they exist. There is little to no explanation given for *why* a composer

might choose one spacing over another (for expressive reasons), or *how* this affects someone listening to the music. And there is a disproportionate amount of attention paid to the kind of voicings that appear in four-part chorales, at the cost of due consideration of how voicing works in instrumental genres.

How did this happen? A historian of music theory would be far better equipped than I to answer that question. And indeed, a long history could be written on the subject of how different musical parameters jockeyed for space within the average university curriculum, and how this race was won and lost. But even without considering the origin of this predicament, I can nonetheless point to some factors that perpetuate it: a convergence of philosophical conviction and practical convenience.

The philosophical question is a matter of ontology: it is a widely held conviction that melody, harmony, and rhythm are the essence of music (what fixes the identity of any given piece), and sonority a mere adornment—just sprigs of parsley garnishing the syntactic meat. The most extreme version of this position may be found in Peter Kivy's essay "Orchestrating Platonism" ([1988] 1993), itself a response to Jerrold Levinson's article "What a Musical Work Is" (1980). Levinson's contention is that "[t]he instrumentation of a musical work is an integral part of those works" (6). Kivy's view is that the identity of musical works is preserved by their abstract "sound structure" independent of the instruments conveying that structure. The only essential thing is that "structural *relations* be preserved" (1993, 80) [emphasis from the original]. He supports this argument with a few test cases, including: the fact that a performance of a Gabrieli *canzona* on modern instruments still counts as a performance of the *canzona*; the fact that Mozart wrote his clarinet concerto before orchestrating it, but we do not say that this was the process of composing

two different works; the fact that we do not regard Ravel's orchestral version of his *Valses nobles et sentimentales* as a different work from the original piano version, but rather as a re-arrangement. He sums up his view on the unimportance of orchestration as follows:

> Composers tend to think in structure, not color. Of course they *use* timbre and tone color to achieve or more exactly, help to achieve musical effects. But the effects have already been "written in" to the musical structure, the orchestration, which always follows composition, being employed to enhance the effects already musically there. (87)

By the end of this dissertation, I hope you will agree that this position is untenable, that the idea that musical effects are etched in primary parameters and only then decorated with secondary parameters is nonsense. Those arguments are too large to rehearse now in this introduction. But to Kivy's ontological angle I would reply: the fact Object X is still Object X even if you make Change Y says very little about the qualitative effect of Change Y. Were you to remove my left leg, I'd still be the same person. But I'd have to alter my lifestyle considerably, and I'd much rather that you didn't. If I re-paint my neighbor's walls in floor-to-ceiling polka dots, it's still the same apartment. But try telling him that. Most changes—the most significant ones included—are ontology-preserving. The average person spends less time worrying about what defines an object in the world and more time consuming the object and its meaning, especially where something like music is concerned.

Let's set aside the abstract musings of the modern-day ivory tower, then, and consider a more historically-grounded objection. What about the fact that orchestral music was propagated throughout the nineteenth and early twentieth centuries via transcriptions? To quote Thomas Christensen: "[b]efore the advent of the phonograph and radio—and more specifically, the long-playing record—piano transcription was the primary means by which a literate musical public could come to know" the popular pieces of the day. "It made acoustically accessible a repertory to which

most musicians had only occasional access in live performance" (1999, 259). To take an even more extreme example, Schumann wrote his famous 1835 review of Berlioz's *Symphonie fantastique* consulting only the Liszt piano transcription and not the full score. Therefore, an argument might go: nineteenth-century audiences saw fit to regard re-arrangements as acceptable stand-ins for the originals, who are we to argue?

This argument doesn't hold water either. Christensen's mention of the phonograph is particularly useful here. For similar reasons of necessity, early twentieth-century audiences used phonograph records as stand-ins for live performances. Should we conclude from this that the aspects of live performance that such records fail to preserve are not really of much importance? I hope not. All that the erstwhile reliance on transcriptions (and other such technologies) proves is that these were the *best available* stand-ins, not how successful they were in some absolute sense or how (in)consequential the features they left behind were. There is an anecdote told by Tovey that I think sets this in the correct perspective:

> In the 'forties Liszt published [...] arrangements of Beethoven's nine symphonies, introducing them with a declaration to the effect that it was possible to produce on the pianoforte all the essentials of an orchestral score, except those of sheer mass and varieties of timbre [...] [W]hen Mendelssohn heard of Liszt's declaration, he instantly said, "Well, if he can play the beginning of Mozart's G Minor Symphony as it sounds in the band, I will believe him." (2015, 441)

Tovey agrees with Mendelssohn, and I do too: nothing but strings alone can correctly communicate the essence of that opening.

Now, of course, music theorists are not disinterested actors when evaluating the worth of reductions. Given that reductions are ubiquitous and essential tools of the trade, it would be convenient to discover that we are losing as little as possible by using them. It is here that philosophy shades into practicality. There is pedagogical practicality: harmony matters in almost

any music theory class—even one purportedly focusing on another topic—and it takes time to develop fluency in reading harmony off an orchestral score (for students and teachers alike, perhaps). Working with reductions means one less skill to teach. There is publishing practicality: full scores take up too much space in journal articles and books; reductions save space. (Woe unto the publisher of the book version of this dissertation…)

There are two further practicalities that are even more important. The first is having nameable, quantifiable features. On paper, pitch and rhythm have cardinal values, but dynamics and tone color do not (and thus elude easy analysis). F is precisely one semitone higher than E, and a half note is precisely twice as long as a quarter. But how much "darker" is a trombone than a clarinet? And what would we even call all the different spacing possibilities for different harmonies?

The second is having a stable, easily legible text: namely, the score. Despite the cutting-edge critical methods that music analysis has embraced (as time has gone on), there is still almost always a lingering emphasis on good, old-fashioned "close reading," and close reading is nearly impossible unless you have a text to hold in front of your face and scrutinize. In an age before recordings circulated widely—such that you could be confident that every member of the class could listen to the same performance in their home—scores were the only things that could function as texts. But we are now in the twenty-first century with YouTube, iTunes, Spotify, and the like. It's high time that we remember that the word "music" in "music theory" can and should refer to sounds rather than paper.

❖ **Style as Substance**

All of this is an entry point into sonority. But what about style? And what does this have to do with history? Simply put, I contend that all conversations about sonority are also about style, all conversations about style are also about history, and all conversations about history are also about style.

This used to be conventional wisdom. Once upon a time—in a musicology far, far away—style reigned supreme. When Irving Godt wrote in 1984 that "music history is not primarily the history of musicians [...] but, rather, the history of musical styles" (34), he was not engaging in polemical pot-stirring but rather describing an orientation towards historical scholarship that had held strong since the pioneering work of Guido Adler. Before Taruskin's *Oxford History of Western Music* was published in 2005, Oxford's major effort of this kind was the even more massive *New Oxford History of Music*—a series of ten volumes released between 1954 and 1990. One needs only to peruse the table of contents of any of these volumes to see just how radically the New Musicological wave of the 1990s altered our conception of what it means to write music history. Volume VIII (1982) covers the years 1790–1830, which it deems (with no hesitation or scare-quotes detectable) "The Age of Beethoven." The first chapter is titled "General Musical Conditions"; most discussion of material, intellectual, and social culture and conditions within this 700+-page book have been relegated to these twenty-five pages. Once that necessary (but subsidiary) bit of business has been taken care of, the remaining thirteen chapters can each treat a genre for which they're titled (e.g. "Solo Song") and summarize the style of the major composers and works of the time. Style analysis is synonymous with history.

As the volume's title indicates, there is no discernible doubt that the Great Masters were truly great and truly masterful. Chapters 4 and 8 respectively are titled "The Orchestral Music of Beethoven's Contemporaries" and "The Chamber Music of Beethoven's Contemporaries," as if these men were defined by their chronological proximity to the titan. In the former chapter, Paul Mies devotes a section to "Structural Problems of Lesser Masters"—"lesser master" being a phrase that Philip Radcliffe is happy to use too in his chapter on piano music. Winton Dean has no problem with including sections titled "Spohr's Weaknesses" and "Marschner's Musical Limitations" in his chapter on German opera, because assessing the weaknesses of a composer is an expected part of a historian's job.

It is easy to sneer at this from our vantage point—to bid good riddance to a time where naked value judgments (intoned as if objective fact) were a historian's privilege to deliver. But though these scholars were more open worshippers of the Great Masters than we and more open deprecators of the Lesser Masters, they nonetheless thought it essential to learn the music of the latter. Dean may criticize Spohr in his chapter, but he also devotes four other sections to him, one on his "historical importance" and one each on his operas *Faust*, *Jessonda*, and *Der Berggeist*. The section on Marschner's musical limitations is immediately followed by one on "his influence on Wagner." The chapter also includes sections on Peter von Winter, Weigl's *Schweizerfamilie*, and Hoffmann's *Undine*. Were we to turn to the chapter "The Early Symphony" in the previous volume—Volume VII, *The Age of Enlightenment 1740–1790* (1973)—we would find, in its sixty-five pages, assessments of the general styles of and individual works by Galuppi, Jommelli, Anfossi, Cimarosa, Guglielmi, Paisiello, Piccinni, Sacchini, Sarti, Sammartini, Chiesa, Giulini, Boccherini, Pugnani, Brunetti, both Grauns, Hertel, Hasse, C. P. E. Bach, Schloeger, Monn, Wagenseil,

Gassmann, Ordoñez, Leopold Hoffmann, Dittersdorf, Vanhal, Michael Haydn, Johann Stamitz, Richter, Holzbauer, Filtz, Toeschi, Cannabich, Eichner, Beck, Carl Stamitz, Guillemain, François Martin, Gossec, Le Duc, Rigel, Pleyel, Abel, J. C. Bach, Boyce, the Earl of Kelly, Collett, Fisher, Smethergell, Marsh, Roman, Camerloher, Molter, Pokorny, and Rösler. (Of course, many other composers are mentioned too in passing, but not evaluated.)

To this we might rightly respond that it's quite easy to justify discussing so many composers when one is a positivist—when more composers = more knowledge, and more knowledge = more value. And it is, of course, simpler to discuss so many, when "discuss" can mean delivering offhand aesthetic assessments. But let me ask you this: How many of these composers have you listened to? Are there several that you haven't even heard of? Who among the alive and working do you trust to know this music?

The expected rebuttal here must be: So what if this knowledge is gone (if it ever resided in the heads of more than a handful of scholars to begin with)? Is this really a problem? The answer to this depends on what we want music scholarship to be about. But I say, yes, this is very much a problem. It remains a problem even though I think contemporary scholarship has largely (and rightly) abandoned the aims of the authors of the *New Oxford History of Music*, who tended to their gardens full of facts. It is a problem because there are still things we want to do that we cannot do well (or responsibly) without this kind of knowledge.

One ill effect of this lacuna is that it too easily traps us into Great Man History. This is like a game of *Clue*. For any innovation, there are only a few possible suspects or locations. ("Could it be Colonel Mozart in the Conservatoire with the [Organ] Pipe? No? Then how about Papa Haydn in the [Concert] Hall with the Mannheim Roller?") It puts us in Viennese shoes, imagining the rest

of music revolving around us, like Ptolemy gazing out at the other planets. And it artificially creates the appearance of paradigm shifts where there were none. (If we perceive a "jump" between the aesthetics of Haydn and Beethoven, it may be only because we ourselves have done the jumping, over the heads of the Clementis, Kozeluchs, and Krommers we have left in the dust.)

But it also affects modes of scholarship beyond narrative history. A further bit of classification from Leonard Meyer may help us here. In *Explaining Music* (1973), he distinguished between three types of analysis: "critical analysis," "style analysis," and "authentic music theory." The first of these "seeks to understand and explain what is idiosyncratic about a particular composition: how is this piece different from all other pieces" (6). The second "is concerned with discovering and describing those attributes of a composition which are common to a group of works" and "in its pure form, ignores the idiosyncratic in favor of generalization and typology" (7). The last of these "endeavors, where possible, to discover the principles governing the formation of the typical procedures and schemata described in style analysis" (7–8). Although Meyer does not say this outright, if we accept the terms by which this tripartite division is defined, then we have to accept that critical analysis and authentic music theory are entirely reliant on style analysis (but the latter does not rely upon the other two). Only style analysis can teach a critic to distinguish the idiosyncratic from the normative; only style analysis can provide theorists with the procedures whose motivations they must explain.

Many musicologists today probably conceive of their enterprise as a critical one, though they might thoroughly (and rightly) disagree with Meyer's suggestion that criticism's ultimate goal should be to distinguish one work from another. But even if such differentiation is not the goal, it is certainly a necessary step. There are a few tasks, perhaps, that style-blind scholars might still be

able to perform. They could focus only on the compositional process (as in sketch studies) or only on the piece's afterlife (as in reception history). Maybe they could interpret a musical work entirely acontextually, in the form it takes in the vacuum of their inner ear alone. But this is not how most musicologists write. They read in ways that are implicitly or explicitly comparative.

To take two examples: In *Broken Beauty: Musical Modernism and the Representation of Disability*, Joseph Straus states that "[t]he most characteristic features of musical modernism—fractured forms, immobilized harmonies, conflicting textural layers, radical simplification of means in some cases, and radical complexity and hermeticism in others—can be understood as musical representations of disability conditions" (2018, ix). In order to accept the second part of this thesis (that disability metaphors are apt), we must begin by accepting the first (that these are indeed "the most characteristic features of musical modernism"). Scott Burnham frames his book *Mozart's Grace* as "a personal attempt to describe what is striking about the sound of Mozart" (2013, 4), noting that his music is "often described as if it exists in a singular state of grace," embodying a perfection that is "difficult to imagine applying [...] to any other composer" (18). In order to accept this thesis, we must believe that the features he finds are unique to Mozart.

Straus's and Burnham's theses are manifestations of two general approaches to critical commentary. The first treats a particular piece, composer, or compositional practice as exemplary of a broader trend; the second treats a piece, composer, or compositional practice as bucking some broader trend.[4] (The latter is, in some ways, just a variation on what Meyer claimed critical analysis

[4] I have chosen Straus and Burnham not to cast aspersions on their theses, but rather because they are thoughtful and prominent representatives of their respective hermeneutic approaches: the former characterized by more direct engagement with social problems and critical studies-oriented framework; the latter characterized by a more direct engagement with minimally mediated aesthetic experience.

is.) Neither approach is insulated. They both involve reading any work against a presumed background of norms. In a careful reflection on the diagnostic function of norms in James Hepokoski and Warren Darcy's Sonata Theory, Julian Horton has usefully teased apart three ways of defining norms: "*quantitatively*, as conventions that are statistically verified; *sociologically*, as concepts regulating social praxis; or *prototypically*, as cognitive types permitting the assimilation of diverse information" (2017, 153). Positing the existence of any of these norms requires some form of substantiation, and that is often sorely lacking.[5]

In this regard, Straus (like many scholars of modernism) has an advantage over Burnham and most of us that work on late eighteenth-century or early nineteenth-century music. Most of Straus's examples are drawn from the first half of the twentieth century. All classical music buffs worth their salt have listened to a large selection of music from any one of these decades. Let's take even a single year like 1920. Potentially familiar pieces written then include Holst's *The Planets*, Korngold's *Die tote Stadt*, Milhaud's *Le Boeuf sur let toit*, Ravel's *La valse*, Stravinsky's *Pulcinella*, and Ralph Vaughan Williams's *A London Symphony*. You may not have listened to all of them, but I suspect that several of them are on your radar. What would happen if we repeated this exercise with the year 1800? We have Beethoven's Symphony No. 1, Piano Concerto No. 3, and two of his piano sonatas (Opp. 22 and 26). But then what? The most well-known remaining orchestral work

[5] Quantitative norms can be established through corpus studies. Scholars associated with Northwestern University have suggested that schema theory allows scholars to reconstruct bygone prototypical norms. (See particularly Byros 2009, 2012, 2015; Gjerdingen 1988, 1991, 1996; and Gjerdingen and Bourne 2015. Zbikowski 2002, Chapter 1 is an earlier precedent for discussing prototype theory—as we shall see in my Chapter 5—but does not attempt to use them to derive stylistic norms.) I don't know what I would claim represents music theory's attempts to come to terms with sociological norms. Gjerdingen's attempts to link schema theory to *galant* courtly behavior perhaps comes close. Or one could claim that some historians of music theory treats the intellectual forces evident in treatises as outgrowth of sociological forces.

is Boieldieu's Harp Concerto; the most well-known operas are the same composer's *Le calife de Bagdad* and Cherubini's *Les deux journées*; the only major keyboard work by a still famous composer is Dussek's Piano Sonata No. 18, Op. 44. All of these are orders of magnitude more obscure than the twentieth-century works just listed.

Let me be perfectly clear: My point is not that until we learn all of this music, we are unfit to write scholarship on this time period, or that the only valid or valuable questions are the ones that require this kind of deep immersion in the repertoire. My point is that the field *already* implicitly and explicitly asks such questions on a regular basis, and provides answers based on uncorroborated assumptions. To put this in more incisive terms, if my only exposure to the late eighteenth-century symphony is to the music of Haydn and Mozart, then I know precious little about the late eighteenth-century symphony. I might have very insightful things to say about Haydn's and Mozart's music, and should feel free to say them, but I should not frame my comments as if those two composers somehow encompass the general compositional landscape of their time, or as if I have the knowledge necessary to locate them correctly within that landscape.[6]

Lest I sound like I'm stridently anti-canon, let me hasten to note: the majority of analyses in this dissertation are of major works by canonical composers. Haydn makes prominent appearances in Chapters 2, 4, and 7; Mozart in Chapters 6 and 7; and Beethoven in Chapters 3, 4, 5, 7, and 8. There is a practical reason for this: far fewer readers will desire to use the analytical tools that I have engineered if I do not demonstrate their cash value in illuminating music that is already esteemed. My vision is not necessarily for a world in which already canonical composers

[6] This is why books like Richard Will's *The Characteristic Symphony in the Age of Haydn and Beethoven* (2002) and Matthew Riley's *The Viennese Minor-Key Symphony in the Age of Haydn and Mozart* (2014) are such important steps in the right direction.

must cede pride of place as analysts' ultimate object of study. (Although, more diversity of repertoire in the classroom is certainly called for—an issue I address further in this dissertation's coda.) It is for a world in which a broad repertoire forms the background for analyses, regardless of their object of study. And, as I will argue in Chapters 6 and 7, it is not music analysis itself that is in dire need of more style analysis; it is music history that is suffering from such a lack.

❖ What's to Come

There are seven further chapters in this dissertation:

Chapters 2 and 3 are on the concept of musical meaning. In Chapter 2, I argue that meaning is not inherent in music itself; it exists only in the minds of actual individuals who are engaging with music. Any proposition about the meaning of a passage of music is therefore true only for the individuals capable of hearing it that way. I argue that music theory's conventional depiction of "the listener" is a dangerous fiction. Because this imaginary listener is so idealized, analysts feel free to perform visual/textual close-readings of the score, and automatically treat the observed phenomena as audible to someone working without scores. This causes music theory to stray farther and farther from the experiences of non-expert listeners, such that we are no longer capable of representing them or offering interpretations that are within their grasp to understand.

In Chapter 3, I examine how musical meaning is created through the formation of analogies. I argue that analogies are not determined by music, but rather afforded. Scores afford performers different ways to play the music, and performances afford listeners different ways to understand the music. Analyzing musical meaning therefore requires attending to both processes: how performers respond to scores, and how listeners respond to performers. I propose an

expansion of Lawrence Zbikowski's use of conceptual blending to accommodate the different stages at which blending takes place.

Chapter 4 and 5 deal with keyboard music. Some time in the late eighteenth century, composers of keyboard music began to explicitly concern themselves with the spacing of chords: where on the keyboard they lie, how thick they are, how big a gap there is between hands, and so forth. I investigate when and why this happened. I divide approaches to this question into Materialist ones that connect this to technological developments in keyboard instruments, and Rationalists ones that characterize this as a primarily an intellectual shift. I show that these often function as hermeneutic stances, rather than falsifiable hypotheses about historical facts. However, I also push back against certain Materialist claims, by showing that various techniques attributed to the English fortepiano are already present in music written for other instruments.

In Chapter 5, I approach registral spacing from the standpoint of listeners rather than composers. This chapter tries to answer the following questions: When do spacings matter more to listeners and when do they matter less? How is this conditional upon the context in which a particular voicing is used? And how is this affected by the instrument on which a piece was composed or is played in the present? Case studies include the finale of Beethoven's "Moonlight" Sonata and Cello Sonata No. 2 in G minor, and the slow movement of Weber's Piano Sonata No. 4 in E minor.

Chapters 6 and 7 are about the historical development of orchestration. Sometime in the late eighteenth century, what I call a "punctuation" model of orchestration (in which wind instruments are used to articulate formal events) gave way to what I call a "continuous spectrum of sound" (in which wind instruments can be added or subtracted from textures in any combination,

and within sections rather than only between them). When and where did this happen, and why? Chapter 6 starts with an "internal," single-composer approach to this, as a means of building tools to be used in Chapter 7's "external," global trends–focused approach. Chapter 6 provides a classification of Mozart's orchestral techniques in the Salzburg symphonies in the early 1770s, and traces his evolution from those works through the late piano concertos (1786). This surprisingly validates the oft-repeated (but never before corroborated) claim that *Idomeneo* marked a radical turning point in his approach. Chapter 7 chronicles how different composers across Europe reached their turning points at different times, and probes the extent to which these transformations might have been driven by the expansion of the size of orchestras. As an antidote to "Great Man" history, I compared Haydn's London Symphonies to other Austro-German symphonies of the 1790s (by Brandl, Danzi, Eybler, and Krommer), to bust the myth that his orchestration was "revolutionary" or "radical."

Finally, Chapter 8 focuses on timbre. In it, I provide a taxonomy of timbre's possible affordances for meaning-formation, applying them to the first movement Beethoven's Symphony No. 8 as a demonstration. This is followed by analytical case studies on orchestration's capacity to renegotiate basic "primary" features (which voice has the melody; how polyphonic a passage is; perceptions of where certain lines blend, emerge, etc.), using contrasting recordings of Schubert's "Great C Major" Symphony and Rossini's two different orchestrations of his Overture to *The Barber of Seville*.

Chapter 2: Whose Meaning?

❖ Putting Meaning Back in the Head

"What is meaning?" is not a question fit for a single chapter; it is one fit for an entire field of study, and many such fields already exist. At a minimum, we might name semantics, pragmatics, semiotics, hermeneutics, and philosophy of language as disciplines for which "the meaning of meaning" (to use C. K. Ogden and I. A. Richards's phrase [1923]) is a central preoccupation. If our goal were to seek the ideal definition of "meaning"—to start with that word, and move from it into the world to find its correlates—the illimitable acreage of those fields of study would ensure that the journey remained endless.

This is why I propose the opposite approach. Rather than beginning by asking how best to define "meaning," let us ask what "meaning" best defines. Instead of trying to fit pieces of the world to the word, let us fit the word to the world. In this world, the experience of music is, self-evidently, a "meaningful" (i.e. a valuable and significant) one. (Were it not, we would not donate such hearty portions of our lives to it, and you most certainly would not be bothering to read a tome such as this.) The starting question should then be: in what part of musical experience does the meaning reside?

Traditionally, there are two sorts of phenomena to which philosophers and semioticians attach the word "meaning." The first are phenomena *internal* to the human mind. They are the thoughts and feelings that buzz about the brain in response to a meaning-provoking stimulus: the sensation of softness evoked by the very word "soft," that bit of melting when watching a kitten at play, and so on. The second variety of phenomena consists of those *external* to the human mind. They are the objects in the world that signs are understood to refer to or represent: the historical

woman depicted by Leonardo Da Vinci in the Mona Lisa, the river in Africa denoted by the word "Nile," etc.

Ever since Aristotle first distinguished between *pragmata* (objects) and *pathemata* (impressions) in *De Interpretatione* (1975), Western philosophy has continually sought new ways to re-draw the boundaries between these internal and external elements of meaning. In the analytic tradition, this has generated such conceptual binaries as: *Sinn/Bedeutung* (Gottlob Frege [1892]), designatum/denotatum (Charles W. Morris [1971]), reference/referent (Ogden & Richards), and intension/extension (many contemporary analytic philosophers of language). Though these binaries are all rooted in a distinction between internal and external phenomena, they are not mutually interchangeable. Each was designed to extract a particular subtlety. And not all of the thinkers who use them agree that the word "meaning" should apply legitimately to both aspects. Some are dogged internalists or externalists: that is, they assert that only one of these two classes of phenomena accurately or helpfully defines the concept "meaning."[1]

You may come to this chapter already armed with these binaries, an avid proponent of a particular internalist or externalist view of linguistic meaning. I do not seek to deprive you of such views. But whichever side you may take in that debate, I encourage you to regard musical meaning as something apart from linguistic meaning. It is precisely to circumvent a too facile analogy between language and music that I avoid transplanting any of the above-listed binaries into this theory.

[1] For an introduction to semantic externalism, see Putnam 1973. For a defense of internalism against these principles, see Searle 1983, Chapter 8.

The conception of musical meaning that I urge upon you is a resolutely internalist one. Indeed, I claim, it is obliged to be. Music always produces some internal reaction in its listeners. But in most Western musical traditions, music does not always explicitly refer to external objects. Thus, any externalist account is impeded at the outset: by the necessity of not only explaining the means of the referring but also supplying the seemingly absent referents.

Once we agree that musical meaning is internal, we might continue by asking: which internal mental reactions qualify? When you listen to music, you might expect to experience all of the following: the evocation of memories (conscious and unconscious) of past musical experiences; the entrainment of your breathing or physical movements to some metrical regularity; the quickening of heart rate and arousal of emotions at moments of intensity; the forging of metaphorical bonds between musical and physical dynamic processes; and more.[2] Which of these are a part of meaning? My answer is simple: meaning is *all of them*. Every internal mental reaction to a stimulus is a part of its meaning; and its meaning is the sum of those reactions.[3]

You may notice that I first defined musical internalism in terms of the mind, but now appear to be also speaking of reactions within the body. Can we really move so fluidly between these domains? This dissertation is not the place to wage war with the Cartesian doctrines that police this conceptual border. Whether or not the mind is in some way distinct from the body or is merely a component of it is not germane to the theory I am about to expound. Although some

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[2] Many of these layers of reaction to a musical stimulus are modeled by David Huron in his ITPRA theory (2006).

[3] This claim's strongest analogue in literary analysis may be found in Stanley Fish's early essay, "Literature in the Reader: Affective Stylistics": "...the information an utterance gives, its message, is a constituent of, but certainly not to be identified with, its meaning. It is the experience of an utterance–*all* of it and not anything that could be said about it, including anything I could say–that *is* its meaning." (1970, 131).

of the bodily processes that I speak of are centered in organs other than the brain, they nonetheless alter the state of the brain and (by extension) consciousness. It is these altered brain states and not the non-mental processes that give rise to them that I am identifying as meaning. So, if I say that breathing faster in response to a *crescendo* is part of that *crescendo*'s meaning, I do not therefore imply that a bit of that meaning is lodged in the listener's lungs. It is the *experience* of breathing faster—experience as manifested in thoughts and feelings—and not the actual heightened respiration itself that forms a part of the meaning of the music.[4]

For some readers, the inclusivity of this definition may still appear overgenerous. Even if you accept that these physical processes generate mental content, you may not be convinced that the word "meaning" should describe all forms of mental content. Though embodied approaches to musical meaning have a healthy history (see Godøy and Leman 2010, Gritten & King 2006, Gritten & King 2011, LeGuin 2006, Leman 2008, Zbikowski 2002), you may nevertheless insist upon reserving the word for some more specific form of mental content—conscious intentional content, perhaps. I will not quarrel with such a view here. I hope to prove the value of my definition through its application to actual music, later in this chapter. But I will note that this chapter is not dead to those who wish to abide by a more exclusive definition of meaning. So long

[4] Throughout this chapter (and in this paragraph in particular), I speak of meaning as if it is primarily subjective and individualistic. This should not give the false impression that I think meaning is not also intersubjective and social. Of course, it can be and often is both of these things. My internalism entails only that this social meaning has to exist insides the minds of all of the individuals participating in the social process. This is compatible with both "bottom-up" theories of the social (in which individuals are ontologically prior to society) and "top-down" theories (in which society is ontologically prior to individuals). Internalism doesn't care which is prior, so long as the social meaning ends up imprinted in and carried by individual minds.

as that more exclusive definition is internalist, my exploration of the mechanics of this process should still prove fully applicable.

One final point must be made regarding the internal nature of this content. Earlier, I noted that Western classical music does not always have external referents. But sometimes it does.[5] In the eighteenth- and nineteenth-century repertoire that we are dealing with in this dissertation, this is most plainly the case when dealing with program music or texted music. It might seem that in such cases, the meaning morphs from an internal phenomenon into an external one: that the meaning is now the entity being portrayed by the music. However, this is not the case. The meaning remains internal in spite of the existence of an external referent.

To demonstrate this, let us consider two such musical moments with external referents. The first is the opening of Schubert's "Der Erlkönig"; the second is the opening of Smetana's "Vltava" from *Má vlast*. In the Schubert, many listeners hear the unyielding triplets in the pianist's right hand as representing the hoofbeats of the horse as it dashes through the night, bearing the father and ailing child. In the Smetana, the swirling figures in the flutes and strings are explicitly meant to evoke the waters of the Vltava river (sometimes called by its older German name, the Moldau). In the first of these cases, we have a fictional referent; and in the second, we have one that exists in the real world. But in both of these cases the referent is not an internal object, because it has an existence outside of the listener's head.

This is straightforwardly true for the Vltava river: one could take a flight to the Czech Republic and interact in all ordinary sensory manners with the physical river. The external status

[5] Music that does this is called "extroversive" (as opposed to "introversive") by Kofi Agawu (1991, Chapter 3) and "exteroceptive" (as opposed to "interoceptive") by Eero Tarasti (1994, 57).

of Schubert's (or Goethe's) horse is more readily disputed. Some might argue that the horse lives only in the minds of the readers of Goethe's poem and the listeners to Schubert's song (even though neither poem nor song explicitly mentions a horse). Others (including me) would argue that fictional characters do indeed have an external logical status, because facts established about them by their creators remain true whether they succeed in entering the mental world of the readers/listeners. For example, it is true that Hercule Poirot has green eyes, because Agatha Christie declares that he does in *The Mysterious Affair at Styles* (1920). This would remain true even if no readers of that book remember that fact, and thus no living person enters an internal mental state in which Poirot has green eyes. It remains true because it is fixed by the external entity that is the text of the novel.[6]

Now, of course, in addition to the external referents (the horse and river themselves), there are also the listener's internal responses to music. Some of these are direct manifestations of the senses of "horsiness" and "riverence" elicited by the combination of music and text/program. Perhaps, in the Schubert, the listener is more aware of the physical action of the pianist's fingers pounding against the keys as if beating against the ground. Or, in the Smetana, the sounding air from the flute has seemingly condensed into a liquid, swirling and cool. Some are more prosaic: such as the simple fact of mentally connecting the music to its referent (e.g. thinking to oneself "This sounds like a horse").

Because of thoughts like these, an internalist account is never threatened by the external world. Inasmuch as the objects in the world are processed by and leave internal traces within the

[6] Further explanation of this particular ontological approach to fictional characters may be found in Searle 1975, especially pp. 329–332.

mind, one can always regard those internal traces and not the objects of the world themselves as constituting meaning.[7] (This is the same strategy I employed when saying that the experience of breathing faster and not breathing faster itself could be the meaning of a *crescendo*.) The thrust of all this is that the entire mental jumble of associations summoned by the music—the picture of the horse in the mind, the sensation of the river, etc.—comprise the meaning of these moments, while the actual horse and river do not. Thus, no one (not even the father) rides the meaning of the opening of "Der Erlkönig," and one cannot swim the backstroke in the meaning of Smetana's "Vltava."

If we agree with this working definition of musical meaning as the internal reaction to a musical stimulus, two large questions emerge. The first (which is the focus of most scholarly scrutiny) is *how* this meaning is created—the mental mechanics, the critical concepts. This is what concerns semioticians, such as Kofi Agawu, Robert Hatten, David Lidov, Raymond Monelle, or Eero Tarasti; philosophers, such as Stephen Davies, Peter Kivy, or Jerrold Levinson; or those working most strictly within musicology and music theory, such as Carolyn Abbate, Marion Guck, or Lawrence Kramer. But before we get to that "how," I would like to take a very long look at the "who." I particularly wish to convince you that the former is heavily dependent on the latter—that we cannot possibly understand the ways that meaning is formed in the mind unless we know which specific minds we are talking about. Thus, "who" is the main topic of this chapter and "how" is the main topic of the next.

[7] For a sustained explication of this strategy as a rebuttal to semantic externalism, see Kot'atko 2012.

❖Asking "For Whom?"

A natural feature of an internalist account of meaning is that the thoughts/feelings that comprise meaning cannot float unmoored in some spatially unspecific ether. They must reside in the heads of specific real people. Therefore, any statement of the form "X means Y" (where X is a musical object and Y is a series of thoughts/feelings) is inherently incomplete.[8] It is missing a crucial dative. Its complete form is "X means Y *for Z*" (where Z is the person experiencing the meaning).[9] For the purposes of this chapter, I will call all statements of the form "X means Y" or "X means Y for Z" *interpretive claims*. Such claims are present not only in analyses of high theoretical or hermeneutic pedigree, but rather any time someone attaches meaning to a musical segment or sequence of events.

Interpretive claims in incomplete form are far more common in scholarly writing than those in complete form. Whenever we encounter such an incomplete claim, I suggest that we are required to ask *"For whom?"*: for whom does X mean Y? Sometimes, this fact is clearly established elsewhere within the article or book that we are reading. But quite often, it is not, and we are forced to reconstruct the presumed listener from clues within the text. (Much more on this later in this chapter.) Once we become accustomed to reconstructing them with the "For whom?" question, we will notice that three further problems regularly occur: (1) That some meanings do

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[8] Throughout this dissertation, I will use the term "musical object" to denote any object of perception that is understood by the perceiver as musical. Thus, a single note, a chord, a phrase, a section, an entire piece, etc. are all musical objects. This use of the term "musical object" also appears in Barry 1990. For other, similar uses, see Clifton 1983 and Delalande 1995.

[9] One can compare this to Searle's discussion of the "X counts as Y in C" form for constitutive rules for social facts (1995, 43–51), or (more pertinently for music theory) to Mark DeBellis's "*S* hears *x* as an *F*" (1995, 15–16). The historical precedent for this shift is Peirce (1955), whose triadic semiotics differs from dyadic forms (such as Saussure's), due to the addition of the "interpretant" as a node unto itself.

not fit the audiences to whom they are attributed; (2) That there are some people whose meanings are notably absent from all existing accounts; (3) That even for people already included in these accounts, some essential part of that meaning is going undescribed. I propose to address all of these problems in the domain of "For whom?" before attempting to tackle "how."

The first way of beginning to answer "For whom?" is to ask whether the person to whom the meaning belongs exists prior to the interpretive claim. Does the claim attempt to describe the reactions of particular listeners or is it attempting to create those reactions? An influential attempt to theorize this distinction may be found in David Temperley's "The Question of Purpose in Music Theory: Description, Suggestion, and Explanation" (2001). In that article, Temperley establishes a dichotomy between "descriptive" and "suggestive" analysis. The former "attempts to describe listeners' unconscious mental representations of music" (68), while the latter aims "to find and present new ways of hearing pieces, not to describe the way people hear pieces already" (70).[10]

This distinction is a valuable starting place, but it ends up raising more questions than it answers. The two terms—"descriptive" and "suggestive"—are intended to classify entire approaches to music analysis, based on the central aim of its practitioners. Therefore, in order to use the classification, one must first be able to reduce any analysis (or style of analysis) to a primary purpose. This is rarely practical. If the upshot of an analysis is (as is not uncommon) something like "Mozart's audience heard his music this way, and therefore so should you!", how does one classify it? Attempting to capture the mental representations of Mozart's audience would seem to

[10] These two forms of analysis also line up with what Jerrold Levinson (1998) calls DM ("does mean") and CM ("could mean") forms of interpretation. It is unclear precisely why Temperley defines descriptive analysis as pertaining to *unconscious* musical representations only. Perhaps, he simply believes that conscious ones should not require analytical description, because they are so readily available for mental examination.

be descriptive. But that second clause carries strong suggestive force: though these ways of hearing may not be (historically) new, they are nonetheless new to the analysis's audience, and their adoption is urged. Is that enough to qualify an analysis as suggestive?

The issue of an analysis's readership raises yet another difficulty. What happens when an analysis intended to be descriptive of its readers' experience of a piece is read by a different audience entirely, one for whom that experience would be novel and that description consequently untrue? Temperley would presumably still call this a descriptive analysis, since he seems to take the analyst's intention as the primary criterion (note that his definition classifies these analyses based on what they *attempt* to do, and not what they succeed in doing) and this shift in audience was beyond the analyst's intentions. But this is a potential difficulty of the label "descriptive": as my "For whom?" question is meant to make clear, a claim can never be descriptive in the abstract; it can function descriptively only relative to a specific audience.

Even if we relinquish Temperley's appeal to the analyst's aims and we also somehow limit the readership of an analysis to precisely its ideal audience, we still have the difficulty of using the terms "descriptive" and "suggestive" to summarize the entire analysis. In effect, there can almost never be such a thing as a wholly descriptive or suggestive analysis. Even the most suggestive analyses will nonetheless begin by working from statements with which the audience is presumed to agree, before building to the fresh insights that it hopes to provide. These described points of agreement may be such seemingly banal things as what key the piece is in, which notes in a measure belong to which contrapuntal voices, which line is the melody, etc. Likewise, in order to write a descriptive analysis of a piece, analysts usually subject the piece and (more particularly) their own experiences of the piece to a kind of scrutiny that naturally changes the experience itself. And

thus, the object being described has been altered by the very act of description. Description itself becomes auto-suggestion.

❖Answering "For Whom?"

Evidently, Temperley's binary is insufficient on its own to answer the "For whom?" question. The two main difficulties we encountered with it were the gradation at which to apply labels, and the appeal to authorial intention upon which the distinction rests. So, let us begin by discarding both of these problematic elements.

First, instead of attempting to glean the overall purpose of an analysis, let us limit ourselves to examining the facts it purports to establish. Second, instead of attempting classification at the level of the method, the article, or even the thesis, let us instead classify the smallest possible unit of interpretation: what I have already called the interpretive claim. In doing so, we should aspire to something akin to the "logical atomism" of Bertrand Russell or Ludwig Wittgenstein, with its characteristic concern with preventing a sentence's grammatical form from hiding the logical form of the claims contained therein (Wittgenstein 1929; Russell 1905, 1919). From these thinkers, we should learn not to assume that a single grammatical unit—whether it be a sentence or a clause—automatically corresponds to a single interpretive claim. A simple clause may carry a compound claim, which must be broken down into individual, component parts, each of which is each assessed separately.

Let us take a real-life example (one chosen nearly at random): a sentence by Scott Burnham (2005) describing the opening bars of the finale of Joseph Haydn's Symphony No. 102 (pictured in **Example 2.1**), as perceived by "the listener." (More on the analytical fiction of "the listener" later

in this chapter.) Burnham writes: "The surprise tumble onto an A major triad at the end of the fourth two-measure phrase begins to act on the promise of antic possibility" (61). From little more than two-dozen words of analysis, we can extract the following distinct claims:

(1) The first eight bars of this movement are composed of four two-measure phrases.

(2) At the end of the fourth of these phrases is an A-major triad.

(3) The motion towards this triad is perceived as a tumble (downwards).

    a. (Since that A-major triad is ultimately approached—in the last two eighth notes of the phrase—by convergent inwards motion from the outer voices, this implies that the motion of the upper voice is the most determinative of the listener's sense of direction).

(4) This tumble—either the act itself or the destination chord on which it lands—is surprising.

(5) The earlier measures of the movement made a "promise of antic possibility."

(6) This tumble somehow partly begins the realization of that earlier promise.

Thus we can see how the compact prose of a lively stylist such as Burnham can house a deceptively large number of assertions within a single sentence.

Now, listen to the eight bars Burnham has analyzed and consider how many of these six(-and-a-half) claims are accurately descriptive of your perception of this music. I will provide you with my personal responses: (1) is true for me, as this formal segmentation is a crucial part of my experience. I agree with (2), although I would not have consciously noted that the chord is A major or V/III, as such, in real time without the aid of a score. While I agree with (3a)—in as much as I perceive the descent of the melody into a lower range to be the most significant form of directional

motion in the passage—I do not perceive any sense of tumbling, so (3) itself is not true for me. For me, a tumble would imply accelerated or precipitous downwards motion, whereas this descent is stepwise and according to the same model as the motion to V in mm. 3–4. (4) is true for me: even without registering by ear that the chord was V/III, my ear recognizes it as something tonally distant, and therefore surprising within the context of the opening of a movement. (5) is not true for me: although I find the character of the opening humorous, I do not assume that a humorous character implies somehow that the succeeding events are going to be zany. (A theme without twists and turns can nonetheless seems to possess a wry tone, and Haydn's surprises occur just as frequently in outwardly sober themes, heightening their incongruity [Wheelock 1992, Chapter 4].) And consequently (6) is not true for me either, since it is predicated on (5).

This little résumé hopefully illustrates the necessity of breaking down the sentence into individual claims rather than assessing the sentence as a whole, when trying to apply something like Temperley's "descriptive" and "suggestive" labels. Your responses may vary greatly from mine, but it is likely that you too agree with some but not all of Burnham's claims. Relative to our perceptions, then, some of Burnham's claims are descriptive while others are suggestive. Given these mixed results, it is unclear on what grounds we would then wish to paint the entire sentence with a descriptive or suggestive brush.

Now, of course, I am not seriously proposing literally moving sentence-by-sentence through a whole analysis, enumerating and unpacking every single hidden claim. That would be, at best, a one-time pedagogical exercise for graduate students to instill meta-analytical rigor (and, likely, a resentment of the assigning professor). But the tedium that would result from such an undertaking does not evince a flaw in the method. On the contrary, such exhaustion ensues when virtually any

sufficiently attentive approach to analysis is applied indiscriminately to every element of a work—e.g. if one were to close-read a novel word-by-word or perform Roman numeral analysis on an entire symphony chord-by-chord. This method, like any other, presumes some degree of pre-screening on the part of the reader to determine which claims merit the most attention.

Once such claims are isolated, we can begin asking "For whom?". For every claim of the form "X means Y for Z," our first task should be to whether the claim was *already* true for some Z (other than the author of the claim herself) before the claim was made, or *became* true because of the claim. This question determines whether the claim was (in speech act theory)—at its point of declaration—*constative* or *performative*. Simply put, a constative speech act describes a pre-existing state of affairs, whereas a performative speech act brings about a state of affairs through being spoken. So, "Hector and Harriet are married" is a constative utterance, assuming that the marriage pre-dates the sentence. But, a justice of the peace's declaration to a hitherto unmarried Hector and Harriet, "I now pronounce you husband and wife," is a performative utterance, because it causes their marriage to come into being.[11]

Although I will refer to the constative or performative status of various claims in this chapter, I will not be using this dichotomy as my primary classification system for interpretive claims. My system instead employs three main categories. If the claim was not true before it was made, I call that claim *constructive*, since the claim constructs the audience for whom it will be true. If the claim is true, my follow-up question is: do/does Z continue to exist at the time at which the claim is being made? If the answer is "no," then I call such a claim *reconstructive*, since the meanings experienced by some now deceased Z are being historically reconstructed through the claim. If the

[11] The original formulation of this distinction may be found in Austin 1962.

answer is "yes," then I call such a claim *deconstructive* ("deconstructive" with a little "d," not to be connected with the Derridean movement of Deconstruction), since it examines a meaning that is presumed to be familiar, but deconstructs—i.e. takes apart or lays bare—some aspect of this meaning that was not consciously understood.

Before we proceed further, let me emphasize one crucial point. This trichotomy is merely a system for classifying a claim's dative component—for answering the "For whom?" question. It is decidedly *not* a means of reducing a claim to its essence—of identifying the crucial "what." For example, two critics—one Schenkerian and one Lacanian—might deliver two entirely contrary accounts of a piece, professing to explain how it is experienced by a contemporary listener. Both of these interpretations would be labeled "deconstructive" according to my system (since the listener is still living), but that shared label betokens no additional similarity between the interpretations besides identifying the human subject whose meaning is being analyzed. Critical exegesis does not end with asking for whom a claim is meant to speak. That is merely the beginning of the investigation.

Why invent this trichotomy at all, instead of just sticking to the terms "constative" and "performative"? Because what I am calling constructive interpretive claims are not performative by virtue of the form of the claims themselves, but rather by their relationship to the world at the moment at which they are made. In this regard, they differ from many conventional performative utterances. Consider one such utterance: a commonplace imperative, "Please shut the door." The performative succeeds in its aim if the addressee shuts the door. But if the addressee does not shut the door, the utterance is still performative, albeit unsuccessful. Under no circumstances does "Please shut the door" become a constative statement describing the world.

Contrast that with the situation of the following interpretive claim: "The opening measures of the finale of Mozart's Piano Concerto No. 20 in D minor, K. 466 sound like an osprey shaking water from its wings." Let us assume that we asked "For whom?" and determined that at the moment at which I (the author) made this claim (call it time-point T), no one but me heard the music this way. The claim is then constructive: it will succeed in being true *only once it is believed by someone else*. If readers of that claim find it poetic, convincing, or what have you, such that they then begin hearing the music in that way (at some time-point T + n), then I will have succeeded in constructing the claim's audience. Is this claim performative or constative? That entirely depends on when you assess this status. At time-point T, the claim is performative—it seeks to change the world much as "Please shut the door" does. Its implicit request (or "illocutionary force" in philosophical jargon) is: "Please hear the music this way." But at time-point T + n, the claim has become constative *and* performative—constative because it now describes the thoughts of the audience that it has created, but also performative because its capacity to enlarge that audience persists.

In their performative state, constructive claims—like all other performative utterances—do not possess truth-functionality. Either they succeed or do not succeed in convincing a reader to adopt their meanings; but they cannot be false, because they do not describe. In contrast, reconstructive and deconstructive claims are truth-functional. If one claims that "X did/does mean Y for (real people) Z," that statement is either true or false, as it is either an accurate or inaccurate description of the contents of the thoughts of real people.[12] This truth-functionality persists even if

[12] When a claim seems "partly true / partly false," the culprit is that the claim itself is "molecular" and needs to "atomized" into its component claims, as I did with the previous Burnham example.

the information needed to assess the truth-value is unavailable and the claim is therefore unverifiable. In fact, as I shall soon discuss, the majority of reconstructive claims are unverifiable, since they catalog the mental contents of people whose thoughts are unknowable.

Determining that a reconstructive or deconstructive claim is false does not suffice to cast it out from our careful consideration. As my osprey example above illustrates, a reconstructive or deconstructive claim that fails to describe existing meanings can nonetheless transform into a felicitous constructive claim if it succeeds in instilling its meanings in a fresh audience. The initial falseness of these claims makes them fictions. But they are a special form of fiction: self-factifying fictions (close cousins of the auto-suggestive diagnosis and the self-fulfilling prophecy). They succeed in describing a present state of affairs at the moment that their description is believed—as the reader transforms into the listener that is being described.

❖ The Knowledge of the Implied Listener: Three Ways of Experiencing Gravity (or Music)

Applying the constructive–reconstructive–deconstructive triad is not difficult when the interpretive claim is in its complete form—when it specifies for what specific Z, "X means Y." But incomplete claims (in which Z is left unspecified) are more common in academic literature than complete ones. Sometimes this is the case because the author implicitly believes that the stated meaning is an immanent property of the musical work rather than a mental experience of the listener (a viewpoint explicitly rejected by our internalist account of meaning). Other times, this is because the particular frame of discourse in which the scholarly work was written tacitly assumes a

specific type of audience. In such cases (as in the Burnham passage just discussed), we are dealing with someone just called "the listener," with nothing further specified about this listener.

How can we begin to assess such claims? We cannot simply assume that "the listener" is meant to represent all listeners. For, if so, all such claims would be false, since no claim could possibly encompass such a broad population.[13] Nor would it be prudent to presume that all such claims are automatically constructive. There may very well be someone for whom the claim is true.

The other chief difficulty in assessing claims occurs when a reconstructive claim is complete, but we lack any sort of hard evidence against which to check it. (A recurrent problem.) These unverifiable reconstructive claims occur when ascribing meanings to populations that left few to no accounts of their own listening practices. This situation is extremely common, as most individuals (even those with professional training) lack the capacity to accurately analyze and describe their own experiences.

To solve these two quandaries, we can shift focus from actual listeners to what I call the *implied listeners* of the claim. This term is reminiscent of (and indeed was inspired by) the concept of an "implied reader," which was coined by the literary theorist Wolfgang Iser (1974). However, my use of this term is not exactly parallel to Iser's, in part because his term functions hermeneutically (as a tool for producing interpretations) and mine functions meta-hermeneutically (as a tool for clarifying already existent interpretations). Iser's implied reader is a covert component of the work being interpreted, a "network of response-inviting structures" that "embodies all those predispositions necessary for a literary work to exercise its effect—predispositions laid down, not by

[13] The only universally true claims are those that state facts of human cognition constant across all possible listeners (e.g. that "the listener" cannot hear a pitch at 50,000 Hz). However, it is dubious whether such claims are ever "interpretive claims."

an empirical reality, but by the text itself" (1978, 34). We expose the construction of this reader by analyzing the "conditions of actualization that will allow [the text's] meaning to be assembled in the responsive mind of the recipient" (ibid.).

Where Iser and I differ is that his implied reader "is a construct and in no way to be identified with any real reader" (ibid.). Not only is it not any specific real reader, it is also not "a typology of possible readers" (Iser 1974, xii). For me, the "implied listener" *is* exactly the typology of possible listeners suggested by an interpretation. In fact, I see such a typology as being an entirely unavoidable consequence of precisely those predispositions that Iser describes. One cannot imply conditions of actualization without automatically beginning to circumscribe a possible audience, excluding those for whom such conditions are impossible to meet. We can use those conditions to work backwards from the claim and ask: if this claim were true of a listener, what kind of person would that listener be, and what general habits and capabilities of that listener are implied? For incomplete claims, our assessment stops there. For unverifiable reconstructive claims, we can use these conditions to gauge their plausibility, checking if there is a gap between the capabilities of the implied listener and those likely possessed by the actual listener(s) whose experiences are supposedly being described.

The correct way to derive the necessary preconditions entailed by a claim may not seem apparent, at the moment. On the one hand, it is clear that all sorts of people untutored in music theory—who have no conscious concept of what a chord is—are nonetheless affected by particular harmonies in the music they listen to.[14] On the other hand, there are some kinds of harmonic

[14] "A listener does not need to have the concept of, say, a dominant seventh chord, i.e., the concept of a major triad plus the note which forms with the root of the triad the interval of a minor seventh—a chord that in a major scale can be built only on the dominant—in order to have a

hearing that seem unfathomable without theoretical concepts in place. For example, a non-theoretical listener can experience a feeling of modulation without consciously possessing the concept of "modulation." But that listener cannot say *where* a modulation has gone to (e.g. "we are now in flat six") without a conceptual understanding of tonal space.[15] Even if "flat six" sounds different than "five," any conceptual resource with which to make that distinction more than just an indefinable sensation of difference is absent.

How might we extract these distinct phenomena that are often amalgamated within a single claim? To clarify, then, three different sorts of knowledge or capability that a claim might entail, I would like to examine three different relationships with a familiar non-musical phenomenon: gravity.[16]

Surely one of the more noticeable things about real-world gravity is how little it cares for our consent or consciousness of its effects. If you have (within recent memory) suffered the misfortune of a fall, you were possibly struck not only by the ground but also by how much of your altitude and verticality was lost before awareness of your calamity kicked in. No mental proposition serves as a precondition for gravity's operation upon us. It works no matter what our minds contain.

An individual for whom the above is not always true is Wile E. Coyote. He and the gravity of the Looney Tunes world are frequent companions. And perhaps as a token of mutual esteem,

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full sensitivity to the harmonic implications of such a chord in a work he is listening to." (Tanner and Budd 1985, 246). Wittgenstein made a similar statement in the Brown Book II §22 (1958).

[15] The existence of this distinction and its significance as the defining characteristic of expert versus non-expert listening is the central thesis of DeBellis 1995. Levinson defines this as a distinction between "perceptual" and "intellectual" senses of hearing (1997, 72).

[16] The threefold division that follows is similar in some respects to (but not identical with) Michael Tanner's three levels of musical understanding (Tanner and Budd, 1985).

this version of gravity occasionally extends him a courtesy not bestowed upon humans by its real-world counterpart: it awaits his acknowledgment before acting. An illustrative instance of this occurs in the opening of the short *Zoom and Bored* (1957). Wile E. is in hot pursuit of his usual quarry, the Road Runner. In its passage across the desert, the bird has kicked up a cloud of dust that extends from both creatures' feet up to their heads, and Wile E. continues his pursuit into that cloud. At a pause in the chase **(Example 2.2)**, Wile E. begins to notice that there is no longer ground beneath his feet: while the dust has obscured his vision, he has run right off a cliff! He has been suspended in mid-air for some time now, thus defying the laws of gravity as we know them. But it is only once he realizes that gravity should be acting on him that it takes effect, and he plummets into the canyon below. Wile E. Coyote's experience of gravity in this instance is what I will call *awareness-dependent*. Before he can fall, he first needs to notice that the action he has undertaken should cause him to fall.

At the conclusion of another cartoon short, *High Diving Hare* (1948), Bugs Bunny demonstrates a third possible relationship with gravity. The plot of the cartoon is as follows: The celebrated high diver Fearless Freep is scheduled to perform at a variety show presided over by emcee Bugs Bunny, but has cancelled at the last moment. Irate patron Yosemite Sam decides that he will receive his money's worth only if Bugs dives in Freep's place. And so, Sam makes several ill-fated attempts to coerce Bugs off of the diving board at gunpoint, all of which end with Sam himself taking the plunge. In the final scene **(Example 2.3)**, however, Sam's victory seems assured. Bugs is bound with ropes, standing at the end of the diving board. Sam, sitting on the end of the board that connects to the platform, is sawing through the board itself. But when Sam completes his cut, the unthinkable happens: what falls is not the fragment of the board on which Bugs

stands, but the entire rest of apparatus—board, platform, ladder and all; and Bugs's fragment floats on the air. It is then that Bugs turns to the camera and utters the tag-line of the short: "I know that this defies the law of gravity. But, you see, I never studied law!"[17]

In this instance, gravity is clearly not functioning as an awareness-dependent force, for Bugs's final line begins by acknowledging that he is fully aware of the same fact as Wile E. Coyote: that there is no ground beneath his feet. What saves him here is ignorance of how and why gravity works. This is not a question of noting some feature of the present context. This is a question of understanding some general precept that exists outside of any particular context. I will call forces that work this way *knowledge-dependent*.

These are differences in kind rather than degree. For the purposes of these definitions, awareness is perceptual and knowledge is conceptual. Awareness is directed at concrete tokens, and knowledge is about abstract types. Awareness happens in the moment, and knowledge is retained across time, but knowledge becomes "occurrent" (that is, actively engaged) only as a result of a moment-bound awareness. It is for this reason that knowledge-dependent phenomena require both awareness and knowledge. Experiencing Bugs Bunny's gravity requires both that I know the law of gravity *and* that I am aware that I am in a situation in which that law applies.

Let us take a musical example to illustrate how these concepts might be applied to music. In the first movement of Haydn's Piano Trio in E major, Hob. XV/28, there is a pause in the development in measure 43, and then the piece's opening theme reappears, in A-flat major rather than in the original E major. Both the original version and the development version are shown in

[17] This gag was later re-used in the ending of the Road Runner short "Fastest with the Mostest" (1960).

Example 2.4. Charles Rosen pooh-poohs the idea that this should be regarded as a "false reprise" (what we would now call a false recapitulation), writing: "This is not a false reprise. If a reprise is not in the tonic (or the subdominant), it fools only the uneducated…" (1988 [1980], 282).[18]

For Rosen, then, there are two relevant facts here to be aware of:

(1) That the main theme has reappeared in a key other than the tonic or subdominant

(2) That main themes must (according to Rosen) reappear in the tonic or subdominant to initiate a recapitulation

First of all, in calling Fact 2 a "fact," I am being too generous. The rule that recapitulations must begin in the tonic or subdominant is, as far as I know, unique to Rosen. Most authors would be stricter (tonic only); some might be looser (once it's non-tonic, all non-tonics are equally valid). Rosen is right that the subdominant is the second most common key. But for whom exactly was this a reified rule? Let's take him at his word for the moment.

Fact 1 is a matter of awareness: it is specific to the theme at hand. Fact 2 is a matter of knowledge: it is about a general process outside of the theme. To rule out the possibility that this is a recapitulation (and thus escape Rosen's accusation that you are "uneducated") you must be cognizant of both facts. If you have absolute pitch or the score in front of you but have not learned Rosen's version of sonata theory, you have awareness but not the knowledge with which to draw useful inferences from it. You are like Bugs Bunny: you look down and see what key the music is in, but it doesn't affect you. If you do know sonata theory but are not aware of what key we're in, your knowledge cannot be activated. You are like Wile E. Coyote while still in mid-air: the key

[18] I have not provided a score example of this moment, because I am interested not in Rosen's comments on the Haydn, specifically, but rather on the more general claim here.

would affect you if you could notice it, but you can't see it. You need to have both of these capacities and both must be activated in this moment. If not, you're a fool in Rosen's eyes, since you can be taken in by false recapitulations. This leaves an awful lot of people in the "uneducated" camp—so many that we should wonder whether this is a remotely useful place to draw this line.[19]

❖ The Disguises Construction Wears

Our ability to work backwards from claims to the listeners they imply will serve us well in dealing not only with claims whose reconstructive, deconstructive, or constructive status is unstated or unverifiable, but also with those that clearly purport to serve one of these functions while actually performing one of the others. Most commonly, this takes the form of construction disguised as reconstruction or deconstruction.

I have noted that reconstructive and deconstructive claims are truth-functional, and that constructive claims are not. But this should not be misunderstood as an attribution of greater value to the former. This chapter is not the place for me to debate or defend the value of creative acts of construction in musical analysis.[20] Suffice to say that I regard all three sorts of claims—constructive, reconstructive, and deconstructive—as vitally contributive to the enhancement of musicological studies as a whole. I will freely engage in all three forms of analysis throughout this dissertation, while attempting to be very clear about when I am making each specific kind of claim.

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[19] This can become sinister when we consider: (a) to whom these forms "education" is granted or withheld, how, and why; (b) who has the power to determine the educational agenda. I address another side of this issue more directly in the coda to this dissertation, specifically on pg. 315.

[20] For an examination and defense of construction as an essential component of all good analysis, see Guck 1994 and Agawu 2004. (The latter even explicitly states: "Analysis, like composition, is a form of making, of doing, of constructing." [277])

Nevertheless, such open admission of the constructive aspect of music theory is uncomfortable for a great many music academics. Construction often does not obtain the same prestige as reconstruction or deconstruction. As Lawrence Kramer has noted, modern scholarship is in large part defined as "modern" by its self-restriction to constative rather than performative utterances (1995, 10–13). In their purest forms, reconstruction is a form of history and deconstruction is a form of social science. But what is construction? A potentially valuable form of creative non-fiction, perhaps (as much literary criticism is)?[21] This creative element is part of what smells unscholarly about construction to those who believe that scholarship is the pursuit of truth rather than the fashioning of fictions (however enriching those fictions might be). There is also the (partly justifiable) suspicion that to generate new meanings is much easier than to explain those that already exist. Yet, the net effect of this has not been the banishment of construction from musicology; it has been the suppression of the *appearance* of construction. And this, I maintain, is a central problem (perhaps *the* central problem) of musical interpretation in the academy: that most analytical approaches available to a modern scholar are methods of construction sporting reconstructive or deconstructive clothing.

No ill faith need be involved in this camouflage. Many practitioners of these methods may sincerely believe that the readings they generate are discoveries of prior truths and not the newborn spawn of their imagination. (The road to prescription is paved with descriptive intentions.) Regardless of motivation, this pretense poses problems for all three varieties of

[21] What I call "reconstruction" and "construction" corresponds in large part to what Dmitri Tymoczko calls analytical "historicism" and "aestheticism" (2012). And the connotations of that word "aestheticism" are precisely those that I think most practitioners of construction seek to avoid.

interpretation. It means that the practitioners of construction cannot acknowledge the nature of the cultural work that they perform. But it also means that the profession as a whole continually risks losing sight of what more genuine attempts at reconstruction or deconstruction might look like, for our default image of the face of reconstruction and deconstruction is then merely the mask that construction displays in public. I thus list here some common disguises of construction, not to disrobe previous scholars for sport (and, in fact, I avoid targeting specific scholars), but because without conscious cognizance of these disguises, we are liable to wear them ourselves unawares.

Our consideration of thought-independent, awareness-dependent, and knowledge-dependent phenomena get us part of the way to seeing through these. But a bit of semiotic theory further helps in elucidating these strategies. We might begin by recalling a semiotic triad popularized by Jean-Jacques Nattiez (1975, 1987, 1990), but first elucidated by Jean Molino (1975): that of the *poietic*, *esthesic*, and *neutral* levels of meaning in a musical work. Simply put, the poietic and esthesic levels are those that correspond (respectively) to the production and reception of the musical work. The most commonly discussed poietic meanings are the intentions of the composer; and the most commonly discussed esthesic meanings are the perceptual responses of the listener (1990, 92). The neutral level is then the material trace of the musical object, shorn of the baggage brought to it by either producer or receiver.

As Nattiez was at great pains to point out in his later work (1990), after he inadvisably used the term "neutral analysis" in his earlier work (1975), the neutrality of this material level does not entail that the analysis of that level will itself be carried out neutrally. Reviewers of Nattiez's work went further: they stated that analyzing the neutral level at all is simply impossible, that such an

analysis inevitably circles back to poiesis or esthesis. A review by Hatten (1992) provides a particularly keen insight: that the neutral level is really a "hypothetical level," that it consists not of signs or meanings but of units of text or sound that have the *potential* to be actualized into signs or meanings through use (94). But as soon as those meanings become actualized, they no longer belong to the neutral level: they belong to the actualizers and (depending on whether those actualizers are producers or receivers) are then either poietic or esthesic.

This should all seem entirely consonant with the internalist account of meaning that I have offered: the neutral level can house only the materials out of which meaning is fashioned and not the meaning itself, because the neutral level manifests entirely externally. The neutral level—by virtue of being the hypothetical level at which not-yet-actualized phenomena exist—is the source of all construction. Therefore, most forms of disguising construction involve what I call *level transference*: in which an interpreter analyzes an aspect of one level but attributes it to another level.

Because this chapter is concerned with meanings constructed by listeners, we are most concerned with transferences between the esthesic level and either the poietic or neutral levels. These transferences can occur in either direction, and therefore there are four types to consider:

(1) Neutral-to-esthesic: A material property of the musical object is assumed to be perceived by the listener.

(2) Esthesic-to-neutral: What the listener perceives is assumed to be an immanent material property of the musical object.

(3) Poietic-to-esthesic: A meaning intended by the composer is assumed to be perceived by the listener.

(4) Esthesic-to-poietic: A perception by the listener is assumed to be intended by the composer.[22]

A critique of the second of these is already inherent in my rejection of semantic externalism, so I shall not discuss it further. And while the fourth of these certainly merits scrutiny, its appeal to composer intention lies outside this chapter's focus on listener-centered meaning. So, I shall focus entirely on the first and third of these four. How and why do interpreters so readily relocate composerly and textual meanings in listener's heads?

Some of the blame for all this lies in the difference of media between the levels: for most classical music, the esthesic level (for a listener) pertains to a sonic object, but the poietic and neutral levels generally pertain to a textual object, as both the composer and analyst rely upon a written score. For the composer, the score is not merely a receptacle or record. As all studies of human interactions with technology tell us, any medium that begins life as a tool for recording pre-existing thoughts eventually becomes a tool for thinking new thoughts.[23] The same is true of the score. And naturally, some of these new thoughts are of a kind impossible to generate without aid of the tool itself.

For example, we may not know the limits of the counterpoint a Bach, Bruckner, or Brahms could have composed in their heads alone, without the visual and/or tactile aids of keyboard or

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[22] The first two of these somewhat correspond to what Nattiez himself identified as *inductive esthesics* and *external esthesics*, respectively (1990, 140–43); except that in Nattiez's formulation, the move from one level to another is part of an explicit analytical stance, rather than a covert operation. Rabinowitz 1991, especially pp. 160–62, includes a more direct criticism of what I have called esthesic-to-neutral transference, couched in the vocabulary of "technical" and "attributive" screens that Rabinowitz develops most fully in Rabinowitz and Reise 1994.

[23] This is a fundamental assumption of extended mind theory. For an introduction to that, see Clark and Chalmers 1998. In musicology, this idea has been explored by Jonathan De Souza, most explicitly in 2017, Chapter 1.

manuscript paper, but we can be confident that such limits do exist. A score is then not only a means of communicating musical thoughts, but also a technology for thinking thoughts unrealizable in the unaided brain. Some of this is a matter of lessening the demands on working memory, so that a complex compositional procedure can be broken down into simpler components—like solving complex sums one column at a time, when working on paper. But some of this is a matter of thinking with different senses. Scores allow us to visualize musical structures that are not always possible to auralize.

We can be very sure that many forms of compositional thinking exceed the capacities of what any listener can process; for the simple reason that while the composer (even one composing in his head) can produce out of real time, a listener (in a pre-recording age) must receive in real time. One can distinguish and process each line of a six-voice *ricercar* while composing it or analyzing it, in a way that no person can be expected to while listening to it. For a listener, at least several of those voices must be collapsed into one background stream, to which limited attention is paid.[24] Awareness is being overtaxed by the sheer quantity of things vying for attention.[25]

But not all the blame can be heaped on the medium alone. There is also a dirty secret lurking beneath this all. For while the concept of esthesis bears many attractive qualities that poesis is without—a deeper cultural and social resonance, an antidote to the fixation on the individual genius—the actual reality of esthesis is often less appealing. Restricting oneself to discussing common experiences is a hard diet to stick to; uncommon complexities are too appetizing.

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[24] See pp. 277–79 in Chapter 8 for a discussion of different forms of stream segregation.

[25] For more on this gap between poietic and esthesic modes of listening, see Tymoczko 2011, 22–26.

In an analytical essay, it is generally not enough to say of a piece that it is enjoyable. That seems a weak pretext for scrutiny. It must break ground for its time, or plumb depths of the psyche, or pose problems for our existent analytical methods. But the simple truth is that many of the pieces we wish to study did or do no such thing for their audiences. In some cases, they failed to make a splash, and a true reception history would be an accounting of marks missed or points mis-taken. But when they did succeed, their primary effect was often pleasure, and one that dwells in what we theorists are occasionally apt to disparage as the musical surface. An embarrassed denial that authentically esthesic analysis might be the anatomy of mere pleasure can prompt us to misdirect ourselves: to palm profundities from the score and discover them in the audience members' ears like conjurers with coins.[26]

This legerdemain is concealed by the first disguise of construction to which I would like to draw attention: *the ideal(ized) listener*.[27] This disguise is present whenever an author performs a traditional textual analysis of the score, but attributes the resulting insights to a listener who is hearing the piece without a score. (It is thus a form of neutral-to-esthesic transference.) Aware that purely aurally attending to such complexities exceeds the capacities of most listeners, many authors do not just call this figure "the listener" without further comment, but rather qualify their theories' purview as being the experiences of only those listeners who are "competent" (Hatten 1994, Hepokoski and Darcy 2006, Meyer 1973), "educated" (Lerdahl and Jackendoff 1983, Rosen 1988), or "acculturated" (Cohn 2012). The precise capabilities denoted by these labels are rarely

[26] Hans Robert Jauss chronicled the decline in prestige that aesthetic pleasure has undergone (1982, 22–36).

[27] For a partial history of the invocation of "the listener" in analytical literature, see Cohn 2015, 151–58.

explicit and differ from scholar to scholar. But an unintended implication pervades nearly all iterations: cognitively and aurally, these listeners possess a superhuman degree of awareness, whose plausibility we have every reason to doubt.

Usually, they know more repertoire than those who now study it for a living. (How much of their life was spent in a concert hall?) They must travel frequently but fortuitously, as this repertoire virtually never corresponds to what was actually played in any given European city in their lifetime. Details of these pieces are fully present in their minds, even though most performances of them were singular events, never re-experienced. These details are employed in a listening process characterized by perpetual intertextual comparison.

And what ears they have for listening! They can tabulate themes, motives, and gestures as these whiz by, unraveling the structure on the fly. They can refer to earlier moments within a piece for comparison, while still attending to the music in the present. They keep track of key as the music modulates. They understand the intimate workings of the progressions that take them (sometimes literally) from A to B. And they can puzzle through the most intricate of tonal ambiguities towards a solution. In short, they are awareness savants.[28]

If there ever existed some broad population of non-professional historical listeners who possessed these skills and applied them regularly as part of musical consumption, who were they?[29] And how and when did they acquire these abilities? Before we set the bar for "competence," "acculturation," and "education" at such a great height, we should realize that this stamps the vast

[28] This criticism is pre-figured by Cone 1977, 564–65, in which he argues that most analyses that appeal to hearing do so in the mode of a "Second Hearing" that requires a synoptic view of the piece as a whole and can only be performed atemporally.

[29] Klein 2005, 55 raises similar questions.

majority of listeners throughout history as woefully incompetent, unacculturated, and uneducated, and that our theories are then bound to disregard their experiences. A history of musical meaning premised on these theories is then automatically removed from what made classical music meaningful to very many of its listeners.[30]

Incontrovertibly proving that such ideal(ized) listeners ever existed is, of course, nearly impossible, and probably would be even if the proposition were true. (It is hard enough to accurately assess the abilities of contemporary listeners without performing music cognition tests, which we are obviously not at liberty to perform upon the dead.) So, a common substitute is to perform a particular form of poietic-to-esthetic level transference, which is to assume that the audiences for whom composers *claimed* to write were social realities and not wishful thinking. Taking composers at their word like this is understandable, but dangerous.

For late eighteenth-century music, a prized apparatus for this transference is the traditional distinction between amateur (*Liebhaber*) and expert (*Kenner*) listeners (Bar-Yoshafat 2013; Riley 2004, Chapter 4). The prevalence of this distinction—in the theoretical writings of Johann Friedrich Daube, Johann Nikolaus Forkel, and Johann Georg Sulzer, and in the subtext of letters and composition subtitles by C. P. E. Bach, Haydn, and Mozart—lends it justifiable historical weight. Composers and theorists alike were aware that listeners of the time were of diverse abilities, and that the composer's challenge was to appeal to all. And these authors agree that the

[30] This criticism can, however, be just as easily re-directed at me. I claim to be investigating parameters that are more readily accessible to a wide array of listeners, but my analyses are nonetheless written from my individual point-of-view, and I am not a good surrogate for the average listener. Indeed, I am not even a good surrogate for the average music scholar, as my ears are unusually attuned to certain details and not to others. I address this problem directly in footnote 13 on pg. 79 in Chapter 3.

solution was to maintain a balance between passages or elements pitched at particular segments of the audience. Usually this meant creating a generally *Liebhaber*-friendly work spiced with certain subtleties for *Kenner* ears only.

Precisely which subtleties were intended for the *Kenner* and how they were meant to be processed is what is at issue. While documentary evidence suggests the existence of a *Kenner* class appreciative of complexity, such appreciation entails only a greater taste for complexity and not necessarily superior analytical comprehension.[31] For example, decreased hostility to twelve-tone music over the last hundred or so years does not necessarily indicate that the average audience member has grown better at tone-row tracking.[32] The frames of normativity and aesthetic valuation can shift from habitus to habitus without necessarily entailing an increase in the perceptual capacities of the listening population.

The strongest evidence in support of the existence of an analytically adept *Kenner* is Forkel's recommendations in *Über die Theorie der Musik* (1777) that the aspiring *Kenner* acquire not merely stylistic competence, but also all the theoretical know-how of the composer save the ability to apply it in the act of creation (Bar Yoshafat 2013, 22–23; Riley 2004, 92–99). But beyond the fact that Forkel's criteria for *Kenner* are the loftiest (and most specific) of any scholar of that era, his prodding is plainly prescriptive rather than descriptive: he does not claim that these connoisseurs *are* studying music theory, but rather that they *should*.

[31] Rings 2012 considers a different dimension of the *Liebhaber/Kenner* relationship in the late piano music of Brahms.

[32] Dubiel 1997 a particularly good critique of the idea that interpreting a work of serial music should necessarily require detecting the row forms.

My skepticism about the historical existence of ideal(ized) listeners should not be mistaken for general hostility towards the techniques of traditional musical analysis. Scores show some structures that, while hard to hear, were nonetheless deliberately crafted by their composers. The score and the sound are both entirely legitimate texts, ripe for interpretation, both independently and in conjunction. It is not my aim to elevate one form of analysis to a superior position. But the visual and auditory domains each reveal something that the other cannot, and we reap confusion by conflating them: by claiming that everything that can be seen can be heard (and vice versa), or (worse) by claiming that one text is just a clearer representation of the other.

The second disguise that construction wears connects to the prior discussion of late eighteenth-century theorists: and that is the appeal to the *historical authority*. This occurs when select historical interpreters are treated not merely as speaking for themselves, but as representing the experiences of others of their time. R. G. Collingwood called such an approach "scissors-and-paste" history, which he defined as "History constructed by excerpting and combining the testimonies of different authorities" (1994 [1946], 256), rather than by probing into how events were construed by the average actor on the ground. It is tempting to trust such authorities because they are sometimes the only contemporary sources we have for the meanings that we seek, as they were written by the only people with the means of publishing and preserving their interpretations.

Frequently, the testimonies of these authorities do not truly solve our problems. Instead, they introduce a new one: that of their own trustworthiness. The greater proximity of a historical interpreter to the material being interpreted does not exempt the authority's claims from the "For whom?" question. A logical consequence of the propagation of ideas throughout time is that many claims that now appear to be deconstructive—that seem to explain our innermost intuitions—

functioned constructively at their moment of inception. When we read these influential writers, what we are liable to mistake for insight into our condition is often instead a source of the condition itself.[33] From Riepel to Riemann, historical theorists often create the truths they profess to discover.

An incisive cautionary tale on this subject is Roger Parker's "'Insolite forme,' or Basevi's Garden Path" (1997). The target of Parker's chapter is Harold Powers, who sought to spearhead a "historically aware" or "native" approach to analyzing the music of Verdi—by resuscitating the code of structural expectations that Verdi's audience might have brought to their listening. (This is the very essence of reconstructive interpretation.) As Parker notes, Powers's claim to authenticity rests largely on the authority of a single conduit to Verdian discourse: an 1859 study by the Italian polymath Abramo Basevi. Should Basevi prove to be a less than reliable source, down tumbles Powers's bridge to past listener's perceptions. Parker demonstrates this unreliability in myriad ways: that Basevi was a professional rival of Verdi, and had been bested by him, possibly coloring his assessments; that Basevi's preoccupation with musical form over plot was atypical for his own era, while conveniently consonant with modern concerns; and that his formal labels are not applied with anything like the systematicity to which Powers aspires. The moral of the story: beware treating idiosyncratic individuals as representatives of entire communities.

The upshot of this is not that all historical theorists and critics will turn out to be agenda-pushing cranks, and that we are consequently free to ignore whatever they say. They are valuable sources to explore, but they are not authorities worthy of implicit trust. We should regard elevating

[33] To quote T. S. Eliot: "Some one said: 'The dead writers are remote from us because we *know* so much more than they did.' Precisely, and they are that which we know." (1997 [1921], 29)

them beyond the significance they had for their age with the same wariness with which we would regard awaking a century later to find that future musicologists were treating one of our current colleagues as emblematic of the listening practices of all Americans of the early twenty-first century.

There is one last disguise that we should attend to before moving on, and that is what I call *historicist analogy*. This is an interpretation that analogizes some aspect of a musical object to an aspect of a contemporaneous non-musical concept or cultural phenomenon, with the implication that this analogy would have been made by audiences of the time. For the repertoire that I consider in this dissertation, the non-musical concepts are most often from German Idealist philosophy or Romantic literary aesthetics. (So, a particular passage might be construed as embodying [e.g.] the Kantian sublime.) For such an analogy to be authentically reconstructive of an audience's experiences, it is necessary not only that both of these sources were available to and comprehensible to the musical audience, but also that the possibility of reading them against each other was in some way embedded in the cultural context. Without such factors in place, it is likely that such an analogy is not reconstructive at all, but rather a contemporary construction out of materials of the past.

Let us stick with the example of Kant, since his philosophy is popular fodder for historicist analogy when analyzing Viennese concert music of the late eighteenth and early nineteenth centuries. Such analogies tend to imply that Kant's philosophy was a sort of intellectual *lingua franca* among the educated populace of the time. But an examination of the scholarship on Kant reception in Enlightenment-era Vienna reveals a much more complicated picture. Although some of Kant's writings enjoyed a certain popularity in Vienna in the mid 1780s through the early 1790s, they were widely censored by the Austrian government starting in the mid 1790s (sources

date these bans to as early as 1793 or as late as 1798), out of fears that they might foment the sort of insurgence that had just cost Louis XVI his head in France. Starting with the official reforms of the university curriculum in 1798, it was forbidden to even *mention* Kant in introductory philosophy courses in Austrian state universities for the next four decades. In doctoral courses alone could he be brought up, but then too only as the target of derision. A dedicated Kant scholar was not hired for the faculty of a Hapsburg-empire university until 1860 (Wilfing 2015a and b). And some of the most influential public popularizers of Kant's teachings (who imported him from Germany) were ordered to leave Vienna in 1797 (Wilfing 2015, 31; Ring 2015, 49).

All of the above should cast some doubts on the idea that the average bourgeois listener at a public concert in Vienna could be presumed to have had much familiarity with Kant's philosophy. Even if we were dealing with an audience who possessed such familiarity (one composed primarily of Prussian university students, perhaps), we would then need to establish that they might be likely to *actively engage that knowledge* in their aural analysis of music. Of course, the truth is that no doctrinaire Kantian would be particularly tempted to do so, as Kant himself ranked music as the lowest among the arts and articulated little that would help one plumb its depths, saying of it instead: "[music] is, to be sure, more enjoyment than culture (the play of thought that is aroused by it in passing is merely the effect of an as it were mechanical association)" (2000 [1790], 205). In this era, the extension of Kant's aesthetic theory to music seems to be mostly confined to one major work of philosophy: Christian Friedrich Michaelis's *Spirit of Tonal Art* (1795, 1800). A reconstructive reading that aimed to establish Kantian aesthetics as the basis of a widespread listening practice would then need to establish the existence of a broad community of listeners versed in Michaelis's writings specifically (rather than Kant's), in order to seem plausible.

The point of this excursus is not that we should never draw analogies between contemporaneous music and philosophy.[34] It is that we should be wary of assuming that two chronologically co-existent historical phenomena—in this case, First Viennese School music and German Idealist philosophy—shared an audience, and that this audience would have merged the two domains. The canons of art and thought that we often elevate as emblems of entire eras were far less universal than we are inclined to suppose. The reception of each was delimited by political and social geography, and the spheres may not overlap. (Indeed, the differences between the artistic and intellectual culture of Austria and that of Germany are often much starker than we acknowledge.) An act of construction does not become reconstructive simply because the materials it draws together share a vintage.

❖ Conclusion

This chapter has made quite a few distinct claims, which I should condense and reprise: First, that there can never be a wholly descriptive or suggestive analysis, because an analysis is a network of different claims, and description and suggestion are always listener-relative and time-relative functions. Second, that because most analyses do not specify whose experiences they are meant to represent, we must excavate their "implied listeners." For any analytical interpretation, they are those who possess the awareness, knowledge, and disposition necessary to undergo the experience being described. Third, that music analysis often disguises the true nature of the claims

[34] Although, as a rule, these connections tend to become more plausible when dealing with the later rather than the immediate reception of a particular composer or work, such as in the Hegelian-Beethoven tradition that sprung up in the mid nineteenth century, after the death of both Hegel and Beethoven (Schmalfeldt 2011, Chapter 2). In such cases, both sources have had more time to filter downwards to a broader audience.

it makes. The "descriptive voice," in particular, can be dangerous when it successfully disguises the suggestion of rarified experiences.

Were I to end this chapter right here, you might leave with some false impressions: that I think we should purge all talk of listeners, or that I am hostile to the very idea of suggestion itself. Far from it. But we should all pause constantly to consider if the analyses we produce are unnecessarily exclusive in whom they represent. I'll close by considering a passage from David Lewin that I think demonstrates this kind of needless exclusivity. This is from an essay in which he pillories Nicholas Cook's attempt to produce a purely descriptive analysis of experiencing Stockhausen's *Klavierstücke III*:

> [My dissatisfactions] arise from the notion that [...] we can afford to bypass any special effort to focus our ears on things about the piece that might not lie at hand from our previous musical training and experiences. I am disturbed because the most crucial critical demand I make upon my experience of an artwork is that it make me undergo again Rilke's experience before the torso of Apollo: "Du mußt dich ändern." ("You must change yourself") In reading Cook's story of the piece, I get too much of the message, "Du mußt dich nicht ändern." ("You must not change yourself") I feel dissatisfaction at an analysis that does not make me extend my ways of listening, and I feel it all the more when the analysis tells me pointedly that it is setting out to describe "what the music does to us." (2007, 62)

My claim that analyses are never entirely descriptive or suggestive is hopefully a useful rejoinder: "describing what the music does to us" and "extending ways of listening" need not be in conflict. Analyses can and inevitably will do a bit of both, and we need not disparage one of these occupations as bankrupt to make room for the other. At the same time, if you're going to urge people to change themselves, as Lewin wishes to, you might want to learn something about them first, and you need to care about whether they are capable of making the changes that you advocate. Music analysis could grow better about this.

All of this can be summed up with the central question of this chapter: "For whom?" This is the question I hope we as theorists will continually ask ourselves, as a way reflecting on whom our analyses speak for and whom they can speak to. And it is a question I will continue to pursue throughout the rest of this dissertation.

Chapter 3: How Does Musical Meaning Mean?

❖ What Is Heard Is Performed

In the previous chapter, I promised that after a lengthy inspection of the "who" of musical meaning, I would begin to explain "how" musical meaning manifests. That is the subject of this chapter. We left last chapter with a problem on our hands: that music theory tends to analyze a different musical object than that which produces the meaning in the listener's mind—the analyst looks at a score, while the listener attends to a sound. We have already observed in our discussion of the ideal(ized) listener that the modes of attention that these two media admit are not always commensurable. To close this gap, we need to understand first how scores become sounds, and then second how sounds become meanings. This will require a combination of affordance theory and cognitive models of analogy-formation. Therefore, a main goal of this chapter will be assembling a conceptual apparatus that harnesses both of these approaches.

Answering the first of these questions means discussing performance practice. Indeed, it is simply impossible to speak of listener meaning at all without also in some way speaking about performance. And in cases where theorists do not actively seem to account for performance considerations, they are implicitly presuming a particular performance, whether a real one or an imagined one (Leech-Wilkinson 2009, 791–92). What is heard is performed.

Let's start with an example, before we attempt to formulate principles. **Example 3.1** shows the initial phrase of the primary theme of Chopin's Mazurka in F minor, Op. 7/3 (mm. 9–16). Imagine if I asked: "What is the meaning of the A♭ in the right hand on the third beat of m. 12?" (Did you reflexively respond: "For whom?" If so, good! Let us say that this meaning is for a contemporary consumer of classical music who perhaps learned an instrument in his or her youth,

but does not necessarily possess any music theory education.) If this question seems slightly absurd when formulated with such specificity, please recall that this is synonymous with asking what emotional and mental reactions the sounding of that A♭ will elicit in a potential listener. As I suggested in the previous chapter, it is not the harmony and form alone that will determine what this note means. It is all the qualities of the sound, including its phrasing and accentuation as perceived within context. We must then consider the possible qualities of sound obtained by this note in different performances of this piece, and how they fit the conception of the phrase as a whole.

Example 3.1a shows the dynamics, phrasing, and articulation instructions as they appear in most public-domain editions of this piece (such as those produced by C. F. Peters, Brietkopf und Härtel, and G. Schirmer during the nineteenth century).[1] It also represents how I hear Vladimir Ashkenazy's performance of this passage on his 1983 recording (released on CD in 1996). By this, I mean that I perceive a one-to-one correspondence between the markings in the score and aspects of Ashkenazy's performance. For each marking, I can point to a sonic feature that I understand to be its realization.[2] (This includes some of the subtler details, including making the downbeat on m. 13 sharper than the downbeat on m. 11.) This also cuts the other way: all of what I perceive to be the most salient features of Ashkenazy's phrasing have a basis in one of Chopin's prescriptions.[3]

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[1] Of course, Chopin is a composer notorious for causing edition headaches for those desiring a single, definitive text. Such problems do not, however, pertain to this phrase. The only discrepancies here are whether or not the downbeat of m. 9 is to be played staccato (the first edition does not mark this, but most subsequent editions do); and whether or not to mark all staccatos with dots, or some with pikes and some with dots.

[2] The only exception here might be that I don't interpret his basic dynamic as particularly *piano*.

[3] This is true only because we are considering mm. 9–16 in isolation. He plays the repetition in mm. 17–24 at least a full dynamic level softer, which is an unwritten modification.

This sort of correspondence does not hold in the three performance I have represented in **Examples 3.1b–d**. I perceive each of these performers as overriding precisely those instructions that Ashkenazy takes pains to obey.

3.1b represents Vladimir Horowitz's recording from his 1986 Moscow recital (CD re-issued in 2016). (Incidentally, Horowitz's 1932 recording is phrased nearly identically; his conception of this segment appears to have altered very little in the intervening 54 years.) Horowitz adds an unwritten *acciaccatura* to the downbeat of m. 11, pairing it more directly with m. 15. And instead of ending all three two-bar segments on a staccato note, he ends only the second segment staccato (on the second beat of m. 12). This more sharply delineates the border between the two four-bar halves. Horowitz observes all of Chopin's basic grouping instructions. But his subtly contrasted dynamics offer my ears a possibility not suggested by Ashenkazy's performance: that two voices run through the right hand in this passage. I have marked the "upper voice" (which is played *forte*) with upwards stems, and the "lower voice" (which is played *mezzo-forte*) with downwards stems and smaller noteheads. The dynamics suggest a hierarchy: the "upper voice" is the more important one.

It is possible to imagine separating this line into upper and lower voices with quite different results. Such a hearing might emerge from Ignaz Friedman's 1930 recording (as it appears on Volume 3 of Naxos's complete recordings [2003]) (**Example 3.1c**). There are two crucial differences between how I interpret Friedman's rendering and how I interpret Horowitz's. The first is that Friedman's playing suggests that the upper voice in mm. 10–14 consists only of the third beats of the even-numbered measures. The downbeats of the odd-numbered measures are now part of the lower voice. This is a radical transformation of gesture: the two-note dropping figure—which is the essence of Horowitz's rendition of this passage—is transformed into single-note

blows in the upper range. More striking still, I hear Friedman's lower voice as the more dominant one. Two things support this hearing. One is the detached nature of the single notes in the upper voice: they sound like percussive after-effects of what is obviously a more genuine melody in the lower part. But the other thing is the dynamics. Friedman plays the first two singletons more softly than he plays the melody in the lower voice, making the latter more prominent; then the third singleton in m. 12 simply explodes.

Most different from all of these is Artur Rubinstein's 1965 recording (2001 CD release) **(Example 3.1d)**. This performance is typical of his style of Chopin-playing: scrubbed clean of all of the notated accents, dynamic nuances, small gestures, and sub-phrases in order to create one *legatissimo* line (in this case, one long *crescendo* over the entire phrase).[4] To this end, Rubinstein overholds all of the downbeats of the odd-numbered measures, canceling out the notated rests. I hear only two "breaks" in Rubinstein's rendition of this passage: between the first F and G in m. 9 and between the G and B♮ in m. 15; in other words, the onset of this passage, and its conclusion. This performance is the most analytically "neutralized," one might say, since it provides fewer grouping cues than the score did.

Having examined the ramifications of these performances for the whole phrase, let us return to the question with which I began this investigation: "What is the meaning of the A♭ in the right hand on the third beat of m. 12?" Even if I cannot fully answer this in words, I can at least summarize the role that the note plays. In the score and in Ashkenazy's interpretation, it is the accented member of a pair of notes in a descending couplet gesture. Depending on her cultural context, the listener might hear this as a conventional sighing figure. In Horowitz's interpretation

[4] For more on this aspect of Rubinstein's playing, please see Tarasti 1994, 52.

it is the unaccented member of the couplet: he accents the second member of each pair rather than the first. As compared to Ashkenazy's front-stressed couplet, this back-stressed phrasing might feel more "gravitational," the accented note sounding (perhaps) like the falling line smacking against the ground. In Friedman's interpretation, the A♭ is the loudest note of the passage, an isolated furious attack, unconnected to the other notes. It can sound like a gunshot out of nowhere. In Rubinstein's interpretation, the A♭ is scarcely an event at all, but just a way-station along the descent of the F minor triad that begins on the C on the second beat of the measure.

The analogies I have used are admittedly a bit too specific to be accurate reflections of how most people would hear these interpretations. Unless they were specifically prompted them to pay attention to dynamics and phrasing, many listeners might not notice many of the features that I've drawn attention to. Nevertheless, these features can still affect those listeners, even without being not noticed: for example, one might experience the upper/lower separation in either the Horowitz or Friedman performances, without noticing the role that dynamics play in creating this effect. These features can still be thought-independent.

The contingency of this A♭'s meaning upon its performance is common to all notes in all scores of the time period under consideration in this dissertation. (The variations are not always as radical as this. But for any given note, one can easily find two interpretations that produce very different reactions.) If performers in any given tradition followed these scores with unwaveringly loyalty, interpreting them according to a strict code for moving from written signs to sounds, then this contingency could be eliminated by cracking the code. The closest that musicology comes to this sort of cryptography is in historically informed performance practice research. The main

contribution of this research to our understanding of how to translate scores into sounds is two-fold.

First, it provides a different palette of basic timbres than those with which twentieth-century audiences were familiar. Before original-instrument performances were common, we were inclined to read a word like *corno* in a Beethoven score, and hear the sound of our modern French horn in our mind's ear. In retrospect, this makes about as much sense as reading *The Great Gatsby* and picturing Gatsby's car as the latest model of Lexus. Now, many of us have become more accustomed to imagining the instrumental colors of specific time periods, rather than only those of our modern orchestra.

However, historical instruments alone are not enough to make a performance historically informed; there is also the question of the performance style.[5] This is the second main contribution of performance practice research: it provides a different general framework for the interpretation of the score. The prescriptions of this framework can take one of two main forms. On the one hand, it may provide a different literal interpretation of a marking than that customary in later styles. (For example, in mid-to-late nineteenth-century repertoire we are accustomed to interpreting a *fortepiano* dynamic marking (*fp*) as a loud attack followed by an immediate abatement of volume to *piano*; but some scholarship suggests that eighteenth-century practice might have treated this as a gradual *diminuendo* [Lawson and Stowell 2004, 54].) On the other hand, it may provide guidelines for supplementing the literal markings with the typical performance enhancements of its time. For example, when encountering a dynamically unmarked appoggiatura

[5] This point is reinforced not only by some of the movement's critics, but also by some of its devotees (Brown 1999).

in the score, a historically informed performer might superimpose the dynamic effect of a louder dissonant note resolving to a more consonant note (ibid.).

Whatever the insights with which it might provide us, performance practice research nonetheless cannot tell us all we need to know about the details upon which meaning depends. Although some of its pioneering practitioners were liable to make grandiose claims about its ability to recreate past performances (see the proclamations that are refuted in Schuller 1997, 220–9 and Taruskin 1995, Chapter 8), most modern musicians of this persuasion would acknowledge and celebrate the fact that they are not necromancers summoning the shades of performances past, but interpreters in their own right who exercise the same creative licenses as their modern-instrument brethren, just within a more historically informed framework. As we saw with the example of the passage from Chopin's Op. 7/3, meaning can be profoundly affected by the smallest inflections of dynamics or articulation. In some cases (as in those recordings of the mazurka), the performer may do something that directly contradicts any literal reading of those indications in the score, no matter the code. But in addition, the score simply underdetermines some vital aspects of the performance (e.g. instrumental balance), such that we could not possibly derive a full picture of the sound from the text, even assuming literal adherence to its markings. For these cases, performance practice may not be as much help as we might suspect.

A case in point is the dynamic climax of the second movement of Beethoven's Fifth Symphony (mm. 185–94), shown in **Example 3.2**. At this moment, the main theme is presented in canon by the full orchestra playing *fortissimo*, with the *dux* in the strings and the *comes* following two beats later in the woodwinds. If Berlioz is to believed, the problem of making the woodwinds audible against the strings has plagued the performance of this passage virtually since its inception

and indeed continues to this day, making the canon difficult to discern on most modern recordings (Schuller 1997, 175–76). From an esthesic perspective, when listeners cannot perceive the woodwind line, the canon itself no longer exists. And any interpretive claim that identifies this passage's imitative counterpoint as part of its meaning is then inapplicable to that community of listeners.

Naturally, this balance problem is exacerbated in recordings (such as Herbert von Karajan's 1977 and 1984 Berlin Philharmonic traversals) that not only employ gargantuan string sections, but also display an overall tendency to downplay the contributions of the woodwind section in the mix. Conventional wisdom suggests that the best recordings on this front should be those made by historically informed performers, as they tend to employ both smaller string complements and wind instruments with more incisive timbres that cut through textures, and their conductors generally espouse a greater attention to wind parts. But, with the exception of Riccardo Chailly's recording with the Leipzig Gewandhaus Orchestra (2011), I know of no well-recorded renditions of this symphony in which the woodwinds in this passage are more *inaudible* than they are on the Christopher Hogwood's with the Academy of Ancient Music (1997 [rec. 1986]), Franz Brüggen's with the Orchestra of the eighteenth Century (2014 [rec. 1991]), and John Eliot Gardiner's with the Orchestre Révolutionnaire et Romantique (1994) (particularly Brüggen's).[6] In fact, the clearest renditions of this passage that I know of—Bernstein/New York Philharmonic (2011 [rec. 1962]), Szell/Royal Concertgebouw Orchestra (2001 [rec. 1966]), Solti/Chicago Symphony Orchestra (2007 [rec. 1973]), Abbado/Berlin Philharmonic (2008 [rec. 2001]), Skrowaczewski/Saarbrücken

[6] The woodwinds are ever so slightly more prominent on Brüggen's 2011 recording with the same orchestra (released in 2012), but still virtually inaudible.

Radio Symphony (2006 [rec. 2005])—were played on modern instruments, by conductors not particularly associated with historically informed performance (with the possible exception of Abbado, whose later recordings do display some conscious influence).

What conclusions can we safely draw from this? Unfortunately, very few. If the shoddy sectional balances in these period-instrument recordings were directly attributable to the nature of the period instruments themselves or to some general practice enforced by conductors of these ensembles, then we might be tempted into treating these recordings as proof that this canon was a poietic pipe-dream, something impossible to execute audibly in Beethoven's time and achievable only with later technology. But no external evidence aside from these recordings supports such a materially determinist hypothesis. And in fact, there is one period-instrument recording—Roger Norrington's recording with the London Classical Players (2010 [rec. 1989])—in which the canon emerges quite clearly indeed, thus belying the idea that the instruments (or performance practice in general, for that matter) are to blame.

Ultimately, these conductors and ensembles are much like the "historical authorities" we examined in the previous chapters: they may work under historical conditions, but they are as likely to be constructors as they are to be reconstructors. Their works should be consumed with curiosity by any serious scholars of this music, but the artists are to be respected as individuals, and not as standard-bearers of authenticity. References to these recordings will be found throughout the text of this study, but they will be used more to illustrate the potential timbral effects of certain passages, and less as exempla of the historical execution of the finer details of the pieces under consideration.

❖ The Affordances of the Double Text

If meaning relies upon (performed) sound, and scores do not fully determine sound, is the pursuit of musical meaning in score-based analysis just a hopeless endeavor? The short answer is: no. We should not proclaim (à la Ivan Karamazov) that if score literalism does not exist, then everything is permitted. To adapt Umberto Eco's dictum about literature, although musical works are "open" to many form of interpretation, "'openness' is far removed from meaning 'indefiniteness' of communication, 'infinite' possibilities of form, and complete freedom of reception" (1989, 6). Meaning is not fully constrained by the score, but neither is it fully free. Both the performing and listening process are culturally constrained, such that some interpretive possibilities are more probable than others.

We can best understand these possibilities as *affordances*. The term was coined by the psychologist James J. Gibson in his 1979 book *The Ecological Approach to Visual Perception*. As the title of Gibson's book might indicate, Gibson defined affordances as the possible relationships between organisms and elements of their natural environments—e.g. the ways that an animal might adapt the terrain of its habitat to its needs. This concept retained this "ecological" flavor in its translation into musicological terms by Eric Clarke in his 2005 book *Ways of Listening*. However, I think that we miss something crucial when we treat musical objects as natural rather than cultural artifacts.[7] Cultural artifacts have an added intentional aspect that most ecological phenomena do not, and the way we process them depends in part on that aspect.

[7] It potentially lends credence to Richard Taruskin's otherwise unfair charge that music theorists tend "to approach musical documents as if they were natural objects like rocks or ferns or coelacanths or subatomic particles—God's creations." He continues: "But of course they are not God's creations; they are creations of God's creatures, who since the expulsion from the Garden of Eden have lived in history. Their creations are not only products of history but also products of

An apple's redness may seem to invite us to take a bite, but the apple has no mind with which to generate such an invitation. Notes on the page or musical sounds in the air likewise do not have minds with which to invite interpretation. But they are products of minds, and bear traces of that origin. Therefore, although they do not possess what John Searle calls *intrinsic intentionality* (a property attainable only by mental states), they do possess what he calls *derived intentionality*, because they are "syntactical objects on which representational capacities are imposed" (1983, vii–viii). They are comprehensible to us (the listeners) as representative of the mental states that led to their creation. They are so in a way that the apple is not, since the tree that created the apple has no intrinsic intentionality for the apple to derive from. The belief that the music we listen to is the product of a mind and not merely a natural, ecological phenomenon (as a purely Gibsonian approach might suggest) is therefore a vital part of our ascription of meaning to it.

Fortunately, most humans live in fabricated rather than natural habitats, and so in order to apply better to humans, the theory of affordances was adapted to model interactions with designed objects. That adaptation was performed by Donald Norman in his book *The Design of Everyday Things*, written in 1988 but much updated for its 25th anniversary edition in 2013. My theory of musical affordances is modeled on Norman's work in that later edition. Here is his definition of an affordance: "An affordance is a relationship between the properties of an object and the capabilities of the agent that determine just how the object could possibly be used" (2013, 11). It is

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culture, coded with human values, expressive of human volition, agents of some force of human communication, individually as well as in the aggregate… Thus the debate between historians and theorists, when conducted on such categorical terms, actually becomes a debate between creationists and evolutionists." (2011, 180).

important to note, then, that an affordance is not a pure *physical* property of the object, but a *relational* property between the object and a potential user. A wooden door's woodenness is not an affordance. But the fact that it can be pushed open is an affordance. Being "push-openable" (unlike being wooden) is not a pure physical property, because it has to be defined in terms of the relationship to the agent that does the pushing.

So far, Norman's definition does not diverge much from Gibson's. But an additional detail makes all the difference. Because his theory models interactions between designed objects and the people who use them, it accounts for a designer's attempt to communicate with the user how best to use the object. Norman calls this feature a "signifier," which he defines as: "any mark or sound, any perceivable indicator that communicates appropriate behavior to a person" (13). Norman himself notes that this use of the word "signifier" is different from how the word is used in semiotics. Since Norman is, for the most part, not concerned with semiotics, this is not a liability for him; but I do not have this luxury. I will therefore call these specifically *affordance-signifiers*, to avoid confusion. Returning to our example of the door that can be pushed open, a typical affordance-signifier might be a sign that says "Push" or a metal plate at hand-height that invites pushing in much the way that a looped handle would invite pulling.

In the case of the door, the chain of communication between designer and user has only one object interceding: the door. The entire chain goes: designer → object → user.[8] But in the Western classical music tradition, the chain of communication usually has more links than that. Typically, the composer creates the score, which the performer interprets, producing sounds,

[8] Assuming, of course, that the manufacturer produces objects exactly according to the designer's designs, without exercising creative license.

which are then interpreted by the listener.[9] The resulting chain of communication (shown in **Example 3.3**) then has six links, three actors and three objects: composer → score → performer → performance → listener → meaning.[10] As you will see from the labels in my figure, this model generates two layers of textual affordance: that between score and performer, and that between listener and performance.[11] The musical work is therefore *double-texted*: instantiated first as a score and second as a performance. The composer then functions solely as a designer (of the first text), the performer as both a user (of the first text) and a designer (of the second text), and the listener only as a user (of the second text).

Let us examine each affordance in turn, starting with the first layer: that between score and performer. Let us assume that the pitch content of the musical work is fully determined (thus

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[9] Even accepting the cultural context to be that of Western classical music, this is merely the paradigmatic case. There are many possible complications. A single actor could occupy multiple roles in the chain (e.g. by being both composer and performer). The chain need not end with the listener, since they could continue it (e.g. by writing an essay describing her reaction, providing a new affordance for the reader of the essay). The listener's perceptions can be influenced by all sorts of non-sonic aspects of the performers (e.g. the physical gestures of the performer). The list goes on.

[10] For more on the concept of a "chain of communication" in both literary and musical discourse, please see Cobley 2008. The fact that I sharply distinguish objects from actors puts me at odds with Bruno Latour and with those who seek to apply Actor-Network Theory (ANT) to the study of music, such as Benjamin Piekut (2014) and Michael Gallope (2014). This disagreement should seem unsurprising to anyone who has followed the thrust of my argument(s) thus far. I think the central confusions in music analysis stem from insufficient clarity regarding which properties of music belong to internal mental states of those musicking and which belong to external aspects of the musical sound. ANT strategically brackets any discussion of the internal, claiming that we better understand interactions in the outside world if we focus only on the interactions themselves, and do not privilege the human capacity for intentionality. In other words, the distinction that I think is the most important to illuminate is precisely the one that ANT wishes to erase. For a sensible critique of ANT's effacement of the human element, see Taruskin 2014, 289–93.

[11] This brackets one very important source of affordances: the musical instrument. I will address instrument-specific affordances in the next chapter. Those interested in the subject more generally, should consult De Souza 2017.

bracketing out the possibility of ornamentation). And let us also assume that the rhythm is mostly determined (microtiming may be used to create one of myriad possible inflections, but all of these inflections will be within the bounds of what the written rhythm can signify). If those are the constitutive regularities of the piece, then the main affordances are in the realms of dynamics, timbre, articulation, and tempo (including both basic tempo and rubato).

Now, in our earlier example of the door, its main affordance was to be "push-openable." So too, in this case, the affordances of a particular musical feature may include being "play-softlyable" or "slow-downable" or "link-upable," etc. Like "push-openable," these are broad categories that admit of meaningful variations. One can push open a door with a nudge, a heave, a full-body tackle, etc. So too can one sing softly like a whisper, a breeze, a nightingale, etc. The degrees of pushing available are constrained by certain physical properties of the particular door. (Maybe gentle options are out, because nothing short of a shove will get it to budge?) Likewise, the degrees of softness available to the performer are also constrained by the properties of the instrument. (Maybe that note is in a too-effortful region of the singer's *tessitura* to be sung softly?)

If the "Push" sign is the affordance-signifier for the door, then the performance indications (dynamic markings, *ritardandos,* articulation markings, and the like) are affordance-signifiers for the music. They invite the performer to render some version of the secondary parameter that they indicate—some sort of loudness (but how loud?), some sort of sharpness (but how sharp?), etc. But like all affordance-signifiers, they can go unnoticed or unheeded by performers who have other intentions for the passage, so long as the essential defining properties of the passage (usually the primary parameters) are recognizably intact. The performer's "disobedience" is likely not random,

but often part and parcel of an attempt to realize other (poietically intended or unintended) affordances of the musical text.

When the player has translated the score into sound, the first layer of textual affordance is complete and the second layer begins. This affordance is between the performance (as sounding phenomenon) and listener.[12] Each listener "decides" how best to use the performance. I put "decides" in scare quotes, because a large part of this process is unconscious and implicit (although, with time and experience, one may learn to play a more active role in shaping one's own hearing of music). I did not put "use" in scares quotes because I mean it literally. Assigning semantic value to an utterance (musical or linguistic) is as much a matter of use as assigning a physical task to a tool is.[13]

Continuing with our door analogy, the secondary parameters of the sounding music function much like a doorknob. Doorknobs are components of the object to which they belong (the door) that facilitate a particular affordance (being openable). They act as conventional affordance-signifiers to the user ("turn here"). The main affordance that they facilitate for the

[12] In defining the performance as a "sounding phenomenon," I am necessarily oversimplifying the situation to its most paradigmatic case. In reality, the performance is more than sound alone. The physical gestures of performers, conductors, and even other audience members frequently affect a listener's interpretation of the performance, as do many other extra-musical aspects of the performance context. Jane Davidson has done extensive work on the role of gesture in this process (including 1995, 2001, 2002). Further work on this includes Juchniewicz 2008, Nusseck and Wanderley 2009, Windsor 2011, and Trevor and Huron 2018.

[13] Here again is where matters of capability and inculcation come into play. Not every person is able to capitalize upon all of the potential uses of an object, because each person lacks some necessary physical or mental capacity and/or has not been conditioned to consider a particular use. It is therefore important to understand that my analyses are not generally intended to capture the perspective of any individual listener. Rather, in each analysis, I attempt to explore many possible affordances at once, which are intended to represent a wide variety of listening practices. This is in line with my belief that the "For whom?" question should be asked on a claim-by-claim basis, rather than across an entire analysis.

primary object (the door) is linked to but distinct from the affordance of using the knob itself. (So, the pushing or pulling motion performed on the door as a whole differs from the turning motion applied to the knob, but the latter facilitates the former.) And they provide affordances independent of the main purpose for which they were designed. So, although they are primarily used to open doors, their structure also makes them suitable for hanging various objects—a "Do Not Disturb" sign, shopping bag, umbrella, etc.

Secondary parameters possess all these qualities. They are components of the musical object in their own right, just as the doorknob is a physical component of the door. But they likewise act as affordance-signifiers for the other (primary-parameter-based) components of the musical object. They signify first by drawing a listener's attention to sonic events that might otherwise float under their radars. For example, in the case of our Chopin mazurka, a listener is probably not inclined to attach any special significance to that A♭ in m. 12 (a pitch and time event) if they are listening to Rubinstein's recording; but they are almost inevitably going to have some sort of strong reaction to the A♭ in Friedman's recording. And like the reaction of the person who hangs a shopping bag on the doorknob, that reaction is probably not the primary one intended by the original designer (Chopin).

Once a listener's attention is directed to a specific primary component of the musical object, the secondary parameters encourage the listener to interpret (to use) that component in a particular way. So, for example, my previous identification of Friedman's A♭ as shocking and gunshot-like is a form of use. Often, the line between when the secondary parameter functions as an affordance-signifier for the primary parameter and when it functions as an affordance in and of itself will be blurry. In this case, my claim that Friedman's *fortissimo* accent "brings out" the A♭

presumes the prior existence of the A♭. In a historical sense, this is certainly true, as Chopin's written A♭ predates Friedman's sounding A♭. But in an experiential sense, this is not necessarily so: unless a listener is the kind of person who mentally compares the sounding A♭ to some abstract notion of "Chopin's A♭" or to other sonic instantiations of this A♭ that they have experienced in previous performances, its pitch is not necessarily more constitutive of the musical event than its volume is. The event can be understood as a loud note that happens to be an A♭ just as much as it can be understood as an A♭ that happens to be played loudly.

All of these processes of interpretation rely on secondary parameters' capacity to imbue musical objects with dynamic qualities ripe for analogy. The workings of those analogical processes are the focus of our next section.

❖ Mapping and Blending

The way twenty-first-century music scholars approach analogical processes has been profoundly shaped by Lawrence Zbikowski's *Conceptualizing Music* (2002). In the second chapter of that book, Zbikowski provides two analytical models, each borrowed from cognitive linguistics: the first is George Lakoff and Mark Johnson's idea of cross-domain mapping; the second is Mark Turner and Gilles Fauconnier's idea of conceptual blending. In that book and his other work on analogy (1997, 2009, 2017, 2018), Zbikowski uses both models individually, but never at the same time. If one believes (as I do) that there are useful elements found in both, then it seems profitable to combine those elements in one model. This is what I propose to do here.

Let us say that the analogy that we are setting up is between a dog and a human. If we use cross-domain mapping, there will be three key features of our analogy: (1) The domains remain

separate; (2) One domain is a "target" domain and the other is a "source" domain; (3) Any characteristic taken from one domain has one-to-one correspondence with a characteristic from the other domain. In this case, the first of these means that we are not collapsing dog and human into one concept; we are merely drawing connections between the two. The target-source relationship means that we are explaining one domain (the target) in terms of another (the source). In general, the source is the domain that we already understand better and/or that is more familiar. For the dog-human relationship, the tendency is to grant the dog humanlike qualities so we can better identify with it. One-to-one correspondences in this analogy might include: barking is talking, paw is hand, licking owner's face is like kissing a friend, thumping tail against the ground is like clapping with glee. Every feature from one domain—that is, every feature used in the analogy—has its correlate in the other.

What I have identified as the central features of cross-domain mapping are precisely what set it apart from conceptual blending. In the latter: (1) the two domains (now called "input spaces") are combined to produce a new blend; (2) the two domains both function the same way, as inputs, not one as an explanatory mechanism for the other; (3) characteristics can be taken freely from either domain, without these characteristics needing to have a correlate in the other domain.[14] If we are keeping to the dog-human analogy, the likelihood is that we are dealing with something like an anthropomorphic dog in a work of fiction or cartoon. Let us say that it is

[14] The third statement requires one addendum: analogies (whether mappings or blends) work only if the two domains share a common topography. In theoretical jargon, what is needed is an "abstract core idea" or "induced schema" that makes the two domains a good fit for each other (See Zbikowski's discussion of "generic space" [2018, 8]). The lack of such a core idea or schema is why e.g. "insouciance = hot fudge sundae" is not an immediately comprehensible or useful analogy. In a blend, the features one takes from one domain need not have a direct correlate in the other, but all of them must be able to be related back to the underlying schema.

Huckleberry Hound. His general appearance clearly comes from dog space: he looks like a dog. The fact that he speaks with a Southern drawl comes from human space, as does the fact that he walks on two legs. His out-of-tune singing maybe is a bit of both: it is fundamentally a human characteristic, but this surely also incorporates the fact that hounds are known to howl unmelodiously.

When Zbikowski employs one of these models, it is generally clear why he chose that one and not the other. In *Conceptualizing Music*, he discusses how we tend to analogize pitch relationships to height relationships (2002, 63–77). We speak of pitch as moving higher or lower in space, even though this is not literally true, as pitch is merely a matter of wave frequency. In an earlier article, "Conceptual Models and Cross-Domain Mapping" (1997), Zbikowski contrasts two Early Modern models of structural hierarchy—the "great chain of being" and atomism—and shows how these paradigms are (implicitly or explicitly) used to generate contrasting models of musical hierarchy. (This material was reworked in Chapter 7 of the book.) It should be unsurprising that he uses cross-domain mapping in both cases: in each, music (target) is best explained in terms of something non-musical (source), and the non-musical thing has a clear organizing shape (linear height, spiraling chain, clusters of atoms) that aids understanding. The last of these points is particularly crucial. It illustrates what is called the "invariance principle": once the analogy is established, the target domain must preserve the shape of the source domain. Once you (e.g.) plot pitch as height, then you are locked into higher pitch = higher height, and vice versa. You cannot suddenly switch things around—make higher pitch = lower height—without breaking the analogy (and possibly forging a new one).

Two examples of Zbikowski's use of conceptual blending are in his analyses of Lorraine Hunt Lieberson's portrayal of Dido in Purcell's *Dido and Aeneas* (2018) and the Argentinian composer Julio Salvador Sagreras's solo guitar piece "El Colibri," which depicts the flight of a hummingbird (2017, Chapter 2). The desire to understand these as blends is quite easy to appreciate: we (the audience) do not, in a good performance, keep an opera singer and the character she plays as separate domains; in the course of becoming absorbed in the performance, we let them blend into a single persona. Likewise, when a piece successfully depicts flight, we should not (in the moment of experiencing the music) find ourselves drawing comparisons between the music and the sensation of flight; the music should itself create that sensation.

Even if it makes perfect sense which model was used for what, we might wonder what was missed by not using the other. Surely, despite the one-to-one correspondence, the pitch/height analogy nonetheless functions as blending? This analogy is so ingrained in how we conceptualize pitch that it seems suspicious to claim that we keep the domains separate. And surely there must be a target and source domain even in the cases of Lieberson and "El Colibri"? In the case of Huckleberry Hound, the final blend exists in a medium—namely, animation—that is neither dog nor human. Because the dog and human spaces are purely conceptual rather than material, one is free to take as much or as little as one wishes from either space. But this is not the case in the musical examples. Dido and the hummingbird are conceptual, but Liberson's singing and the actual music of "El Colibri" exist in the material world. (There is no neutral third space that is neither.) Because the former two are projections onto the realities of the latter two, they must function as source domains and the latter as target domains. Furthermore, because the latter two are the material anchors for the entire process, not every feature of musical space has to have a

direct correlate in the non-musical space, but every feature of non-musical space must have a direct correlate in musical space.

Therefore, the alternate model I propose—which I shall call *multi-stage blending*—is a hybrid of these two paradigms. It is shown in **Example 3.4**. The blending occurs in three stages: In the first stage, the composer may blend two compositional parameters by correlating changes in them. For example, a composer may blend pitch and dynamics, by attaching a crescendo hairpin to an ascending scale. In the second stage, the performer may blend one or more compositional parameters with a performative parameter. Continuing with our example, the performer may take the composer's pre-blended rise in pitch and dynamics, and add an accelerando. In the third and final stage, the listener blends parameters of the performed music with a non-musical domain, to construct an analogy. So, the listener might liken the quickening, loudening rising of the music to the motion of a real-world object, such as a soaring rocket. It is worth noting that a performative blend is happening in stage two even if the performer does not appear to be injecting any personal touches of her own. This is because a perfectly literal performance of the score would still be a form of mapping/blending. What would make the performance "literal" in the first place is the fact that we can perceive a perfect correspondence between the instructions on the page and the sounds in the air, and drawing any such correspondence is already mapping.

This has all been rather abstract. Let us now look closely at the specific analogies afforded by a particular passage of music, some of which we can analyze with one map, and some of which will require us to think in stages.

❖ **Affording Analogies in the Egmont Overture**

Our example is the secondary theme from Beethoven's Egmont Overture, as it appears in the exposition (mm. 82–104). Let us start with just the first four bars. If you are already familiar with this music, please indulge me, and begin not by re-listening to these bars, but rather by humming or singing them.

This is self-evidently either a homophonic or polyphonic passage, and you are (I assume) a monophonic hummer. Thus, in order to hum these four bars, you must choose one instrumental voice to replicate at any given time. In **Example 3.5a–e**, I provide five possible ways of doing this. My guess is that you hummed either **3.5a** or **3.5b**—more likely the first, except transposed to whatever octave or key felt comfortable for you. In both of these transcriptions, I have followed the first violins for the first two bars, the first clarinet for the third bar, and the first flute for the fourth. In **3.5a**, I have transposed the clarinet and the flute into the same register, so that each starts on the same E♭ as the other, which is also where the violins are. Although I presume that most hummers will choose **3.5a**, a hummer with a particularly agile high range (especially a male with a strong falsetto range) might choose to transpose only the clarinet line downwards, and preserve the gap between clarinet and flute. This would result in humming **3.5b**. In **3.5c** and **d**, you will see two further ways of humming this, both premised on following the clarinet line through m. 85, rather than toggling to the flute. **3.5c** shows what I believe to be the more likely of the two, in which one hums the violin and clarinet lines in the same register. **3.5d** shows what I suspect is the least likely of these four ways of humming this: in which one preserves the registral shift between the violins and the clarinet. (I will address why I think this is unlikely below.)

Why are **3.5a** and **b** more likely renditions than **3.5c** and **d**? If anything, **3.5c** and **d** make more music-theoretical sense. Few if any theorists would deny that the first clarinet's D♭ (on the third beat of m. 84) is a tendency tone that resolves to the C in the next bar. This D♭ does not link in any contrapuntal sense with the E♭ with which the first flute begins the next bar. It is perfectly reasonable (in the abstract) to regard the clarinet's line here as of greater structural importance, and the flute's line as merely decorative. But decorative though this flute part may be on paper, it is undeniably diverting in most performances. The shift in color from dark clarinet, bassoon, and horn in m. 84 to bright flute and oboe in m. 85 is almost as stark as was the shift from strings to woodwind across mm. 83–84. Our attention is almost bound to flit to the flute.

A conductor could counteract this if they wished, by balancing the woodwinds such that the clarinet's C is loudly foregrounded against the entrance of the flutes and oboes, so that the latter seems like a background echo. The only recordings that I know of that balance the passage this way are: Szell/Cleveland Orchestra (2003 [rec. 1963]), Davies/Orchestra of St. Luke's (2005 [rec. 1989]), and Kitamura/Slovak Philharmonic Orchestra (2013 [rec. 2010]). Another possibility is to have the flutes and oboes attack their entrance softly, but make a swift *crescendo* within the span of the first quarter note. The effect of this is that we can hear the clarinet's D♭ in m. 84 connect with the C in m. 85 *before* our attention is wrested away by the high woodwinds. The only conductor I know of who does this is Christian Thielemann on his 2007 Munich Philharmonic recording. One could consider this a best-of-both-worlds approach. On most recordings, the clarinet is audible enough that one could continue follow its line if one makes a conscious effort to block out the flutes. But on some recordings, that option is not even available, as the flutes enter so assertively that the clarinet's C is fully covered. Recordings that are balanced like so include

Leibowitz/Royal Philharmonic (2014 [rec. 1960]), Bernstein/New York Philharmonic (2011 [rec. 1970]), Böhm/Vienna Philharmonic (2013 [rec. 1971]), Stokowski/New Philharmonia (2005 [rec. 1973]), Masur/Leipzig Gewandhaus (2001 [rec. 1973]) and New York Philharmonic (1993), Chailly/Leipzig Gewandhaus Orchestra (2011), and Dudamel/Simón Bolivar Symphony Orchestra of Venezuela (2012).

What these differing interpretations illustrate is that orchestral balance plays a large role in determining which line we attend to. (This will be a central theme in Chapter 8.) This, in turn, can determine how we parse the essential shape of a gesture or phrase. **3.5a** and **b** are both 2 + 1 + 1 constructions, in which an initial long idea is balanced out by two shorter ones. And unusually, the longer ideas have the shorter articulation, while the two shorter ideas are smoother. In contrast, **3.5c** and **d** are both 2 + 2 constructions, which maintain a sense of symmetrical halves, and the long note with which the clarinet line ends restores the usual associations: the shorter articulation is paired with the shorter note values of the first half, and the smoother articulation with the longer note values of the second half. 2 + 2 or 2 + 1 + 1 is not an arithmetic game; it is a matter of meaning. For me at least, when I hear this passage as 2 + 2, it suggests statement and counter-statement. But when I hear this passage as 2 + 1 + 1, I don't hear a counter-statement, but rather cajoling on the part of unspecified musical agents. I hear two single-bar ploys to blunt the two-bar thrust of the opening statement. I would thus say that these two formal interpretations each afford different analogies.

Orchestration can also affect which leaps *feel* like leaps. Earlier, I suggested that **3.5a**, **b**, **c**, and **d** are ordered by probability of how one will hum this passage. And I suggested that **3.5a** is more likely than b only for practical reasons of vocal range: most people will *want* to hum **3.5b**, but

will not be able to. I therefore implied that you are likely to find it more important to preserve the leap between the mm. 84 and 85 than you are to preserve the leap between mm. 83 and 84. In other words, I am suggesting that most listeners will consider it more important that the flute plays in a higher register than the clarinet, than that the clarinet plays in a higher register than the first violins. Were the reverse true, you might wish to hum these four bars as in **3.5e**. And I think that this is the least likely option of all five. (In fact, I think the only reason one would end up humming it this way would be if one intended to preserve both shifts, and then suddenly discovered come m. 85 that one could sing no higher.)

There are perhaps two reasons for this phenomenon. The first is a fact that has been known by music cognition for a long time: that most listeners' perception of pitch is heavily influenced by timbre. Mark A. Pitt and Robert G. Crowder (1992) played subjects two tones in sequence, and asked them whether they were the same pitch or not. When the two tones were played with the same timbre, their test subjects were 98% accurate at recognizing the same pitch played twice. But when the tones were played with different timbres, the subjects' accuracy dropped to 56%. This 56% was the result of a bimodal distribution: all test subjects scored either below 37% or above 70% accuracy. Membership in the accurate or inaccurate group highly correlated with musical experience. In other words, musicians were generally able to perceive the pitch identity, undeterred by the difference in timbres. But non-musicians were utterly thrown by this.

Similar timbral interference in pitch perception has been recorded in a number of other studies (Allen and Oxenham 2014, Caruso and Balaban 2014). Frank A. Russo and William Forde Thompson (2005) found that non-musicians were likely to believe that an ascending six-semitone

interval was larger than an ascending seven-semitone interval, if the former involved a shift from a dull to a bright timbre and the latter involved a shift from a bright to a dull timbre. And most specifically to the point that I am making now, Ken Robinson (1993) found that varying the spectral envelope caused untrained listeners to hear changes of octave position, even where there were none.

What this suggests is that duller timbres can index "lowness" and brighter timbres "highness," even when the pitches themselves might not. Highness and lowness *as percepts* rather than as material facts are not just about pitch, then. Beyond high and low pitch, we also hear "highness-for" or "lowness-for" the particular instrument playing the pitch.[15] Examples of this abound in late-nineteenth-century and early-twentieth-century repertoire. For me, the sound of the closing theme from the first movement exposition in Dvořák's *New World Symphony* has a deep mahogany finish to it, not because the melody itself is pitched particularly low compared to most orchestral melodies, but rather because it audibly sits low on the flute that is playing it. Contrariwise, the melody that closes the exposition of the first movement of Shostakovich's Fifth Symphony sounds to me high beyond the violas' means to maintain—pinched, malnourished—precisely because Shostakovich assigned it to the violas rather than to the violins, thus intensifying the sense of highness-for.

This results in a sort of mapping misfire. The non-experts are mapping the high/low schema onto what they believe to be pure pitch, but what is actually a blend of pitch and timbre. They fail to account for the fact that the pitch is not reaching our ears through a neutral medium

[15] Compare this to Jerrold Levinson's argument that music sounds more or less "rushed" depending on the limits of the physical motion needed to execute it on a particular instrument (2011, 399–400).

(if such a neutral medium could ever exist). When ear-training teaches us to distinguish pitch from other factors, it is (in part) teaching us to "un-blend" parameters. Something similar is happening when I assess which leap is more important to preserve when I hum. When I desire to sing the beginning of the theme as in **3.5b**—to maintain the gap between the clarinet and flute, but not the one between first violins and clarinet—it is not because I consider the former octave to be "leapier" than the latter seventh. It is because I'm measuring "leapiness" not by pitch gap alone but by the aggregate of pitch gap and timbre gap. In other words, I'm assessing the gap between the total sonorities.

To return then to the Egmont overture, neither the first violins in mm. 82–83 nor the first clarinet in m. 84 will tend to project a strong sense of highness/lowness-for in this passage, because both of these instruments are playing in their mid-ranges, in which they do not produce what we might call "registral signifiers." However, this can somewhat depend on the clarinet. The gap between it and the violins may seem wider, more palpable if the clarinet's tone is thin and thus redolent of high-range playing, either because of the clarinetist's embouchure or the make of the instrument itself. Modern-instrument recordings on which one can hear this effect include Masur/Leipzig Gewandhaus Orchestra (2001 [rec. 1973]), Harnoncourt/Chamber Orchestra of Europe (2003), Chailly/Leipzig Gewandhaus Orchestra (2011), and Loughran/London Philharmonic Orchestra (2012). But it is even stronger on certain period-instrument recordings, including Goodman/Hanover Band (2012), Norrington/London Classical Players (2008 [rec. 1988), Hogwood/Academy of Ancient Music (1997 [rec. 1987), and Haselböck/Orchester Wiener Akademie (2016).

In contrast to the first clarinet's melody, the first flute's melody is almost invariably tinged with registral signifiers of "highness." The melody lies in a sharp, bright range of the flute's upper compass. This is one reason why the flute's relative elevation over the clarinet is frequently more evident than the clarinet's over the violins. The other is that the first clarinet's entrance is subsequent to the first violins' melody, whereas the first flute's entrance is concurrent with the end of the first clarinet's melody. So, even in those recordings (mentioned before) in which the first clarinet's final note is not audible enough to retain the listener's attention or even to be clearly identified as a C per se, its presence is still perceptible enough to support the sensation that the flutes' lines are being *layered over* the clarinet parts. And it is this layering over that makes it clear that the new material must come from above.

However strong or weak the sense of m. 84's relative highness may be, its sense of relative lightness is pivotal (at least to me). The most tangible quality of the strings' music in mm. 82–83 (besides, perhaps, the crispness of its articulation) is its heft. Some of this is context-free—low, loud octaves in celli and basses are natural analogy-fodder for authority in nearly any musical situation. But there is also (in Tarasti's terminology) an interoceptive aspect to this music, for it recalls the even weightier opening of the overture—not only in its orchestration, dynamics, and pitch range, but also in its rhythmic profile (long-long-short-long-long). Such is the darkness of this sound (and so strong its association with the oppressive opening) that I would wager that entirely untrained listeners would fail to recognize that this is major-key music, or at the very least would transfer onto it some of the emotional valences of minor, misled by the color of its orchestral garb into a sort of modal prosopagnosia. Or, we could say, this is what happens when one fails to maintain a

one-way source-to-target mapping, and instead create a two-way mapping—when one assumes not only that minor chords are likely to sound dark, but also that dark sounds tend to be minor.

All of this timbral and registral darkness lifts in m. 84. How much this lightness matters to me as a listener actually became clearest to me when I first sang this passage, as I asked you to do at the outset of this section. I sing it as in **Example 3.5a**—that is, entirely in one register. But (without conscious reflection), I typically sing very different syllables for mm. 82–83 and mm. 84–85. I sing mm. 82–83 as something like "dum-dum duh-dum-dum." Whereas, for both m. 84 and m. 85, I sing something like "dee-dah-duh." I presume that the presence of final consonants (bilabial ones to be precise) in my mm. 82–83 syllables (and the lack thereof in mm. 84–85) is an attempt to facilitate the detachment of the former notes and the smooth flow of the latter. But it is the vowels that convey the relative brightness that I feel. The "uh" sound (IPA: ʌ) I produce in mm. 82–83 is a back vowel, sometimes called a "dark" vowel. And the "ee" sound (IPA: i) I produce on the downbeats of mm. 84 and 85 is a "light" vowel. My shift on beat two of mm. 84 and 85 from "ee" to "ah" (IPA: ä) moves from a close vowel position to an open one. My tongue moves from the back of my upper row of teeth, downwards and outwards, as my jaw drops to produce the "ah." My mouth motion thus unconsciously mimics the drop in pitch, and my vowel sound darkens slightly as the luster of that first note is lost through habituation to the new timbre.[16] My very vowels are analogies for orchestral timbre.

[16] A whole study could be written (and I hope that it is someday) on how the choice of nonsense syllables that we sing can function as a sort of analysis of musical sound, through phonetic mimesis. For more on the basic mimetic hypothesis underlying this approach to musical meaning, please see Cox 2011.

Thus far, I have focused exclusively on mm. 82–85—on the perception of its component gestures, its highness/lowness, and its lightness/darkness. But from a traditional theoretical standpoint, the most noteworthy part of this theme is not these four bars, their repetition in mm. 86–89, or the repetition of their head in mm. 90–91; it is the six-bar excursus into A major in mm. 92–97. Thus, you may now wish to turn to the full score in **Example 3.6**. In a university classroom, the vital question would be: how does the music travel from A♭ major to this strange key—one too distant on the circle of fifths and too close on the chromatic scale to be functional? In mm. 90–91, the third statement of the basic idea advances from the tonic to the minor subdominant (D♭ minor), rather than to the natural subdominant to which it has proceeded thus far. The A-major chord that follows is therefore best understood as an enharmonic respelling of B𝄫 major, which is the Neapolitan of A♭ major. A theorist could understand this progression tonally, with D♭ minor acting as a dual-function pivot chord: minor subdominant in A♭, and mediant in A major. Or, a theorist could think of this move as a simple transformation: D♭ minor to B𝄫 minor as a *Leittonwechsel*.

This mulling over the mechanics of modulation is well outside the purview of any non-theoretically-inclined listener. For the non-expert, recognition of where or when the music enters and exits A-major space is not only difficult to judge, but also a conceptually unavailable question. However, the sense that this is a purple patch of the music (aglow with enchantment) can be awareness-independent for a stylistically experienced listener. Its strangeness is a product of its novelty—the novelty of destination (flat supertonic) and voyage (the slip of a semitone) alike. Part of the sense that a modulation has occurred can also be awareness-independent, so long as one does not require that the listener invokes the concept "modulation." For an awareness-

independent listener, this sense of modulation will more likely manifest as an ill-defined feeling that one has entered a different space and/or that the terrain has shifted beneath one's feet. In short, the self-containment of this passage is palpable without awareness of what is doing the containing. We trespass into the awareness-dependent realm only when if we posit a listener's consciously thinking to herself "this music has modulated," or measuring the modulation's strangeness by the semitone.

But the strangeness and self-containment of this passage are not products of pitch alone; they are also conveyed by the orchestration. These six bars have an orchestral color all their own, entirely distinct from that of any other moment in the piece (including this same music's transformation in the recapitulation). These bars really have only three contrapuntal voices: a pedal point on A, and a melody in parallel thirds above. These voices are all more-than-doubled: the melodic thirds are tripled and the pedal is quadrupled. The thirds are played by bassoons in octave three, oboes in octave five, and flutes in octave six. Because the clarinets do not participate in this melody, it has a shinier, more pungent sound. But much of the oddness comes from the palpable gap between the bassoons and oboes in octave four. It can create the impression that this passage is both over- *and* under-doubled—doubled more than is usual (stretching across too wide an expanse of vertical space), and yet not evenly enough to pave over the conspicuous empty space sitting there in the middle of the texture. The resulting sound-world it conjures is both bright and bare.

One might wish to ask: is the odd orchestration functioning as an affordance-signifier for the surprising choice of key? Or is the strangeness of the orchestration an affordance in and of itself, independent of the harmonies it draws attention to? The answer is: both, depending on the

capabilities of the listeners and their susceptibility to these elements. But in cases where both the orchestration and the harmonies succeed in ensnaring the listener, they blend into one unitary sensation. One experiences not the distinct strangeness of the orchestration plus some distinct other strangeness of the harmony, but rather a single strangeness that permeates multiple parameters.

To conclude this section, let's return to a recording that I have mentioned in passing already: Christian Thielemann's 2007 recording with the Munich Philharmonic. Over the course of mm. 82–99, Thielemann changes tempo several times. Although none of these tempo changes is indicated in the score, each of them is a temporary correlation between tempo and one or more other parameters that are indicated in the score. For example, in mm. 82–89, Thielemann correlates a slower tempo with the loud, low string figures, and a faster tempo with the softer, higher woodwind figures. This is part of a process of multi-stage blending. Beethoven has already correlated dynamics with register and orchestration (in stage one), and Thielemann's contribution has correlated tempo with the other two (in stage two). It is up to us (the listeners) to decide what to do in stage three.

Thielemann's manipulations in those bars mainly serve to augment an impression already created by the blend suggested in the score. But performers can also add elements that alter or negate the effects most readily suggested by a score. This occurs in Thielemann's recording when he performs a large *accelerando* in mm. 92–97. This accelerando is perfectly logical: it correlates with Beethoven's requested *crescendo*, which Thielemann also honors. But gone is the sense that the A-major space is an otherworldly sanctum in which to linger. The *accelerando* suggests a push

towards the exits—to get the heck out of A major. And to an awareness-capable listener, perhaps, it might further highlight the fundamental instability of this odd temporary tonic.

❖ Conclusion

The path from any piece to the listeners that hear it is strewn with contingencies. In this chapter, we have not attempted to sweep away these contingencies, but rather to pick them up and examine what they are, how they got there, and what they lead to. And I do believe that there is a path and not just an open field. While it is theoretically possible for anything to happen, affordances are what constrain the possible directions in which any interpretation (by a performer or listener) is likely to stray. This is why we need affordance theory.

I have suggested that all discussions of listener-meaning require us to consider the actions of the performer, because even minor differences in performance can have major perceptual consequences. This was particularly evident in the Chopin mazurka. In this chapter, I have shown only hints of what is to come. Throughout the rest of this dissertation, I will frequently analyze recorded performances. These analyses serve as reminders of what a divergent range of interpretations the music I will study has given rise to. However, in asking the field at large to give more attention to the power of performers, I am not suggesting that it become *de rigueur* to fully immerse oneself in the performance history of every single piece one analyzes. For most scholars, exploring different performances can simply serve to challenge their reflexive sense that the interpretations they've already heard or imagined are "just how the piece goes," when in fact they are only a few of the possible ways. Or, by encountering real-world performances, they might realize that the structures they love so much are not as sonically salient as they had hoped.

With the example of the *Egmont* overture I have attempted to demonstrate as many varieties of analogy as possible: between pitch and timbre, between timbre and metaphorical highness/lowness, between timbre and vowels, between dynamics and pitch, between performance and a blend of all of these, etc. I have attempted, in fact, to sow a sort of paranoia in you—to make you consider whether every single way in which you understand music might be an analogy. (Yes, they all are.) And from that, to interrogate the mechanics by which these analogies are formed—to constantly distill conceptual blends into their component parts.

All of this chapter is just a toolbox, really. The remaining chapters will have to serve as the proof of the utility of these tools.

Chapter 4: Spatializing the Keyboard

❖ A Choir of Voicings

Blue skies may be blue, but they are not *about* being blue. Neither need low-lying music be about lying low. But if ever a musical passage seemed about its own lowness, the opening of the second movement of Beethoven's Piano Sonata No. 4 in E♭ major, Op. 7 would surely qualify. As it unfolds, the untouched upper and middle piano strings sit like rows of empty pews, reverberating with the incantations flowing from the lower octaves' apse. While one is submerged in the bass, it is easy to perceive this passage as a homogenous wash of lowness. But to do so would be to miss the subtle variations of voicing Beethoven employs. In the first fifteen bars alone, there are five root-position C major chords that have C2 as their bass note and E4 as their melody note. (They are marked a–e in **Example 4.1.**) Most analyses would tend to treat them as identical (or at least interchangeable).[1] Yet, each is voiced uniquely.

One could contrive purely contrapuntal motivations for some (but not all) of these modifications. For example, the C-major chord in m. 2 **(Example 4.1b)** is one note thinner than the equivalent chord in m. 1 **(Example 4.1a)**. One explanation is that the concluding notes in the upper two voices of m. 1 (the F4 and the D4) connect respectively to the G4 and D4 on beat one of m. 2, but these are now distributed diachronically in one voice, rather than synchronically in two. So, there is now only note that needs to resolve—the D4 to the E4. Even simpler is explaining

[1] As I shall discuss more soon, Roman numeral analysis does not care about inner voices. And many (though not all) Schenkerians too privilege outer voices, sometimes also ignoring inner voices entirely, unless there is "motion from an inner voice" (*Untergreifen*) at work. David Beach's graph in *Advanced Schenkerian Analysis* (2012, 185)—which renders four out of the five chords as identical—is an example of this fixation on outer voices. Footnote 11 of this chapter will explain his motivation for altering the outer voice in m. 5 of his graph.

why there is no E3 on beat three of m. 5 (**Example 4.1d**). The previous chord is a G4/3. Although one would normally expect the seventh (F3) to act as a tendency tone, resolving to E3, the arch of parallel sixths over the course of mm. 5–6 trumps such concerns. The 4/3 is merely passing (as is common in a $\hat{3}$–$\hat{2}$–$\hat{1}$ outer voice exchange), and it is crucial that F3 continues upwards to G3.

Counterpoint is a fine candidate for cause in both of these cases, but focusing only on that neglects effect. Right, then: let us consider not only voice-leading, but sonority too.

Why is the downbeat of m. 3 (**Example 4.1c**) a six-note chord again? This cannot be part of a general process of (re)growth, because the succeeding D^6 chord has only five notes. But if this C-major chord were to have five notes, which five would they be?[2] Clearly the melodic E4 is entirely indispensable. Also apparent is that the removal of G2 brings out the tritone descent of the bass octaves, because there is no intervening note muddying the texture. Therefore, the bass octaves—C2 and C3—must remain. If we were still to maintain a five-note texture, the middle two notes would have to be one of the following pairs: (1) E3 + G3, (2) E3 + C4, or (3) G3 + C4 (**Example 4.2**). We can dispense with Option 2 right off the bat—omitting the fifth strips the tonic of its substance. Option 1 leaves an audible gap between E4 and the other notes. This no longer sounds like a chorale; it sounds like the soprano breaking free from the choir. That leaves Option 3. The C-major chord sounds good by itself, but when we move to D^6 on the next beat, all voices descend, and the descent from G3 to D3 (in particular) is a quite palpable plunge. While having all the voices move in the same direction is not necessarily a sin in everybody's book, if one really wants

[2] I highly encourage readers to use a piano (if available) to try out the hypothetical voicings that I am about to suggest.

that tritone motion in octaves to pop, it has to stand apart from its background; and thus, the right hand needs to maintain some independence, in order to be offset.

The scope of our analytical vision appears to be improving. We are still giving voice-leading its due, but we are now being more mindful of how these voicings actually sound. Let us then mull over other motivations. When the opening theme restarts in m. 15 (**Example 4.1e**), it is down to four voices. This is not dictated by the laws of voice-leading, but is rather part of a dynamic gesture: an ebb to *pianissimo*. All is small, but only for a moment. The texture thickens back to its original state in m. 16 (a perfect copy of m. 2). One could say that the textural sense of parallelism has started one bar later than the thematic sense of parallelism.

Readers who recall Chapter 2 might think me methodologically fickle right now: for somebody who was preaching an esthesic reorientation of analysis some pages ago, I seem awfully preoccupied with neutral structures. So, let us turn to the always crucial question: *for whom* are all of these effects actually salient? It takes an adroit listener indeed to detect most of these re-voicings. (The thinning in m. 15 is the only one that I always detect, regardless of performance.) On only a handful of recordings can I hear them clearly, even while deliberately seeking them.[3] But when I play these bars at the piano, I hear (and, even more, *feel*) all of them with ease.

More fingers, fewer fingers. Bunched fingers, spread fingers. Tense fingers, relaxed fingers. The physical feedback of the instrument at these points of contrast is as strong as or stronger than the auditory feedback of the sounding music, which I could actually judge better from the

[3] Clearest in this regard is Russell Sherman's recording (1997 [rec. 1992]). Also decent are Ronald Brautigam's on fortepiano (2014), and Eduardo del Pueyo's (2016 [rec. 1977]) and Claude Frank's (2011 [rec. 1970]) on modern pianos. Of course, one cannot know how to apportion credit for this clarity among the pianist, the instrument, and the sound engineer(s).

audience's seats than from mine at the bench.[4] Take the opening: I finger the first right-hand chord (1, 2, 4), to allow me to facilitate *legato* motion to the next chord, fingered (1, 3, 5).[5] When I play the C-major chord in m. 2, with (1, 4) in the right hand, I experience not only a sense of harmonic resolution (releasing the tension of the preceding dominant chords), but also a sense of manual resolution (this is the most comfortable position that my right hand has been in thus far). My listener (if listener there be) and I perhaps arrive at the same sense of what this chord "means" (repose); but if so, we travel there through different senses and for different reasons.

If passages like the opening seem to demand a default execution and thus default physical embodiments, others afford multiple possibilities. If I want to make the temporary thickening on the downbeat of m. 3 clear, how should I communicate it? Should I use my right thumb to voice E3 slightly louder, as if to signal "Hey there! New voice entering here!"?[6] Or should I just play the whole chord with a heftier tone, so that I convey some sense of thickening, even if it no longer springs from texture? (Effects seemingly inscribed in pitch, but not easily audible from pitch, can invite the performer to engineer the same end via non-pitch means.) I don't have much choice of right-hand fingerings: if I want the top voice to be legato, I will have to play (1, 2, 3, 5) on the downbeat, to allow me to play (1, 2, 4) on the second beat.

Let us review where we stand after painstakingly negotiating this short passage: How chords are spaced matters.[7] How much spacings matter differs. They can seem generated more or less by

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[4] Charles Rosen addresses pianists' reliance on somatic over sonic awareness quite well, including how pianists are often poor judges of the sound that they are producing (2002, 33–34).

[5] This is recommended by virtually every editor who fingers this passage, including Schenker for Universal (1918–21), Frederic Lamond for Breitkopf & Härtel (1918), Alfredo Casella for Ricordi (1919), and Artur Schnabel for Curci (1949).

[6] This is Arturo Benedetti Michelangeli's strategy ([1999] 2000).

[7] I regard voicing as a subset of spacing, as shall hopefully become clear.

abstraction, more or less by physical sonority. For individual listeners or players, they can be more or less audible, more or less somatic; some striking, some subtle. Spacing is a frontier (if not the final one), and it's about time we explored it. This exploration could spill across instruments and time periods. But in this chapter, we must content ourselves with discussing keyboard instruments in the late eighteenth and early nineteenth centuries.

We can divide the basic properties of spacing into: *altitude, thickness, density,* and *openness*. Altitude is simply how high or low any passage sits. (Where on the keyboard are we?) Thickness is how many notes one plays at a time—from a single strand to a hefty handful. Density is how tightly packed those keys are, and is the property that overlaps most with the traditional notion of voicing. Openness is the size of the biggest gap between voices. In keyboard music this is most often determined by whether one's hands are sticking close together or drifting apart.

The threads that I have dangled throughout this introduction will be gathered up into two main sets of questions, which I will pursue throughout these next two chapters. The first set of questions is historical: When did spacing become a conscious concern for composers, rather than a mere by-product of contrapuntal decisions? How linked are these developments in musical thought to the technological developments in keyboard instruments germinating throughout late-eighteenth-century Europe? The second set is theoretical: For whom are these differences in spacing consequential? In what ways, and via what mechanics? How should we talk about or represent these differences when we analyze keyboard music? Although these two sets of threads are necessarily entwined, the current chapter will deal primarily with the first and the next chapter with the second.

This chapter will proceed in two main stages. First, I will challenge both sides of the scholarly debate on whether a history of keyboard music must necessarily be a history of keyboard instruments: those claiming that technology drives composition, and those who treat technological and compositional innovation as largely independent phenomena. The totalizing nature of these two positions (and the frequently unfalsifiable claims that result from them) will lead me to advocate a middle road. (The implications of this for critical organology as whole will be developed further in Chapter 6, with regards to orchestral instruments.) Second, I will attempt to overturn and replace conventional ideas of what distinguishes late-century keyboard music from mid-century keyboard music, fortepiano music from harpsichord music, London's piano music from Vienna's, and Beethoven's from his contemporaries'.

❖ In Classical Music, Keyboard Plays You

Let us return to the opening of Op. 7/ii, this time considering the bass line in mm. 4–6. In a more normative voice-leading of this bass line, all of m. 5 would be down an octave, so that the {F1, F2} octave in m. 4 (the seventh of the dominant seventh chord, and therefore a tendency tone) would resolve naturally (down a semitone), rather than leaping up a seventh.[8] A potential

[8] Thus far, I have notated all chord voicings as *ordered* sets built upwards from their bass note, as I believe that this is the default way in which classical musicians are taught to conceive of such chords. However, you may notice that I notate all octaves as *unordered* pairs. This is because octaves often introduce a perceptual ambiguity: is the upper voice being doubled below or is the lower voice being doubled above? (I will explore the effect of timbre on this particular ambiguity in Chapter 8.) I can exploit this ambiguity at the keyboard with interesting results. When I conceive of the downbeat of m. 3 as one single chord, I hear it as (C2, C3, E3, G3, C4, E4). However, when I conceive of it as a bass octave in the left and a chord in the right, the left-hand octave becomes the unordered pair {C2, C3}; and I can now hear both hands either as building from left to right [(C2, C3) + (E3, G3, C4, E4)] *or* as radiating outwards from the thumbs [(C3, C2) + (E3, G3, C4, E4)].

ramification of this breach is to isolate m. 5 as a sort of registral island, floating above the bass-heavy depths on either side. But this effect can strike a score-reader's eye very differently from how it strikes a listener's ear. Looking at the page, the leap up from {F1, F2} octave to {E2, E3} downbeat of m. 5 is what jumps out most to me. But when listening to many recordings, it is the move from {C2, C3} to the {F1, F2} on the downbeat of m. 6 that feels like more of a leap. This is because many pianists hit the *sforzando* hard in m. 4 and the downbeat hard in m. 6 (to bring out the 9/7 suspension above the F). This makes m. 5 sound like one large anacrusis to m. 6.[9]

I could continue to list the effects that this registral transfer affords an enterprising pianist. And I could, all the while, rhapsodize Beethoven's ingenuity in devising such effects. (I am a music theorist, after all.) But there is one crucial fact that this analysis is leaving out: Beethoven could not have continued moving downwards after m. 4, because F1 is the lowest note on the Viennese piano of the time! There was nowhere to go but up. Any interpretation surmising Beethoven's intentions would have to account for that; as would any interpretation that simulates the point-of-view of those with awareness that this is the lowest note, be they the player or those audience members who know this (whether due to seeing the keyboard or to perfect pitch).[10]

Once we begin to consider the limitations of the instrument, other questions logically emerge. Did Beethoven wish that m. 5 were in the same register as m. 4, and grudgingly transpose

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[9] Some performers—such as Malcolm Bilson (2003) [rec. 1997] and Ronald Brautigam (2014)—heighten this sense, by dropping the dynamics at the beginning of m. 5, and then transforming the rest of bar into a *crescendo* push towards m. 6. In such cases, what is salient to me is not that the bass has leaped up, but rather that the music as a whole is "pulling back" (withdrawing), as if winding up for the subsequent push forward. Then, the downbeat of m. 6 really feels like hitting bedrock after a plummet.

[10] Rosen argues that using historical instruments therefore has visual as well as sonic advantages, because modern audiences then *see* what notes would have been at the ends of (e.g.) Beethoven's keyboard, even in situations where they could never have heard that (2000, 210).

it up an octave because he had no choice? Is the pianist (or the highly instrument-aware listener) meant to hear the actual bass line as a "stand-in" for an idealized bass line whose bottom voice continues down to a non-existent E1—C1?[11] Or, perhaps, did Beethoven—who surely knew the limits of his instrument—plan the entire passage so that the tensest (most dissonant) moments would fall on F1? After all, we're only in this mess because the movement is in C major, a by-no-means obligatory or even expected choice for a sonata in E♭ major. In short, did Beethoven make lemonade because the piano gave him lemons, or did he plant lemons in the bass line for the express purpose of making lemonade?

These smaller questions merge to form the big one that anyone of even vaguely organologicial outlook must ask: how much does one write *with* instruments, as opposed to merely writing *for* them, or even writing *in spite of* them?[12] And if one writes with them, how does this alter the finished product? We might divide approaches to these questions into two broad philosophical paradigms.

First, there is Rationalism. It states that musical thinking takes place mostly in the mind, and not in the material world. Sure, composers consider the instruments for which they are writing. They want their music performed, so they do not defy the physical limits of performance. And they care how it sounds, so sonority will generally be a consideration. But the medium isn't the message; it's just the medium. It's a delivery device for conveying music from composers' heads

[11] This is David Beach's solution in the graph that I mentioned before, and is why it is the only one of the C2-to-E4 chords in this passage that he treats as different from the others.

[12] "With" and "for" could be different for composers primarily interested in sheet music sales, as their personal instrument was sometimes more advanced than that of their public. I will address this in the next section of this chapter.

to ours. Bach's *The Art of Fugue* is the *ne plus ultra* of Rationalist music-making.[13] What instrument(s) should it be played on? Well, what have you got? A fugue's a fugue. Use what you have.

In contrast, there is Materialism. Materialists might assent to the notion that musical thinking is performed by the mind, but the mind is "extended" and its cognition is "embodied."[14] Writing for instruments is not a two-step process of deciding how the music should go, and then deciding afterwards how to tailor that music to the instrument(s). Rather, the nature of the instrument(s) drives musical decision-making from the very outset. And one is often composing while in direct contact with the instrument, with its somatic feedback shaping the creative process at every turn. To stick with Bach examples, an organ toccata by him would seem to bear the stamp of Materialism. Would Bach really have written those specific figurations were they not embedded in the muscle memory of his fingers?[15]

One might hope that Rationalism and Materialism can and should form more of a spectrum than a dichotomy.[16] (One should hope this about most dichotomies!) But this is rarely true in practice. No one seems to deem the considerations of the other school to be *completely*

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[13] De Souza—unquestionably a Materialist—discusses this piece's Rationalist reputation (2017, 110–11).

[14] For introductions to the theories of "extended mind" and "embodied cognition," please see Rosch, Thompson, and Valera (1991); Clark and Chalmers (1998); and Clark (2008).

[15] Toccata, of course, comes from "*toccare*," meaning "to touch." This is surely one of the most somatic titles given to any musical genre.

[16] The reader should beware mistaking the Rationalist/Materialist distinction for something similar to Jankélévitch's influential distinction between "drastic" and "gnostic" musical knowledge, popularized by Abbate 2004. Abbate specifically seeks to shift our focus from texts to events, whereas Rationalism and Materialism are equally applicable to both categories. Indeed, even in cases where Materialism seems to focus on the composer or performer's body, rather than on the printed score, it still often makes the body into a text of its own, a gnostic practice Abbate cautions against (2004, 507–10).

irrelevant. Virtually everyone would grant that composers almost never write music that is literally unplayable on the intended instrument(s). (More on that "almost never" soon…) Likewise, virtually all would concede that composers must conceptualize *some* elements of sound without direct contract with an instrument. (Or else, no keyboard-based composer could write music idiomatic for non-keyboard instruments.) But most writers on these matters tend to sit closer to this spectrum's poles than to its center, defaulting immediately to their preferred explanatory strategies. The distribution of scholars along the Materialist/Rationalist spectrum is therefore nearly bimodal.

Pioneering generations of Schenkerians are the most obvious examples of Rationalists. Schenker himself was perhaps the earliest major theorist to consider the importance of registers, and he was certainly the earliest to codify the fundamental techniques of shuttling between them—classified as coupling, reaching over, and simple ascending or descending transfers.[17] But these techniques were often interpreted by mid-twentieth-century Schenkerians as being solely in service of projecting a particular motive, and having nothing to do with the instrument for which they are composed.[18]

I should add, though, that while Schenker was highly Rationalist about most elements of music, his theory does not oblige one to be Rationalist about registral transfers. The techniques that Schenker laid down explain only *how* transfers work, and not *why* they are employed. Indeed, a study by a Schenkerian— David Gagné (1988)—was one of the first to thoroughly examine how compositional choices (such as form and register) were influenced by the instrumental forces for

[17] For a good summary of Schenker's conception of these techniques, please see Riggins 1983.

[18] The various analyses in Oster 1961 are good examples of this.

which the composer was writing. Inasmuch as modern-day Schenkerian theory is not wholly committed to the more metaphysical claims of its creator, nothing impedes Schenkerians from embracing a broadly Materialist view, should they wish to.

Materialism is a more modern view than Rationalism, perhaps necessarily so, since pondering over technology's effects upon us is a present-day preoccupation. Cognitive scientists sometimes say that their discipline took an "embodied turn" in the early twenty-first century, in much same way that philosophy took a "linguistic turn" in the mid twentieth century. It is questionable whether music theory ever underwent the latter, but it is certainly beginning to undergo the former. Many theorists (and musicologists) have adopted an embodied form of Materialism primarily as an analytical strategy, bracketing the question of how much the nature of the instrument(s) affected the composition of a piece to instead focus on how it feels to perform said piece.[19]

Unsurprisingly, many participants in the historically-informed performance (HIP) movement gravitate(d) towards this strand of Materialism. As was the case with Schenkerian theory and Rationalism, the most basic principles of HIP do not absolutely demand Materialism. One could believe that HIP's aim is only to re-engage musicians and audiences with the *sounds* of earlier instruments and practices, that what requires re-creation is "the music" (narrowly defined) and not some corporeal communion with the materiality of older instruments. Yet, the latter attitude is espoused not only by HIP's most fervid adherents, but also sometimes by scholars who are more

[19] An incomplete list of recent works taking this approach (in both classical and non-classical repertoire) includes: Le Guin 2005, Rockwell 2009, Koozin 2011, Bungert 2015, Swinkin 2016, and De Souza 2017

measured or even critical in their approach to original instruments.[20] Even Taruskin (certainly not HIP's staunchest ally!) writes:

> And here, in my view, is where the "old instruments" are valuable and perhaps indispensable in achieving truly authentic performances: as part of the mental process I am describing. The unfamiliarity of the instrument forces mind, hand, and ear out of their familiar routines and into more direct confrontation with the music. [...] The presentation of a familiar object (the music) in an unfamiliar context (the instrument and the new problems it poses) forces one to see it freshly, more immediately, more observantly—in a word, more authentically. Notice, though, that this is primarily a heuristic benefit to the player, and only secondarily an aesthetic benefit to the listener. (1995, 78–79)

In this instance, Taruskin is espousing an extreme form of Materialism by stating that the power of authentic instruments is mostly somatic, rather than sonic. It is as if musical sound is itself too immaterial to be the main effect of contact with an instrument.

We are thus confronted with two opposed views of how we play keyboards (or how keyboards play us). Are there compelling reasons why we should adopt one or the other stance when dealing with the particular repertoire under consideration in these chapters? So as not to make this decision purely on abstract grounds, let us see what these two approaches have to one of the specific elements of spacing that I identified earlier: altitude.

❖ Haydn's Highs and Lows

In 1999, David Rowland could begin an article with the assertion that "the development of keyboard compass is an aspect of piano history that has seldom received detailed attention" (283). It is questionable whether that was true even then. Compass had been scrupulously studied in Sandra Rosenblum's *Performance Practices in Classical Piano Music* (1988), Katalin Komlós's

[20] For a review of both sides of this issue please see Butt 2002, Chapter 2 and Haynes 2007, Chapter 9.

Fortepianos and Their Music: Germany, Austria, and England, 1760–1800 (1995), and Michael Cole's *The Pianoforte in the Classical Era* (1998).[21] Regardless, Rowland's claim is certainly no longer true. Now, just about anyone who wishes to write about any aspect historical keyboard instruments feels obliged to address compass. Since compass expanded outwards (how could it expand inwards?), this is usually synonymous with addressing the registral extremes of the (then) new instrument.

It should come as little surprise that the highest note (F6 on the average Viennese piano) garners significantly more attention than the lowest note (F1). This is consistent with how we treat highness and lowness in music in general. You likely can rattle off many arias with famous high notes or flashy high coloratura for soprano or tenor. (Rattle off their names, that is; not the arias themselves…) But how many famous low notes or passages for basses or contraltos spring to mind?

This extends outside of the musical domain too. You can probably name more of our planet's mountains than its valleys or oceanic trenches. In discussing the plot of a drama or film, you probably care more about the rising action leading to the climax (itself understood as a highpoint) than you do about the falling action. Moreover, highness is associated with positive valence: high vs. low self-esteem, highpoints vs. lowpoints in someone's career. As I type the words "highpoint" and "lowpoint" in Microsoft Word, a red squiggle appears under the latter and not under the former. There is an entire book by Zohar Eitan (1997) titled *Highpoints* (subtitled *A Study of Melodic Peaks*) dedicated to studying how musical highpoints are reached. There is no equivalent book called *Lowpoints* (*A Study of Melodic Troughs*).[22]

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[21] The first of these remains even today the most staggeringly comprehensive Materialist treatment of eighteenth-century keyboard instruments and music.

[22] For more on metaphorical conceptualizations of motions upwards and downwards, please see Zbikowski 2002, Chapter 2 (especially pp. 63–77). A seeming exception to the above is the work of Steve Larson (1998, 2012). From his Schenker-influenced perspective, "gravity" (the

However, the main lack of much of the compass literature lies less in its highpoint fixation and more in its habitual satisfaction with dry data-gathering, devoid of any further interpretation. Often, discussion of the outer reaches of the keyboard amounts to little more than a laundry list of lowpoints and highpoints—as if to say, "these are the remote pitches, and here is where to find them." This is the residue of an era in which research on historical keyboards was primarily detective work—hunting through composers' correspondence to verify what models they purchased when, poring over concert programs to ascertain what instruments they played in public. Absent this sort of documentary evidence, scholars often looked to the scores themselves to provide hints of what sort of instruments they were written for. I do not mean to disparage such approaches in the least. Rather, I wish to suggest that this scholarship was so successful at its task that we can and should turn our attention to more interpretive matters.

A giant step in this direction is James S. Mackay's article "Franz Joseph Haydn and the Five-Octave Classical Keyboard" (2003). Mackay investigates Haydn's use of the keyboard's extremes (both the low and high F, although primarily the latter), the compositional strategies Haydn used to arrive at these notes, and the rhetorical uses for which he employed them. His article is the most thorough consideration of this question that I know of, for any composer or repertoire of this period. Mackay's claim is that Haydn often used the outermost notes "to signal the onset of thematic regions, or to accentuate tonal processes such as modulation and closure"

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general tendency of notes to descend) is a fundamental force, but there is no equivalent force that pulls always upwards. (One of his other fundamental forces—"magnetism"—can pull in either direction, since it is caused by tendency tones.) One could perhaps argue, though, that this makes upwards motion more marked than it would be otherwise, since it is now acting against a natural force.

(130). Here (with some of Mackay's examples cited) are the most prominent places in a movement where Haydn might deploy the keyboard's most remote notes:

(1) At the very outset of a movement, to show off registral brilliance, such as in the opening bars of his Piano Trio in B♭ major, Hob. XV/20.

(2) Reserved until the secondary zone theme, to indicate its onset or to separate it internal components, such as in the finale of Piano Sonata in E♭ major, Hob. XVI/52.

(3) Marking a prominent tonal excursion in a development section, such as in his Piano Trio in D major, Hob. XV/24/i, m. 87; or at any other major point of modulation, such as in his Piano Trio in G minor, Hob. XV/19/i, m. 11.

(4) Marking the end of the development, such as in Piano Sonata in C major, Hob. XVI/50/i, mm. 100–101 (Mackay 2003, 132–137)[23]

As the preceding summary should suggest, Mackay treats Haydn's keyboard works almost as a formalist literary critic might treat a "well-made play" or a mystery novel—as if the creator started first with a particular narrative device in mind (in this case, the registral extremes), and then carefully plotted his way towards it. The critic's charge is then to unravel the plot, to show how the climax was reached. I have no qualms about this style of analysis. We should do more of it.

But this line of thinking also entails a light brand of Materialism. It suggests that Haydn bore the exact range of the instrument in mind when making compositional decisions. However, Mackay notes an additional fact that complicates things a little: that Haydn continued to treat F6

[23] I have not provided score excerpts for these, and instead direct the reader to Mackay's article, to examine these and other such examples.

as "an arbitrary (and slightly restricted) limit to which he continued to adhere in his later years," even once the compass of many keyboards (including his own English one) had extended higher than that (130). This might be a purely commercial consideration: there were still many parts of Europe in which such extended-range keyboards were not available.

Even if the intentions behind this choice were commercial, one might still step back for a moment and wonder how Haydn's F6s felt for those members of his public who played instruments that now reached to C7. Did F6 lose some of its luster, when eclipsed by its upwardly mobile neighbors? I would like to think F6 continued to retain some of the semantic charge with which tenors' high Cs are loaded, even in contemporary times.[24] High Cs hold a special place in the critical imagination, even though many tenors are capable of singing higher notes; and even though most listeners don't have absolute pitch, and can't recognize a high C without prompting.[25] (This is thus a perfect example of awareness-dependent listening.) Why then all this fuss? Because high C is the conventional (if not actual) apex of tenordom. It is the Matterhorn of notes—not the highest summit in its immediate surroundings, but a more enduring symbol of highness than its neighbors. Perhaps F6 similarly held onto its historical baggage, even as it was superseded. (We cannot know.)

As I said, all of this entails only a slightly Materialist perspective on Haydn's keyboard writing. But a closer reading of Mackay's article suggests somewhat deeper commitments. In

[24] Bianca Oglice offers the intriguing suggestion of using pieces of paper to cover all of the keys that sit outside of the range of a historical five-octave keyboard, to allow modern pianists to recuperate a sense of how playing at the edges of one's instrument might feel (2012, 162).

[25] Notable examples of nineteenth-century arias calling for higher notes than this include: "E se fia che ad alto oggetto" from *Don Pasquale* (D5), "Ma un solo conforto" from *Marin Faliero* (D♭5), and "Credeasi Misera" from *I puritani* (F5).

specifically mentioning the "five-octave keyboard" in the title of his article, Mackay gives the impression that Haydn developed these compositional practices in direct response to the advent of a more expanded instrument. This is not an uncommon implication for keyboard scholars to draw. It is as if they believe that the mere existence of a broader range awoke in composers the urge to consider range in a way they never had before. (This raises the question, though: if exploiting the highest notes was not already a preoccupation of composers, what impetus was there for keyboard manufactures to extend the instrument's compass in the first place?) This narrative therefore suggests that major sea-changes in spatializing the keyboard took place in the 1780s–90s, when Walter fortepianos began to propagate throughout Austria and Broadwoods throughout England.[26] If one could show that Haydn employed extremes in the same way—even in his earlier works, for keyboards with smaller ranges—then this narrative quickly deflates. For, if so, then his ways of navigating keyboard-space never altered; it is merely the space itself that grew.

I believe Haydn's earlier pieces evince exactly this sort of consistency of conception across his career. From the early 1770s forward, Haydn's keyboard works assume a five-octave range; almost always calling upon the upper terminus, and fairly often calling upon the lower. But his generally lesser-known works from the 1750s and 60s top out at D6, as high as harpsichords went at that time. Many of these works are quite stylistically divergent from the later works—their simplicity of harmony and the abundant remnants of mid-century figuration would not be

[26] Please see Cole 1998, Chapter 13 for more on the former, and Rowland 1999 for more on the latter.

mistaken for the work of the older Haydn. But early Haydn uses his terminal pitches just as his later self would.[27]

Two individual movements from this period in Haydn's life will suffice to demonstrate just how carefully he plots these pitches: the first is the finale of the Piano Sonata in E♭ major, Hob. XVI:45; the second is the second movement of the Piano Trio in F major, Hob. XV:37. (Both of these pieces were written in the 1760s, although the precise years have not been determined.)

❖ **Keyboard Space and Action Space**

Let us begin with the exposition of the finale of the Piano Sonata in E♭ major, Hob. XVI:45 (**Example 4.3**). This belongs to Mackay's category of those that reserve the extreme notes for the second half of the exposition. S space begins with a brisk and assertive $S^{1.1}$ theme in m. 20. Rather than reaching any sort of tentative conclusion (a half cadence even?), this theme breaks off abruptly over a I^6 chord in m. 34, and $S^{1.2}$ takes over in m. 35. The terminal gesture of $S^{1.1}$ is a rapid unsupported scale up to the first highpoint of the movement, a D6. Thus, this note serves as a marker between the two themes, and emphasizes how hasty the shift is, as the apex is orphaned in mid-air.

Another instance of this strategy occurs almost immediately afterwards. The $S^{1.2}$ theme has begun in a quite high range—the right hand in the 5th octave, and the left hand in the 4th. The theme slowly descends back into the lower register it has inhabited for most of the piece, when suddenly the bass drops to an {F1, F2} octave. This constitutes the beginning of the push towards

[27] László Somfai seems to agree with this proposition in his *The Keyboard Sonatas of Joseph Haydn* (1995), but takes it even further in suggesting that there are no large discrepancies in style whatsoever in the keyboard music (29).

the EEC (delayed by a "one more time" effect in m. 42, and attained in m. 47), thus serving as yet another structural marker.[28] If one heard the D6 in m. 34 as having signaled "Abandoning this theme—it's not working out," then this might signal "Exit up ahead."

There are other interesting terminal pitches in this movement, but I will mention only one more. The development here is not one that begins by modulating immediately, but rather one that lingers in the dominant a bit more, before embarking on any tonal adventures. Two D6s tease this modulation out. One in m. 54 comes as the crest of a wave of sixteenth notes. Surely (we might think), when the wave returns earthwards, we will modulate out of the dominant? Nope. The wave leads to a confirmatory PAC in V, in m. 55–56. The development is tonally stalling. Another wave sweeps upwards in m. 61, and D6 is the crest again. And this time, D6 does sit on the border between outgoing B♭ major and incoming F minor / A♭ major, a transformation made all the more dramatic by the fact that it is effected by a B♭ minor chord, thus necessitating the negation of the very D that brought us into the new key.

The second movement of the Piano Trio in F major, Hob. XV:37 **(Example 4.4a)** is even more revelatory, because we can contrast how the piano is treated with how the violin is treated.[29] Throughout the movement, the two of them trade off the role of carrying the melody. Interestingly enough, Haydn treats D6 as the upper extreme of the violin too. One could read this as creating an ambiguity: has D6 become marked as a pitch, or is it only the D6 key on the piano that remains marked? Both readings are possible, but I lean towards the latter: whereas the piano's D6s always serve a structural function, the violin's do not necessarily.

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[28] The idea of a "one more time" effect comes from Schmalfeldt 1992.

[29] Although it is a piano trio, the cello is expected to double the piano's left hand, as is typical of many of Haydn's earliest piano trios. This is why there is no separate cello part.

Although this movement is clearly in sonata form, the layout of its exposition is rather unconventional. The P theme is a single eight-bar period.[30] Likewise, the TR (starting in m. 9) is only eight bars in length, with the MC in m. 15. The TR also contains the first D6 of the movement in m. 10. However, this is in the violin rather than the piano. Neither the violin nor the piano has "the melody" here because the texture is imitative; neither part is resolutely "the upper part," as the two crisscross. Thus, Haydn has deliberately chosen not to make the pianist play the D6 key, holding that note in reserve, just as he did before.

This being a typical Haydnesque "monothematic" sonata, the S theme that begins in m. 16 is really a modification of the P theme. But ah, it is twelve bars (positively decadent compared to the brevity of before!). It concludes with a crisp and unambiguous PAC in m. 27. There is no reason to suspect that this is anything other than the EEC. And so, an experienced listener might think: "Okay, eight or twelve more bars to go and this pint-sized exposition will be over." This can be awareness-independent: one doesn't need to hold *concepts* like EEC or even PAC in one's mind, because statistical learning suffices to associate the *sound* of a strong PAC in the secondary key with the imminent conclusion of the exposition.

What follows, then, might come as a bit of a shock. Like everything else in this exposition, it is based on the initial P theme. This in itself is not a problem for a monothematic sonata. But what certainly is a problem is its tonal behavior: it is in C minor. The drama of this moment is underlined by two things: (1) the return to a *forte* dynamic, which had been absent until then from

[30] Caplinians would surely object to my calling this is a period. The progression in mm. 3–4 is either an evaded cadence (if one regards the true bass of m. 4 as A5 rather than F5) or is a weakly articulated PAC (if one feels that the rest on the downbeat means that there is no bass). Neither is kosher for the antecedent of a period according to Caplin. But they are according to L. Poundie Burstein (2015), and I side fully with him here.

S space; and (2) finally, the piano's first D6. That this note is meant to be marked is suggested by the fact that Haydn has reversed the piano and violin's roles. This version of the P theme most closely resembles the consequent of the opening (mm. 5–9), during which the violin played the upper voice. Now, the piano has the upper voice, which I suggest is for the express purpose of allowing the D6 to be in the piano. The final D6s of the exposition are in mm. 38 and 40, adding brightness to the twirls that could be heard as celebrating the return of C major.

Using Caplin's model of the sonata development here—as even the most devoted proponents of Sonata Theory seem not to have warmed to Hepokoski and Darcy's—the three stages of this development are pre-core (mm. 49–56), core (mm. 57–85), and retransition (mm. 85–91). The piano's D6s mark both boundaries of the core: they launch the imitative sequencing that characterizes it (m. 57), and they start the descent to the half cadence that ends it (m. 83). Finally, there is the recapitulation. Haydn cannot use D6 in any of the same spots in which he used them in the exposition, because they are all down a fifth now. Instead, he uses it only once: as part of the movement's final flourish (mm. 131–132) (**Example 4.4b**).

I hope this all rather conclusively shows that Haydn was no less ingenious about plotting the outermost pitches in his early years than he was in his late. Let me re-emphasize, however: where Haydn chooses to place these notes is objective fact; but the perceptual effects of these placements are afforded rather than determined. And they are afforded most easily to the player of a historical instrument, who is always aware of when her finger scrapes the keyboard's edges.

❖ **Moving beyond the Extremes**

Of course, all of the above leaves Materialism intact (perhaps even affirms a version of it). All it rebuts is the idea that the relevant material object is the five-octave keyboard, rather than keyboards in general. But that still raises the question: relevant *for whom*? Is Haydn typical in this respect, or is Haydn just Haydn?

Before we leave Mackay entirely, let me quote him one last time. Here is a statement he makes at the outset of his article: "Unlike Beethoven, whose early keyboard works often strain against the registral limits of the instruments of his time, [...] Haydn's keyboard music seems to display satisfaction with the boundaries set by the instruments for which he composed" (2003, 126).[31] Just what does it mean for music to manifest "strain" or "satisfaction" with regards to the instrument's limits?

Mackay has in mind Rosen's comments on mm. 11–21 in Beethoven's Op. 10/3/i (**Example 4.5a**). At two spots in this passage (mm. 15 and 22) there are "holes": moments where octave doublings cease, because one antipode of the octave is unavailable on then extant instruments. Most contemporary players—even historically-informed fortepianists like Paul Badura-Skoda ([1990] 2016) and Ronald Brautigam (2014)—usually add back these notes, presumably justifying this on the grounds that Beethoven "would have wanted" them if he could have had them.[32] These are not the only such holes: others are to be found in Op. 2/3/ii/26, Op. 10/1/i/128, and Op. 90/i/214 (**Example 4.5b–d**) (Rosenblum 1988, 36).

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[31] Rosenblum seems to agree with this opposition, adding Mozart to the mix on Haydn's side: "The works of Mozart and Haydn fit gracefully within the five-octave range. Rarely are we aware of the limitations of range in Mozart's works" (1988, 32).

[32] This is, of course, very slippery terrain for such performers to tread on, given that their entire orientation urges the necessity of privileging the "did want" or "did happen" over the

The Walter piano that Beethoven used until 1803—when his Érard arrived—likely extended up to G6 (Skowroneck 2010, 83; Rosenblum 1988, 33). Nonetheless, Beethoven generally set F6 as the upper limit of his pieces, probably because that was the upper limit for the intended audience of his published sheet music. However, his attitude towards this limit was rather variable. He called for F♯6 in m. 41 of Op. 14/2/i, in a passage where its absence would be most conspicuous (**Example 4.6**). But in his Piano Concerto No. 1, he used an F6 rather than an F♯6 in the piano solo part in m. 172, even though it creates a discordant chromatic upper neighbor for E6 (above a first-inversion A-minor chord) (**Example 4.7a**). When this moment reappears transposed down a fifth in the recapitulatory rotation (m. 387), Beethoven writes the pleasing-sounding B♮, rather than B♭ (**Example 4.7b**). Arguably, in both of these two pieces (the sonata and the concerto), the F♯6 is an essential component of the melody. But in one case, Beethoven demands it, instrument be damned; while in the other case, he accedes to the instrument, melody be damned.[33]

The impression that all of this gives is that Haydn was a Materialist and Beethoven was a Rationalist. In Haydn's case, one need not rest on musical evidence alone; we can bolster it with a bit of biography. Haydn admitted that he composed his earliest keyboard sonatas at the clavichord

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"would have wanted." Otherwise, one can just as equally claim that Beethoven "would have wanted" the resources of modern instruments, and their project collapses. Stephen Davies addresses this issue head on by claiming that authenticity should be a matter of realizing a composer's "intentions" but not his "wishes" (1987, 43–44). Making the latter come true may improve a piece, but does not make it more authentic.

[33] Again, just as most modern pianists plug Beethoven's holes (another case of "would have wanted"), they also "correct" the F6 to F♯6. (So do some fortepianists, such as Steven Lubin [2006].) Performers who do play the original "wrong" note include fortepianists Robert Levin (1999), Ronald Brautigam (2008), and Arthur Schoonderwoerd (2014), and pianist Pierre-Laurent Aimard (2003).

(Komlós 1995, 51). And we know from an 1801 letter to George Thomson that Haydn considered himself unable to continue writing keyboard sonatas in old age because his hands had grown too physically weak to allow keyboard improvisation, which suggests just how integral this was to his compositional process (84).

Mozart is more similar to Haydn in this regard. For nearly two centuries, a myth circulated that his musical thoughts flowed directly from his brain to his quill, with no intermediate instrument engaged to aid him in working out his thoughts. (Of course, it still persists: see Mozart dictating his Requiem to Salieri in *Amadeus*.) This myth likely springs in part from a Mozart letter of dubious authenticity, posthumously published in an 1815 issue of *Allgemeine musikalische Zeitung*. Its claims are contested by all other first-person accounts of Mozart's compositional process. Constanze maintained that Mozart composed many of his late works (including, yes, his Requiem) at the keyboard (Maunder 1992, 212); and Mozart's own letters attest to his attempts to hire a piano to help him compose (Mozart 1966, 756).[34]

But what about Beethoven? His letters testify to his lifelong search for an instrument to suit his aesthetic ambitions, but what exactly does this prove? In an article aptly titled "Beethoven's Pianos Versus His Piano Ideals" (1970), William S. Newman sifts through all of the Materialist evidence available to him at the time—not only the technological aspects, but also the economic ones—and yet reaches this conclusion:

> Since the piano as an instrument never seemed to come up to Beethoven's desires, we have to assume that it was not in itself a major source of inspiration for his music. Nor, according to the considerable anecdotal evidence that has come down to us, did he seem to compose very much at the piano. Reportedly he did most of his composing on his nature

[34] Both of these sources are quoted in Rosen 2002, 14 and Konrad 2006, 102. The latter is particularly recommended as an in-depth examination of Mozart's compositional process.

> walks, coming back to the piano later only to test the feel and sound of his new efforts. (1970, 501)

Such pronouncements have been vigorously countered by two of the most prominent modern-day proponents of a Materialist interpretation of Beethoven's piano music: Tilman Skowroneck and Thom Beghin. Their interpretations display deep knowledge of the instruments and (in Beghin's case, since he is a world-class performer) great musicality. But their arguments can smack of a desperation to make Materialism explain everything, even in the most tortured of cases. Here is Skowroneck's explanation for how the nature of Viennese instruments account for Beethoven's writing for the piano's lowest registers:

> About half of Beethoven's sonata movements up to the Sonatas Op. 31 contain left-hand textures that in some way present problems of balance or clarity when played on an English piano or on modern pianos. In particular, full chords or melodic material in the lower octave easily become unclear. Beethoven certainly often intended the bass to sound massive. Many early German or Viennese pianos did not meet this requirement well, so his characteristic left-hand scoring can partly be seen as a compensation for their light tone. (2010, 113)

This argument doesn't make a shred of sense. If Beethoven's thick writing in the early works sounds unpalatably muddy on English pianos, then his late piano music—which was written on an English piano—should be thinner. (It isn't.) Pieces written by Beethoven's England-based contemporaries, such as Dussek, should generally have thinner textures than those written on Viennese pianos. (They don't.)[35] If Viennese and German pianos generally require such compensation, every other contemporary should be compensating likewise. (Many aren't.)

[35] In fact, the extreme thickness of London-based composer's textures (and Dussek's in particular) is noted by every major commentator on this music including: Newman 1970, 500; Ringer 1970, 44; Brownell 2010, 92. Usually, this is proffered by other Materialists as evidence of the *opposite* point to Skowroneck's—that the English piano itself led to thicker writing in the lower range (Komlós 1995, 53–55)!

Furthermore, one needs to "compensate" only if a breach exists between one's conception and the execution that the instrument affords, a breach that shouldn't exist in the first place if that conception issued entirely from the instrument itself. (Apparently, it doesn't.)

The most astonishing act of explaining away evidence for Rationalism can be found in Beghin's "The C-natural That Wants to Be a C-sharp" (2017). The C♯ in question is C♯6, a note that simply does not exist on Beethoven's Broadwood piano, since its upper terminus is C6. Yet, Beethoven calls for three C♯6s in mm. 177, 178, and 181 of the final variation of the closing movement of his Piano Sonata No. 30 in E major, Op. 109 (**Example 4.8**). What does one do with these unplayable pitches? How does one fulfill C6's "desire" to become them, as Beghin says? Well, according to Beghin, there are two possible solutions.

The first is to do what the deaf Beethoven likely did: to listen to our inner ear, to make ourselves perceive a C♯6 by overriding the outer ear that tells us that it is really a C6. Here is how Beghin characterizes this effect, when it succeeds:

> It is as if, at that very moment, one succeeds in *imagining* the other pitch, turning some "fork" on a harp by depressing a fictitious pedal, or, by sheer force of will, in making that highest set of piano strings (all three of them) behave like one's vocal chord—stretching what physically still feels like a minor second [...] to a major second appoggiatura. Finding his sublime voice, one may say, the pianist self-identifies with his piano in such a way as to transcend technological reality altogether. (2017, 61)

The other solution was first suggested by Skowroneck, who noticed that the sonata does not call for any C6s. Therefore, it is possible to perform a bit of scordatura—retune the piano's C6 a semitone too high. Beghin says of this:

> But if Beethoven "retreats into himself" (as Marx observes), then he still does so *at his piano* [...] [T]he context is still one of a composer at his keyboard, using it as a tool just as Haydn or Paisiello did. Writing the C♯ is not a story of vision or immateriality: Beethoven's "C♮ that wants to be a C♯" may tweak materiality, but it does so in an utterly clever and concrete way. (2017, 61)

These descriptions may be beautiful, but they are pure theology. To credit them, you must make yourself believe the following: ignoring the sound that the instrument makes is somehow identifying oneself with it; flagrantly violating the limits of the instrument is somehow using it well; and blocking out everything but one's inner self is still somehow engaging deeply with the outside world. By such Procrustean logic, Beghin could portray literally anything as both motivated by and experienced as a form of Materialism.

Herein lies the problem: The Rationalist and the Materialist have endless explanations at the ready for how pieces favor their position, but not for what constitutes counterfactuals. That is, they do not say what it would look like for a piece *not* to support their thesis. This leads to absurd situations where not merely the same excerpt of music but the same fact about the same excerpt leads equally well to contrary conclusions. For example: find a passage that is fiendishly difficult to play. Materialists can treat its difficulty as proof that the composer is consciously trying to make performers dig deeper into their instruments and become aware of their bodies through their struggle. Rationalists can say that this is proof that the composer is following the dictates of his abstract musical vision, little considering potential hardships for performers.[36]

This is an epistemological rather than ontological morass. Just as there is an empirical truth to whether Mozart or Haydn did or did not need to work out ideas at the keyboard, there is an

[36] Komlós and Skowroneck had an exchange on precisely this issue. The former wrote that "Beethoven stretched the limits of the fortepiano. Disregard of the capabilities of the instrument is a crucial feature of Beethoven's artistic approach [...]" (1995, 61). Skowroneck countered: "In contrast to statements like [...] Komlós's, my experience has suggested that the early piano music of Beethoven gives ample proof of stretching the limits of the fortepiano *player*, partly through subjecting him to the task of *not* exposing his instrument to an excess of force in certain complex passages" (2000, 152).

empirical truth to how much each of us is attuned to sound vs. touch, and how much this motivates our decisions.[37] (Or, at least, there would be if we could agree on a stable definition of "attuned" and "motivated.") But we cannot know this truth, because we cannot peer inside anyone's head. In light of this, although Rationalism and Materialism are at once both theories of mind and theses about history, we cannot evaluate them as either where analysis is concerned. We can treat them only as interpretive strategies, whose claims we favor for their satisfaction of *our* hermeneutic hungers or *our* philosophical predilections, and not for their fidelity to past deeds. They make meaning for us.

Focusing on limits has its limits, and it is high time that we moved past such extremes. By this I mean both the physical extremes of the keyboard and the philosophical extremes of unadulterated Rationalism and Materialism. In the former case, our terminus tunnel vision can lead us to ignore three of the four parameters that I introduced at this chapter's outset (as we largely have thus far): thickness, density, and openness. In the latter case, we decide in advance what any passage means before we've even encountered it—predigesting before even chewing. This leaves our minds too closed for music to open possibilities.

There is yet another extreme worth considering, and that is canonicity. Mozart, Haydn, and Beethoven define the Classical style in the modern imagination. But they might have had very little to do with forming that style in the first place. They could have been surfing a tide not of their own making. No piece that we've looked at since our opening vignette has resounded as

[37] Although, there should be more emphasis on that "each." Surely, it's not only composers who vary in their dispositions towards Materialism and Rationalism, but also listeners too?

richly as that Beethoven movement. So, where and when between 1760s Haydn and 1790s Beethoven did composers come to write like this, and who were those composers?

❖ **Something Old, Something New**

Labels are always tricky, but let us call the outgoing style (the one that sounds least like Beethoven) "galant." I will sidestep labelling the incoming style at the moment. (You'll know why soon enough.) To see one style supplant the other, we can compare sonata expositions by two London-based composers who sit on the border: Johann Christian Bach and Muzio Clementi. The former is rightly regarded as the culmination of the Italianate branch of the galant (C. P. E. Bach's *empfindsamer Stil* being the Germanic branch), and as the model for the early works of Mozart (Freeman 2003, 235–243). The latter (Clementi) was conventionally known as the "Father of the Fortepiano," and was the oldest member of the "London pianoforte school."[38] Representing J. C. Bach will be the first movement of his Sonata in D major, Op. 5 No. 2 (published in 1766) (**Example 4.9**). And in Clementi's corner will be the opening movement of Sonata in B♭ major, No. 6 from his pioneering Op. 2 (published in 1779) (**Example 4.10**).[39]

Let us begin by briskly walking through the exposition of the Bach sonata.[40] It opens with a stereotypical "triple-hammer-blow" gesture. Pairs of these blows alternate with short singing-style figures above an Alberti bass (mm. 3–4 and 7–8), before an elided PAC in mm. 8–9 initiates the transition. This transition's texture is a right-hand tremolo over a single-note strand in the left. In

[38] The classic book-length treatment of Clementi is Leon Plantinga's *Clementi: His Life and Music* (1977), but an excellent and more compact overview of Clementi's historical contribution and his general style may be found in Chapter 3 of Andrew Brownell's *The English Piano in the Classical Period: Its Music, Performers, and Influences* (2010).

[39] For more on Clementi's Op. 2 in general, please see Brownell 2010, 53.

[40] Hepokoski and Darcy have also analyzed this exposition (2006, 455).

mm. 9–12, a listener likely hears the left hand's line as the melody. However, starting in mm. 13–15, the bass line becomes boring enough and the tremolo pitches diverse enough that a listener's attention likely shifts to the right. The structural HC occurs in m. 16, with the dominant locking on until the MC in m. 18, punctuated (like the opening) by a triple-hammer-blow, which is equally stereotypical as an MC gesture (Hepokoski and Darcy 2006, 34).

$S^{1.1}$—the first theme we've heard that sustains a *piano* dynamic—begins in m. 19. Its eight-bar periodic structure aborts in m. 26: after the HC in m. 22, the consequent of this period "should have" led to an IAC or PAC and not to the second HC that has resulted. $S^{1.2}$ takes up the slack starting at the end of m. 26. It succeeds in reaching the EEC in m. 33, so that the exposition enters C space. What follows is not a true theme, but rather a conventional "codetta module" that spends most of its time above a tonic pedal point (184). We then end as we began, with the familiar triple-hammer-blow.

One could not ask for a more well-behaved exposition. What should interest us, though, is not how conventionally this exposition proceeds through the formal way stations, but rather how much of a role the spatialization of the keyboard plays in signposting these way stations (or indeed in making them manifest at all for a listener not predisposed to be formalist). The answer to this is: not a heck of a lot. Bach seems to have only one reliable tool. (As the saying goes: when all you have is a hammer-blow…) But it can't do every job.

Unlike Haydn, Bach doesn't reserve his D6 for special occasions. He employs it in all four action spaces: P (mm. 1 and 5), TR (mm. 9–10), S (m. 26), and C (mm. 35 and 39). When not acting as the hammer head, the bass drops below A2 only in mm. 35–36 and 39–40 to add a little power to the final "expanded cadential progression" (Caplin 1987). It appears that altitude does

not serve a structural function. Density, then? For most of the exposition, right and left hands are both playing single notes. The codetta uses parallel thirds and sixths in the right, but this is scarcely a notable departure. To my ears, at least, thirds serve a marking function really only in making the second HC in $S^{1.1}$ (m. 26) rhetorically stronger than the first (m. 22), a strength already lent in part by the D♯'s chromatic inflection in m. 25. All that's left is openness, and that too is a non-starter. The maximum space between hands is 28 semitones {A3, C♯5} on beat four of m. 23. In this context, this barely registers as a gap. These various little touches are not nothing. Range does play a role in the exposition, but it is very much a bit part.

In Clementi's sonata, on the other hand, range plays a starring role. The exposition of this sonata is not quite as cut-and-dried as Bach's. But we don't need to track it quite as closely as we did in the Bach. The interesting things happen within sections rather than between them. The dominant lock begins in m. 17, and then the arrival of the MC and the onset of S space both occur in m. 19. What happens before this moment is less clear. Where does P end and TR begin? Measures 1–4 are clearly some sort of formal unit, which then elides with mm. 5–19. Do we dare call all of mm. 5–19 the transition? As a candidate for a P theme, those first four bars are a pretty sorry specimen.

Were this a formal analysis *qua* formal analysis, I would roll up my sleeves and dig into this problem with gusto. But it isn't, and so I won't. Pressed for an answer, I would say that mm. 1–4 constitute $P^{1.0}$ and then take the Schmalfeldtian view that mm. 5–19 act as $P^{1.1}$ ⇒TR.[41] The truth, though, is that this was probably a moot point for most eighteenth-century listeners, who likely

[41] The idea of form-functional "becoming" is introduced in Schmalfeldt 1995 and developed further in Schmalfeldt 2011.

lacked any concept of a self-contained transition.[42] The overarching generic expectation was that the music would enter some sort of action zone (regardless of its name) in which there is an energetic push towards an MC. This expectation is amply fulfilled. S space is far more straightforward, with three themes occurring—$S^{1.1}$ starting in m. 19, $S^{1.2}$ starting in m. 27, and S^{2} starting in m. 33—before the EEC in m. 39, initiating C space.

In this exposition, I find eight distinct strategies of spatialization that do not appear in the Bach. I will list them in the approximate order in which they appear.

(1) Registral shifts within action spaces to characterize contrasting ideas.

$P^{1.0}$, Phase 1 of what I have called the $P^{1.1}$ ⇒TR, and $S^{1.2}$ all feature alternations between a "statement" and a "reply," not unlike the alternation between hammer-blow and singing style at the opening of the Bach movement. Whereas Bach's reply is lighter than the statement by virtue of thinning alone (keeping the register the same, but merely playing fewer notes), all of Clementi's replies derive lightness from being in a different register than the statements they respond to. Note too just how much of the keyboard Clementi uses within $P^{1.0}$ alone. Over the course of the first two bars, Clementi's bass travels from the lowest note of B♭1 to G4—a distance of 33 semitones. By contrast, Bach's bass ranges over only 27 semitones (C♯1 to E4) over the course of the entire movement.

[42] "[W]here does P conclude and TR begin? This is not always an easy question to answer, and it is probably a question that an eighteenth-century composer either would not have recognized or would not have considered significant. It may be that the (nineteenth-century) concept of a separately understood 'transition-zone' [...] was not part of the conception of the eighteenth-century composer. Rather, it is more likely that Haydn, Mozart, Beethoven, and their contemporaries thought instead of an initial idea (P) followed by a series of continuation modules, the upshot of which was to provide the energy-gain needed to produce an effective MC" (Hepokoski and Darcy 2006, 93).

The contrast is starker in $P^{1.1}$ ⇒TR than it is in $P^{1.0}$ or $S^{1.2}$. The six-voice statements (mm. 9–11, 13–15) boom at the extremes of the keyboard. The replies (mm. 11–13, 15–16) launch everybody up into the highest range. In the Bach movement, the bass never leaped between registers. The only register shift in the left hand was between octaves 4 and 3 in mm. 28–29, and even then there was nearly a two-bar rest between the notes, negating any genuine sense of leaping. Here, in m. 11 and in m.15, the bass hops from B♭2 to D4 with no rest in between—a very rapid change of altitude. Prancing this high on the keyboard grants the reply a delicacy in line with its lacy figuration.

(2) Extended use of parallel intervals for virtuosic effect.

$P^{1.0}$'s statement is distinguished from its reply not only by range, but also by the virtuosity of the latter, due to its rapid-fire parallel thirds—one of the trademarks of the London school. Parallel thirds will also feature prominently in mm. 28, 30, and 32 in S space. In addition to being music for the keyboard this is also music for the keyboardist, to let her strut her stuff.

(3) Right-hand melodies that dip into "left-hand space."

Phase 1 of $P^{1.1}$ ⇒TR consists of two descending phrases over a tonic pedal. What is noteworthy here is that after the first one ends on (B♭2, D4, F4) on the downbeat of m. 7, the next statement does not start an octave higher so as to end up in the same place. Rather, it continues descending, so that the downbeat of m. 9 is (B♭2, D3, F3). In Bach, the left hand had one patch of land and the right had another, and while there was some overlap, the right-hand melody would never stray that far south. (Bach's never dropped below E4.)

(4) Left-hand accompaniments that rise into "right-hand space."

This is the converse of the previous point. Clementi's bass lines can climb very high indeed, high enough that the word "bass" seem altogether inappropriate. I already noted this with regards to the "replies" in Phase 2 of the $P^{1.1}$ ⇒TR. Other examples include the conclusion of S^2 (mm. 36–38) and the beginning of $C^{1.2}$. The effect of these two points taken together is that altitude is no longer just a property of any individual line, to be evaluated separately; it is often also a property of an entire texture.

(5) Full chords even at the lowest ends of the keyboard.

The replies in Phase 2 of $P^{1.1}$ ⇒TR feature filled-in octaves at the lowest extreme of the keyboard. On historical and modern keyboards alike, this creates a feeling "congestion." My rather offhand discussion of density in previous examples may suggest that I believe it to be a register-neutral property. After all, a closed-voiced three-note root-position major triad—(e.g.) (C, E, G)—is spaced the same way whether it is the lowest possible iteration (C2, E2, G2) or the highest one (C5, E5, G5).[43] But treating them as equal in density would ignore how they are perceived. There should be little doubt that the former *feels* denser. It and chords like it evoke such metaphorical qualities as murkiness, cloudiness, etc.

The acoustic property that leads to these perceptions was dubbed "roughness" by Helmholtz (1863), and the term has stuck even in contemporary cognitive literature. A feeling of roughness is produced when the ear detects rapid amplitude fluctuations, such as the mutual interference between overtones. Both Helmholtz and later Helmholtz-influenced psychoacoustic scholars such as Ernst Terhardt (1984) believe(d) the presence of roughness to

[43] I will challenge the usefulness of this way of thinking even more directly in the next chapter.

be one of the two main causes of the perception of dissonance (the other being harmonic syntax).[44] Indeed, Terhardt has gone far enough to rename roughness itself as "sensory dissonance." For this reason, although the four thick chords introduced in beat three of m. 9 are not particularly dissonant according to traditional harmonic definitions, there is a more general sense in which they (and their repetition, starting on beat three of m. 13) are the most dissonant music in either sonata movement.[45]

There is one more function that these low chords serve, and that is to incontrovertibly mark the sonata as keyboard music. Bach's movement is perfectly idiomatic for the keyboard, but also entirely idiomatic for an orchestra. This fact is proven by Mozart's adaptation of this sonata into his own Piano Concerto, K. 107/1. In transforming this exposition into the orchestra's opening ritornello, his only major change was to transform the Alberti bass in the "singing style" passages (mm. 3–4 and 7–8) into a walking bass. All of his other alterations were purely cosmetic: doubling the S theme in octaves, and tweaking the voicing of the hammer blows to make better use of the violins' open strings.[46] Contrarily, Clementi's chord spacings are fundamentally unsuitable for an orchestra—no symphony ever sounded even close to this—and therefore evoke "keyboardness."

(6) Octave writing in the right hand even at a piano dynamic.

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[44] This claim has been contested by some later studies, in particular McDermott, Lehr, and Oxenham 2010.

[45] Another example of this: If asked what I find to be the darkest moment in all of Mozart's piano sonatas, I would reply with a passage that is actually in a major key—K. 310/ii/32–37. This passage's darkness is purely a product of the thickness and lowness of the left-hand chords.

[46] Hepokoski and Darcy compare the exposition and its ritornello version in 2006, 454–462. This includes a faithful reduction of the orchestral ritornello.

In the Bach movement, the right hand never played pure octaves (as opposed to chords whose outer voices span an octave). But this Clementi movement is chock full of them. One might think that these would appear mostly within P/TR space. After all, octaves tend to correlate with louder dynamics, right? And S space should be softer. Well, S space is indeed softer, but octaves *do not* correlate with louder dynamics. As we will discuss more in later chapters, this is a crucial development in c. 1780—the decoupling of texture and dynamics. In this movement—as in the Beethoven movement that opened this chapter—one can be both soft and full at the same time.

(7) Selective doubling within a phrase.

Sometimes, a theme is entirely in octaves—for example $C^{1.1}$ (mm. 39–43). But in general, octaves are used to spotlight particular ideas within themes. These include the scalar passage in the middle of $S^{1.1}$ (mm. 22–23), and the intermittent octave doublings of the left-hand melody in S^{2} (mm. 33–36). These selective doublings create the effects I expounded in detail in Chapter 1—that of themes accruing characteristics as they proceed, that of textures (rather than just dynamics) evolving from being terraced to being progressive.

These selective doublings also afford (and invite) different agential readings than the melodies otherwise would if doubled consistently throughout or not at all. What exactly is happening when the scale in mm. 22–23 is suddenly in octaves? Is a second agent joining the first one? Is the original first agent merely growing stronger? For S^{2} (mm. 33–36), I have difficulty hearing the left hand as anything other than a dialogue between two voices—one forceful and one restrained. I would certainly not have heard it this way without the alternation between octaves and single notes. And I certainly do not experience any equivalent

sense of dialogue at any moment in the Bach, except perhaps the very opening (when the hammer-blows alternate with singing style).

(8) Left-hand lines in octaves.

In my previous point, I mentioned that there are selective octave doublings in the left hand in mm. 33–36. Although Clementi uses many of his other octaves as pedal points or as the bottom of chords, these doublings are notable because these are actual lines. In Clementi unlike in Bach, left-hand octaves do not merely sit or stand; they can walk (and in other music, they can run).

In sum, these analyses hopefully prove that though Clementi's movement was published only 13 years after Bach's, its manipulation of keyboard space is a quantum leap forward (And, I should add, this is one of Clementi's most old-fashioned sonatas by a long shot, in every major respect.) We know what style Clementi is leaping away from (the galant), but what style is he leaping towards?

❖ A Tale of Two Cities?

If you were previously unfamiliar with music of the London pianoforte school, the Clementi movement might seem a bit uncanny: so obviously mid-eighteenth-century and non-mid-eighteenth-century at the same time, as if it were a nineteenth-century transcription of a galant piece, rather than the genuine article. If you feel this, it is probably because you are picking up on what appear to be conflicting stylistic cues. The sound of the instrument is leagues "ahead" of (e.g.) Mozart's keyboard music of the same period, but the pitch content is "behind."[47]

[47] I use quotation marks because I do not accept unreservedly the notion that these styles are making some sort of aesthetic progress (towards a more perfect musical style). Rather, some of

The "behind" is a matter of usage rather than vocabulary. It is not that Clementi is using too small a harmonic palette. Rather, there are too many static stretches (too much tonic); and the melodies are often too modular, rather than long-breathed (like Mozart's) or motivic (like Beethoven's).[48] But the "ahead" *is* a matter of vocabulary. Most of those registral devices are foreign to the Viennese style of the 1770s. And I would go further: this movement displays in embryo most of the spatial strategies that will become characteristic of Beethoven's keyboard music.[49] Each of the techniques we noted in Clementi has plentiful analogues in Beethoven's piano sonatas. In fact, all of them can be found within a single one: the Piano Sonata No. 3 in C major, Op. 2/3 (I will provide measure numbers rather than including score excerpts, since the examples are too numerous):

(1) *Registral shifts within action spaces to characterize contrasting ideas.* Too common to list. This is Beethoven's modus operandi.

(2) *Extended use of parallel intervals for virtuosic effect.* (i/1–4, 109–110, 139–142, 242–245; iv/1–8, 19–22, 69–76, 87–95, 167–174, 181–187, 207–210, 257–278, 300–301)

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these are closer to or farther from what will become the normative style at the end of the century and the beginning of the next one.

[48] For this reason, it is only "behind" Mozart's keyboard music, specifically. Much of Mozart's orchestral and vocal music of this period is just as static as this Clementi movement. Please listen to the opening movements of any of his Symphonies No. 12–27, if you need reminding.

[49] I should note that Brownell explicitly disagrees with this sort of assessment of the Op. 2 sonatas, writing that they "appear to be unexpectedly full in texture, but this impression wanes upon examination" and that the "writing still falls within galant stylistic norms, as the right hand plays only one or two (e.g. passages in consecutive thirds) voices against the bass. The only textural novelty in the writing is the sheer extent of the virtuoso passages, which contribute to an impression of density" (2010, 61). The claim that there are no passages where the right hand plays more than two voices is simply false, as a glance at this exposition should substantiate. And viewing what he calls "density" (closer to what I call "thickness") as the sole criterion by which one should measure the "galant-ness" of a texture seems overly reductive.

(3) *Right-hand melodies that dip into "left-hand space."* (i/71–73, 206–207, 222–227; iv/101–102, 243–244)

(4) *Left-hand accompaniments that rise into "right-hand space."* (i/14–19, 200–202; iv/2–4, 6–8, 20–24, 70–72, 73–76, 182–184, 186–188, 260–264, 269–271, 286–292, 303–305)

(5) *Full chords even at the lowest ends of the keyboard.* (i/13, 84, 98–108, 195, 197, 199, 217–221, 228–234)

(6) *Octave writing in the right hand even at a piano dynamic.* (i/147–155; iv/23–24, 211–212)

(7) *Selective doubling within a phrase.* (ii/9, 51, 53–54, 71–72, 75–77; iii/23–28; iv/23–28)

(8) *Left-hand lines in octaves.* (i/69–73, 115–117, 123–126, 147–154, 203–207, 246–251; ii/10–17, 25–36, 53–58, 73–74; iii/13–16; iv/77–86, 103–109, 111–117, 189–196, 306–307)

This may seem to present a puzzle. If Clementi can have Beethoven's sound while still using J. C. Bach's syntax, doesn't this cast doubt on my claim in Chapter 1 that the sound alone can function as a marker of the "Early Romantic" style? I don't think that it does. Let us assume that (modern) listeners perceive the sound and syntax of the galant as belonging to one unified style. Let us assume too that composers eventually broke away from this style to forge a new one. Should we really expect that each composer would innovate syntactically and sonically, at the same time, to equal degrees? That would be rather miraculous. We should find it entirely unsurprising that there were composers (like Clementi) whose advances in textural sophistication outstripped the pace of their melodic and harmonic evolution, and vice versa for someone like Mozart.

Here, the Materialist specter might raise his head. It could suggest that Clementi had access to state-of-the-art pianos before Mozart did, and therefore what we are witnessing in the J. C. Bach and Clementi sonatas is not merely the shift from one style to another but also the shift from the

idiom of one instrument to the idiom of another. There are two little facts that I neglected to mention earlier that create wrinkles in this narrative: J. C. Bach's Op. 5 sonatas were written for the piano, not the harpsichord; and despite coming later, Clementi's Op. 2 sonatas were written for the harpsichord, not the piano. In an irony not lost on many commentators, the supposed "Father of the Pianoforte" was actually a holdout for the harpsichord into the early 1780s, by which time many other composers (most of the ones we still care about, in fact) had moved on.

The first of these facts is not too much of a wrinkle. It is perfectly reasonable (indeed, expected) that some early converts to the piano might have taken time to adjust to the new technology, and carried over some compositional practices from the previous one. However, the Clementi sonata is fatal for a technological determinist. Its spatial strategies appear "too early" and on the "wrong" instrument. I do not regard this as a triumph for Rationalism, since (as I have suggested) I don't see much value in clinging to that dichotomy. The sonata certainly proves that the spatialization was conceived on and for harpsichords as well as pianofortes. It does not say anything about what role the pianoforte might have played in making this kind of spatialization even more viable or even more popular.

That is ultimately the view of organology that I believe we should embrace. Composers always write with and for the instruments at hand. But some will always write beyond them: they will envisage advances, ones that can be only imperfectly executed with the current technology. These desires will drive the "improvements" made to the instrument's successor. What once was pushing the boundaries of the previous instrument becomes expected practice for the next. Then, composers spot yet further possibilities. And so the cycle will continue. Instruments both drive and are driven by compositional practice.

It seems undeniable, though, that the London pianoforte school and the Viennese Classic composers had different keyboard styles, and that these styles align well with the differing capabilities of English and Viennese instruments. Yet, Beethoven has always bucked this trend (to historians' dismay) as a Vienna-based composer with a seemingly London-sounding style. Some scholars familiar with the London repertoire have tried to treat Beethoven's style as a foreign import. (He *must* have gotten it from them. Where else could he have acquired it?)

In a seminal article, Alexander Ringer (1970) noted Beethoven's enthusiasm for Clementi and Johann Baptist Cramer (another London school composer), and the fact that he stocked nearly all of the former's sonatas in his personal library. He then provides close comparisons of passages from Beethoven's sonatas and analogous moments in Dussek's sonatas. Komlós pursues the biographical angle slightly farther. She suggests that Beethoven became friendly with Cramer when the latter visited Vienna, and that Beethoven's own annotations to Cramer's etudes helped to make them famous on the continent (1995, 105–106).

This cross-pollination may indeed have happened. I cannot disprove it, nor would I seek to, as the London school's historical importance is often criminally downplayed. But these scholars might have thought to look closer to home as well. The guilty party here, as usual, is the decontextualization of the music of the "First Viennese school" from that of its contemporaries. Beethoven's spatialization of the keyboard may break sharply with (e.g.) Mozart's. But, as I discussed in Chapter 1, there is a "lost generation" of composers in between the two of them. And Beethoven's keyboard style is by no means radically different from that of what I might call "The Class of 1765": Daniel Steibelt (1765–1823), Anton Eberl (1765–1807), and Joseph Leopold

Eybler (1765–1846).[50] Setting their music from the 1790s side-by-side with Beethoven's reveals that the latter was not so much blazing a trail as trekking through it together with fellow travelers.

Again, a single movement will suffice to demonstrate seven of the eight features that I derived from the Clementi (everything except the chains of parallel thirds), except this time together with Viennese conventions of melody and harmony. I have chosen the first movement of Steibelt's Piano Sonata in G minor, Op. 23, published in 1797, a year after Beethoven's Op. 2 **(Example 4.11a–e)**. (Space does not permit me to walk you through the movement, but I strongly encourage you to listen to it.)[51] This should suggest that while London and Vienna may have had their own styles, Vienna's was a bit more English than it is given credit for.

❖ Conclusion

We have been on quite a philosophical and historical journey in this chapter. Let me concisely review where we stand before we embark on the next.

We have seen that a composer's choice of keyboard register can have sizable effects on a listener's perception of his music, including both a passage's formal structure and its fundamental character. As early as the middle of the century, composers such as Haydn began to use the outer reaches of the keyboard to mark special events.[52] Sometime around 1780, composers such as Clementi took this principle further, not only creating extreme shifts of altitude, but also

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[50] This is in homage to Taruskin's "The Class of 1685" (Chapters 6 and 7 of *Oxford History of Western Music, Volume 2* [2004]) and "The Class of 1813" (Chapters 10 and 11 of *Oxford History of Wester Music, Volume 3* [2004]).

[51] The only recording I know of this piece is a Steffen Fahl performance on MIDI keyboard, which he patched through the sounds of both a historical Schantz and a modern Bechstein to produce two different recordings: https://bit.ly/2KQiLWR.

[52] I could just have easily performed this exercise upon Mozart. My choice of Haydn was motivated entirely by the critical literature's use of him as a poster boy.

drastically expanding and contracting textures' thickness and density to create maximal contrast both between and within themes.

All of these techniques appear already in harpsichord music, and therefore cannot be causally determined by the fortepiano, as many critics suggest, even though the fortepiano doubtless afforded the further extension of these ideas. This fact does not affirm or deny the fundamental tenets of either Rationalism or Materialism, neither of which is fully viable as a totalizing theory of compositional process. Individual composers had wildly different relationships with their instruments—some embracing their confines, and others rebelling against them. Barring solid biographical or historical evidence, we cannot speculate as to which strategy is more truthful for *reconstructing* composers' processes, only which is more fruitful for *constructing* further interpretations or faithful in *deconstructing* our own experiences.

Spatialization techniques appear to develop independently of the advances in harmonic and melodic style, with the former evolving more rapidly in London and the latter evolving more rapidly in Vienna. Beethoven was an important participant in the more spatialized Viennese music of the 1790s, but this trend was bigger than just his contribution.

This covers a lot of ground. Even so, it leaves untouched certain ideas from this chapter's introduction. Although thickness and density have played a role in my analyses thus far, this role may not yet seem large enough to justify their reification as significant concepts. I have still to show how much they matter. And I have barely touched openness. Although I have repeatedly appealed to listeners' possible reactions to the spatial effects I have described, I have not yet advanced a particularly detailed explanation for how exactly these effects work, and how we might

fully incorporate them into our analyses. For all of this, you will have to proceed on to the next chapter.

Chapter 5: Traveling through Keyboard Space

❖ Poetry as Navigational Aid

In the previous chapter, I introduced the concepts of altitude (highness/lowness), thickness (how many notes are played at a time), density (the range between the outer notes), and openness (the biggest gap between voices). I directed most of my attention towards altitude, and towards high more than low. In this chapter, I am going to employ all four analytically—considering how we (the present and historical we) can understand their function and effect through engagement with individual pieces of music. Our tools are mostly going to be borrowed from theories of analogy-formation (as in Chapter 3) and categorization.

Now, of course, understanding pitch in terms of space is one of the most fundamental aspects of conceptualizing music—at least, when dealing with Western music, broadly.[1] We will explore spatial analogies in instrumental music soon, at great length. But before we do, I'd like to begin by considering a mix of analogies (spatial and non-spatial) in texted music. When there isn't text, I am more likely to fall back upon my default modes of conceptualization. But when there is text, my mind is naturally on the prowl for context-specific cross-domain mappings to be made. I can illustrate this with a particularly familiar set of texted works (for the classically oriented): Schubert's keyboard-writing in his later lieder.

To control for the effect of vocal range on treatment of keyboard space, we are going to look only at lieder written for tenor or for unspecified "high voice." (In the latter case, we will

[1] Zbikowski 2002, 67–68 briefly discusses two non-spatial forms of pitch conceptualization found in the language of the Kaluli and Suyá peoples, based on the work Steven Feld (1981) and Anthony Seeger (1987) respectively.

nonetheless—for consistency's sake—operate as if the singer is a tenor, rather than a soprano.) I would suggest that in such songs, the keyboard's relationship to the voice is unmarked (again, in Hatten's sense) when it fulfills a series of normative criteria: The right hand is generally centered on the fourth octave. That octave and the bottom of the fifth octaves are the location of most of the top notes of chords and arpeggios. The top of the left hand is usually in the third octave, with the bass voice often going down to the second. The voice usually is either enmeshed in the right-hand part or sitting between the two hands.

Schubert published thirty-three solo songs in between his song cycles *Die schöne Müllerin* and *Winterreise*. The texture that I have just described is found in twenty of them: D. 799, 807, 827, 833, 834, 842, 851, 853, 852, 855, 860, 861, 871, 876, 882, 883, 889, 890, 891, 910. The remaining thirteen songs (806, 808, 832, 854, 862, 869, 877/2, 877/3, 877/4, 881, 888, 906, and 907) are characterized by another common approach: having the keyboard double the voice throughout (or nearly throughout). This is particularly common when evoking hymns, choral music, and folk music.[2] Three of those first twenty are nonetheless somewhat distinctive: the keyboard writing is lower in the bass than usual in "Auflösung," D. 807; lower overall than usual in "Nacht und Träume," D. 827; and thicker than usual "Die Allmacht," D. 852. One can use different conceptual blends to justify each of these choices. "Die Allmacht" is the easiest of these: thin/thick maps to weak/powerful, and thus the thickness symbolizes the all-powerful being in the title. It is the other two songs that provide more interesting fare.

[2] This is one of the things that makes "Wanders Nachtlied" and "Die Nebensonnen" so curious: they index communal singing at what are supposedly moments of pure solitude. Are the singers' emotions summoning a choir within them? Or is it Nature's voices that are supporting them?

In the first strophe of "Auflösung," fires of rapture ("Gluten der Wonne") burn in the singer's bones ("Gebein"). We can hear the rumblings in the bass as the lashing of these flames. If we map low/high onto interior/exterior, then the lowness of the bass can represent how deep in the singer's body these flames burn—not merely blanketing his bones but burning outwards from the marrow. If we map low/high to dark/bright, then these flames become rather unearthly—lacking the light of real-world fire. The first two lines of the second strophe reinforce the spatial metaphor of depth. Richard Wigmore, in the Oxford Lieder, translates this as: "From every recess of my soul / gentle powers well up" ("Quillen doch aus allen Falten / Meiner Seele liebliche Gewalten"). The key words here are "Quillen" ("well up") and "Falten" (which might more literally be translated as "creases"). These combine to suggest something swelling beneath the surface, as the bass does.

In "Nacht und Träume," we can perform the same low/high to dark/light mapping, reading the lowness as descriptive of the night. We also open with words associated with falling down: the night sinks ("sinkest"), dreams descend ("nieder wallen"). This is curious because the harmonic and melodic content do not, on the surface level, delineate a strong sense of descent. In point of fact, the most distinctive motive in this song is a rising F♯–F𝄪–G, which is introduced in mm. 7–8, reoccurs in mm. 9–10, and is composed out in mm. 14–21 (with the F𝄪 respelled as G♮).[3] The range of the piano can thus urge us to perceive ourselves as already in the depths, and thus read the song's words as describing the event after the fact: night is not falling; it has fallen. We are not waiting for dreams to descend; we are already in their midst.

[3] For more on this motive and its general role in the large-scale structure of this song, see Schachter 1999, 216–19.

If we turn our attention to the song cycles themselves, we find that all of the songs fit our two basic types—general unmarked texture or doubling-heavy texture—except for "Danksagung an den Bach" and "Des Müllers Blumen" in *Die schöne Müllerin* and "Der greise Kopf," "Die Krähe," and "Der Leiermann" in *Winterreise*.[4] In the case of the former two songs, the oddity is that the singer often stays above the pianist's right hand. This can be understood as establishing the brook as spatially below the singer in "Danksagung an den Bach," and as reminding the listener of the brook's presence during "Des Müllers Blumen." (This, of course, contrasts with the final song of the cycle, "Des Baches Wiegenlied," in which the piano swaddles the singer like the brook's watery embrace.) It should be fairly clear why the piano accompaniment hovers over the singer in "Die Krähe" (since it discusses a crow) and why it is behaving atypically when depicting a hurdy-gurdy in "Der Leiermann." "Der greise Kopf" is the hardest nut to crack. In the first line (mm. 5–8), the piano accompanies the voice below; in mm. 11–12, it doubles an octave above; in mm. 13–14, it surrounds the voice; in mm. 21–22, it doubles the voice at pitch. Which words or concepts motivates these changes? I don't see a clear answer.

Now, of course, with sufficient imagination, one could find a conceptual analogue for lowness in the poetic text of nearly any lied. Therefore, my point in surveying these lieder is not that these poems uniquely afforded the settings that Schubert crafted. No, it is what the text does to a listener that matters—the way that it encourages searching for ways to conceptualize the texture. What happens, however, when there is no text, only musical sound? That is the question

[4] Additionally, one could point to some songs in *Die schöne Müllerin* in which left-hand part is unusually low. These are the first three songs of the cycle—"Das Wandern," "Wohin?", and "Halt"—plus "Mein!" Here, the lowness seems associated with protagonist's manic energy and onward drive.

I'll pursue in the rest of the chapter, first in explicitly spatial terms, and then in terms that consider the problems of equivalency (when one voicing can or cannot be understood as a stand-in for another).

❖ The XYZs of the Keyboard

A keyboard is played in three (physical) dimensions; and although casual players might think only along one of these axes, serious players learn to think along all three (albeit sometimes only implicitly). The most obvious is the X axis: the keys spanning from left to right produce pitches spanning from low to high. But there is also a Y axis to consider (how far down to depress the keys, and how high to raise one's fingers, hands, and/or arms before striking the keys), and a Z axis (bringing the hands in towards the piano lid, or out towards the player's torso).

These three axes exist in literal keyboard space. But there are also metaphorical spaces. In the most traditional conceptualization, time runs along the X axis and pitch height runs along the Y axis. It would seem that there is no Z axis. And yet, "thickness" is not my term alone for textures replete with notes; it is common parlance. The fullness being described lies along the Y axis—it is a matter of how high the stack of pitches is at any given time point—but the word thickness immediately suggests that we are dealing with a three-dimensional object.

One could try to claim that the first of these conceptualizations belongs to pianists and the second belongs to listeners. But that would grossly oversimplify things. I know that when I play the piano, I am perfectly capable of understanding an upwards scale as a true ascent rather than just a motion to my right. And I know that as a listener, I sometimes snap out of my metaphorical daze to consider the actual physical motions made by the player. These conceptualizations are therefore

afforded, not determined. But how do we understand which one is appropriate to apply at any given moment in any given analysis?

At root are the predilections of the person whose experiences the analysis represents. Some individuals might default to hearing the music along one particular axis. For example, if listener Jones hears most pieces as having only one melody at a time, and tends to fixate on that melody, they might default to thinking in purely vertical terms. What matters most would be the journeys that that melody takes up and down the Y axis. But I would suggest that most analysts and many listeners shift are liable to shift between axes: at certain moments, one of these mappings becomes more pertinent. If this is true, then the question is what causes one to shift.

I have already employed the idea of markedness in discussing the Schubert lieder, suggesting that certain kinds of registral spacings require more explanation than others because they are out of the ordinary. There, however, I had the advantage of addressing a very restricted approach to the keyboard (restricted due to its subordination to the voice): it took me only a paragraph to summarize the most typical features of Schubert's use of register in his late lieder accompaniments. Were I to try to do exactly the same with regards to (e.g.) Schubert's piano sonatas, I would falter. There are simply too many possible textures to account for.

The trick is to think of the music as characterized by what we might call "marking points." Consider this analogy: You sit in front of a console, each gauge giving numerical readouts of a particular parameter. Suddenly, one of the values reaches a marked number, and that gauge flashes red. You would then focus on that gauge, until a more normative value is attained, and the red light turns off. The "marking point" is the point at which that light starts flashing, the point at which you go, "Hey, I should start paying attention to this parameter!"

It would be nice if I could claim that there are standard marking points that we can reliably look for in any piece of music. But of course there aren't. They vary from composer to composer, from piece to piece, from listener to listener, from instrument to instrument. By the last of these, I do not mean just from instrument type to instrument type (e.g. piano vs. harpsichord) but rather from any individual instrument to another (e.g. my Steinway and your Bösendorfer).

Our instruments, just like voices, have "breaks"—changes of tone quality that signal that we have left one register and entered another. How pronounced these are and where they lie is different on any instrument, and though the most obvious effect of this is on the perception of altitude—where, by ear, we think the piano enters its "low range" or "high range"—it affects our other parameters too.

Given the contingency of all this, then, I will be using the following two analyses not to demonstrate the systematic application of a specific set of tools, but to show the inevitably ad hoc fashion in which we as listeners can decide what is worth noticing. I ask you to join me in performing theses analyses without traditional scores. If you own sheet music to these pieces, please keep it out of sight. (I have nonetheless provided measure numbers, so you may consult the scores later.) However, these will not be purely auditory analyses, because we are going to use visual representations of sorts: graphic "scores" found on YouTube performances.

The first is Rousseau's performance of the finale of Beethoven's "Moonlight" Sonata (https://youtu.be/BV7RkEL6oRc). **Example 5.1** is a still image from this performance. Its format is the same as most other Rousseau videos. At the bottom of the screen is the keyboard whose keys light up every time they are struck by Rousseau's hands, which play in real time. The X axis of the screen thus maps onto the X axis of the keyboard. Meanwhile, above all of this, colored bars

stream downwards. They line up with the keyboard keys whose pitches they represent, and they glow when their pitch sounds. Their length corresponds to their duration. The Y axis of the screen thus maps the passage of time, with the future descending from the top towards the fingerboard, which marks the present. The past is invisible.

The second performance comes from what is perhaps the most popular YouTube channel for graphic representations of classical music: smalin, run by Stephen Malinowski.[5] Malinowski's video (found here: https://youtu.be/fOIJtlZFonE) accompanies the finale of Beethoven's Cello Sonata No. 2 in G minor, Op. 5/2 a performance by cellist Tanya Tomkins and fortepianist Eric Zivian. Malinowski varies the method of representation from video to video (indeed, that is part of the appeal of his channel), but I have deliberately chosen one that I think is rather straightforward. **Example 5.2** is a still image from the video. Notes played by the cello are circles and notes played by the piano are trapezoids. Each shape fills with color at the moment when its note is sounding, and empties when it isn't. The color of each shape corresponds to its pitch class. For example, red corresponds to B. Pitch is arranged along the Y axis. Time flows along the X axis, with the future on the right, scrolling leftwards until it becomes the present. The center of the screen is the present, and so shapes fill (and their notes sound) when they reach that point. Thus, unlike in Rousseau's performance, one can see the near past, present, and near future all at the same time.

These representations are not mere contrivances for the purpose of creating an appealing video. Rousseau's representation builds on the way that a pianist might conceptualize pitch; Malinowski's builds on the way that a listener might conceptualize pitch, after being steeped in

[5] Malinowski's work featured prominently in a recent SMT paper by Alexander Rehding, title "Graphic Animation as a Tool in Public Music Theory" (2018).

traditional notions of which way it flows and which way time flows. Thus, in considering both of these, I am encouraging us to consider what they have in common (what they can teach us about spatial conceptualization more generally) and also how they differ (what they can teach us about how the choice of conceptual scheme matters).

❖ Shuttling between Dimensions in the Moonlight

Let us begin with the finale of the "Moonlight" Sonata. If you look up "Mannheim rocket" in a reference work, the given example is usually either the opening of Mozart's K. 550/iv or the opening of Beethoven Op. 2/1/i. But what could fit the term better than the opening of this movement? The arpeggios snake their way across the sky to erupt in double bursts of *sforzando* sheets of flame. Each explosion makes me aware of both the relative thickness of those four-note chords, and the point in space it marks as the terminus of each rocket's upward trajectory.

The texture changes at 0:17 (m. 9), at the dominant lock. The pianist's hands close in around the fourth octave, confining everything in the space between the G♯3 and G♯5 pedal tones. I experience this density as a kind of tightness. The outer voices are holding in the inner voices, which thrash to get out. The spacing is an analogue for the harmonic constriction. The *sforzando* octaves in 0:25 (m. 14) make me switch to considering altitude. They sound so low, even though they are not actually that much lower than where the pianist's hands have been for most of the movement thus far. It is, perhaps, the plunge that the music takes and the dynamics that make this lowness so tangible.

The main theme returns at 0:26 (m. 15). I shall mention here something that I miss when listening to and watching this performance without a score: I don't notice that the right-hand

double bursts are no longer chords; they are now just octaves. I *should* notice this, of course. But somehow, my mind just assumes that they are as thick as their predecessors, as if the opening measures had trained me to treat that spacing as a default. The next distinct turn is in 0:35 (m. 21)—when, for the first time, a rocket arcs back to earth and blooms into a melody. What I am struck by is the density of the left-hand Alberti bass. The distance between the lowest voices has not grown any shorter. But because the surface rhythm has sped up so much, the individual voices are coagulating into a chord. The right switches from single notes to octaves starting in m. 41. And yet metaphors of thickening don't feel apt. The additional voice brings rhythmic buoyancy with it. The melody feels larger, yes, but lighter too—as if the process of becoming larger has added spring to its step.

The wall of notes 0:53 (m. 33) is the movement's thickest moment yet: eight notes wide. But it is the range in which the left-hand chord sits that grants it its true darkness—a registral darkness that matches the inherently dark harmonic color of the Neapolitan chord (thus creating an analogy between the two). Because of the spatial arrangement, I feel pulled leftwards. 0:54 (m. 34) restores us to the same part of the piano that we visited back in 0:17–0:24 (mm. 9–13). But whereas closeness is what mattered most to me before, altitude is what concerns me now. This is a product not only of the context (the prior ranges to which this current range is opposed), but also of how the space is being used. I hear the right hand flapping wildly about like a bat stuck in eaves. If you found the Neapolitan chord in 0:53 (m. 33) dark, then you'll likely find the one in 0:59 (m. 37) even darker. Even though the right-hand pattern that follows 1:00–1:04 (mm. 37–39) is the same one I compared to a bat, it sounds far less like flight to me in this octave. The analogy required both the actual shape of the figure and its altitude. It kicks in again only when the

upwards rapid scale in 1:04 (m. 40) overdetermines metaphors of flight. And then I retrospectively hear the quickening left-hand syncopations that preceded the scale as like bounces on a diving board before launch.

The D♯2 and G♯2 in 1:08–1:09 (mm. 42–43) form the bass of the cadence leading into the next thematic zone. They immediately pop out due to their lowness. But this lowness is purely a matter of local context. They are not, in the slightest, low in the more global context of the movement in general. The same goes for the various bass notes from 1:12–1:18 (mm. 47–48). Starting from 1:18 (m. 49), some of the bass octaves are genuinely low, and yet it is not their lowness as such that stands out to me. I hear this as part and parcel of the general thickening of the texture. 1:18–1:25 (mm. 49–52) is structured as a dialogue of sorts; and yet (in this performance, at least), I hear this as an internal dialogue. That is, because I don't hear a clean registral break between statement and response (and the pianist has not exploited the contrasting dynamics to their utmost), I consequently don't hear them as contributed by different agents. When I watch 1:28–1:31 (mm. 55–57)—although not necessarily when I listen to it without following along on the screen—I am most aware of the hands drawing closer to each other, making the cadence seem like a convergence of forces upon G♯. When the right hand leaps upwards at 1:35 (m. 59), I have the option to hear this first and foremost as an ascent (pitch-space Y axis) or as a spreading out of hands (keyboard-space X axis). I hear the former, specifically because the left hand is playing a pedal figure. I tune out this accompaniment figure so much that I'm not even thinking about the interaction between the hands; I pay attention only to the right hand.

Let us skip over the exposition repeat—1:43–3:21—and proceed directly to the development, which starts at 3:22 (in m. 66). At first, nothing in the spacing catches my eye (or

ears). The fireworks seem to be sailing straight on course. My ears perk up for 3:31–3:37 (mm. 72–75). I recognize this theme from 0:35 (m. 21), and I immediately notice how much closer this spacing is. But it is not the mere fact of this closeness that I think about so much as the feeling it creates, which is a sort of claustrophobia. Even though the harmony has not been made more dissonant, the passage nonetheless feels tenser, because of how closely packed things are. The next two iterations of this melody—starting at 3:38 (m. 76) and 3:44 (m. 80)—are in the left hand, and each pushes lower, widening the rift between the hands. And yet this open space doesn't feel empty to me, as open space can so often feel. This is because the left-hand melody feels so resonant that it seems to fill the void. For some reason that I cannot quite explain, though, I do suddenly become very aware of the gap between hands starting at 3:52 (m. 85). Is the distance just so large now that that that gauge has automatically flashed red? Or is it that the left-hand melody no longer sounds vocal, and so that immediately restores me to a hands-centric frame of mind?

Starting at 3:58 (m. 89), I become aware of the lowness of the right-hand chords. They are not low in the abstract, just low for the right hand. My attention is directed both to the chords themselves (because of their lowness) and to the fact that the right is lower than I am accustomed to hearing it. And although Rousseau's torso is not visible in the video, I am aware that this is the first moment in the piece when the inner side of my upper arm would be flush against my torso, with my right forearm crossed in front of me to reach the left side of the keyboard. Thus, this music "feels" low in also the most bodily sense. I am struck by right-hand chords again in 4:05–4:10 (mm. 93–95), this time by the "fullness" of their sound more than by anything else. It seems strange to me, reflecting on this, that I should find them particularly full, considering that they are just three notes wide. (The chords in 3:58–4:03 were no thinner.) This is because they are

foregrounded. They stand apart from the left hand because of the gap, and because the run of chords is fairly rapid. In other words, I am aware of them as "melodic chords" rather than "a chordally supported melody," which makes me more conscious of their size.[6]

The recapitulation starts at 4:23 (m. 103). As you might expect, my focus will be on the moments when Beethoven has re-spaced the same material. The first time I am struck by this is at 4:44 (m. 117), which corresponds to 0:35 (m. 21) in the exposition and 3:31 (m. 72) in the development. As in the development, the spacing is less open. I described this as creating tension in the development, but I don't experience it as causing quite the same degree of tension here. I suspect that this is because this is all a fourth lower. In this lower range, the notes of the left-hand Alberti bass are less individualized: they cover each other, and even the sense of the sixteenth-note pulse is less strong. The claustrophobia that I felt earlier was when I was aware of not merely the closeness of the two hands, but also the sense that the left hand was continually squirming.

When discussing the octaves that began at 0:41 (m. 25) in the exposition, I focused on their buoyancy. I don't feel that same buoyancy at 4:50 (m. 121). This because I felt a registral break at 0:41 (m. 25)—the octaves were in a range that was marked as high. Here, in the recapitulation, there is no such break. Of course, the rhythm is still bouncy. But that's not quite enough. Now, consider the two eight-note Neapolitan chords at 5:03 (m. 129) and 5:09 (m. 133) in relation to their exposition counterparts—0:53 (m. 33) and 0:59 (m. 37). The two I hear as most similar are 0:59 (m. 37) and 5:03 (m. 129). 0:53 (m. 33) stands apart for its openness. It introduced

[6] I feel the same way about Debussy when his right-hand parts feature chordal planing. For example, in the opening of *Reflets dans l'eau*, I am very aware of each chord as a three-voice object in a way that I wouldn't be if these were just in the accompaniment or if they were spaced closer to the left hand.

the Neapolitan chord as a thick sonority, before it became ineluctably thick *and* closed. 5:09 (m. 133) stands apart for its irascibility: it is a monstrous growl of a chord. The PAC in 5:16 (m. 137) still has a strong accent on its dominant, but the emphasis is now on the chord as a whole. The V–I motion in the bass no longer stands out. Everything is so low now that even G♯1 can't fully cut through.

In the next section, 5:27–5:33 (mm. 144–147) is a reprise of 1:18–1:25 (mm. 49–52). But whereas the original version sounded to me like internal dialogue, in this instance, I can't help but hear a quarrel between two entirely different agents (or groups of agents). One of this is because Beethoven has recomposed the melody slightly in a way that creates more of a registral break. Another part of this is because the pianist is taking the dynamic contrasts more seriously. Both parts need to be in place. The bass line easily breaks free of the other voices in 5:34–5:39 (mm. 148–151).

I could continue throughout the coda, as there are many points of interest there too. But I would like to exit this piece here to leave us enough space to consider the next one. One notable thing about this analysis, perhaps, is that when I seemed to conceptualize pitch along the physical (rather than metaphorical) X axis of the keyboard, I wasn't truly conceptualizing it *as* pitch as such. I was conceptualizing it as the piano's keys. C♯ morphed from abstract to ebony. And I didn't need to lose words like "high" or "low" in order to understand things in physical X-axis space. I simply shifted what directions the words "high" and "low" mapped onto.

❖ **Stringing Along**

To begin our consideration of the rondo from the cello sonata, let's start with two illusions in the first refrain. Even though the downbeats of mm. 1 (0:06) and 5 (0:14) have the same voicing, the latter sounds fuller to me. I'm being confused by (a) the louder dynamics, and (b) the fact that the anacrusis gesture is accompanied rather than unaccompanied, which means that I'm hearing the chord in a different spacing context. Because the G2 at 0:20 (m. 8) is exposed and because its sound is quite pungent on the fortepiano, it sounds to me noticeably lower than the other left-hand notes around it, even though I have heard several B2s over the past few bars. The solo piano part offers an additional nice tidbit—a small touch of conceptual blending. The *sforzando* chord in m. 9 is the most closely spaced that we've had, and also the most dissonant. Thus, the concepts of closeness and dissonance can fuse. When the cello enters at 0:28 (m. 12), it doesn't feel well-coordinated with the pianist's left hand. It's almost as if the two instruments are tripping over each other. I see this clearly on the video more than I hear it without the visual aid. But once that idea got into my mind, I couldn't un-hear it.

When the first episode begins at 0:35 (m. 16), I hear the cello usurping the spot (in pitch space) that was just occupied a second ago by the pianist's right hand. And when the piano re-enters at 0:37 (m. 18), it seems to be leaving the cello plenty of room to move around. At 0:40 (m. 20), the cello's low note feels to me almost as low as the piano's low note from 0:34 (m. 16), even though it isn't, just because the cello's timbre projects such "lowness-for." Listening to 0:44 (m. 22), without watching the video, I hear the cello's initial attack but not its sustain. I become fully cognizant of the cello again at around 0:49 (m. 24), at which point it seems to be not merely doubling the piano but merging with it in pitch space.

As the piano plays solo again starting at 1:04 (m. 33), I'm struck by both how thin the texture feels (only two voices) and how high it seems to sit. When the cello re-enters at 1:11 (m. 37), it doesn't feel like the base upon which the rest of the music rests or the stage upon which it strides, as a bass line ought to. Instead, it feels like just something else that happens to be hanging below the piano. The bass octaves at 1:18 (m. 41)—accompanying the cello's turn with melody—sound so low and so resonant, because the piano itself was so high moments ago. At 1:25 (m. 45), as the music pushes forward towards a cadence, the piano writing feels thick for the first time. And this time—unlike before in 1:11 (m. 37)—the cello's sustained note truly feels like something held by a singer. This may be because vocalists are more prone to float above textures than to sit below them.

After the cadential arrival at 1:31 (m. 48), an arpeggio wave carries us to 1:32 (m. 49), which is a varied repetition of the music introduced at 1:11 (m. 37). The combination of the piano octaves and the cello being in what is a comparatively low range for it (thus far) makes this passage sound very bass-heavy. When this music surprisingly cadences in the minor at 1:38 (m. 52), the new theme is markedly closed. In spite of this, the cello's melody emerges clearly on account of timbre. The tightness of this texture is so uncomfortable for me that when the piano's low notes push us onwards 1:43 (m. 55), I focus not on their lowness but on how they open things up.

The cello cedes the melody to the pianist's right hand at 1:45 (m. 56). Ah, how refreshing it is to be back in this range again! But also, the octaves grant the melody a quiet strength. When the cello comes back in at 1:47 (m. 57), starting a dialogue with the piano, the bottom of the texture becomes re-congested, a feeling I can't shake until we return to the refrain. Watching the video, the piano low note at 1:52 (m. 59) looks like it should affect me; but because its sound is

not particularly strong on the recording, it doesn't. The cello line starting at 1:55 (m. 61) sounds high. But of course, it's not very high; it's just high for the cello, and that fact is being communicated by the change in the cello's timbre. Although there is a gap between the right and left hands, I don't really pay attention to it, because the congestion distracts me.

The second refrain begins at 2:02 (m. 65). Part way through it, at 2:08 (m. 69), we hear an arrangement of the theme that is quite similar to the one that introduced the cello in the first refrain. But it is quite different to me in this context—more different than the notes on the page would suggest. After the cello and piano have been squeezed together for so long, what I really notice about this arrangement is its openness. The music that begins at 2:22 (m. 77) is the same arrangement again, and again sounds wildly different to me, this time because of the dynamics. Dynamics affect the timbre of both instruments, which growl when they play loudly in their lower ranges. When the refrain reaches a tonic PAC at 2:45 (mm. 91–92), the piano part sounds extraordinarily high and bright—like a gleam of triumph at the attainment of the tonal goal.

After a stratospheric transition starting in 2:53 (m. 96), the second episode begins at 2:59 (m. 100). Although the cello provides what should be a solid center, the texture still feels very open to me, as if the cello's contribution is not substantial (or substantive?) enough to fill the gap. However, when the contrasting idea begins at 3:06 (m. 104), my ear is suddenly drawn to the cello's bustling. And even though its note values are the same (thirty-seconds), this bustling quality makes the cello's line seem busier. When the consequent phrase begins at 3:13 (m. 108), the emphasis at first seems to be on the thickness of the texture, as signaled by the cello's quadruple stop. But soon it is the altitude to which the cello climbs that seems the most marked. The middle

section of this episode is given individual character by its very high piano melody, and the gaping chasm between it and the cello part.

A transition to the next refrain begins at 4:28 (m. 151). The cello's sound turns plangent at 4:39 (m. 157)—a sort of conceptual blend of timbre and the flat-key territory into which the music has navigated. The theme returns at 4:42 (m. 158). I am struck at first by the highness, but here "altitude" seems a less apt characterization than normal, because it's not so much that music is sitting at a height, but rather that the expected bottom is missing. After searching about for a bit, the theme settles into version played over a pedal, starting 4:57 (m. 166). In spite of the fact that the pedal is rather low, this feels like a restoration of normality because I tune it out and focus on the relationship between the cello and the piano's right hand.

In what follows, I am naturally inclined to make comparisons between the version at hand and the version that we heard earlier in the piece. The piano part starting at 5:12 (mm. 174–75) feels quite high, largely (to me) because we heard a noticeably lower iteration starting back at 2:15 (m. 73). Because the melody starting 5:48 (m. 182) seems so very high (due to being transposed up a fourth), the accompaniment starting at 6:02 (m. 204) feels quite low, though it is not particularly low by the standards of this movement's left hand. Because I've grown familiar with the tickle gesture that starts at 6:16 (m. 212), its highness and the gap between it and the cello seem quite obvious. I barely hear the cello's descent starting at 6:43 (m. 226), until the descent is complete; but I can see on the screen how deep it goes.

In closing, let me speed through a few more of the movement's later events: At 6:58 (m. 235), the left-hand chords feel dense to me—denser than they should given that they are only three voices thick. Is it just the range? I think that this has something to do with the cello. Perhaps I

perceive some of its overtones as part of the piano part? But the piano part grows denser still starting at 7:06 (m. 240), at which point the cello is no longer below the piano. The alternations with high textures heighten this contrast. At 7:20 (m. 246), I hear a very odd illusion: the left-hand chord feels almost like a quadruple stop, because my ear spreads the cello's timbre over the piano's left hand, which soaks it up. The textural change at 7:25 (m. 251) is stark enough that even when the theme returns in 7:34, the original textural change still feels like the more notable event. The most open texture in the entire movement starts at 8:00 (m. 272). I can see this. And to a certain degree, I can hear this.

How was this analysis different from the "Moonlight" Sonata one, and how was it similar? One difference is that there was a larger gap between my audio-only experience and my audiovisual experience. Two factors account for this: One is that the differences in timbre between cello and piano make it harder for my ear to accurately judge the spatial relationship between them at any given time. The other is that I am personally far less accustomed the fortepiano's sound than I am to the piano's, and thus the fortepiano has greater power to deceive me into thinking a note is in a different register than it is. (This is particularly true for low notes.)

But these differences, while important, do not account for the differences between the first-person performer-centered visuals of the Rousseau and the third-person, ideal-listener-centered visuals of Malinowski's video. I have two conclusions to draw from this, which may (at first blush) seem somewhat contradictory. The first is that because Malinowski's spatial arrangement cleaves closer to how we are taught to conceive of time and pitch (i.e. along the X and Y axes respectively), the metaphors flow more naturally. The second, however, is that because of this, my metaphors are even more metaphorical: I resort less often to explanations that are literally accurate. Rousseau's

visuals may provide a perspective more grounded in the reality of production, but reality can be hard to swallow when it is has been mediated for so long by language.

❖ Prototypical Voicing

Music theory terminology can be loose, so let us clear this up: C major {C, E, G} is not actually a chord; it is a chord class. It is more than the pitch class set {0, 4, 7}, because spelling and interpretation matter. For example, {0, 4, 7} does not express C major if the 0 is spelled as (or interpreted as) a B♯. And {0, 4, 7} does not express C major if we do not interpret C as the root.[7] Although C major {C, E, G} is more than a pitch class set, it is still less than a chord, because it is impartial as to which C, E, and G are chosen. (C2, E2, G5) is a C-major chord, but so is (E1, C3, G4). Chord class is to chord as pitch class is to pitch.[8]

A chord, then, must specify exact pitches. For example, (C2, G3, C4, E4) is a chord. It is not the same chord as (C3, G3, C4, E4), but the two chords clearly share more than just a chord class; they share a voicing. This particular voicing is sometimes called a "semi-open" position in harmony textbooks.[9] (It is not closed, because the tenor "skipped" over the available chord tone

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[7] Not counting C as the root can occur not only in post-tonal music (in which rootedness is generally moot), but also in certain analyses of tonal music. Neo-Rameauian theorists such as Sechter or Bruckner were perfectly capable of claiming that (C, E, G) is actually an A minor seventh chord whose root is not literally present at that moment. For more on this, please see Wason 1995. Example 5-11 on pg. 42 of his book shows Sechter counting a C-major chord as an A minor seventh sans root. (Chapters 2 and 3 of Rings 2011 also address this issue, especially pp. 55–58, 76–81, and 122–25.)

[8] Although none of the ideas that I will suggest in this section are exactly those found in Tymoczko 2011, the general orientation here is nonetheless indebted to Chapter 2 of that book.

[9] These are mostly jazz arranging textbooks, since voicing is paramount for jazz arrangers in a way that it is not for most Classical-oriented analysts. Textbooks that use this term include (but are not limited to) Sebesky 1975, Herder 1990, and Sussman and Abene 2012. In jazz, many semi-open voicings are specifically "drop 2" voicings.

G2 in the first chord and G3 in the second chord. It is not fully open, because only one voice skipped an available chord tone.) We could generalize this voicing for other major chord classes as (n, n+7, n+12, n+16). This would produce (e.g.) (A3, E4, A4, C♯5), if one plugged in A3 as n. We could further generalize this voicing to apply to both other triad classes (minor, diminished, or augmented—if we use scale-based intervallic rather than semitonal arithmetic)—as (n, n + diatonic fifth, n + octave, n + diatonic tenth). Therefore, in addition to regarding a chord as one instantiation of a chord class, we could also view it as the application of a "voicing operation" upon a single pitch.[10]

The main symbolic language for the harmonic analysis of Classical-era music is composed of a mixture of Roman numerals and figured bass. These symbols sort chords according to their class and inversion (where inversion is determined solely by the bass note, and not by the voicing of the other notes above), but not according to their voicing. In other words, two chords that have the same class and inversion but quite different voicings nonetheless share the same label. This is also true of standard English-language descriptions of chords. I can specify the class and inversion of a chord with a phrase like "F dominant seventh in second inversion," but I cannot further specify the voicing without naming each of the component pitches.

There is nothing internally wrong with this method of categorizing, but it may sometimes come into conflict with how a listener is liable to categorize chords, whether consciously or unconsciously. That is, two chords that receive the same analytical label may sound very different to a listener, such that they would not think to lump them into the same category. Likewise, two chords that do not share an analytical label may sound extremely similar or interchangeable to a

[10] For more on operations—as a specific type of transformation—see Rings 2011, 25–27.

listener. Furthermore, similarity is a graded form of categorization (two things can be more or less similar), whereas Roman numeral labels are a binary form of categorization (two chords either do or do not belong to the same "class + inversion" category).

To better reflect this alternative approach to categorization, we might turn to prototype theory. Chapter 1 of *Conceptualizing Music* (2002) is the best introduction to this concept, as it applies to music. In that chapter, Zbikowski probes how we decide whether two musical figures are iterations of the same motive. Clearly, unless the motive is repeated exactly, some features must change while others remain constant. Zbikowski doesn't really address border cases, where a listener or analyst is unsure whether or not something counts as an iteration of the motive. Instead, he takes cases where the membership is unambiguous, and then assesses the typicality of each member.

This is clearest in his analysis the main motto of the first movement of Beethoven's Fifth Symphony (41–49)—the "Fate knocking at the door" motive. Zbikowski contrasts two ways of determining its most prototypical form: those based on statistical models and those based on conceptual models. Let's say that we want to know the prototypical dynamic level at which the motto appears. If we are using a statistical model, we track down all iterations of the motive, tabulate what the most common dynamic marking is, and declare that to be the prototypical one. If our model is conceptual, however, it is quite possible that we granted priority to the features of the first appearance of the motive, in which case our prototypical dynamic level is *fortissimo* despite the fact that that is not the most common level. The latter approach strikes me as more accurate with regards to this particular motto, but making it the default approach comes with a difficulty: it

is resistant to empirical generalization. We are stuck with our subjective impressions of which version is the truest to its kind.[11]

Similarity judgments are also subjective. That is, one cannot simply tally up how many ways two iterations of a theme differ from an original prototype and determine which one will seem more prototypical to a listener. This is because not all differences are of equivalent strength. They do not all seem equally marked. We will conclude this chapter by looking at some music that demonstrates precisely this.

❖ The Webs that Weber Spins

Prototypicality is most at play when the same material comes back in different guises, so our final analysis will be another rondo, but this time a slow one: the slow movement of Weber's Piano Sonata No. 4 in E minor. (**Example 5.3** is the score for the entire movement.) Weber's exploitation of spacing in this movement is rich enough that I shall not focus solely on prototypicality. I will additionally draw attention to any passage that I think illustrates any of the concepts we have discussed in the past two chapters.

Performance-wise: if you prefer the sound of a modern piano, I recommend either Michael Endres's recording (2004) or Michelangelo Carbonara's (2016); if you prefer a fortepiano, I recommend Jan Vermeulen's (2006). The performances themselves are not the focus of this

[11] Of course, the most prototypical characteristics of a motive are often the ones displayed when the motive first appears. But this is far from always the case. For example, in the first movement of Beethoven's "Tempest" Sonata, I would consider the version of the main motto played in TR (starting in m. 21) to be far more prototypical than the initial Largo statement.

analysis, and therefore you need not acquire all three to follow along. Nonetheless, I will mention moments when certain effects are brought out more vividly by a particular recording.

The movement's A theme (mm. 1–24) is in rounded binary form: a (mm. 1–8) + b (mm. 9–16) + a′ (17–24). A^a is in a form that I have elsewhere called a fully parallel period (Lawrence 2020). The basic ideas are dense and closed (with middle C as the lowest note), and the contrasting ideas are sparse and open. It is the sparseness that is particularly noteworthy: the voicing in mm. 3 and 7 is choir-style not keyboard-style. How much this sparseness jumps out in performance might depends on how much one's attention is drawn to two aspects of G2: the distance between it and the tenor B3, and the drop in altitude from the previous C4 to it. This is all very clear on Vermeulen's recording, thanks to the timbral differences between registers on the fortepiano. On the two modern piano recordings, the drop in altitude is quite evident, but the sparseness itself less so. At least to my ears, the combination of the sustain pedal and the overtones wafting from G2 seem to fill in the gaps between the notes. A^a will serve as the main reference point for many other moments in the movement.

In A^b, the two main points of interest (register-wise) are the bass voice disappearing in m. 11, and the big drop across mm. 14–15. These events afford an unusual division of this theme. The default way is to divide these eight bars is 4 + 4, separated by the half cadence in m. 12. But the registral breaks offer 2 + 4 + 2 as a possibility. One can hear an ascending G-major scale in mm. 11–14, consisting of the notes that I have marked in read in the score. It is conceivable that the A^b theme could have ended in m. 14. (Delete the E4 on beat two of m. 14 to try this out.) If one conceives of mm. 11–14 as the core of the theme, then one can hear mm. 9–10 and 15–16 as frames. The dominant in m. 10 launches into the core, with the ascending bass in mm. 9–10 as a

sort of winding up into the launch. Then, mm. 15–16 are a re-confirmation: mission accomplished.

In $A^{a\prime}$, the initial theme is re-harmonized. This version feels less prototypical not merely because of our prior exposure to A^{a}, but also because the latter's progression was more normative for the style in general. (Had the original one been the less normative one, we might think of it as merely the "beta" version.) Whereas mm. 1–2 together formed a tonic prolongation—with the $\sharp\hat{2}$ and $\sharp\hat{4}$ in the C diminished chord functioning as lower neighbors of $\hat{3}$ and $\hat{5}$ respectively, rather than as true harmonic tones—mm. 17–18 are reconceived as a progression from secondary dominant to dominant to tonic. (The most salient effect of this is to metamorphose $\sharp\hat{4}$'s scale-degree quale into $\hat{7}$.[12]) The secondary dominant's tension accumulates over the course of the bar: the D4/3 is less discordant than the succeeding fifth-less F♯°7, which is in turn less discordant than its fully-equipped F♯°6/5, with a tritone present in each hand. This pent-up tension releases on the downbeat of m. 18—a first-inversion dominant chord that in turn must resolve on the next beat. The addition of the interposing dominant chord is actually the bigger change on the syntactic level, since it shifts the point of resolution from beat one to beat two.

The C chord on beat two of m. 18 is not an exact replica of the one on beat two of m. 1, thanks to the addition of G4. But my ear nonetheless treats them as fully functionally substitutable, because I barely notice the difference in spacing in the moment, as I focus instead on the restoration of the original harmonic function. One could imagine other circumstances in

[12] For more on scale-degree qualia, see Hansberry 2017 and Rings 2011 (particularly Chapter 2).

which this particular change of voicing might be striking. But this is not it. This is further illustration of the idea the significance of spacing is context-dependent.

Measures 19–20 are not identical to mm. 3–4. Weber has made two important changes. The bass voice is up an octave in m. 19; and the bass, tenor, and alto all sit still in m. 20. (Truth be told, I do not think that I would pick up on these details on a first or second listening that was performed without score.) The dominant chords in mm. 3 and 19 seems equally prototypical. Here as well, this is because the feeling that we have regained harmonic correspondence with the initial presentation of the theme—that normality, so to speak, has been restored—is so vivid as to render all other details of spacing necessarily peripheral. I can offer reasons why Weber's changes are nonetheless effective, even while going unnoticed: shuttling the bass up an octave in m. 19 allows the bass line in mm. 19–22 to form an uninterrupted descent, and stopping the alto and tenor from moving in m. 20 allows the fortissimo upbeat to pop more. That is the upbeat to a triumphant statement of the basic idea, with the F♯ bounding up a tritone to reach C6—a pitch that Weber has wisely reserved.

For reasons of time, I will not explore the B section (mm. 25–46) particularly thoroughly. I'll just note in passing a few of the more interesting features. Weber's keyboard style in general is more reminiscent of Clementi's and Dussek's than of any Vienna-based composer. Measures 26–28 and 30–32 display the strongest symptoms of this in the movement thus far. The parallel thirds (and fourths) are much beloved by the London pianoforte school. The spacing of the G dominant sevenths in m. 31 is also quite striking—at least on paper. We land on beat two with no G in either hand, and with a tritone in the right, out in the open, thanks to the gap between it and the left. Then the sixteenth-note group that commences starts with a 4/3 chord with no $\hat{7}$, and a dissonant

second and fourth in each hand! I say "on paper," because this strangeness is imperceptible if the player holds the sustain pedal from m. 31 forward, as all three of our performers do. To savor this strangeness, you'll have to play the chords at the keyboard yourself, sans pedal.

Two other moments that catch my attention are the last eighth notes of mm. 39 and 41 respectively. The dominant seventh in m. 39 resolves very oddly to their (local) tonic chord in the downbeat of m. 40: the A2 and C♯3 both resolve to D3, the G3 resolves to F3, and the D4s that appear in m. 40 came out of nowhere. This is because Weber is repeating in m. 39 the D–E–F–C♯ bass line from m. 37, while adding other voices around it. This effect is easy to feel while playing this passage, but very difficult to hear. (On our three recordings, it is most audible on Vermeulen's but still not very.) In m. 41, the surprise comes from the fact that Weber eschews a proper subdominant chord (in D minor), instead giving octave B♭s in the right hand and octave Gs in the left. (Fie on the parallel octaves that will result in the right hand!) At that moment, it is as if harmony is held in abeyance so that the gesture can resound as pure sonority. (Here again, Vermeulen's recording projects this the best.)

The B section proper ends with the half cadence in mm. 44–45, and the A′ section in mm. 50–57 (the center of the rondo) is an exact copy of mm. 1–8. (Therefore, not a full statement of the refrain, as would be more customary.) In between, however, is a retransition of sort, whose repeated two-bar idea (mm. 46–47, 48–49) is a hybridization of the A theme's basic idea and its contrasting idea. Features of the former include the F♯–G–A ascent that has been compressed in the beginning of the first bar, and the descending third motive in its second bar. It is voicing of the harmony that calls to mind the contrasting idea: the (G2, B3, F4) chord in the bass, tenor, and alto. (Thus, voicing can itself function motivically.) The unusual augmented octave in the right

hand in the first bar of each idea speaks to a clash between the combined motives: they are not so much comfortably melded, as they are juxtaposed one on top of the other.

I will shortchange the C section (mm. 58–95), as I did with the B section, again focusing on merely the highlights. Measures 58–59 include a short canon in G minor, which is transposed to D minor and inverted in measures 60 through 61. In transposing this, Weber had the option of bringing it up a fourth or down a fifth. I find that his choice to opt for the former sharpens the modal flavor of the last two chords of m. 61—perhaps because I associate modality with bareness, and the perfect intervals in the left hand sound barer when higher. Note his control of the thickness of the left hand in mm. 64–65: two-voice to three-voice to four-voice to three-voice again, mimicking the pitch and dynamic arc of the right hand. See also how he handles mm. 73–80. All of the dominant pedal beats in mm. 73–75 are in octaves, but the resolution is to a single F2 (though F1 is available), as if the resolution itself is an ebbing. Having pared back a bit, Weber can then swell into the {G2, G3} octave in m. 78. Measures 80–81 feature what we might call a "textural *diminuendo*." Weber doesn't mark anything in the dynamics, but the left hand thins a little at a time: G3 instead of {G2, G3} in m. 80; now that the "oom" has shrunk, shrink the "pah"s too in m. 81, first as (D3, F3) instead of (G2, D3, F3), and then as D3 alone.

The A″ section begins on the upbeat to m. 105. The C section proper ends in m. 96 (after the piece's dramatic pitch peak in m. 93). In between is yet another A-based retransition in mm. 95–104. The opening G–F♯–G–A–F♯–G idea—which had functioned as $\hat{5}$–♯$\hat{4}$–$\hat{5}$–$\hat{6}$–♯$\hat{4}$–$\hat{5}$ in C major in A^{a}, and as $\hat{1}$–$\hat{7}$–$\hat{1}$–$\hat{2}$–$\hat{7}$–$\hat{1}$ in G major in A$^{a'}$—now functions as $\hat{3}$–$\hat{2}$–$\hat{3}$–$\hat{4}$–$\hat{2}$–$\hat{3}$ in E minor. The retransition features several iterations of this motive, at different pitch levels. Weber supplies a slightly different texture for each. In mm. 96–97, the melody is in thirds in octave three, imitated a

sixteenth later two octaves higher, with those thirds surrounded by a {B4, B5} pedal. In mm. 98–99, the melody is in octaves in the right hand (the fifth and sixth octaves, to be precise) against (C♯4, A♯4) sixths in the left (again offset forward by a sixteenth), with a B3 pedal below. (This means that in m. 99, D♯ is tripled, while there is still no F♯.) In mm. 100–101, the melody is in sixths (an octave below where it just was) with a repeated {B5, B6} pedal (again, offset by a sixteenth) interposed. In mm. 102–3, the melody in thirds (in the fourth octave) is sandwiched between a B3 pedal and chromatically descending chords (in the fifth octave) in the right. I list these in detail to show how scrupulously Weber pursues voicing variety. The theme is evoked only by the melodic content of the motive. It is the sole carrier of the prototypical form.

A″^{a} (mm. 105–12) is quite an interesting case, spacing-wise. Measure 105 features yet another rearrangement of the opening motive—this time modulating from E minor to G major. For the first time, the left-hand accompaniment is in stern, bare octaves. Not just any octaves, however—octaves bearing the same ascending D♯–E–F♯ motive (itself derived from the opening idea) which had appeared in octaves in m. 98. By keeping it in octaves, Weber is allowing it to retain its spacing signature. A nice touch harmonically is that the third eighth note of beat m. 105 is bare octaves. There is thus no pivot *chord*, per se, between E minor and G major / C major; instead, there is a pivot *interval*.

The G chord that begins m. 106 is the thickest yet (four notes in each hand), with real crunch coming from the left hand. While one could hear this as making the chord more discordant, thus undercutting the global consonance that it signifies (the theme's return to the tonic), I suspect the intended effect is to make that return more impactful. In his orchestral works

too, Weber's approach to triumph can be quite heavy (e.g. the end of the overture to *Der Freischütz*).

Measure 107 is spaced like mm. 3 and 7. It therefore has a potential to call back to A^{a}. Of course, that potential relies on the listener having distinguished between this spacing and the one in m. 19. If they haven't, then this sonority lacks markers of its origins. Measure 108 doesn't perfectly match the previous iterations of this idea (in mm. 4 and 20), although (once again) the differences might not be noticeable. However, it should be very noticeable indeed that the end of that bar through m. 112 is a repetition of the last beat of m. 20 through m. 24. It might make a first-time listener wonder whether A″ will be, like A′, without a b section. But, of course, it is not without a b section. In fact, A''^{b} (mm. 113–20) is an exact repetition of A^{b}, save for the aftermath of the theme, in m. 120.

Whether to call the remainder of this movement $A''^{a\prime}$ or A''^{Coda} is a tricky question. Certainly, it seems to start as $A''^{a\prime}$, as the right hand in mm. 122 through the beginning of 124 is playing the A theme in more-or-less its original harmonic guise (the spacing in m. 124 relates most directly to m. 19). But the pulsing sixteenth-note chords in the accompaniment hearken back to the C section. These will persist throughout mm. 127–32. In between, the theme that was introduced in mm. 37–38 in the B section takes over in mm. 125–27, controlling only the right hand at first, but then both hands in m. 126. Because this part of the B theme has never been heard in octaves before, the sudden switch to an octave right hand in m. 127 catches my ear. I take m. 128 to be a reference to m. 42. On paper or from the player's perspective, one can think of the B4 dropping out on the last eighth note of m. 128 as the trill shaking off the lower note. Of course, if the performer uses too much pedal, a listener will not catch this.

Measures 130–32 are the correlates of mm. 78–80. The left hand's range mimics the accompaniment from those earlier measures, although the rhythm continues to allude to the outer parts of the C section. The harmony has changed: it is no longer a dominant pedal, but a deceptive cadence, followed shortly by a perfect authentic cadence. Notably, Weber does not thin the left hand in mm. 131–32. Indeed, further richness is added by the fifth-less I^6 chord in m. 131, which is the lowest chord yet in the piece, besides those in m. 106. (This chord really draws my attention to the left hand on Vermeulen's recording, due to his fortepiano.)

The movement concludes with two more statements of the main theme. The first (in mm. 133–35) features the melody in octaves in the left hand, during which Weber deploys the lowest note in the piece: F♯1. (This might make one wonder to what degree not using F1 in m. 76 was about local dynamics and to what degree it was a matter of reserving lowest-note status for F♯1.) He could have made C1 the lowest note in m. 135. (His piano has it.) But avoiding it creates another mapping of dynamics and spacing: the relative strength of the accent on the first beat is increased by shaving off the bottom note of the second beat.

The last two left-hand chords of the piece (mm. 136–37) are also quite special. One could argue that m. 135 is the piece's final cadence; and indeed, in a literal sense, this would be true. But I think the final progression is intended as a pseudo-cadence, with the 6/4 chord in m. 136 functioning as a dominant. The voice-leading between it and the next chords raises questions. Clearly, C4 goes to E5. But does G3 split into two selves, one sustaining while the other descends to C3? Or does G3 hold fast, while C3 enters from another voice altogether? This is, I think, somewhat up to the performer to decide.

It is hard for me to describe the precise quality provided by the third-heavy voicing of the final chord. It is perhaps easiest for me to ask you to approach the piano and play each of the voicings that I have provided in **Example 5.4**. **5.4a**, as you will notice, is the chord as Weber wrote it. **5.4b** and **c** are two of the most likely alternatives. What sets Weber's actual choice apart from both of these is its "thirdiness." Dropping the E4 to a C4, as I have done in **5.4b**, risks making the fourth between G3 and C4 stand out too much, which hollows out the middle. But **5.4c** sounds fuller and more final. And I think that that must be something that Weber is consciously trying to avoid. Weber's chord is brighter and yet more wistful and less resolved, like songs in which the singer concludes on $\hat{3}$ instead of on $\hat{1}$.

❖ Conclusion

In this chapter, I built on the parameters introduced in the previous chapter—altitude, thickness, density, and openness—attempting to establish guidelines for how we might use them in analysis. This approach was premised on the idea that not all four parameters will feel equally salient at any given time. Something needs to happen in the music to cause us to focus on one over the others.

In the Schubert lieder that we started with, there was a default relationship between the piano and voice, such that any deviation from this default drew attention to itself. These deviations became interpretive pressure points, places to press on in order to form connections between poetic text and music texture. The two Beethoven examples provided contrasting visual schemata for spatializing pitch in their respective movements. And yet, the basic facts of which moments became marked remained the same, barring the complications created by the mutual

timbral interference from the cello and fortepiano. What differed was more how those moments were understood, and less the selection process for the moments themselves.

Because both Beethoven examples involved material that was developed and recapitulated, it was natural to consider not only voicing but re-voicing—and the repercussions that could have for the character of any particular musical idea. This theme was pursued in greater depth in our analysis of the Weber slow movement, in which the variegated manipulation of a few musical ideas helped us question how we categorize re-voicings: which ones are more similar or less similar to each other, more representative or less representative of an idea's prototypical form.

Although I restricted my piece selection to those that fell within my stated era of focus, I would contend that these tools will retain or even augment their current value when applied to later piano repertoire: not only Schumann and Brahms, but even more distant composers such as Debussy and Scriabin. But those are journeys into spaces outside of this dissertation's orbit.

Chapter 6: To Paint with All the Colors of the Winds

❖ An Orchestra Re-Formed

1830 was an excellent year for music generally (were music bottled, one should thrill to see that vintage on the label) and for orchestration in particular. Hector Berlioz is surely the nineteenth-century composer whose name springs most readily to the mind of most classical music buffs when the word "orchestration" is uttered. That year, he penned and premiered his masterwork, *Symphonie fantastique*. In it, we can glimpse many of the colors of the next three quarters of a century. Don Juan and Don Quixote, Norse heroes and gods, French pictures of Spain and Russian visions of an imagined East—all would cut their timbral garb from Berlioz's cloth. However, if we wish to stand atop 1830 and gaze towards the past rather than the future, we can see the past fifty years of orchestration in a different piece: Mendelssohn's "Reformation" Symphony. Indeed, we can hear a most succinct *summa* in just one minute of music: the trio from the second-movement scherzo. If it has been a while since you last visited this section, please re-listen to it (audio-only) first.[1] Only then turn to the score (**Example 6.1**).

The moment the trio begins, we find ourselves in a wooded glade where eighteenth-century feet never strayed. In the first 12 bars, the melody is for one group of instruments: oboes in thirds, and pizzicato violins mostly doubling those thirds an octave below. This is already a Romantic rather than Classical timbral profile: the combination is odd by itself, and having the violins play a

[1] I recommend any of: Vladimir Ashkenazy's recording with the Deutsches Symphonie-Orchester Berlin (2002 [rec. 1993]), Roger Norrington's with the Radio-Sinfonieorchester Stuttgart des SWR (2005 [rec. 2004]), Andrew Litton's with the Bergen Philharmonic Orchestra (2012 [rec. 2007]), Charles Munch's recording with the Boston Symphony Orchestra (2006 [rec. 1957]) or Lorin Maazel's with the Berlin Philharmonic (2015 [rec. 1961]). Ideally, listen to all of the first three, as there are more instrumental details in this section than it is possible for any one recording to capture, and each of these sheds light on a different aspect of this passage.

pizzicato melody at the lowest end of their range is odder still. Pizzicato is normally associated with lightness; here it is associated with lightness of motion, but darkness of timbre.

The violins disobey exact doubling of pitch in two spots: The first of these is from the last beat of m. 68 through m. 70. Here, they double the primary dyad of each bar (F♯–A in m. 69, G–B in m. 70), alternating it with D octave pedal tones. I can't say that I was aware of precisely what was going on this passage before I first examined the score. I think I used to hear the oboes suddenly pop more in these bars, and then the doubling resume. (I still feel that to be the main effect of this orchestration.) But I could not have told you exactly why that was happening. The second spot in which exact pitch-doubling is foregone is the downbeat of m. 72, because the violins can't reach F♯3.

There is one more lapse in exact doubling, but it is rhythmic rather than pitch-based: the oboes' rhythm is dotted in m. 73. This detail is not generally easy to catch in most performances, especially if the tempo is brisk. When I do catch something, it is not usually a clear sense that the two rhythms are different, but rather a sense that the oboes and violins have, for a brief moment, become individuals again rather than teammates.

As if all of this were not already an aural overabundance, there is also the twittering dialogue of the trills for viola and flute. These are made more agential (at least to my ears) by the fact that the pattern is not fully predictable. Only agents stray; cogs obey. When the violas trill an octave lower in mm. 69–71, they also lengthen the trill by a bar. When the flutes take over the trilling for good, they do so by adding hypermetrical upbeats in m. 72. One of the reasons that they had to take over is that the violas are now otherwise occupied: they have joined the pizzicati of their string siblings in mm. 72–76. Again, I can't say that I pick out this viola line, per se.

(Although one would hope that the sixth on beat 2 of m. 76 might pop a little, since no other strings play then.) But I am often aware of the dusky strings growing duskier.

The labelled brackets above **6.1** explain the formal function of these units. These 12 bars were actually an eight-bar antecedent and the first four bars of what seemed at first to be an eight-bar consequent. But instead of repeating the contrasting idea, Mendelssohn inserts an entire 16-bar sentence into that slot, nesting it within the consequent.

In the presentation, the melody is in the strings alone, the oboes having been shed. But they do not disappear immediately as the presentation begins. They hold on for mm. 77–78, as if they were indeed going to continue with strings. (The note value of the oboes' F♯ and the correspondence of their hairpins with the strings' make it clear that this is indeed the first note of the melody, and not just a pedal tone in the high range.) This creates continuity between sections, by trailing across a boundary. Although the string melody in the presentation phase is still entirely within the grasp of violins, Mendelssohn assigns it to the violas and cellos instead. There is the practical reason that the violins now need to play the accompanimental arpeggios. But I believe that there is also a timbral reason: he wants the rich, caramel sound produced by the cello's A string. (I will support this hypothesis soon.) This sound supports the tonal darkening, from G major to B minor. The end of the presentation modulates yet again, this time to D major. Mendelssohn ushers in D with a clarinet and bassoon chord (mm. 83–84). This is the first introduction of the clarinets. New key, new instruments.

The melodic role is taken over by the violins as the continuation begins in mm. 85–88, playing in a curious mixture of unison and octaves. Their line doesn't feel to me like an entirely new figure added to the texture. Instead, it feels like an outgrowth of the trellis of arpeggios that

the violins had been playing up until now. Heard this way, it is yet another nineteenth-century feature: the capacity of figures to shift roles, of a background figure to step into the foreground. The strings ride the pulsing chords in mm. 85–88 to reach a climactic note in m. 89. But as they do, that note becomes no longer part of the main melody; that role has been in turn ceded to the flutes, bassoons, and violas at the cadential idea, who play the sort of staccato thirds Mendelssohn will use so well twelve years later to depict fairies in the scherzo of *A Midsummer Night's Dream*. This too feels like a background element shifting into the foreground, as those staccato thirds seem the logical successor of the staccato chords the winds had just been playing.

All of this was the A section of an AABA′ form—or, more accurately, what should have been a rounded binary form (AABA′BA′), had Mendelssohn not eliminated the second repeat. The B section stretches from mm. 94–109. Although this is a standard 16 bars in length, its shape is non-standard. The instruments break it up as 4 (mm. 94–97) + 3 (mm. 98–100) + 9 (mm. 101–109). Since we are not focusing on form, I will not go into detail about how Mendelssohn arrived at this peculiar shape, but merely note that the grouping structure is clarified by (maybe even determined by?) the orchestration, even if the formal function of the units is not.

The first four bars are derived from the presentation phase of A. I find this the weightiest passage in the trio. Violins are in octaves again as they were in the continuation phase of A, and the celli and basses are in octaves again as they were in the opening of A. But they are now all playing arco rather than pizzicato, and that makes a world of difference. (This is an example of the disparity between assessing texture from pitch and timbre rather than from pitch alone.) The most striking touch to me here is the flute line, which exchanges voices with the bass line. It is not the existence of this line that is odd, but the fact that is for flutes and not for oboes or clarinets, given

where it sits. I can only presume that Mendelssohn wants that smoky sound that flutes have in this range. I consider it a testament to his orchestration that this passage can sound so shadowy, despite the fact that the harmony is just a first-inversion major chord, and not one that we could know for sure is going to lead to A minor rather than A major.

The strings continue in octaves in mm. 98–100, but the lower end of the octaves is supplied by the celli and not the second violins. In m. 101, the first violins drop out (switching to playing arpeggio accompaniment) and are replaced by the violas. But the violas double at pitch and not an octave below. My characterization does not accurately describe my aural experience, however. On many recordings, I don't hear the violins' "dropping out"; their line just seems to melt away, and I'm not even truly aware that the upper end of the octave is no longer there. I hear it instead as the celli surging into the foreground, aided by the violas.

This texture concludes in m. 110, as the A′ section begins. It is, at first, a beefed-up version of the opening of the A section: oboes in thirds, doubled an octave below by strings. But this time, the strings are arco. (We have already discussed how profound a difference this can make to the sound of a passage.) The basses are still playing pizzicato, but they are doubled an octave above by the bassoons, who sustain the line, rather than playing it staccato. This time, the strings that play the melody are not violins; they are the violas and celli. And it is here that we have clear evidence of Mendelssohn's desire for the sound of the cello's A string: the cellos play the upper line, and the violas play a third below. (How much paler it would sound had he stuck to the conventional hierarchy!) This arrangement lasts only for the antecedent (mm. 110–117). In the consequent (mm. 118–125), the strings go wild. All of them revert to pizzicato (although the celli take a while,

since they hold a sustained note in mm. 118–120), and they begin doubling the oboes at a rapidly shifting array of intervals.

This considers only the melody and bass line. As if this weren't enough to pay attention to, there is more activity in the background. Besides the flute trills, there are also various figures in the second violins in the antecedent—such as plucked triple stops in mm. 111 and 113 (which are "pah"s in an oom-pah effect, due to occurring on hypermetrically weak beats), and the broken octaves in mm. 114–116. Then there are the little punctuation marks in the horns. At first, these arrive on the hypermetrical downbeat of each four-bar group (mm. 110, 114, 118). But for the last group of four (the consequent's contrasting idea: mm. 122–125), the horns enter on "three" (m. 124) not "one." This places the emphasis on the transition into the codetta to come, rather than on the consequent itself. The end of the consequent becomes a sort of upbeat to the codetta. The bassoon link in mm. 125 also reinforces this effect. Mendelssohn, one suspects, cut the bassoons from the beginning of the consequent so that their re-entrance could sound fresh. (We will observe other instances of this technique throughout the chapter.)

I have used the word "codetta." Although the eight-bar consequent succeeds in being eight bars long, it doesn't succeed in cadencing, as its cadence is evaded in m. 125. What follows is what I have called the codetta. It doesn't come to a true end. Rather, it trails off so that the trio doesn't so much conclude as dissolve into the repetition of the scherzo proper. Each two-bar unit in this fragment has its own individual shade—the process of fragmentation made more palpable by the fact of the ensemble itself fragments into pieces. One fragment, in mm. 126–127, is for flutes and clarinets—the first time in this trio that the clarinets have had melodic material.

Let us review what acts of orchestral imagination are on display in this trio. We have unusual pairings of instruments (such as the oboes with dark pizzicato strings doubling an octave below); extended passages in which the melody is in the tenor range, above a bass line but underneath soprano accompaniment (a texture almost unheard of in the Classical period); sectioning of formal units at a very local level; instrument entrances that highlight expressive modulations and transitions between units (and not just the units themselves); figures that dance in and out of the background and foreground, trading responsibilities; and bursts of activity, in which there are more instrumental figures going on than the ear is capable of absorbing. When and how did it become possible to conceive of music this way: as a complex of coloristically characterized individual elements, engaged in a continuously dynamic process? In what other newfound ways were music's spatial and timbral characteristics manipulated in the years leading up to this? And what are the tools we need to build in order to talk about that problem? This is the subject of the next three chapters.

To begin with, we need to clear up terminology. In discussing these matters, there are four terms that are sometimes treated as interchangeable—instrumentation, scoring, orchestration, and timbre. Our analysis will be much clearer if we do not treat these as synonyms, but assign each to a different concept. Here are the definitions I will use for these terms, inspired most directly by Janet Page (1993)[2]:

[2] Hans Bartenstein (1974) also distinguishes between three of these concepts (everything but scoring). However, he defines them quite differently: for him, both instrumentation and orchestration involve the manipulation of timbre, but the former is the manipulation of it for expressive purposes, and the latter for structural purposes (2). This distinction between structural and expressive functions will be useful to us, but I will avoid using his terminology, so as not to muddy the waters.

Instrumentation is the combination of instruments needed to perform a movement or piece. The instrumentation of a movement can often be discerned by glimpsing the first of page of its score. *Scoring* is the combination of instruments used at any given moment. ("Moment" can be defined multiple ways: from beat to beat, from simultaneity to simultaneity, etc.) It can be discerned by tabulating which instruments are playing and which are resting. *Orchestration* is a matter of not only which instruments are being used, but how they are being used. A passage for (e.g.) bassoon, viola, and cello has the same scoring whether the bassoon is playing a melody, countermelody, accompaniment figure, etc.; but all of these are different forms of orchestration.

Scoring and orchestration are both textual—they refer only to the distribution of orchestral parts within the score, and not to any sound that results from a performance of the piece. The actual sound produced by the instruments is the *timbre*. It is noteworthy, then, that *neither pieces nor scores possess timbre*. Only performances possess timbre, by actualizing written notes into musical sound. When I discussed timbre with regard to the Mendelssohn, it was only because I was discussing it in conjunction with particular realizations.

This is the first of three chapters that will travel this constellation of concepts. This chapter and the next will deal with instrumentation somewhat and with orchestration primarily; the third will deal with timbre. Naturally, there will be much overlap in the sort of musical phenomena that we analyze, but the perspectives will be different: these first two will evince a composer- and score-centered approach, and the third will evince a listener-centered one.

In the previous chapters, I have eschewed performing anything resembling a literature review. This is because the problems flow naturally from a few central questions. But the state of

scholarship on orchestral sonority is very complicated indeed. It is therefore worthwhile scanning over this scholarship, before we formulate the plan of action we will soon pursue.

❖ In the Twentieth Century

Until the mid-twentieth century, most texts on scoring or orchestration were instructional treatises for composers-in-training. Some—like Rimsky Korsakov's *Principles of Orchestration* (posthumously completed in 1912, and published in 1922)—have little to no historical content, because they focus only on orchestration as it was practiced in the time in which the author was writing. (In fact, Rimsky-Korsakov drew examples only from his own music!) Others—like Berlioz's *Treatise on Instrumentation* (published in 1844 and then revised by Richard Strauss in 1905)—are also aimed at those aspiring to compose in a (then) contemporary style, but nonetheless draw examples stretching back nearly a century. (Berlioz particularly liked to use examples from Gluck's operas.)

Scholarly work on this subject—for the consumption of other scholars rather than composers—really began to take off only in the 1960s and 70s. The most prominent monographs of this era are Adam Carse's *History of Orchestration* (1964) and Gardner Read's *Style and Orchestration* (1979). Their approaches are very much instrumentation-focused. A central part of their projects involves gathering data on the precise size and composition of orchestras in different European cities. Carse and Read's books are not solely focused on instrumentation; they also

include observations on scoring, but usually with the sense that choices in scoring are to be understood as the direct effects of instrumentation, rather than as separate objects of study.[3]

In contrast to those instrumentation-focused studies are the scoring-focused studies. These are represented by corpus study-oriented projects by Randolph Johnson (2007, 2011) and the team of Song Hui Chon, Dana DeVlieger, and David Huron (2016, 2018). Both of these involve taking random vertical slices of pieces to determine the combinations of instruments being employed. Johnson uses these slices to group instruments into three categories: Standard instruments (that play most of the time), Power instruments (that mainly reinforce louder moments), and Color instruments (that are used less commonly than the others, and often function as soloists). Rather than grouping instruments into large categories like Johnson does, Chon et. al instead calculate a variety of correlations—the odds that certain instruments will play together, the propensity of certain instruments to be used at certain dynamic levels, etc. The concern here is only for scoring, not orchestration: what matters is just the combinations of instruments, and not what the instruments do. This data could be and hopefully will be related to orchestrational practice by future scholars. But that connection has not been made yet, to any significant degree.

From Carse and Read's work until the twenty-first century, almost all of the book-length works on orchestral sonority are dissertations and master's theses that were never successfully converted into published books. (This fact might be particularly alarming for those currently writing dissertations on such subjects…) Many—such as Brundrett 1962, Weirauch 1968, Wilson 1971, Tan 1997, Hsu 2009—focus on the orchestral practices of specific composers, with Berlioz

[3] In contemporary works, their legacy is most visible in John Spitzer and Neal Zaslaw's *The Birth of the Orchestra* (2004), which is chock full of tables specifying orchestral forces available in various times and places.

being the most common. Some newer ones attempt to synthesize the study of orchestration with specific other analytical methodologies, such as Schenkerian analysis (Cutler 2000) or Hatten's theory of musical markedness (Steetle 2007).

It is easy for individual scholars to get lost in this sea of citations. There are, in my opinion, three book-length twentieth-century works on orchestration that merit special attention, that in fact should be read by all scholars tackling the subject of orchestral sonority. They haven't gained much notice, so I'm very pleased to be able to mention them. Each is a model for a particular practice.

First, there is James Atlee Eversole's dissertation "A Study of Orchestrational Style through the Analysis of Representative Works of Mozart and Beethoven" (1966). His work is a model for how to set parameters when doing data collection on orchestration. He defines the four ways of using instruments as: tutti, interfamily, intrafamily, and solo. When instruments are combined, their relationship can be unison (same pitches), harmonic monorhythmic (different pitches at the same rhythm), or harmonic polyrhythmic (different pitches at different rhythms). Eversole applies each of these three combination categories to the tutti, interfamily, and intrafamily categories. Solo textures are further broken down into accompanied and unaccompanied. If you've followed this, you should realize that this produces eleven possible texture categories. The other major data point that Eversole tabulates is how often each instrument in the orchestra plays the melody (either by itself, or doubling another instrument). Having constructed his machine, Eversole then runs six symphonies (three each by Mozart and Beethoven) through it to see what numbers come up, and uses these to generate conclusions about the two composers' styles—conclusions that he supplements with some analysis done "by hand."

One advantage of this approach over that of more contemporary empirical studies is that it actually addresses orchestration rather than just scoring. Every piece of data speaks to how instruments are being used, and never just to the fact of their being used. It is thus, in my opinion, more engaged with how a composer or listener might understand what is going on. Another advantage is that Eversole's apparatus is sensitive enough to detect minute style changes in pieces composed only a decade or two apart, written for nearly identical instrumental forces. Although Chon et al. (2017) also track historical changes, their study covers a 300-year span, chunked into six half-centuries. Their analytical apparatus can be (and arguably needs to be) much less sensitive to detail since each data point is meant to summarize an entire era, and each era features a sea-change in the makeup of the orchestra itself.

Second in my pantheon is Janet Page's dissertation "Wind Instruments in the Music of Joseph Haydn, 1785–1798: Studies in Orchestration, Compositional Process, and Musical Structure" (1993). Hers is a model for how to write a style analysis of the orchestration of a single composer. What makes her study so compelling is its simultaneous embrace of so many different methodologies. First, she proceeds instrument by instrument through Haydn's orchestra—in each case specifying the capabilities of the particular models that he was writing for, and what he tended to use each instrument for. Second, she reviews his general approach to employing wind instruments (global trends beyond the use of any particular instrument). Third, she examines Haydn's sketches to determine his process of orchestrating. Lastly, she applies some of the insights gained from her sketch studies to a series close analyses of individual movements.

What makes this particularly effective is that it restores orchestration to the status of human action—not a neutral fact, but a poietic process. Orchestration is not merely how the notes

are distributed across the instruments on the page, but a way of conceiving the resulting music. It is not only about what Haydn's music is, but also about what he did and how he may have thought. Unfortunately, because I do not perform sketch studies, I cannot apply this approach myself, and my powers of poeitic insight are much weaker than Page's. But by bringing my investigation back to the esthesic matters in my last chapter, I hopefully avoid getting mired in the marshes of the (pseudo-)neutral level, albeit by escaping in the other direction.

Third, there is Eric Weimer's book *Opera Seria and the Evolution of Classical Style* (1984). His is an exemplar of how to use orchestration as evidence of style change across a time period. The book is not primarily about orchestration, and that is one of its great strengths. It is an attempt to correct the impression (left by scholars such as Rosen) that there is no cohesive style of music in the period between the Baroque and the High Classical style (the latter of which is often taken to begin c. 1775). Weimer wishes to show that such a style can be found in the Metastasian *opera seria* of that era, and that the advances in this style prefigure many of the characteristic features of the Classical period. He focuses on three composers—Jommelli, J. C. Bach, and Hasse—devoting one chapter each to the changes in harmony and texture, and three to the use of wind instruments.

Three aspects of this are particularly laudable and what I seek to emulate most in his work. First, Weimer always analyzes orchestration in tandem with others parameters, rather than cordoning them off. His study is about orchestration's contribution to this musical whole. Second, Weimer is willing to look at composers who are now largely ignored (most of the operas he examines still haven't been recorded, and scores for them are very difficult to find), but who were much acclaimed in their own time. This produces a more accurate representation of the period.

Third, he is attentive to the differences between these composers, and not just to their similarities. He never allows them to collapse into a monolith.

If these scholarly works are so good, why have you (probably) never heard of them? Why are their citation counts low? I believe a lot of this lies in their stated purposes. In a section titled "Need for the Project," Eversole suggests that his dissertation will be useful for composers learning orchestration (1966, 2–3). Page states her purpose is to present Haydn's music "in a new light" (1993, ii) and to understand the sources for his contemporaries' admiration for his orchestration (1). Weimer is motivated by "the lack of scholarly attention to and understanding of this music" (1984, xiii); his is the gap-fill model.

All of these justifications were acceptable in the heyday of "style analysis": at that time, if you were clarifying what set one composer apart from another, or one period apart from another, you were automatically doing valuable work. But they are unlikely to pass muster with anyone steeped in the values of the New Musicology. These sources practice the collection and dissemination of data. No generalizable theory. No hermeneutics. Just data. Even if you are pleased that we have moved beyond these scholars' aims (I must admit that I am ambivalent), that need not entail discarding their methods. Indeed, I will argue that given the questions contemporary scholarship wishes to address, we need their methods as much as they did.

❖ Analytical Appreciation vs. Substantiation

Enter those scholars whose mindset might be characterized as "post-empirical." If one had to attribute the resurgence of American academic interest in late–eighteenth century orchestration to a single working scholar, it would be Emily Dolan. Her 2013 book *The Orchestral Revolution:*

Haydn and the Technologies of Timbre is the only recent monograph devoted entirely to this subject. I will linger on this book for a great deal longer than I have on any other secondary source in this dissertation. It will figure prominently in both this chapter and the next one. This is because it is both the best indication of the present state of orchestration scholarship, and the one with the greatest chance of influencing this scholarship's future.

Let's start with the concept of an "orchestral revolution." Dolan defines this as "the transformation of the orchestra from an ensemble that was heard as powerful, but sometimes blunt and indelicate, into a diverse musical community in which each instrument had its own character and identity and lent its unique voice to the whole" (3). She continues: "Over the course of the century [...] composers and theorists began increasingly to pay attention to instrumental sonority, which manifest themselves in the birth of the concept of "timbre" and in the appearance of the earliest orchestration treatises" (4). As this last statement might suggest, Dolan's approach is two-pronged: she is going to look at the changing attitudes of theorists (by which she means philosophers more than music theorists) and at the changing practices of composers.

The first prong thus entails a sort of intellectual history of the concept of timbre. The chapters taking this approach are the most successful portions of the book. In a chapter on the use of "color" as a metaphor for musical sounds, Dolan chronicles its shift over the course of the eighteenth century from signifying pitch to signifying timbre. Her narrative centers around the fantasy of creating an "ocular harpsichord"—an idea we might be quick to dismiss as a mere curiosity, but which she shows actually had a hold on the musical imagination of many thinkers. In another chapter, she traces the concept of timbre in musical discourse back to a Rousseau article for Diderot's *Encyclopédie*. These are valuable origin stories for ideas whose place in our

musical thinking we are liable to take for granted. Elements of the last two chapters of the book serve as powerful correctives to recent overstated theories that have been too readily accepted. The rage for (not against) the machine that gripped music-producers and -lovers circa 1800 undercuts a Goehrian denial of the reality of musical works: these playback machines needed some sort of piece to play back, and what anchors this set of repeatable performances must be a work. Dolan also puts yet another nail into the coffin of Dahlhaus's Beethoven-Rossini dichotomy by showing that far from epitomizing Italy, Rossini's orchestration was sometimes regarded as (too) German-sounding (233–251)!

It is when directly dealing with music that the book falls short. To understand a revolution, one needs to know what the state of affairs was beforehand, what changes were made during the revolutionary period, and what the state of affairs was afterwards. All of this is even more necessary if, like Dolan, you are the first to suggest that this revolution occurred. Regrettably, she doesn't provide any of this information. Without examples of "pre-revolutionary" orchestration, we cannot see any transformation in how the orchestra was used.[4]

Things get worse when we get to Haydn. Speaking in her own voice (rather than merely citing historical sources), Dolan refers to Haydn's "innovative treatment of the sonorities of his instruments" (92), calls his orchestration "radical" (93), and says of his post-1780 music that "what he accomplished in these works was revolutionary" (96). These are historical claims, as the adjectives are all relative: Haydn's orchestration can be innovative, radical, or revolutionary only in

[4] This lack is particularly disappointing because Dolan accurately claims that one of the central problems with previous studies of the orchestral revolution is that they treat it as a primarily intellectual phenomenon, in which "musical practice is almost entirely absent in this story" (5).

relation to other composers' orchestration. But in the two chapters pertaining to Haydn's music, totaling 89 pages of the book, Dolan devotes *a single paragraph* to examining the music of any of his contemporaries, and that is only a glance at zoomed-out bar graphs of three Mozart movements, which lack any musical notation.[5] Haydn's role in the revolution is thus impossible to assess because the reader is not shown what anyone else was doing.

An unfortunate result of this is that Dolan can never quite connect the intellectual trends (which she chronicles so skillfully) with musical practice. She states that during the revolution, "the orchestra radically altered how people listened to instruments and thought about their expressive qualities" (3). This formulation is rather atypical because it treats the orchestra as an agent: the orchestra itself is what alters how people listened to and thought about instruments. The conventional thesis would be the converse: that how people listened to and thought about instruments altered the orchestra.

The problem is that the chapters that follow provide better evidence for the converse thesis. Because she doesn't look at the orchestra itself until Chapter 3 (set in the 1790s), we cannot see it function as the catalyst for any of the main intellectual shifts that she tracks (such as the birth of timbre, which she dates to the 1760s). Because she makes the ocular harpsichord (a non-orchestral instrument) the focal point of her chapter on color as timbre, the role of the orchestra is diminished. Because almost none of the timbre-minded philosophers she cites in Chapter 2 talks about the orchestra and none of the orchestration treatises she cites uses any philosophical

[5] Dolan includes one other non-Haydn musical example in these chapters: Jean Féry Rebel's attempt to depict chaos in his 1737 piece *Les élemens* (137–139). As Haydn was five years old when this piece was written, and Rebel was a generation older than even Bach and Handel, I am not going to count this as the music of one of Haydn's contemporaries.

concepts, it is hard to see any causal relationship between these two disciplines. We know, at best, that shifts in each were roughly contemporaneous, and not that they interacted. As I said before, these chapters have much to recommend them, but only when taken individually, and not when taken to be supporting what is purportedly the book's central thesis.

A similar though less serious problem plagues another major issue in the history of orchestration: the treatment of *Idomeneo* within Mozart scholarship. Critical consensus is that this opera marks a turning point in his career. David Cairns sums up this view best when he writes: "In *Idomeneo* Mozart, abruptly, comes of age. True, there had been a steady deepening of his musical style in the years leading up to it [….] Yet nothing prepares for the explosion of *Idomeneo*" (2006, 32). The orchestration is typically singled out for praise. Daniel Heartz calls *Idomeneo* "[t]he most orchestrally conceived of his operas" (1969, 11). Donald Jay Grout says "Nowhere in his operas did Mozart lavish more care on the orchestral writing than in *Idomeneo*. This is seen especially in the independence of the woodwinds and their frequent employment for the most subtle touches of color and expression" (Grout and Williams 2003, 311). Craig Ayrey says that "the orchestration is of unparalleled richness" (1993, 119). And Cairns again says that Mozart "in his eleven remaining years of life never again approached this proto-Romantic exploitation of orchestral colour" (2006, 62).[6]

[6] Cairns's statement here is particularly mystifying, because only two dozen pages later, he says that the wind parts in *Abduction from the Seraglio* "surpass in richness and variety even those of *Idomeneo*. A character of the scoring of the two dozen musical numbers in the score shows hardly one that does not have its particular, individual colour" (86). Perhaps, though "richer and more varied," *Abduction*'s wind parts lack something "proto-Romantic"? But if so, what? (I also must admit that contrary to Cairns, I find *Abduction*'s wind parts much less interesting than those in Mozart's other works from the 1780s.)

Notice that once more these compliments are stated in comparative terms. These scholars hold *Idomeneo* up against Mozart's other operas (or, in the case of Ayrey, against operas in general). But they do not generally specify what techniques they believe that Mozart developed in *Idomeneo*. At best, some of them point to particular moments whose orchestration they find most delectable. The rarity of such delectability is implied or stated but not supported.

I may be holding some of these Mozarteans to too high a standard, as individuals. Some of them are delivering these assessments as offhand remarks, not as central theses of a chapter like Dolan is. I, too, occasionally make remarks of this kind in this dissertation, without doing much to prove them (reserving such evidentiary efforts for my weightier claims). However, when such casual assertions are repeated across a branch of scholarly literature, and constitute the entirety of that branch's discussion of an issue, the time comes to ground them. Should any of my more casual assertions gain traction, I hope that they too would be subjected to scrutiny, and then confirmation, defense, revision, or abandonment.

I belabor these points with both Dolan and the Mozarteans because I see such loose talk as the result of an underlying uncertainty about the appropriate role of analysis in historical narratives—when it is necessary, and what it is capable of showing. When many music historians engage in analysis, they immediately slip into connoisseurship, doting on passages they enjoy. Their enchanted ears override their critical eyes.[7] Were their historians' hats removed in such cases—if, at these moments, they whisked us away from the academy and into their living rooms—no harm would be done. But too often, the hats stay on: what they find exceptional now, they

[7] This formulation owes much to Steven Rings's "Music Stubborn Enchantments (and Music Theory's)" (2018), whose openings paragraphs lucidly articulate this tension.

assume must have been exceptional then too. What they practice is analysis as appreciation; what their projects require is analysis as substantiation.

In the next two chapters, I am going to tackle these two issues in reverse order: first, the narrower, *internal* narrative of Mozart's development as an orchestrator; second, the wider, *external* narrative of how he and Haydn do or do not fit in the general trend of how orchestration changed from the 1770s to 90s across Europe.

You may wonder, "Why write an internal narrative at all?" Isn't this at odds with the generally more contextual approach taken in the other historical chapters of this dissertation? There are three reasons why I think this is useful: First is that if we rushed into an external narrative without any prior background, the result would be a mess. It is simplest in general to begin by building tools that can accomplish a simple task; and only then figure out how to adjust them to deal with more complex tasks. Second is that having some sort of base of comparison will serve us well in the next chapter, helping us to distinguish interstylistic commonalities from intrastylistic idiosyncracies. Third is that studies focused on individual "great" composers are not going away any time soon. Rather than fighting this fact, I think it is more advantageous to see how a single-composer-based approach can be made more scrupulous, more concerned with clearly defining individual characteristics than with weighing their worth.

Through this internal investigation and the subsequent external one, I hope to show ways that analysis can indeed function as a tool for uncovering historical evidence of a kind that will support or undermine these scholars' claims, and that will suggest additional claims worth endorsing. This orientation towards analytical evidence hopefully allows us to produce an alloy of

the two approaches we have surveyed: bonding the empirical sturdiness of older scholarship with the hermeneutic suppleness of the newer.

I do not pretend that the following analyses (or the preceding ones, for that matter) are free from appreciation. Far from it. I love some of this music, and this may show. I do not urge aesthetic asceticism. It is not excess of pleasure that makes for bad history; it is treating pleasure as signifying more than just pleasure. You have my word that I have endeavored to choose only pieces that are genuinely representative of some larger trend, and not those that have most won my esteem.

❖ Writing for Eight

The earliest symphonies—such as those written by Sammartini, Johann Stamitz, and Wagenseil in the 1730s—were typically written "in eight parts" (a term that appears regularly in published scores of the time). These eight parts were two pairs of winds and the four string groups: violin I, violin II, viola, and bassi (meaning celli and double basses). Other continuo instruments often doubled the bassi in practice, but were rarely prescribed in the score. Conventionally, two of the winds were horns, the other two were either oboes or flutes, more commonly the former. For most orchestras, the flutes and oboes were played by the same musicians, which is why some scores (especially opera scores) feature both pairs in the instrumentation of the entire piece, but only one pair at a time in the scoring of any individual passage.[8]

[8] Mozart's K. 114, 182, and 238 are examples of this. In both cases, one pair is used in the slow movement, and the other pair is used for the remaining three movements. But the symphonies are reverses in this regard: in K. 114, oboes are the marked slow pair; in K. 182 and 238, it is the other way around.

In the 1760 and 70s, eight-part symphonies were still common.[9] Eight of Mozart's seventeen Salzburg symphonies—written between 1771 and 1774—are in eight parts: K. 114, 124, 128, 129, 134, 182, 199, and 201. Of the remaining nine, seven of them are fleshed out to ten parts only by the addition of two more brass parts (horns in K. 130, 132, and 133; trumpets in K. 162, 181, 200, and 202). Mozart's four Salzburg piano concertos tell a similar story: three of them are for eight-part orchestra (K. 238, 246, and 271), and the remaining one (K. 175) adds two trumpets. While these surplus brass parts make the scoring of tutti passages somewhat richer, their effect on the orchestration of non-tutti passages is virtually negligible, mainly because the trumpets and horns of the time had such a meager selection of pitches at their command.

In the eight-part orchestration of Mozart's Salzburg symphonies and piano concertos, the four winds have a very limited set of functions to perform[10]:

(1) They can double a string melody, either at pitch (**Example 6.2a**) or an octave apart (**6.2b**). One special kind of doubling is what I will call "middleground doubling." Its most common form is when the strings are playing a frilly melody, and the winds play a no-frills version, the filigree pruned away (**6.2c**). But this term applies to any situation in which one instrument doubles the more "structural" notes of another instrument's line, leaving behind some of the foreground elements. I will use the phrase "mid-double" as a verb for this action: as in, "X mid-doubles Y."

[9] In fact, George Stauffer claims that "By 1761, [...] the eight-part ensemble was firmly established as an international standard" and this standardization marks the point at which "the formalization of the classical orchestra, in its earliest guise, was complete" (2006, 47).

[10] See Spitzer and Zaslaw 2004, Chapter 13 for an overview of specific "effects" (rather than syntactic functions).

(2) They can engage in dialogue as a section. Such dialogues can be wind vs. tutti **(6.2d)**; wind vs. strings **(6.2e)**; or wind vs. upper strings **(6.2f)**, with lower string accompaniment running throughout.

(3) They can provide bridging/fill between sections **(6.2g)**

(4) They can hold a pedal tone, usually an octave pedal **(6.2h)**. Whereas bass pedals are usually reserved for particular structural events, such as a Mannheim *crescendo* or "standing on the dominant" near the end of a transition, wind pedals can occur nearly anywhere.

(5) They can provide what Weimer aptly calls "independent harmonic support." This generally involves sustaining chords in a tutti while the strings play the (faster) melodic and accompanimental material **(6.2i)**.

It is worth noting that the winds do not have any full-fledged melodies of their own in these pieces. They participate in melodies only through doubling or dialogue with the strings. There are no wind solos; they play only in pairs. And the winds do not provide accompaniment by themselves; they merely support existing accompaniment figures in the strings.

The five wind functions that I have listed were not new to Mozart, nor to the 1770s in general. They had been developing steadily from the 1750s forward, as chronicled by Weimer. For example, he identifies eight types of musical events that Hasse used oboes to articulate within his opera arias from 1756 to 1771 (1984, 117–134). I will not review them here, but what all eight types have in common is their association with cadences or modulations at structural points within arias. Readers are particularly encouraged to consult Weimer's analysis of "Non esser troppo

altero" from Hasse's *Ruggiero* (1771), which is a very compact illustration of this style (or, at least, of one composer's particular brand of this style) (124–131).[11]

I remarked earlier that Mozart's ten-part symphonies differ from their eight-part peers in their instrumentation, and not in their orchestrational technique. One technique is the exception to this; that is the addition of woodwind solos: extensive flute solos in K. 133/ii and oboe solos in K. 181/ii, and a series of short solo snippets for oboe in the first movement of the "Little G minor" symphony, K. 183, mm. 13–28, 96–109. Why would ten-part instrumentation lend itself to this? This would be explicable if the extra pair of instruments relieved the flutists/oboists of their other duties, freeing them up for solos they would be otherwise unavailable to perform in eight-part textures. But the K. 133 and K. 181 woodwind solos are accompanied by only strings, and each K. 183 oboe phrase is accompanied by two winds and the strings. In other words, all of these solos could just have easily appeared in the eight-part symphonies. The only explanation I can furnish is that Mozart might have written these symphonies for a specific orchestra, which was both larger than his standard Salzburg orchestra and equipped with better oboists/flutists, for whom he specially wrote these solos. Thus, size does not cause solos; size and solos are both effects of another cause. This is, however, entirely speculation.

Mozart's most intriguing eight-part orchestral writing is generally found not in his symphonies, but in his piano concertos primarily, and in his operas secondarily. The preceding sentence is also true if you remove "eight-part." Throughout Mozart's career, these were the two genres in which he lavished the most care on wind parts. One explanation for this might be that

[11] To be clear: Weimer does not claim that Hasse is representative of galant style in general. (He, in fact, contrasts some of his practices with those of Jommelli.)

operas and piano concertos are the most dramatic genres, and dialogic interplay between instruments has an inherently dramatic flavor to it.[12] There is also another more practical reason that I consider on pg. 208, although there is still much it cannot explain.

I would like to show how Mozart of the 1770s employed all of these orchestral functions over the course of a long stretch of music. The stretch in question will be the A and A′ sections of "Il tenero momento" from *Lucio Silla* (1772)—a *dal segno* aria in AA′BA′ shape, with the B material still derived from A.[13] Paul Sherrill (2016) has proposed a rotational theory of the *da capo* aria (easily adaptable to a *dal segno* aria), which is based on Hepokoski and Darcy's Type 5 sonata. He replaces Hepokoski and Darcy's action zones with a series of "characteristic actions," bearing different letter labels that are inspired by Koch. For simplicity's sake, and to afford easier comparison between Mozart's treatment of arias and concerto movements, I am going to continue to use Hepokoski and Darcy's letter labels, while noting the main differences between a *da capo / dal segno* Type 5 and a concerto Type 5.

Each of the A sections here is a vocal rotation, separated by ritornellos. Each rotation cycles through the same action zones as a sonata exposition, although these action zones can be occupied by units as small as four bars, rather than by entire themes. As in a sonata exposition, the first vocal rotation maps a journey from I to the secondary key, which is most often V in a major-key aria. As in a Type 2 sonata, the second vocal rotation maps a complementary journey from a foreign key area back to I, with many patches functioning as correspondence measures to counterparts in the first rotation.

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[12] Within English-language scholarship, the touchstone treatment of soloist-orchestra interplay as a form of dialogue is Joseph Kerman's *Concerto Conversations* (1999).

[13] Many performances omit the B and A′ sections altogether.

The main difference between an instrumental exposition and a vocal rotation lies in the TR. In instrumental music, the TR has a fixed tonal purpose—to effect a modulation to the secondary key and arrive at the MC—but its internal structure is without strict requirements, as Chapter 6 of *Elements of Sonata Theory* explains. Contrarily, the TR in a *da capo / dal segno* aria has a more consistent form. It is comprised of two distinct phases that I'll label TR^1 and TR^2, which Sherrill calls Q_1 and Q_2 (after Koch's *Quintsazten*). Each of these ends in a cadence. In the first rotation, TR^1 begins the move towards the secondary key, but still culminates in a I:HC. TR^2 is the push towards the MC, and usually culminates in an HC in the new key; it also is the most common site of melismatic display.

Example 6.3 is the score of the A section, starting from the initial orchestral ritornello and going through the two vocal rotations. As in a concerto, the initial ritornello introduces preliminary forms of several of the section's most important themes, all in the tonic. In it we can see all of the wind functions that I exemplified earlier with the symphony excerpts.

In measure one through the beginning of measure two, the horns hold a tonic pedal, while the oboes mid-double the second violin line underneath the first violin's melody. At the end of the first two-bar basic idea, the winds play a staccato pulse that functions as rhythmic fill, pushing the music forward into the next two-bar basic idea. Here, in mm. 3–4, the winds repeat their roles from mm. 1–2, except that the oboes now mid-double the first violins rather than the seconds. However, because the second violins descend (scalewise) a full octave, the oboes' doubling starts at pitch and continues an octave above (by virtue of staying in the same range). The oboe lick in m. 6 (the cadential in this sentence) is an echo of the string figure that begins the measure. Then the oboes are an octave above the strings again at the cadence in mm. 7–8.

Throughout the TR, the winds perform only mid-doubling, with one small exception: the bass line in m. 10 includes a chromatic descent from C to A; in m. 11, that figure appears in an inner voice, which is played only by the oboes. This is, of course a matter of availability: no one else is free to play this line. But having it in the oboes allows it to jut out of the texture a bit. In S space, the winds are used for string-tutti dialogue (mm. 13–15), as bridging between themes (mm. 16–17), and as mid-doubling an octave above for the $\hat{4}$–$\hat{3}$–$\hat{2}$–$\hat{1}$ cadential figure (mm. 19–20). The bridging here is especially essential work, because $S^{1.1}$ doesn't end with anything even resembling a cadence (although $S^{1.2}$ does). The bridging (paradoxically enough) functions both to create continuity by joining up the two themes, and to create discontinuity by demarcating them as separate sections (because such bridging stereotypically spans important gaps).

In the first vocal rotation, the winds perform many of the same functions that they did in the opening ritornello, at the same structural locations within the action zones. Consequently, one can use them to gauge how the zones have been altered. The P theme was an eight-bar sentence in the opening ritornello, but is a thirteen-bar sentence here. One can tell at a glance where the expansion occurs based on the wind parts. The rhythmic fill that occurred in mm. 2 and 4, now occurs in mm. 26 and 29 (relative to P beginning in m. 22). From this spacing, one might detect that the first two-bar idea has been stretched out to five bars, and the second two-bar idea has been stretched out to three. (One might surmise that this stretching is to allow the voice to sustain—and thus fill our ears—for longer.) If a listener expects the cadential phrase starting in m. 30 to be four bars long, as it was in mm. 5–8, then m. 32 might be the moment that they suspect something is amiss: although the dominant has been clinched in the bass, the winds have not come on board. This is under-emphatic for a structural cadence. Such unassertiveness is sometimes a sign that the

resolution is being delayed, as is the case here. It is only when the winds join in m. 33 that the music proceeds to the tonic.

The string figures in mm. 34–35 were the head-motive of the TR in the opening ritornello, but serve here as the bridge into the vocal TR, which starts in m. 36. Even though the violins are playing the same rhythm that they did in the ritornello, the syncopated wind chords allow one to reinterpret this string rhythm itself as syncopated. (A nice effect.) Both TR^1 and TR^2 are entirely devoid of winds, save for one spot. Having only the strings play grants these sections a new lightness of sound, fitting for music that is trying to move away from the sound world of the P zone. Keeping the texture uncluttered during the melismatic TR^2 also ensures that the vocal pyrotechnics can be perceived clearly.[14]

The winds' sole appearance in TR space is in mm. 50–51. They do not support the cadence itself, which is in mm. 52–53. Instead, they emphasize the subdominant that precedes the cadence, in particular bringing out the tension of the applied dominant 6/5 in m. 50. This is an absolutely crucial point (one I have never seen addressed before) because it underlies many of the developments in orchestration that will follow: through a combination of texture and orchestration, one can underline any particular stage of an expanded cadential progression—the I^6, the pre-dominant / subdominant, the cadential 6/4, or the dominant. Textbook theory may teach us that there is a *structural* hierarchy among these harmonies that obtains in all circumstances, due to tonal law; but orchestration allows one to establish an alternative *rhetorical* hierarchy among these chords—treating the chords as participants in an in-time process, and not just as tokens of

[14] Weimer notes that Jommelli also was careful not to cover vocal melismas, but Hasse wasn't (1984, 140).

abstract, out-of-time harmonic types. In such a rhetorical hierarchy, the most emphasized chord need not be the most "important" one from a purely harmonic perspective.

Little need be said about $S^{1.1}$ space. The string-tutti dialogue and the oboe-pair bridge in mm. 53–57 are just as they were in mm. 13–16 in the ritornello. $S^{1.2}$ has three rhetorical touches that are worth noting. First, the oboe bridge in m. 63 (leading to a repeat of $S^{1.2}$) undoes the effect of the PAC. This PAC was not orchestrated like an EEC due to the lack of wind support. Second, when Mozart repeats $S^{1.2}$ starting in mm. 64–65, he adds a horn pedal that wasn't there before. While one might be tempted to say that this is there for variety's sake, it does prefigure the vocalist's anticipation of her line in m. 65, which is also a pedal tone. Third and last, mm. 72–73 are a nice example of the layered approach to a PAC that is most often reserved for the most structurally important cadences: the first phase (beat 1 of m. 72) is strings only; in the second phase (beat 3 of m. 72) Mozart adds the oboes; in the third phase (beat 1 of m. 73, the V4 suspension) he adds the horns; and in the final phase (beat 3 of m. 73), he is out of instruments to add, and thus the forward surge is propelled by the dynamics.

I do not wish to proceed through the entire A′ section. I will merely draw attention to a few interesting differences between this and the A section. The P theme's proportions have changed with each iteration. In the ritornello, it was a standard 2 + 2 + 4; in the A section, it was 5 + 3 + 5; here in the A′ section, it is 3 + 3 + 4 (mm. 80–89). (Again, though the voice is surely what motivates these groupings, it is the winds that makes them clear.) In the A section, Mozart telegraphed the extension of the cadential module by withholding the wind's confirmatory doubling for one bar. But in the A′ section, Mozart omits the winds altogether. Thus, although the arithmetic says that the cadential idea is being restored to its normative length, one might

experience this as yet another twist. One could reach the third bar of the cadential idea (m. 88), hear that the winds have not re-entered, and therefore expect that this is going to be yet another five-bar version, only for the music to then unceremoniously cadence immediately. Thus "just on time" (relative to global norms) would feel "too early" (locally), because the A section set a precedent of tardiness.

The A′ section's TR^1 is as devoid of winds as its A-section predecessor was, but the winds enter early in TR^2: five bars in (m. 100), rather than eight bars in. They represent a disruption in what was (until then) TR^2's smooth sailing towards a PAC in F major—the melody unexpectedly sequencing upwards. TR^2 is fully regained only when the winds enter for a third time in mm. 104–105. These measures correspond to mm. 50–51. They serve the same structural purpose: to clinch a crucial pre-cadential chord. The bass progression of the two cadences that follow (mm. 52–53 and 106–107) are the same. But what differs is the kind of pre-cadential chord: in the A section, it was a local IV; but in the A′ section, it is a local I^6. This is an example of what I remarked upon earlier: the power of orchestral gestures to take two harmonies that serve different harmonic functions and make them serve the same rhetorical one.

As we leave this aria, you may have noticed that I did not mention the poetic text once. This is because I do not regard the winds as performing any expressive function relative to the text in this aria. I understand their purpose as purely formal. (Even what I have called rhetorical rather than structural emphases are still part of the rhetoric of form.) This is not to say that the music as a whole is not expressive of the text. It is simply that I do not hear the wind parts as adding any expression not already supplied by the melody and harmony. This is true of much of Mozart's eight-part orchestration of the 1770s, with the exception of cases where the wind instruments are

used in madrigalisms or the evocation of specific topics (e.g. birdsong). Before we depart the eight-part world, though, we should take a look at an exception to the above, a movement where the orchestration does indeed serve what I at least would interpret as a highly expressive function.

❖ Beyond Punctuation

Having shown Mozart's standard orchestrating procedures from the 70s, I could now proceed directly to the 80s. But I would like to make another stop first. For you to really see what's new in *Idomeneo*, you need to be able to compare it to not just Mozart's everyday work, but also to the music that shows the most that Mozart ever succeeded in wringing as from merely eight parts. The music that I think does this is the second movement of Mozart's Piano Concerto No. 6 in B-flat major, K. 238, written in 1776. The movement is a Type 1 sonata. We will examine only the exposition, since the recapitulation repeats the orchestration exactly, adjusting for transposition.

Earlier, I suggested that there is perhaps a practical reason why Mozart's piano concertos and opera arias tend to have more interesting orchestration than his symphonies do—one that goes beyond the mere requirement for drama. The logic here is simple. In a symphony, the orchestra is responsible for everything—melody, harmony, countermelody, etc. The strings are the default instruments to perform every single one of these tasks. As a consequence, any line in the strings is instrumentally unmarked. Add a soloist, though, and the orchestra is relieved of its main business: playing the melody. Consequently, even the strings can mark a melody, because the fact of their doubling a soloist is not assumed.[15]

[15] Of course, the potential flaw in this logic is that it holds only while the soloist is playing. It does not explain why the orchestration would be more interesting even in ritornello passages. We will return to this problem later in this chapter.

More important still is how much room the orchestra gains to move around when there is a soloist. In symphonic textures, eighteenth-century composers generally keep the melody and accompaniment isolated in different regions of pitch space, so as not to tread on each other. This is especially the case when the melody and accompaniment are both string-based, since the timbral homogeneity will make the textures muddy should the two components overlap. But orchestral accompaniments to keyboard or vocal soloists frequently occupy the same range as the melody, because the distinctiveness of the soloist's timbre cuts through the orchestra. The accompaniment can get much richer: you can have figures that sprawl across pitch space, or that have more working parts than an orchestra could sustain while also juggling the melody. The accompaniments can also get more spare or delicate, especially in piano concerto movements such as the one we are about to look at.

Here, in K. 238/ii, the piano is self-sufficient. If the orchestra were excised altogether during the piano statements, one would lose no texturally essential lines. The fact that the orchestra's contributions are not strictly necessary is what makes them all the more significant. The orchestra doesn't have to speak; and so when it does, it is generally to say something worth listening to.

Example 6.5 shows this movement's exposition. First there is an orchestral ritornello. It begins with one bar of anacrusis, during which we can hear the first violins alone, and may realize that the strings will be muted for at least some of this movement. The six-bar phrase that follows (mm. 2–7) is what Mark Richards has called a "monofold sentence" (2011): in this case consisting of a two-bar basic idea (mm. 2–3), a continuation in the form of a two-bar melodic sequence (mm. 4–5), leading to a two-bar HC cadential. In the initial basic idea, the first flute doubles the first

violin melody an octave above, the second flute mid-doubles the second violin melody an octave above, and the horns provide support. The second flute and the horns disappear for the melodic sequence, but return for the cadential phrase.

This slimming of the texture during the sequence runs somewhat counter to the standard characterization of a continuation, in which its fragmentation and its rhythmic acceleration are felt to drive the music onwards. Such sequences within sentences create "forward impetus towards a goal," says Caplin (1998, 12). But sequences can also create the exact opposite effect: moving in circles, going nowhere.[16] In my personal listening experience, sequences are most arrow-like when they are felt in first person, and most cycle-like when they are observed in third person—just as horses race ahead as seen through jockeys' eyes, but race around as seen through spectators'.[17] This sequence in mm. 4–5 feels to me like the latter: not greater impetus but greater intimacy, as the music withdraws. Had Mozart added instruments or ratcheted up the dynamics, I would likely feel the opposite way.[18]

In the cadential phrase, the relationship between the violins and flutes changes: now the first flute mid-doubles the second violins (or, more accurately, the second violins "fore-double" the first flute), and the second flute plays a line unduplicated by anyone else (at least for m. 6). To me, this is the first time the two flutes sound like a cohesive pair, and the first time the violins and

[16] See Rosen (1997 [1970], 58) for a description of how the sequence shifted from being an engine of motion in the Baroque era to a means of dissipating tension in the Classical era.

[17] The cycle/arrow dichotomy comes from Karol Berger (2007). The idea of analyzing from the first person vs. third person comes from David Lewin (2011).

[18] In the beginning of K. 246/ii, Mozart will again employ this three-stage strategy of *forte* tutti presentation, *piano* reduced-force continuation phase, and *forte* tutti cadential progression. That sentence is regulation-size sentence, not a six-bar monofold miniature.

flutes cleanly separate into their respective families.[19] It is difficult for me to recapture how I used to hear these measures, because my ears have traversed them too often now. But I am fairly sure that when I first learned them, this shift occurred on beat two or three, as I wasn't yet cognizant of the flutes peeling off from the violins on the downbeat.

It may seem that I have devoted an absurd amount of attention to these six measures. Perhaps I have. But the very specific details that I am probing are Mozart's tentative steps towards the style of the 1780s: from one in which orchestration is punctuation (mostly at the boundaries of themes) as we saw in "Il tenero momento," to one in which it is inflection (within phrases).

The solo-led version of the P theme (mm. 9–16) diverges from its orchestral counterpart starting in m. 11. The previous measure resembles m. 4 enough that one might expect that mm. 10–11 will also form a melodic sequence. But although the $\hat{4}$–$\hat{3}$ middleground motion remains, these two bars now become a single melodic line, culminating in a rising sixth. In addition to expecting these two bars to form another sequence, one might also expect the orchestra to leave the piano unaccompanied. Instead, the strings re-enter in m. 12, echoing the piano's rising sixth. As the piano continues its ascent upwards, the first violins harmonize with it a sixth below—a relationship between them that we have not yet heard. The violins urge the piano upwards towards the subdominant in m. 14, but vanish as soon as the chord is attained. This is a new effect:

[19] On most recordings, I hear the flute and violin lines as co-equals. But on some, I perceive one of them as the clear melody. Recordings in which I follow the flutes include Jeffrey Tate and the English Chamber Orchestra (2006 [rec. 1989]) (accompanying Mitsuko Uchida), and Daniel Barenboim's also with the English Chamber Orchestra (2013 [rec. 1973]). (Lest one believe that this is just the English Chamber Orchestra's way, it is worth noting that the balance is much more even on Murray Perahia's recording [2006 (rec. 1984)].) Perhaps the only recording where I follow the strings to the complete exclusion of the flutes is John Eliot Gardiner's with the English Baroque Soloists (1999 [rec. 1987]) (accompanying Malcolm Bilson).

highlighting not an event within the cadential progression (the subdominant itself), but a process (building up to it).

The bridge between P space and TR space (mm. 16–17) features another instance of instruments changing roles midstream: the flutes in thirds double violins in thirds an octave above in m. 16; but in m. 17, the first flute breaks away from its mate, and the second violin likewise, until only they carry the melody, two octaves apart. Depending on the recording, this can sound like the first flute suddenly playing solo, or like the B♭–B♮–C line growing darker on account of the low doubling. (This largely comes down to how prominent the second violins are.) The TR itself consists of two phrases. The first (mm. 18–21), in C minor, is for piano only; but the strings join for the second, in B-flat major (mm. 22–25). This gives the latter key a certain brightness, as if the music is entering some luminous realm.

For the opening of the S theme, starting in mm. 26–27, Mozart could have had the flute double the first violin at pitch for both 6/4 – 5/3 progressions. Instead, he chose to keep the flute in the same range for both measures. This changes the effect of this line from simply "violin rises" to "violin rises to meet the flutes." Switching from a string octave pedal (mm. 34–35) to a flute octave pedal (mm. 36–37) in the run-up to the EEC is a nice touch that one likely wouldn't find in a symphony: such a pedal would be by default in the high woodwinds the whole time, since the violins would be occupied with carrying the melody. In m. 38, at the subdominant right before the exposition's final cadence, the piano and the strings have a voice exchange. This is the only time when the strings briefly climb higher, thus potentially creating the effect of the orchestra itself reaching towards the cadence, rather than merely invigorating the piano in its attempts.

This saunter through the exposition has not concentrated on the winds, which are otherwise the main focus of this chapter. But the use of the strings here—for purposes other than mere punctuation, to change the affect of various lines rather than merely clarifying their structural function—is a precursor to techniques that Mozart would soon apply to the winds.

❖ The Continuous Spectrum of Sonority

We are now at last in a position to begin to understand what makes *Idomeneo*'s orchestration so distinct from what Mozart had written up until then. When discussing wind-writing, *Idomeneo* idolizers tend to single out Ilia's aria "Se il padre perdei." This is mainly on account of its flashy solos for the first-desk players of the Munich orchestra for whom it was written: Johann Baptist Wendling on flute, Friedrich Ramm on oboe, Georg Wenzel Ritter on bassoon, and an unidentified horn player. These solos are doubtless some of the most ear-catching morsels in the opera, and are unique among Mozart's compositions at that time. But placing too much emphasis on obbligato solos in general is a tempting (and common) mistake when studying orchestration.

For a start, obbligato solos within vocal arias reached their zenith in the Baroque era, not in the Classical or Romantic eras. (Just think of the Baroque oratorio or opera of your choice and compare it with a Classical counterpart.) Early eighteenth-century orchestral wind parts also tend to be far more technically challenging than late eighteenth-century parts. If you have oboist friends who have played in opera pits, ask them whether it is more taxing to play a Mozart opera or a Handel opera. They will likely say the latter, because Handel tasks them with spending half the night playing endless sixteenth-note shapes idiomatic for strings but not necessarily for winds.

Even in the 1750s, when wind parts were often relegated to extensively doubling the strings, they were still quite difficult, as the string lines they doubled were very notey.

It is therefore suspect to suggest that the primary effect of the rise of great soloists within orchestral ranks was to allow composers to write more technically difficult music for winds. It might very well be the case that the presence of these soloists prompted composers to "give them something to do," but this "something" was often doled out in small doses and was far from ostentatious. The sign that orchestration is tending towards the Romantic is not when you can point to a greater quantity of obbligato solos, but rather when you are ready to ditch the word "obbligato" altogether, when the fact of wind solos twining their way through the orchestral fabric is common enough that it is to be taken for granted.

To see a bit of this, let's look at an aria sung by Ilia that is not "Se il padre perdei." In this case, my selection is "Zeffiretti lusinghieri." This is in a straightforward sonata form, rather than any sort of *da capo* or *dal segno* form.[20] We will work our way from the beginning through the

[20] There has been considerable disagreement over the years as to what form this aria is in. In his 2012 article "Two into Three Won't Go? Poetic Structure and Musical Forms in Mozart's 'Idomeneo'," Tim Carter lists this as one of six arias in the opera in compound ternary form. (The five others he lists are "Si il tuo duol," "Fuor del mar," "Se colà ne' fati," "No, la morte," and "Torna la pace al core.") To my mind, all six are best understood as in sonata form. In *Mozart's Piano Concertos*, John Irving analyzes "Zeffiretti" as representing a mix of traditional ritornello-based aria practices and sonata form (2003, 66). In his review of that book, David Grayson rightly criticizes Irving's analysis as confusingly explained and error-filled (2004, 283). Nathan Martin provides a comprehensive form-functional analysis of "Zeffiretti lusinghieri" in "Mozart's Sonata-Form Arias," in which it serves as his most straightforward example of a sonata-form aria (2015, 38–43). His analysis and mine differ in one crucial respect: he interprets mm. 30–36 (and, consequently, mm. 94–100) as the first subordinate theme (in Caplin's terms), whereas I interpret that as the transition. I think I am on better stylistic footing here, since (as we have seen) the path from I:HC to V:HC is normally traversed by TR space in a *da capo* aria. Also, the fact that mm. 94–100 are not merely a transposition of the earlier theme but also a re-harmonization is more characteristic of TR space than S space.

development (**Example 6.5**). As we progress through these sections, it is worth keeping in mind the five fundamental wind functions I identified before: (1) doubling, (2) dialogue, (3) bridging, (4) pedal, and (5) harmonic support. All of them will be on display here.

The ritornello consists of three phrases: a basic idea (mm. 1–4) and a contrasting idea (mm. 5–8), both of which will form the beginning of the P theme in the exposition; and a cadential idea (mm. 9–17) that will later form the end of the S theme. The harmony of the basic idea is one bar of tonic, two bars of dominant seventh, and then another one bar of tonic, all over a tonic pedal. Pitchwise, all of the strictly necessary material is in the strings. So, the winds' job here is only to double or support as they see fit. The horns double the bass line pedal. All of the other winds enter in m. 2, thus highlighting the dominant seventh. Mozart has placed a dissonant major second within the bassoon pair and within the clarinet pair. Placing a dissonant interval within a woodwind pair sharpens it, while spreading a dissonance's constituent pitches among different pairs (e.g. one note in the clarinets, the other in the flutes) softens it (Rimsky-Korsakov 1964 [1922], 72). This orchestration thus creates potential for the "seventhness" of the dominant seventh chord to be brought out by this underlined major second. The rests at the end of m. 2 might stop a listener from hearing the dominant seventh chord resolve directly to the tonic. If so, then dominant and tonic are, instead, separate harmonic events joined up by the violins chromatically crossing the gap to reach the tonic.[21]

[21] In this analysis, I am assuming that the various details that I describe are audible in performance. I find this to be true for the recording I am working off of—with Lisa Milne as Ilia, and Charles Mackerras and the Scottish Chamber Orchestra accompanying her (2011 [rec. 2001])—but it is by no means true for all or even most performances. This entire analysis is therefore about what the orchestration affords, rather than about anything guaranteed. This chapter is not the place for me to address the radical contingency created by variations in performance practice. That will be a chief concern in Chapter 8.

Neither the contrasting idea nor the first iteration of the cadential idea features the winds. Indeed, the former figure—lapping thirds surely depicting breezes gently stirring the water, much as they will in E major again in "Soave sia il vento," eight years later—is the sole property of strings throughout the aria. But winds are added back for the second pass through the cadential idea (mm. 13–17). This strategy is, by now, very familiar. What is strange and wonderful, though, is the voicing of the winds' harmonic support. They complement the strings such that all of the Es from E2 to E6 are represented. The melody is not merely supported; it is enveloped by the fullness of the orchestra. However, there is only one B in the mix (the B3 in the first bassoon), but three G♯s (in octaves 3, 4, and 5). This chord is thus very third-heavy (the next one even more so when the one B disappears, and the strings add more G♯s to the I^6). The combination of voicing and timbre can combine to produce a sound that is unusually bright and spacious, like a sunlit sky. Although the violins complete the cadential progression, their conclusion is unusually overtaken by the winds—not merely doubling but tripling the melody in parallel thirds in the flutes, clarinets, and bassoons. This is not a dynamic fortification, because Mozart has dialed down the dynamics to *piano* in m. 16, at the crest of the *crescendo*; it is, instead, a fortification of color. A combination not yet featured—clarinets and bassoons on their own—forms the bridge to the vocal exposition.

It is worth noting that in this short ritornello alone, Mozart has already used four of the five wind functions—everything except for dialogue. In this newer music, the functions themselves have not changed, but the rate at which these functions are deployed and then replace each other has increased enormously.

When Ilia starts singing, and some of the same music returns again, a listener is afforded the opportunity to reinterpret some of these orchestral gestures in light of the text that they now

set. When she sings "Zeffiretti" and the winds enter on that dominant seventh chord (m. 19), one could now hear them as the zephyrs, summoned by her words. The moment when they rest (m. 20) to let strings and voice alone be heard is in the midst of the word "lusingheri" ("flattering" or "gratifying"), which can make the chromatic line seem wheedling, not so much sliding as sidling up to the tonic chord.

Naturally, "volate" ("fly") is the word that launches the singer's melismas. In earlier times, Mozart (or another composer) would likely have accompanied this with a simple string chord. Instead he uses strings on the downbeats of mm. 23–24, but a flute dyad in between, not so much supporting Ilia as crowning her from above. When flutes replace the strings, the bottom drops out of the texture, and singer and accompaniment are both afloat. Strings are fundament; flutes are firmament. The timbral variety this produces could be heard as also enhancing the effect of the wind-on-water string effect from mm. 5–7. Had the strings played continuously up until then, there would have been a shifting of gears as they switched textures. As it is, a listener has heard only winds for a couple of beats, and so the strings can sweep in, fresh again to their ears.[22] Measure 27 has a new color: parallel thirds doubled at the octave in the strings and the bassoons, with a pedal in the flutes above. Hearing m. 28 in real time, it might seem at first as if the line has been handed off to the flutes. This would knit Ilia's stepwise descent into one continuous thread. Instead, violins and bassoons rejoin at the moment that Ilia's notes switch from being the tail of the melisma to individual syllables. The texture is yet another instance of tripling a cadential figure.

[22] Mozart's technique of temporarily dropping an instrument out of the texture so that its return can mark a later passage has also been remarked upon by Jonathan P. J. Stock, in connection to K. 491/ii (1997, 215).

The TR is the first example of genuine dialogue in this aria—not wind-string dialogue, however, as was the norm in the 1770s, but intra-wind dialogue. Fittingly, this dialogue comes as Ilia bids the winds to speak ("dite"), to pass her words onto Idamante. One could imagine this as Ilia's mental picture of Idamante and the breezes in communication; or one could instead imagine this as a chain of breezes each passing the message down the line, like a game of telephone. Mozart's orchestration folds Ilia into this wind dialogue, rather than letting it serve as a backdrop to her singing: the clarinet and bassoon's portion is in octaves, but the flutes' portion is in thirds. It is Ilia herself who must supply the other end of the octave, and thus become to the flutes what the bassoon is to the clarinet. The bridge in m. 36 that carries us into the S theme is scored for flutes and clarinets. If you have been keeping count, you'll know that this is the only one of the three possible wind pairings Mozart has not used yet, and is thus a new color.

P and TR constitute the first lap through the aria's initial stanza of poetry. S space is a second lap, in the form of an extended sentence: a normative four-bar presentation (mm. 38–41) setting the first two lines, which had previously been set by the entire P section; and then a much-extended continuation (mm. 42–60) setting the next two lines, which had previously been set by the entire TR. In analyzing the opening of the K. 238/ii, we have already discussed the ways in which orchestration can alter the "plot" of certain formal functions. Here, the presentation is a process of growing to a tutti, adding instruments a bar at a time. The anacrusis measure (m. 37) has strings plus a pedal in the horns and second bassoon; then Mozart adds violin and first bassoon in octaves for the melody; first flute and clarinet pedal in m. 39; and finally the first flute tripling the melody.

Rather than building upon this tutti, the continuation cuts out all instruments except for the strings, and not even all of the strings—the double basses disappear for the fragmentation phase (mm. 42–44), their first absence in the aria (and their only, with the addition of the same moment in the recapitulation, in mm. 106–108). The figure that Mozart uses to set the words "e gli dite" and "ch'io l'adoro" here is reminiscent of the figure he used for "e gli dite" in the TR, and he highlights this resemblance by (again) having winds speak back (mm. 43–44). This time, it's a solo flute and clarinet. Why use this combination, when last time it had been a flute pair? Well, why not? This aria (and the opera as a whole) is dominated by an aesthetic of variety for variety's sake. This might also explain why the sprightly descending scale figure in m. 48 is for solo flute and violin—yet another combination that has not yet carried the melody.

I have emphasized repeatedly that winds are capable of highlighting any particular stage within a cadential progression. For one of the failed cadential progressions (mm. 49–51), Mozart uses them for a different sort of harmonic event than the ones we have surveyed thus far: a detour to the relative minor (m. 50), made surprisingly sunny by a pair of flutes. The ultimately successful cadential module (mm. 56–60) has the same orchestration that it did in the opening ritornello (mm. 13–17). But whereas in the ritornello version vi led directly to ii^6, here vi becomes V/ii through a raised third. The winds are the agents of this change: a *crescendo* in m. 57 (marked only in their parts, and not in the strings) surges into that raised third, as if energizing it.

I have moved slowly enough through the exposition that two observations about the development will hopefully suffice. (1) The way Mozart handles intra-wind dialogue in mm. 65–69 is quite interesting, because the two groups—bassoons on the one hand, flutes and clarinets on the other—overlap in their statements. These rapid shifts of scoring underline the inherently turbulent

nature of the development. Also, by retaining the flutes, the thicker pair maintains a connection to its origins in the flute dyads in mm. 23–26. (2) Once the alternations are over, Mozart reserves the clarinets for mm. 72–73 and 76–77, when the music modulates (from E minor to G major, and then from G major back to E minor). One way to hear this is as the clarinets marking the modulations; but another, far more appealing to my ears, is to hear the clarinets as the agents of the change, yanking the music from one key to the next.

As I have stated before, this chapter is mostly about orchestration as it appears in the score, and not as it is necessarily heard by listeners. Nonetheless, my description of these passages has not been without some interpretive license. I have allowed myself to imagine possible aural experiences, some of whose contingency I have tried to emphasize with words like "could," "seem," and "might." In these more interpretive moments, I have exploited details too subtle to be processed by a typical audience member—especially one who would likely focus mostly on the singer and not on the instrumental backdrop. (Although virtually none of these details are knowledge-dependent, many are awareness-dependent, with rather sharp timbral awareness required.) The emphasis should be not on the connections I draw, but rather on how these connections are afforded by the orchestration in a way that they weren't in the earlier music that we saw by Mozart. Listeners' imaginations can more easily go into interpretive overdrive precisely because the musical environment is so data-rich.

Even if we adopt a thought-independent mode of listening, one more akin to that of a typical audience member, it is hard to escape the impression that we are experiencing a sonic

aesthetic entirely unlike what is detectable in Mozart's earlier works.[23] The aesthetic we are witnessing here is the direct antecedent of what we saw in the "Reformation" Symphony, what will be characteristic of much early Romantic orchestration; not only by Beethoven, but also by Schubert, Cherubini, and countless others from the 1790s forward. This is what I call the "continuous spectrum of sonority," as opposed to the "discrete" spectrum of before. In this style, any part of a phrase can be emphasized, not just the most "structural" points, such as the final cadence or the space in between phrases. Melodies can be passed from instrument-to-instrument or selectively doubled mid-phrase, with each individual woodwind freed to work as a solo agent. And color can shift as constantly as if an eager hand were repeatedly twisting the tube of a kaleidoscope through which the music is refracted.

❖ Transmuting Tutti

In closing our consideration of Mozart's orchestration, I would be remiss if I did not address the works in which the continuous spectrum is most evident: the late or so-called "grand" piano concertos (from K. 450 forward).

By far the most astute analyst of the orchestration of these works is Simon Keefe. In *Mozart's Piano Concertos: Dramatic Dialogue in the Age of Enlightenment* (2001), Keefe (as the title suggests) analogizes dialogue between instruments to dialogue between characters in a drama. He defends the historicity of this analogy with references to descriptions of concerto form by Koch

[23] I have used "Zeffireti lusinghieri" here as a stand-in for *Idomeneo* as a whole. Those skeptical that this aria is representative of the orchestration of opera more generally are encouraged to examine "Vedrommi intorno," "Il padre adorato," "Si il padre perdei," and "Accogli, oh re del mar," to name only the flushest examples.

and Reicha, provides excerpts from plays from Mozart's time to show how dramatic technique functioned in that period, and also compares Mozart's dialogic practices in his concertos with those in his operas. In Chapter 2, I expressed my suspicion of historicist analogies such as these—that they tend to reconstruct the perspectives of theorists of yore more than those of laypeople of yore. But I find Keefe's particular approach unusually convincing. The urge to hear dialogic exchanges is so fundamental a way of understanding music that I have no qualms about attributing it to non-expert as well as expert listeners.

What makes Keefe nearly unique among orchestration analysts is the fluency with which he can draw intertextual connections. This is no doubt a consequence of the fact that he is a single-composer specialist, rather than an era-long generalist; and that he is operating only within Mozart's oeuvre, rather than comparing him to other composers. All of this provides him with an advantage over the scholars we surveyed earlier—Dolan and the commentators on *Idomeneo*. Unlike the former, he does not use the style of one composer to make claims about the style of an era. Unlike the latter, he substantiates all of his claims about Mozart's development with specific details.

The one lacuna in his otherwise thorough coverage is one common to nearly all who write about concertos of any stripe. They focus on the qualities that set concertos apart from other genres: namely, the interaction between soloist and orchestra. This is true of almost all of Keefe's analyses in his monograph and in his later works on this subject (2006, 2007). When he does talk about the purely orchestral parts, it is generally about the development section. As an alternative, I would like to talk about what is the least concerto-like part of a concerto first movement: the opening ritornello, during which the orchestra is alone. Functionally, there is no reason why these

should be any different from symphonic expositions, save for the fact that they do not modulate. And yet, they contain Mozart's most colorful writing for orchestra alone. The opening ritornello from two first movements—from K. 482 and K. 491—will suffice to illustrate this, and to show what effects this color is used to create.

Example 6.6 is the opening ritornello of K. 482/i. Its P^1 theme consists of two elided repetitions of a monofold sentence (mm. 1–7, 7–13). In each case, the basic idea is a tutti, and the continuation consists of two elements, a melody and an accompanying two-voice chain of suspensions above. The first time (mm. 3–7) the melody is given to a pair of bassoons and the suspensions to two horns. The second time (mm. 9–13), this complex is taken up an octave, violins have the melody and clarinets have the suspensions.

Several things about this might immediately capture the ear of someone accustomed to Mozart's earlier piano concertos, or to the concertos of most of his contemporaries. First, dialogue spotlighting individual wind instruments (rather than the wind or woodwind sections as a whole, as in K. 450, 453, 456, and 467) is occurring far too early: in symphonies and concertos alike, it is usually a feature of S space, rather than P space. Second, in both continuations, the melodic line is below the harmony part, something that is uncommon in the Classical era, but will become more common in the Romantic era (as we saw in the Mendelssohn).[24] Third, bassoons are featured as a melodic instrument. This is not a role that they played in Mozart's earlier music, or in most Viennese music of the time, for that matter.[25] Fourth, clarinets are featured, period. Since

[24] In calling this "the melodic line," I am suggesting that it and not the upper parts are the main focus of attention. They are for me, but perhaps they aren't for you.

[25] In the concertos up until then, they occasionally played short melodic fragments, which are passed around the entire woodwind section (e.g. K. 451/iii/170–203).

returning to Vienna, Mozart had used them in his "Haffner" Symphony and in his Horn Concerto No. 3, K. 447, but not in any of the piano concertos. More importantly, though, they are accompanying the strings rather than vice versa, thus providing a bit of role reversal.[26] All of these oddities combine in one theme.

R1:\P^2 is a trifold sentence, played twice (mm. 13–21, 21–29). Each of the four segments of the sentence is performed by a different wind instrument, with the three basic ideas broadening out from solo flute, to clarinets in thirds, to bassoons in sixths, before a "horn fifths" cadential progression.[27] Strings bob in and out of the background during all of this. This theme seems not just about displaying colors, but also about saying: "Here, let me introduce you to the cast of tonight's show."

R1:\TR (mm. 29–46) is a tutti.[28] But the winds are showcased again in the caesura-fill (mm. 46–50). At m. 49, it briefly appears that the flute alone might pull us into S space, with the other winds dropping away, but the second half of m. 50 quickly contradicts that, as the first clarinet and first bassoon rejoin for the chromatic scale upwards. The S theme is very brief—an eight-bar sentence (mm. 51–58). The basic ideas (mm. 51–52, 52–53) are for the unusual

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[26] To clarify: Strings supporting a clarinet duo is normal; a clarinet duo combining with other instruments in an accompaniment texture is too; but clarinets *alone* serving as the accompaniment is not, and seems a reversal of the first of these relationships.

[27] Depending on the conductor's interpretation and your own predilections, it is entirely possible that you might hear the strings as leading the cadential progression, and the horns as merely supporting it.

[28] The other option is to hear the R1:\TR as beginning in m. 31. Hepokoski and Darcy prefer this, writing that m. 31 is "probably a better choice than the forte in m. 29, which impatiently— and wittily—brings a blandly self-reiterating R1:\P to a close" (2006, 483, n. 23). I acknowledge that this is what many theorists will prefer. This is largely a matter of whether you prioritize motive or rhetoric (e.g. energy gain). Also, I think that the reharmonization makes mm. 29–31 sound prolongational rather than cadential (no more ii^6), which is typical of initiation not closing.

combination of flute and violins in one octave, and horns an octave below. Not content with the creativity evinced by the choice of melody instruments, Mozart adds countermelodies the second time (mm. 52–53): a tripping descending line in the clarinet first, and the bassoon next. This is not "structural" counterpoint, but rather purely decorative. Thus again, in these two bars, all four wind colors are displayed. The continuation (mm. 55–58) is for strings alone. It is a testament to how large a role the winds have played thus far that scoring the continuation for strings alone can mark it!

The aesthetic exhibited is again that of the continuous spectrum of sound, but it is not used to the same expressive ends that it was in "Zeffiretti lusinghieri." It is used, instead, for pageantry—parading the wind instruments before the listeners' ears; showing them off immediately at the movement's beginning, playing unusual roles; riffling through them in P^2; and bringing them back in a shiny new combination in S. We usually reserve the term "display episode" for displays by the soloist, but it does not seem inappropriate to apply it here to the winds' parts too.

K. 491/i/R1 **(Example 6.7)** is a bit more of a puzzle to characterize, orchestrationally.[29] Its form is straightforward to analyze on paper, although nonetheless surprising in its construction. At times the winds seem to work with the form, clarifying it or highlighting its structure; at other times they seem to work against it.

[29] I did not recommend a recording for K. 482, because its opening ritornello is so well served. But for K. 491/i, I strongly recommend Paul Badura-Skoda's performance with the Prague Chamber Orchestra, released on CD in 2014 by TransArt in which it is paired with K. 503. (This is not to be confused with the 2004 CD by the same soloist, orchestra, and label—actually a re-release of the 1972 recording—in which K. 491 it is paired with K. 537.) The instrumental clarity in the 2014 release is stunning.

The movement opens with a serpentine theme thirteen bars long.[30] One way to characterize its form is as a sort of monofold sentence. If one were to attempt to generate that reading processually, the thought process might go something like this: There is a four-bar basic idea (mm. 1–4), which at first might indicate the possibility of a normative sixteen-bar sentence. It is succeeded by a two-bar fragment (mm. 5–6), which end-rhymes with the basic idea. At this point, it would be very unclear what's going on. This fragment is sequenced (mm. 7–8). For the first time, the possibility of this being a monofold sentence might arise. If so, 12 bars seems a plausible length, in which case one might expect a four bar cadential idea to follow (4 [basic idea] + 4 [sequence] + 4 [cadential]). Instead, however, the fragment is fragmented (m. 8–9); and then further fragmented (m. 9–10), losing a beat. (Cooper and Meyer [1963] might say that this has lost a "syllable"—going from amphibrach to iamb.) Finally, the theme proceeds to a three-bar (elided) cadential idea (mm. 10–13).

There are, however, other more unorthodox ways of understanding this theme. If you were to delete the first four bars, the motivic shape (though not the harmony) of this theme would actually then resemble a (normative) bifold sentence. What is currently mm. 5–8 would then be the presentation phase (with two two-bar basic ideas), mm. 9–10 would be the fragmentation phase, and mm. 10–13 still the cadential phase. If you find this plausible, then you could think of this theme's shape as either an initial incipit giving way to a sentence (mm. 1–4 as "before the beginning"), or alternatively as a bifold sentence embedded within a monofold sentence. All three

[30] Naomi Waltham-Smith calls this theme the movement's *idée fixe* in her absorbing analysis of this movement, which she uses as a springboard to examine notions of closure and temporality outside of the scope of my current investigation (2017, Chapter 3).

of these possibilities, I should hasten to add, segment this as 4 + 4 + 5. What differs is the relationship between these segments.

Thus far, I have analyzed the theme based on its motivic shape and (implied) harmony, without consulting the orchestration. The melody is played by strings and bassoon in unison throughout. But Mozart does not leave those instruments by themselves for all thirteen bars: he adds oboes for mm. 8–13, clarinets for mm. 11–13, and horns for mm. 12–13. No matter how you slice the theme, the oboes' entrance does not coincide with the beginning of a unit; it coincides with the end of one. Assuming a four-bar hypermeter, this entrance occurs on a hypermetric "four." The horns' entrance is also on a hypermetric four, which might not seem peculiar to someone who has listened to quite a lot of Mozart, as they might be accustomed to hearing instruments added at cadence points—to drive the cadence forward (as the horns are doing here)—regardless of the hypermetric position of the cadence. We might think of the oboes as performing a similar function: they enter on a vii^{o6}, which resolves to i^6 in the next bar. The oboes are giving that dominant a little extra boost. And thus, although they cut across formal units, this does not erode the structure, but rather connects one unit to the other. The clarinets are also performing a similar function. They make the tonic resolution a three-step process: oboes push towards i^6 (beginning the ECP), clarinets push towards the pre-dominant, and horns mark the arrival of the dominant and its resolution.

R1:\TR (mm. 13–34) is a tutti restatement of P, now supported harmonically and with a much-extended tail that continually emphasizes the dominant. Much as in K. 482/i, the caesura-fill (mm. 35–43) is performed entirely by the winds. In her analysis of this movement, Naomi Waltham-Smith rightly notes three unusual features of this fill: (1) it is quite long (for a fill), (2) it

is an ascending sequence, and (3) it is still based on P material, in this case the tail of the theme (2017, 87). To this accurate list of anomalies, I might add the texture and the orchestration. The accompaniment is in imitative counterpoint, with the odd suspension thrown in. Depending on one's frame of mind, one might detect a sacred (or learned) flavor to this combination of imitative counterpoint and extensive sequencing. The initial orchestration is for just double reeds, lending a nasal, organ-like quality that might reinforce the religious character. (This is not, however, how I necessarily experience this passage's ethos.) As the sequence continues, the oboe part becomes another contrapuntal background line, and the flute takes over the melody (mm. 40–44). This successive entrance does not, to my ears, energize the sequence. It draws it out. And drawing things out is going to be one of the main functions of the winds in the rest of this ritornello.

The flute is not only the last leader of the caesura-fill, it is also the first leader of the R1:\S theme (mm. 44–63). In Mozart's only other minor-key piano concerto (K. 466), R1:\S began in the relative major, thus in part diverging from Mozart's practice of making his opening ritornellos non-modulating. (I say "in part" because that ritornello's EEC is still in the tonic.) Here, the S theme is still in the tonic minor. It is a twenty-one-bar sentence, with constantly changing orchestration—the wind instruments darting in and out within the space of a couple of bars. The basic idea (mm. 44–47) is for flute and bassoon in canon over strings, maintaining the contrapuntal style of the caesura-fill. The flute and bassoon restate their canon (with a couple of pitch alterations to the head, and with articulation changed in the tail) in the repetition of the basic idea (mm. 48–51) with a clarinet pedal added. As befits a sentence with four-bar basic ideas, the continuation begins with two two-bar fragments (mm. 52–53, 54–55). The oboe has the melody in the first fragment with horn added one measure in to pull the music towards the second fragment. At this point, all

five winds have been showcased again within the space of a few bars. The second fragment is the clarinet replying to the oboe. It is the cadential phrase that is wildest. The clarinet begins, but instantaneously becomes the *dux* in a brief canon, in which the flute and bassoon are the *comes*. The flute and bassoon are spaced two octaves and a third apart—a gaping chasm to leave between two sole instruments carrying the same stream. As soon as the clarinet has finished, the oboes immediately take over. This is in part, one presumes, to introduce yet another color. But it serves another purpose too: it allows the cadence in mm. 62–63 (which is the EEC) to more closely copy the one in mm. 12–13. There, the characteristic instrumental gesture was the first entrance of the clarinets and the horns. To reiterate that gesture, Mozart needs the clarinets to exit first so that they can re-enter.

To say that $C^{1.1}$ (mm. 63–73) is derived from P (as C themes sometimes are) is to undersell its resemblance. It is a restatement of P, re-orchestrated and with its tail trimmed. (Waltham-Smith's idea of this theme as *idée fixe* seems increasingly plausible.) It is $C^{1.2}$ (mm. 73–91) that will occupy the remainder of our attention to this exposition. Its first phrase (mm. 73–79) is a rising sequence from A-flat major (where the deceptive cadence ending $C^{1.1}$ deposited us) back to C minor. Its second phase (mm. 80–87) is primarily a prolongation of the tonic. And its final phase (mm. 87–91) is cadential.

Phase 1 is a dialogue between the strings on the one hand and the flute and the bassoon on the other, with each group playing overlapping two-bar phrases. Again, the flute and bassoon are quite gapped: a full two octaves stretch between them. By Phase 2, the tail of each two-bar phrase has been deleted in the strings, and the heads are repeated every bar. The winds keep to overlapping two-bar phrases, but now engage in intrafamily dialogue (as Eversole might call it). The

default to handle this would be to divide the winds into two groups, and assign one phrase to one group and its response to the other. Mozart does not do that. Instead, he cycles through different combinations: flute + clarinet (mm. 80–81, 84–85), flute + oboe (mm. 82–83), bassoons in octaves (mm. 82–85), clarinets in octaves (mm. 86–87), and clarinet + bassoon (m. 87). The cadential phrase then features three different relationships between woodwinds and strings: doubling (mm. 88), mid-doubling (m. 89), and countermelody (m. 90).

What to make of all of this? I described the spirit of K. 482/i/R1's wind parts as one of pageantry, showing off the instruments. One could, I suppose, say the same thing about what we have heard in K. 491/i/R1. But I perceive several crucial differences. First, the modus operandi of the winds is not to deliver discrete solos over a bed of strings; it is to form a latticework of their own. The wind writing in K. 482/i/R1 is clear; the wind writing in K. 491/i/R1 is complicated and complicating (that is, it *creates* complications). The winds make the medial caesura—what should be a pause between thematic zones—almost into a thematic zone unto itself. They make the cadential phrase of S—what should be a moment of clarification, as the tonic is confirmed—into a labyrinth. The winds in K. 482/i/R1 are actors of a conventional script, making the script seem less quotidian through the allure of their personalities. But the winds in K. 491/i/R1 are off-script, throwing the production into disarray. What the two have in common is an unwillingness to relegate the winds to the background. Mozart is finally writing for the orchestra as an ensemble cast.

❖ Conclusion

Though this chapter began with broad methodological questions, the majority of it has been a slow march through several close analyses. I don't want to leave you with the impression that this was an anthology of vignettes, moments of Mozart offered for your enjoyment. There was a narrative progression through all of this that warrants re-stating.

The general problem we have addressed in this chapter (and will continue to address in the next) is that music history is still reliant upon observations of style when discussing the aesthetic character of the music of particular composers or eras. It does not, however, as a rule, describe stylistic features with sufficient detail to establish their significance or with sufficient context to distinguish one composer or era from another. Without such details, any discussion of style can easily descend into the uncritical adoption and perpetuation of inherited preconceptions, untested against the realities of the repertoire.

Using Mozart's *Idomeneo* as the central case study, I proceeded in "Before & After" fashion. I established the "before" by first providing a taxonomy of the salient features of Mozart's 1770s style (in the Salzburg symphonies), and then exemplifying them within a musical context by showing them in action (in "Il tenero momento"). Orchestration functions as punctuation in these pieces. To avoid simplistically portraying this as a clean-cut progression from one aesthetic to another, I next examined one of the few "before" pieces that nonetheless contains the seeds of the "after" (in K. 238/ii), in which orchestration functions as inflection as well as punctuation. Having established the "before" context, I then showed what the "after" has that the "before" hasn't:

namely the "continuous spectrum of sonority" present in "Zeffiretti lunsinghieri."[31] I then used the excerpts from K. 482 and K. 491 to show how this basic aesthetic can be put to different expressive ends within an instrumental rather than operatic genre.

This narrative has been purely "internal" to Mozart's career. Because it is so insulated from the context of his contemporaries, I have not drawn any large conclusions about ways in which Mozart's compositional style may or may not represent larger changes happening in Europe (or even just in the Austro-German cities in which he was travelling at the time). You might therefore be left with questions about how far Mozart might stand ahead, behind, or simply apart from other aesthetic changes rippling around him. If so, you should proceed on to the next chapter.

[31] One feature of my narrative that might raise suspicions is that I jump directly from 1776 to 1782. You might wonder whether in doing so, I have artificially set up *Idomeneo* as a paradigm shift, by excluding works that might suggest a transition between the two aesthetics. If you harbor such suspicions, I encourage you to examine the intervening works: symphonies K. 297, 318, 319, and 338; piano concertos K. 413, 414, and 415; and perhaps *Thamos, King of Egypt* and *Zaïde*. Of these, only K. 297 and *Zaïde* suggest any minor evolution from the style I have used as the "before." I will briefly address the former in the next chapter.

Chapter 7: Coloring in the Map

❖ What Should We Ask? What Can We Answer?

We have spent an entire chapter poring over Mozart's scores, with our heads bent over our desks. It is time to fling open the door and venture forth into other compositional climes. We are not leaving all of his music behind us. There are still more things we can learn *from* him, but not more that we seek to learn *about* him in particular. We are interested in him only as a reference point. His progression, if you recall, was, from a syntactical use of (eight-part) orchestration in the 1770s, to one both emotionally expressive and variegated for its own sake in the 1780s. Our question is to what degree this narrative is representative of the changes sweeping the continent.

Well, that would be our question in an ideal world. In reality, that question is virtually unanswerable in such a general form. The musical landscape is simply too variegated. Instead, we will have to break that question up into a series of smaller ones, each of which will warrant a different tactic. And we will have to content ourselves with examining each small question at a fairly city-specific level. From the 1760s through the 80s, we are going to hop around Europe, taking in the local (instrumental) color. In each city we visit, we will examine music that resembles Mozart's in some respects and differs from it in others.

Once we reach the 1790s, however, we are going to plant our feet in Central Europe and switch to Haydn as our focal point. Dolan's Haydn, in particular. Instead of starting the process over from scratch—building up a dossier of his evolution across his career—we are going to work from the characteristics she has identified and test them against those of his contemporaries. Which of these features are actually progressive, and which are conservative? Which are

emblematic of his era, and which are personal idiosyncrasies? Was the "orchestral revolution" a reality; and if so, which side was he really on?

Let's begin our travels.

❖ Out of Austria

If Mozart scholars are to be believed, the Mozart who wrote *Idomeneo* was not an Austrian composer; he was a cosmopolitan composer, absorbing influences wherever he travelled. And the cities most audible in that opera's wind passages are supposedly Mannheim and Paris, which he visited on the same 1777–78 journey. Roye E. Wates has referred to this trip as "as a turning point, perhaps *the* turning point of Mozart's life—personally, intellectually, and musically" (2010, 111). Some authors are very particular in pinpointing the Mannheim orchestra itself (and not just the compositional style of the resident composers) as the inspiration for Mozart's newfound sense of orchestral color. Heartz says that the chiaroscuro in *Idomeneo* "betray[s] what Mozart made of" the "[d]ynamic range, effectiveness of the contrasts, finesse of winds and strings" of the Mannheim orchestra (1969, 18). Craig Ayrey attributes the opera's richness of orchestration to "the personnel of Munich" (1993, 119).[1]

If all of this were true, then when we examine orchestral music of these cities at this time, we might expect to see something less like Salzburg Mozart and more like Munich and Vienna Mozart. The results of such an examination are mixed, tending towards the negative. As we shall see, the winds are indeed typically more active in late 1770s Parisian and Mannheimian

[1] The Mannheim orchestra moved to Munich in September 1778 (Wolf 1984, xlvi).

orchestration than they are in 1770s Mozart's, but their use in no way resembles the continuous spectrum.

We'll begin with (eight-part) symphonies, and then consider operas. To keep things simple, we'll let a single composer embody each city. At this point, alarm bells may be ringing in your head. One of the premises of this chapter and the previous one is that we cannot assume that Mozart and Haydn are representative of anyone but themselves. Surely, the strategy that I am now proposing risks repeating the same mistake at a lower level? There is some truth to this. But unless we entirely restrict ourselves to single-composer studies, we will always have the problem, until—as in Borges's story "On Exactitude in Science" ([1946] 1999)—we construct a map that is the same size as the territory it depicts. The fact that I am staying so local mitigates this problem. Even more specifically, for the sake of this comparison, I don't need to encapsulate Mannheim and Paris as a whole, so much as the kind of music Mozart would have encountered.

Representing Mannheim is Christian Cannabich, who led its orchestra from 1774 until his death in 1798. To the best that we can ascertain, his symphonies formed the core of the orchestra's programming. And Mozart is known to have heard his works both in Mannheim itself and after the orchestra moved to Munich in 1778 (Wolf 1984, xlv–lix). Representing Paris is François-Joseph Gossec, whose works were a feature of the *Concert Spirituel* series throughout the 1770s, and whose music Mozart was also familiar with (Abert [1927] 2007, 497).

We'll start with Cannabich. Dating his works precisely is impossible. All we know about the two symphonies from which I will draw excerpts is that they were written during the Munich phase rather than the Mannheim phase (Wolf 1984, li). The big difference between Cannabich's 1770s orchestration and Mozart's lies in the use of upper wind pair(s) (e.g. flutes, oboes, or

clarinets): their role is much more melodic in the former's. They remain perfectly capable of fulfilling all of the other wind functions they perform in Mozart's symphonies—dialogue, bridging, pedals, and independent harmonic support—but in a typical outer movement, the majority (or at least a large plurality) of their time is spent playing the melody, either doubling the strings or on their own.

Let's compare apples to apples. Mozart's K. 181 is a D-major symphony whose three movements are played without pause, and whose first movement is a Type 1 sonata 181 measures long. Cannabich's Symphony No. 59, D13 is a D-major symphony whose three movements are played without pause, and whose first movement is a "Type 1-ish" sonata 174 measures in length.[2] The only woodwinds in each are a pair of oboes. **Example 7.1** is a table showing how often they play and what they do. What I am counting is: when they play the melody by themselves, when they double the melody played by the strings, when they engage in wind-string dialogue, and when they serve some sort of harmonic function (which includes both pedals and "independent harmonic support"). Of course, mid-doubling sits on the boundary between the second and fourth categories. In this table, I've counted mid-doubling as doubling when the oboes still have some sort of contour within the bar (as in **Example 7.2a**), and as harmonic support when they are just holding the same pitch (as in **Example 7.2b**).

[2] "Type 1-ish" because its second rotation begins off tonic, in vi. This tonal scheme is what one would expect from a Type 2 sonata. However, a Type 2 sonata's second rotation begins developmentally, whereas D13's second rotation (starting from m. 95) maintains bar-for-bar correspondence with the first. There is also an eleven-bar link (mm. 84–94) in the middle of this movement—a feature more characteristic of a Type 1 sonata. Ultimately, this is some sort of hybrid, blending elements of Type 1 and Type 2: the layout of the former and the large-scale tonal plan of the latter. (My thanks to James Hepokoski for his thoughts on this movement.)

These numbers speak loudly. Compared to Mozart's oboes, Cannabich's almost never rest, they are used melodically more often than harmonically, and they carry quite a bit of melodic material by themselves. Even when doubling, Cannabich's oboes retain greater prominence than Mozart's, because they often double the violins an octave higher, almost as if they were leading and the violins were merely supporting them. (**Example 7.3** shows an instance of this.) In choosing Symphony No. 59, I have not stacked the deck to achieve this contrast. Cannabich's style is fairly consistent in this regard from his works in the mid-to-late 1760s through most of the eight- and ten-part symphonies of the mid-1770s.

Though this additional melodic function of the high woodwinds in Cannabich's style marks a significant departure from Mozart's, it is not a departure in the direction of the continuous spectrum of sonority. (Not yet. Cannabich will eventually move in this direction, as we shall see.) Indeed, by virtue of the fact that Cannabich's oboes rarely take a breather, they have even less power to inflect a particular moment. They are too present to perform marking. Ergo, though it may seem counter-intuitive, the change that most improved the color of Cannabich's symphonies was when he started to cut back on his use of woodwinds.

If we turn to Gossec's Symphony in E♭ major, Op. 12/5—our chosen piece by him—we find that his approach is almost a halfway point between Mozart's and Cannabich's. Like Mozart, he prefers that his winds take a supporting role. But like Cannabich, he is quite willing to have a pair of them carry a movement's main theme (**Example 7.4** shows the C theme of the finale, in which they do just that), and he's happy to place them an octave apart from the strings during tuttis. An advantage that Gossec has over Mozart is that his woodwind pair is clarinets—rarely to be found

outside of Paris and Mannheim—which are comfortable across a much larger range.[3] Accordingly, they are happy to open the symphony by bolstering a low violin melody at pitch, followed by doubling the violins in thirds an octave below **(Example 7.5)**; and then equally happy to scamper in rapid thirds up to C6 near the movement's end **(Example 7.6)**.

While these symphonies attest to a certain amount of stylistic diversity among cities, they still do not deliver anything near as multi-hued as our continuous spectrum. So, let us leave the concert hall for the opera house. With a few exceptions, we do not know exactly what operas Mozart saw during his Paris trip. But we do at least know what operas were performed while he was in town. The three most prominent composers on this list are Gluck, Grétry, and Piccinni.[4] A brief word about each of them is due, then.

From Gluck's time to the present, his orchestration has been held in high regard—whether evaluated for its inherent aesthetic value or for its historical importance.[5] Among its most fervent admirers was Berlioz, who included many excerpts as examples in his *Treatise on Instrumentation* (1844). It is telling, though, what Berlioz generally uses Gluck to illustrate: how to match melodic or accompaniment figures to the personality of the instruments one assigns them to. In the language of this dissertation, we could say that Gluck creates seamless conceptual blends between the timbre of the instrument (on the one hand) and the perceived emotional analogues of the melody being played (on the other). (What could suit the sound of a flute more than the "Dance of the Blessed Spirits"?) When commentators generally praise Gluck's orchestration, this is one of

[3] They did not, however, outstrip the oboes in agility quite as much as modern clarinets would. See Toff 2006, 146–147, 152–153 for a summary of the advancements from the late eighteenth-century clarinet to the early nineteenth-century clarinet.

[4] For a precise list of these, see Jahn (2013, 57).

[5] For the latter, see Carse 1964, Chapter 7.

the two things that I think they had in mind; the other is the fact that he made the orchestra's contributions to the drama far more integral that they were in opera seria. They do not mean anything like what we have discussed in this and the previous chapter: the highlighting of individual moments within the flow of a movement.

In his *Life of Mozart*, Otto Jahn treats Grétry's orchestration as something of a foil for Mozart's. Jahn speaks of Grétry's "neglect of the orchestra," draws attention to his criticisms of Gluck's use of the wind instruments, and concludes: "A saying of Grétry's, that in opera the song is the statue, and the orchestra the pedestal, and that Mozart sometimes put the pedestal on the stage, has often been repeated" (2013, 16). (Repeated by whom, I wonder?) This is partly true, to the extent that Grétry tends to be more sparing in his use of the winds, less reliant upon them to articulate form. However, in the rare moments when he does use them, their parts are more characterful that what one usually finds in Mozart's music of the same era.[6] This perhaps constitutes "neglect" in the sense that it does not seem that Grétry has the orchestra constantly in mind. When he does think of it, though, he treats it well. However one chooses to characterize this music, it cannot be held up as a model for anything in Mozart's orchestration or in the orchestration of any other composer employing a continuous spectrum. And Piccinni's orchestration displays the least ingenuity of all.

No, despite the fact that reputations for color cling to French opera and Mannheim symphonies, we need to combine the former genre and latter city to find the strongest hints of the "continuous spectrum" style. Accounts of Mozart's operatic inspiration in Mannheim tend to

[6] Using as an example *Le Jugement de Midas* (1778)—one of the operas playing during Mozart's visit—consider how infrequently the winds play in the Act I finale and in the duet "Dans mes regards" and yet how much they add to the personality of any passage in which they appear.

center on two composers: Ignaz Holzbauer and Anton Schweitzer. Mozart's letter from November 14th, 1777 unreservedly praises the former and his brand-new opera *Günther von Schwarzburg*. His comments on Schweitzer are more mixed—praising his operas *Alceste* and *Rosamunde* in a letter from December 3rd, 1777 before turning characteristically catty in his letter of December 18th, 1777, calling *Alceste* "dismal" and bemoaning Schweitzer's inability to write well for the voice.[7]

Günther von Schwarzburg certainly gives the winds plenty to do. If we were grouping the arias in which they feature (i.e. the ones that are not strings-only) purely according to what the winds do, then we would have three categories. The first comprises the two arias that have concertante parts: for the first oboe in "Ach der glänzende Himmel War finstere wüste" (Act 1) and for both the first flute and first oboe in "Menschenliebe ist der Grund" (Act 3). The second category includes arias in which a single wind pair features, performing exclusively (or nearly exclusively) doubling throughout, thus tinting the entire aria (rather than any individual passage) in a single tone color. Included in this category are the contributions of the bassoon pair to "Welch edle Triebe!" and the flute pair to the slow section of "Wenn das Silber deiner Haare." That leaves the bulk of the opera's arias in the third category. Holzbauer's modus operandi in these is to have one or more wind pairs offer occasional commentary—short melodic figures usually in parallel thirds or sixths. Such comments can be in dialogue with the singer, with a string figure, or with comments from another wind pair. **Example 7.7** shows various instances of this from the Act 1 aria, "Schönster Sohn des Himmels."

This orchestrational aesthetic isn't a perfect match for any that we've seen before. It is not orchestration as punctuation, because these wind contributions are not primarily in the service of

[7] Both of these letters are quoted in Heartz 2003, 574–75.

local form. It is not orchestration as inflection, because these little figures do not generally seem to color the main melody or texture; they seem to come from without it, responding to it. That absence of inflection is one of many reasons why the continuous spectrum too does not shine through this music. It is to Schweitzer now that we must turn to see the strongest pre-*Idomeneo* exemplar of that style.[8]

❖ A Second Life

The aria that I have selected for you is "Wem dank ich dies Leben," which opens Act 2 of Schweitzer's *Alceste* (1773).[9] King Admetus has just emerged from the Underworld, and now sings his thanks for whatever has allowed him to be reborn and feel the sun's rays once more—unaware, of course, that his release was secured by (his wife) Alceste's sacrifice of her own life. The aria is not in da capo form, but rather in pure sonata form. The text (by Christoph Martin Wieland) consists of three couplets, together forming a stanza rhymed abababab. Schweitzer has split them into a quatrain for the sonata proper (which I will call the A section) and a couplet for the coda (which I will call the B section). The A section is a Type 1 sonata, with the quatrain sung once in the exposition and then again in the recapitulation. There are two respects in which this is unlike the usual Type 2 layout of a da capo aria's A section: here, each rotation has only one TR zone, not two; and both rotations begin in the tonic, although the first modulates to V and the second

[8] Naturally (as Dolan reminds us with her work on Rossini) what sounds like colorful orchestration today often was perceived by listeners of the time as excessively thick. Schweitzer's orchestration in *Alceste* is no exception. See Abert (1924) 2007, 390.

[9] Do *not* listen to Christian Voigt's recording with the Erfurt Philharmonic Orchestra conducted by Stephan E. Wehr (2002 [rec. 2001]), which uses different orchestrations (whose provenance I do not know). Listen to Christoph Genz's recording with the Concerto Köln conducted by Michael Hofstetter (2008).

doesn't. The B-section coda does not provide any contrasting material; it instead uses material from P and TR. And it starts in the parallel minor (!) before concluding in the correct key.

Example 7.8 shows the aria's exposition. (There is no opening ritornello.) In the first line of the stanza (set in mm. 1–4), the violins double Admetus's melody at pitch and an octave above—his thanks already full-throated. The first bassoon is added for further doubling (at pitch) in mm. 3–4. There is nothing about the words "wem dank ich die Wonne" ("whom should I thank for this bliss") that suggests a semantic justification for this (unless bassoons are your idea of bliss…). So, we might be safe in assuming that this is for pure instrumental color. While exact doubling ceases in m. 5, the vocal melody unfolds an F♯–C diminished fifth resolving inwards to a G–B third; and this succession of dyads is also unfolded in the two melodic patterns present in the violins, and is literally present in the flutes. If one wishes to search for poetic correlates, one could hear Admetus's emergence into the open air. But one might be equally content just to soak in the passage's sheen.

In m. 6 through the downbeat of m. 8, the first violin doubles the singer an octave above. If you have been keeping count, you'll know that thus far, the melody has been doubled in three different combinations: one octave wide with the orchestra at both poles and the voice at the south (mm. 1–4), two octaves wide with the voice at the bottom and the orchestra at the center and top (m. 5), and one octave wide with the orchestra north and the voices south (mm. 6–8). This rapid cartwheeling through positions might remind you of *Idomeneo*.

Tutti bridging in mm. 8–9 brings us to the second phrase (mm. 9–16), which is the TR. This bridging is given good forward momentum by the fact that it starts on beat two, which can allow it to function as one large anacrusis gesture. Besides marking the first appearance of the

horns, the orchestration has the potential to let the first bassoon cut through the texture, since it has a unique line. In mm. 9–12, the voice again quickly undergoes three different doubling combinations: violins in sixths with the top voice an octave above Admetus (m. 10); the flutes doubling him two octaves above, while he is nestled between violin thirds and viola thirds (m. 11); and the violins and flutes forming (respectively) the center and top of yet another two-octave spread, with him on the bottom. In this case, it seems almost impossible not to hear the flute line as depicting sunbeams. In order for the flutes to have the same expressive power in m. 15 in painting "Strahlen" ("shining/radiating")—which will become the focal word for the rest of the aria—they need to disappear (mm. 13–14), so their reappearance is marked. We've seen this strategy before.

I would be remiss if I failed to mention a neat touch in the bridge in m. 16: the flutes drop out on beat 4 in time for the voice to re-enter, but the first violins (whom they had doubled up until then) continue moving scalewise. (Perhaps I am odd, but I always find it enjoyable when a timbral emulsion breaks, and one component of the blend becomes suddenly audible on its own.) For harmonic reasons, mm. 17–28 do not form a genuine sentence. But I find it difficult not to hear sentential rhetoric: basic idea (mm. 17–18), repetition (mm. 19–20), and extended continuation (mm. 21–28). The horns help to create this impression for me—each phrase of theirs (mm. 16–17, 18–19) guiding us forward into the onset of the next idea. (Again, Schweitzer knows to keep them silent on the downbeats of mm. 16 and 18, even though the low strings—whom they double in these bars—are not silent then.)

Since this exposition does not have a double-TR complex, S space—specifically, what I have described as a sort of continuation (mm. 21–28)—is the site of the exposition's melismatic display.

Measure 21 is the first tutti bar since the bridging in mm. 8–9, as though the entire orchestra were banding together to launch the singer into orbit. We have three different rhythmic versions of the ascending thirds: sustained in the violas and bassoons, unfolded as a dotted melody in the voice, and fore-doubled with curlicues in the violins. The violins double the singer throughout all of the melismas, but the horns and flutes depart after beat two of m. 22, and the bassoons take their leave as Admetus climbs towards and reaches the crest (in mm. 24–26). When his note values lengthen in m. 27 for the cadence, the bassoons return, and they and the violins gambol about, as if Admetus's excess enthusiasm has spilled over into their parts.

If one hears the arrival on m. 28 as the EEC, then S is over and C is about to begin; if one hears the V of ii that follows as undoing the cadence, then there is no C, and S space has two themes. Either way, that applied dominant launches perhaps the most ear-catching passage in the aria, thanks in large part to those pulsating flutes—joy beating within Admetus's breast? the sun's waves radiating through the air?—which form an accompaniment figure unto themselves, responding to the pastoral paired violin and bassoon thirds.

I know of no other Austro-German composer besides Schweitzer who wrote opera orchestration like this before Mozart did—not Benda, Hiller, or Wolf. This is a decade ahead of its time. I would like to make this very clear: I am *not* attempting to establish a narrative in which either Holzbauer or Schweitzer is the direct progenitor Mozart's aesthetic shifts in *Idomeneo*. It is, of course, quite likely that they exerted some influence. But saying any more than that would be sheer speculation.

And while *Günther von Schwarzburg* might please those eager to tag the Mannheim orchestra as the catalyst for all of this, *Alceste* should not. Although Mozart heard it in Mannheim, it was

written for and first performed in Weimar, four years earlier. If I asked you to name European cities in descending order of importance to eighteenth-century music, it would take you a long while to get to Weimar, I suspect.[10]

Were I to sum up what we've learned thus far I'd say this: Our trips to Paris and Mannheim suggest that Mozart's 1770s orchestration does not exemplify the decade as a whole. There is no pan-European standard for how to use either an eight-part symphony orchestra or an opera pit orchestra. In general, however, Paris and Mannheim cannot be said to be "ahead of" or "behind" Mozart. They share the same basic selection of techniques, but just employ them to different ends. There are isolated examples of orchestration that is more "ahead" (i.e. that anticipates features that won't become common until the 80s), but one has to search hard to find them.

Unfortunately, if this conclusion seems unsatisfying—because we can't tell a neat little story—then things are only going to get worse…

❖ Sizing Up

Throughout this chapter and the previous one, I have danced around the question of how much the size of an orchestra's wind section affects how a composer orchestrates. When one travels around, examining as many composers as possible, the problem one encounters is not that size doesn't make a difference, but rather that it sometimes makes too much of a difference. That is, large orchestras correlate with aesthetic changes that cannot be explained by size alone.

[10] An excellent summary of Weimar's role in the history of German opera may be found in Bauman 1984, Chapter 4.

Mozart's Paris Symphony, K. 297 shows what we might expect to happen when a composer is granted a larger wind section. His understanding of how to write for winds holds constant, but he plays with more combinations. For every situation in which Mozart had only one or two pairs of upper winds, he now has three: the flutes, the oboes, and the clarinets. He can now divide the woodwinds into upper and lower quartets (flutes + oboes and clarinets + bassoons), which can converse with each other in mm. 56–58, 63–65 (shown in **Example 7.9a**). Even better is what happens next in this passage when Mozart switches between the upper and lower quartets precisely at the point at which the mode changes from major to minor, in mm. 66–73. When the same music occurs in the recapitulation, he now separates the groups into flutes + clarinets and oboes + bassoons in mm. 220–27 (shown in **Example 7.9b**). He does little more than that, however. What he certainly does not do is suddenly discover the joys of intermixing them freely and constantly. In other words, he does nott start composing continuous spectra.

Yet, such a metamorphosis is exactly what happens to some other composers! Boccherini is a particularly dramatic example. Although he wrote his Opus 35 symphonies in 1782, they sound like what someone working in Austria or Germany would have written ten years prior. But then he takes a quantum leap forward only four years later, in his Opus 37 symphonies.

To eliminate the possibility of key signatures throwing things off, we can compare Op. 35/3 to Op. 37/4, since they are both in A major. Opus 35/3 calls for four winds: two oboes and two horns. The ways in which Boccherini uses these winds are even more limited than Mozart's in his eight-part Salzburg symphonies: the winds perform doubling and harmonic support, but do not

even engage in dialogue or provide non-tutti pedal tones. Even when they perform bridging—as in i/32–34, 71–72, 104–106—this is while doubling at least one other string instrument.[11]

The wind complement in Op. 37/4 is three instruments larger (one flute and two bassoons), but a world of difference they seem to make! After beginning with four bars of tutti, the opening movement immediately lets the oboes and horns play the main line (I hesitate to call it a "melody" per se) against a string background. **Example 7.10** shows the TR (mm. 15–32) and the bridging leading into it. That bridging is performed by a bassoon duo alone. The first phase of the TR (mm. 15–24) features dialogic solos for the flute, first oboe, and first horn. The tutti second phase (mm. 24–32) is a dialogue between strings and horns on the one hand and flute and oboes on the other hand, with bassoon chordal support throughout. At other points in the movement, there are individual contributions by the solo flute (mm. 63–65), solo oboe (mm. 71–74), bassoon duo (mm. 50–51), horn duo (mm. 51–52, 132–133, 149–150, 154–155), quartet of oboes and bassoons (mm. 128–131, 150–153).

As evidence that this particular symphony is not a fluke, we might also look at the first movement of the prior symphony in the set, Op. 37/3 in D minor—specifically at the secondary theme zone in the exposition (mm. 26–43), shown in **Example 7.11**. (The rest of the movement is worth looking at too, but we are not going to do that here.) There are three layers at first: a main melody for two viola soloists, countermelody retorts in the first bassoon; an accompaniment consisting of a triple anacrusis and downbeat for celli and first horn, and a pedal layer consisting of sixteenth-note Cs played two octaves apart by the flute and second violins. This is guaranteed to be a novel sound for any listener, as it is a unique combination of instrumental elements.

[11] Due to space limitations, I have not included the score for this movement. However, recordings of it may be found quite easily.

Boccherini doubles the violas an octave with oboes above starting in m. 28. Things spin out from there. From the second half of m. 29 through the first half of m. 30, the melody is for violins and first bassoon, with the oboe now taking over the horns' pedal-tone motto. Then the flute and first violin layer another line on top, starting halfway through m. 30, leading to a brief tutti. The second half of m. 35 through m. 37 corresponds to the second half of m. 29 through m. 31, but in between, the flute and first violin start a bit of bridging, which includes the flute adopting the pedal-tone motto (above the prancing violin figure). After any attempt at attaining an EEC fizzles out in m. 41, the first flute and first bassoon play contrary lines, responded to by oboe thirds, as a sort of re-transition. All of this is a very creative and colorful use of winds from a composer who barely gave them the time of day only a few years prior.

Now, it happens that Boccherini changed jobs in between composing these two sets. Opus 35 was written for Infante Luis Antonio of Spain, who had served as Boccherini's patron since 1770. Luis Antonio died in 1785, and Boccherini wrote the Opus 37 symphonies for his new employer, the future Frederick William II of Prussia. One might then hypothesize that this is not so much a reflection of an increase in size as it is a reflection of a switch in personnel. This would be like upgrading one's instrument entirely, rather than adding a few new features.

There is a hitch here, however. It is quite possible that deficiencies in the Madrid players caused Boccherini's conservatism in Opus 35. But Boccherini could not have been directly influenced by the Prussian musicians, because he was not familiar with the orchestra for which he was writing Opus 37. He worked remotely for Frederick William II. He mailed in his scores, rather than moving to (or even, as far we know, setting foot in) Berlin. So, what exactly is the reason for this sudden transformation? The committed Materialist will still find a way to attribute this to the

orchestra, and the committed Rationalist to Boccherini's own aesthetic awakening, but I decline to dip my toes into such speculative waters.

The expansion of the Mannheim orchestra into a larger ensemble was definitely an upgrade rather a swap, however, and Cannabich's style changes just as radically starting at about his Symphony No. 61. I've already indicated that a key part of this style change is the fact that the winds play less often, thus granting them the ability to call special attention to the passages in which they do play. But even in tutti passages, Cannabich finds way to distinguish the different instruments, and his textures are generally more dynamic. Let's look at a couple of spots in the first movement in Symphony No. 64 to demonstrate this.

Example 7.12 is the P theme (mm. 1–16). Each of its basic ideas (mm. 1–4, 5–8) breaks into two components. The first (found in mm. 1–2 and 5–6) features a melody in thirds for the violins, supported by a chord held by the violas, bassoons, and horns, with oboe thirds ("pah-pah-pah") above. Were I just tabulating data, as in some other analyses, I would file the oboes' part under harmonic support. But this is not like the harmonic support in the other excerpts we've looked at. Its rhythmic and melodic profile allows it to spring from the texture into one's ears, as its own line. The second component of the basic ideas is a tutti. But it is one in which the oboes and violins begin as a team in the first bar each of idea, before splitting apart in the second. As I hear it, neither, strictly speaking, is "the" melody; rather, what had been a single melody evolves into two different species, both of which audibly co-exist. The same could be said for the continuation: The oboe figures in mm. 9–10 and 13–14 (a turn plus repeated notes) place this line on the fence between harmony and countermelody. And in mm. 11–12 and 15–16, which of them

has the real melody? The leaps in the oboe parts in mm. 11 and 15 make them more active, but the same could be said of the violin parts in mm. 12 and 16.

What is going on here? Is size just correlating with Boccherini and Cannabich's self-transformations, or is it actually causative? And once we start asking such questions, and search around for answers, the mysteries only multiply. The most colorfully orchestrated symphony that I know of that was written in 1770s Vienna is Salieri's *Il giorno onomastico* (1775). It is miles ahead of anything by Dittersdorf, Hoffmeister, and Vanhal. Before Schweitzer, the closest we find to a "continuous spectrum" aesthetic in opera is in *Carrattaco* (1767) by J. C. Bach—yes, J. C. Bach, who played the role of the arch-conservative in Chapter 4. Nothing else that I have discovered in *Carrattaco*'s immediate surroundings comes close, including other works by J. C. Bach. What is happening? How do these works seemingly spring up from nowhere?

I must admit that when I first began my investigation of these questions, I hoped that a clear narrative would emerge: that some city or composer or instrumental combination would rise clear of all the noise to seem a plausible lightning rod for the aesthetic changes of the time. But while lightning is the right choice of phenomenon, there is no clear rod. It just seems to strike unexpectedly. I hope that (one day) better data will explain this history better than I can at the present juncture. But until then, we can consider all of this to be a cautionary tale: never assume that any composer can successfully represent some larger stylistic shift, until you have verified that yourself. The individuality of any given composer—who can stand far apart from his own cohort and deceptively near to a stranger—should not be underestimated. The messy history of orchestration should make data-driven agnostics out of all of us.

❖ **Did Old Haydn Learn New Tricks?**

This brings us to the 1790s, the decade of Haydn's London Symphonies. Having previously outlined my general qualms about Dolan's approach, I should now expound her more specific claims about these symphonies, so we can examine them more closely. In evaluating them, my main goal is not so much to determine how accurate her portrayal of Haydn is (although I do believe that matters quite a bit too) but rather to see how the approaches she takes might give us insight into late eighteenth-century orchestration in general.

Here are six of her main claims:

(1) Critics who declare that Haydn became a great orchestrator only in old age or due to hearing Mozart's orchestration are clinging to an outdated view of Haydn as someone who fully matured only in his "late style." In fact, Haydn was always sensitive to sonority. He just wrote differently for different sorts of orchestras (with size being a major factor). In the earlier works, this sensitivity to sonority is demonstrated in his concertante writing. (2013; 8, 93–96).

(2) One of the special qualities of Haydn's orchestration is his concern for the "eachness" of the various instruments. This means treating the instruments in an "egalitarian" fashion, that allows each one its say, fostering "instrumental equality" and a sense of democracy (92–93, 148–151).

(3) Haydn's aesthetic is one of "incessant variety" and "constant development" through subjecting the same theme to "shifts in color and texture" (98).

(4) One of the main sources of the "endless variety" that delighted Haydn's audiences was the use of something Dolan calls "orchestral growth": a progression from a non-tutti sound to a tutti sound (104–111).

(5) Haydn creates drama in slow movements through opposed blocks of extreme thinness and thickness. This is unlike Mozart, who keeps to a pretty narrow range of thickness (117–134).

(6) Haydn's declining reputation in the nineteenth century might be partly explained by the fact that his orchestration was revolutionary for its time, but became standard in the decades following him (10).

Let's begin by dispensing with Claims #1 and 4, so we can focus on the remainder. Concertante writing—especially movement-long concertante writing—is never good evidence of an ear for sonority. (Or else the best way to cultivate one's ear would not be to study the craft of orchestration, but simply to decide to write a *sinfonia concertante*![12]) And if the new features of Haydn's orchestrational style in the Paris and London Symphonies were, as Dolan suggests, attributable to the differences in size and personnel between those two orchestras (on the one hand) and the Esterháza orchestra (on the other hand), then when Haydn returned to the Esterháza orchestra in 1787 to write Symphonies Nos. 88 and 89 for them, he should have reverted to his older style. Pursuing this specific question with close analysis would derail this chapter, but I invite you to listen to those two symphonies and see if you detect any such reversion. (I can't.) We might also expect some sort of sharp break between his last pre-Paris symphonies (e.g.

[12] See also my discussion of obbligato solos in the previous chapter, on pp. 212–13.

Nos. 80 and 81) and the Paris symphonies, as he grabbed at the chance to write differently for a non-Esterháza orchestra. (I don't hear one.)

Claim #4 attributes to Haydn specifically something that is common to many composers. What Dolan calls "growth" in the beginning of first-movement expositions is not some sort of steady accumulation of sonority, but rather a soft beginning followed by a tutti (usually launching TR). Hepokoski and Darcy call this the "weak-launch option"—one of the two standard rhetorical forms that a P theme can take (2006, 66).[13] There are plentiful examples of non-Haydn composers who used this device (I list only a few examples): Antonio Cartellieri (No. 3), Franz Danzi (P. 218, 221), Joseph Eybler (HV 159), Franz Krommer (Opp. 12, 62), Leopold Kozeluch (Opp. 22/1, 24/1), Ignaz Pleyel (Ben. 121, 154), and Paul Wranitzky (Opp. 19, 36).

With those two ideas put to rest, let's move on to the really interesting ideas on the table: "eachness," "egalitarianism," and "incessant variety." Dolan (2013, 94–96) provides a particularly compelling example of "egalitarianism" in Haydn's two divertimenti *à 6* from the 1760s (Hob.II:1 and 11). These two pieces includes variation sets in which each player has a solo variation, including the second violin. She is correct to imply that this is an unusual and noteworthy thing to do. The excerpt she provides from "The Representation of Chaos" in *The Creation* is also

[13] They mention that this option is "especially attractive after a slow introduction" (ibid.) They do not provide a reason, but I can: the forceful opening gesture characteristic of a "strong-launch" P theme has already been provided by the introduction; thus, the P theme is no longer responsible for opening the whole symphony, just the exposition, and can go about its business with less ceremony. This correlation holds in both directions in Mozart's "late" symphonies (i.e. from K. 319 forward. Barring K. 550, all of the introduction-less first movements (K. 319, 338, 385, 551) have strong-launch P themes, and all of the first movements preceded by introductions (K. 425, 504, and 543) have weak-launch P themes. My hunch is that if we tested for this correlation across late eighteenth-century Austro German symphonies, we'd find that most weak-launch P themes are preceded by slow introduction, but slow introductions do not necessarily lead to weak-launch P themes.

compelling. But her examples from the symphonies are odd indeed: a solo written for Salomon as concertmaster in the minuet of Symphony No. 97, and a solo written for Haydn himself as harpsichordist in the finale of Symphony No. 98 (151). Surely solos for the *leaders* of the orchestra (rather than the general populace) are the very opposite of a democratic or egalitarian gesture?

The idea of "incessant variety" comes from an article in the *Morning Chronicle* responding to the premiere of Haydn's Clock Symphony (97–98). The original article does not mention orchestration. It mentions only Haydn's creative manipulation of the first movement's sole theme. In other words, it refers to the fact that it is a monothematic sonata. But Dolan goes on to argue that re-orchestration should be understood as part of the process of developing a theme—a point that I could not agree with more.

These are useful starting points. In fact, I think that we can run with her ideas even further—that we can find even more musical correlates for the aesthetic qualities of egalitarianism and variety. And also that we can provide tentative definitions for what orchestral "eachness" might look like. (She does not.)

My main exploration of these concepts is going to juxtapose Haydn's London Symphonies with music that you probably do not know, and that you probably do not own the scores for (in hard or digital copies). In displaying examples of certain techniques, I have to deliver excerpts from these other symphonies piecemeal, rather than working my way bar-by-bar through any particular section. Therefore, before I do that comparison, I want to do a dry run with you: to generate our analytical tools with what Christopher Brody (2016) calls a "toy repertoire"—a small collection of pieces used to exemplify an empirical method that ultimately should be applied to larger repertoire. This music should be both small and familiar. I am therefore going to use the trios

from the minuets of Haydn's London Symphonies, as compared to the same sections in Mozart's "late symphonies" (e.g. from K. 319 to 551). Trios satisfy the requirement of being small and self-contained. And they are also the only section that of a symphony that you know is not going to be played tutti. Once can, in general, learn a lot about a composer's orchestration from examining them.

Let's start with the question that emerges most logically from Dolan's discussion. In how many of these trios is the main melody given to a solo instrument? All of these trios are in some sort of binary form, and solo melodies are usually common to the A section. In this toy repertoire, only one of Mozart's six A sections has distinct solo melodies: and that is the solo clarinet responded to by the solo flute in K. 543. Three of Haydn's twelve have such solos: cello in No. 95 (a most unusual choice), oboe in No. 96, and flute in No. 101. This means that in the remainder, the main melodies are carried by combination of instruments rather than a solo instrument.

But not all combinations are created equally. Even when the composer relegates a wind, to the sometimes thankless job of doubling—he can still show it off to good effect (and thus celebrate its "eachness") through the way he doubles. As a general rule, doubling strings and winds at pitch does not highlight either timbre. It blends them instead. If you want to bring out the wind instrument, you keep it an octave apart from the string line, so that there isn't any timbral interference in either register.[14]

[14] Stepping out of minuet land for a moment, perhaps the greatest example of Haydn's use of this effect is the opening melody of the second movement of Symphony No. 88: the melody made cedar-scented by the combination of woodsy oboe and warm tenor-range cello; and yet, though the two instruments must combine to manufacture this fragrance, each component can still be experienced independently.

Mozart is excellent at this. In, K. 319, the first violins carry the melody throughout the A section; but when they are doubled (in thirds), it is either an octave above by oboes or below by bassoons. In K. 385, the first violins may double the first oboe at pitch and the violas may double the first bassoon at pitch, but this is counteracted by the fact that the lower note of each third is not doubled, thus preserving the double-reed color. In K. 550, the only moments of string-wind doubling are at the cadences that end each section, all of which have displaced doubling: in the A section, the first violins are doubled an octave above by the first oboe; in the A′, the first violins are doubled first by the first bassoon an octave below, and then by the flute an octave above. In K. 551, the first oboe and the first violins remain an octave apart. There are no instances of strings covering winds.

Haydn is less consistent. In several of the trios, his doubling is also displaced. Most commonly, this involves first violins doubled an octave below by the first bassoon: in the A section of No. 94, at the beginning of the B section of No. 96, throughout the entire A section and intermittently during the B of No. 98, and at the beginning of the two phases of the B section of No. 104 (mm. 64–66, 75–78). I will not cite every instance of other combinations, but a particularly fine example of this technique may be found in the A section of No. 100: first oboe and first bassoon an octave apart, with the first violins sandwiched in the middle, harmonizing. So, like Mozart, Haydn is happy to celebrate eachness; but unlike Mozart, he doesn't feel obliged to. He doubles the first oboe and first violins at pitch throughout the A sections of No. 97 and No. 99, and the A and A′ sections of No. 104.

Dolan's examples of "incessant variety" all involve re-orchestration of the same material. In minuet trios, the main opportunity for this is in the A′. Mozart does not opt for this in K. 385, in

which the A and A′ are handled identically. And there is no A′ in K. 319, because it is not in rounded binary form. But he re-orchestrates in all of the remaining four: he adds a lovely little imitative countermelody for bassoon in K. 425, re-voices the string chords in K. 543, entirely re-orchestrates A in K. 550 (in a way we will discuss soon), and enlarges the role of the flutes and oboes in K. 551. In this respect, Haydn is basically Mozart's equal. The trios of Nos. 94–98, 100, and 102–104 are all in rounded binary. Haydn fails to re-orchestrate in only two out of the nine—virtually the same ratio as Mozart's one out of five.

There is, of course, another way in which a sense of variety can manifest, and that is the one we saw most clearly in Mozart's piano concertos: varying orchestration not merely across repetitions of a theme, but within the original orchestration of the theme itself. Restricting ourselves to A sections: Mozart does this in K. 319 by adding oboes to the consequent of the theme's period; in K. 543 with interjections of the flute, accompanied by bassoons and horns; in K. 550 (discussion of which I'll postpone for one more paragraph); and in K. 551, by making the melody a dialogue between flute, bassoon, and horn (on the one hand) and oboe and first violins (on the other). He fails to do this in either K. 385 or 425. Haydn does this in Nos. 93 (dialogue between winds and strings), 97 (adding horns), 101 (flute-tutti dialogue), 102 (short flute interjections), 103 (a bit of bassoon doubling here, and horn doubling there), and 104 (doubling switches between oboe and bassoon). Whether or not he does this in No. 99 depends on how you count the addition of the violins. He doesn't do it in 94–96, 98, or 100.

Now, K. 550 as promised.[15] The A section is 18 measures long. It divides into a sentence with a compressed continuation (mm. 1–6), a trifold sentence (mm. 7–14), and two codetta tags (mm. 14–16, 16–18). The initial sentence is for strings only. But from there forward, nearly every phase has different orchestration. For each basic idea of the trifold sentence, Mozart adds an additional instrument: first oboe, then flute, then bassoon; they remain together for the continuation. Then, the strings return for the first tag, and the oboe rejoins them for the second. The B section (mm. 19–26) is what BaileyShea (2004) calls a "sentence with dissolving third statement."[16] Its presentation is a dialogue between low strings and the entire woodwind section, with the third statement (started by the low strings) suitably dissolving into a woodwind continuation. It is Mozart's treatment of the A′ section that is particularly special, then. The initial sentence (mm. 27–32) is now for strings plus the horns. And now all four phases of the trifold sentence (mm. 33–38) are orchestrated differently. The layering of basic ideas goes: horns, then bassoons, and then flutes and oboes. But when we reach the continuation, the horns drop out. Each codetta tag has also been re-orchestrated: the first (mm. 38–40) is for strings and first bassoon, while the second is for strings, flute, oboes, and horns, with the latter two contributing accompaniment rather than melody.

If we were going just by minuet trios, then, we'd say something like this: Haydn is more willing than Mozart to give solos, Mozart is better at displaying solo colors in doubled lines, they are both about equally prone to re-orchestrate the same material, but Mozart includes more internal variety within his themes, and at his best (K. 550) he explores color to a degree that Haydn

[15] For a (far more than usually) painstaking analysis of the primary-parameter elements of this trio, see Meyer 1976.

[16] See pp. 291–92 in Chapter 8 for more on this theme type.

does not. But of course, none of this is meant to permit us to draw conclusions about Haydn and Mozart as orchestrators overall. (Such a comparison would go *very* unfavorably for Haydn, if we looked at all of their works with orchestra—such as the Mozart operas and piano concertos, which we examined previously—and not just their symphonies.) It is meant to illustrate the kind of method I employ when analyzing Haydn in tandem with his contemporaries. And that is precisely what we will do in the remainder of this chapter.

❖ Haydn among the Youths

Although in preparation to write this chapter, I looked at as many symphonies from the 1790s as possible, I wanted (for demonstration) to restrict myself to just a few non-Haydn movements, to give you an opportunity to grow properly acquainted with some of his contemporaries, rather than just listening to isolated little passages from across the entire repertoire. Choosing these movements was difficult. I wanted pieces that are by major contemporaries of Haydn working in the Austro-German tradition, that were written for similar orchestral forces to Haydn's, that were published as close to the date of Haydn's London Symphonies as possible, and that have been recorded in good sound, so you may listen to them.[17] My only bit of cherry-picking was to remove Carl Ditters von Dittersdorf from the equation. Not many of the composers of Haydn's generation were still writing symphonies in the 1790s.

[17] Only the last six of the London Symphonies were actually written in Austria; the rest were written in London. But I am treating Haydn as emerging from an Austro-German tradition and his time in London as tourism. I am not aware of any claims that the style of the London Symphonies was in some way a reflection of influences Haydn encountered while in England. Of course, as our Mannheim examples indicate, the very idea of a distinct Austro-German tradition is itself suspect, potentially ahistorical in fact. So, you'll have to take me at my word that these symphonies are as closely allied in style as I could manage.

Dittersdorf is undoubtedly the most famous one who still was. But his symphonies don't bear any comparison; the orchestration sounds like it could have been written in the 1760s.

This raises an absolutely crucial point. Most of the major symphonists of the 1790s were multiple decades younger than Haydn. All of the composers I will set side-by-side with him were born between 1756 and 1765. (Haydn was born in 1732.) There can be little doubt that Haydn was far more innovative than most other composers of his generation. But for Haydn's late compositions to be "radical" *for the time in which they were written*, Haydn would have to be more radical than the young and ambitious composers on the rise. This is not impossible on its face. There are maybe a few moments in history when the most innovative pieces flowed from the pen of an old rather than young composer. (Late Beethoven in the 1820s, perhaps, if you feel that he outstrips Schubert.) But in general, this is true only when that old composer has developed a "late style." After all, if you keep your middle style into your later years, it cannot remain cutting-edge unless stylistic progress has halted around you.

The four symphonies I have chosen by our young bucks are: the Symphony in D minor, P 220 of the Munich-based composer Franz Danzi; the Symphony in E♭ major, Op. 12 of the Bruchsal-based composer Johann Evangelist Brandl; the Symphony No. 1 in F major, Op. 12 of Franz Krommer, who was based in Vienna and Hungary; the Symphony No. 2 in D major of "Class of '65" composer Joseph Eybler (he whom Mozart selected to complete his requiem, before the job was taken over by Süssmayr).[18] We do not know for sure the premiere dates of any of these pieces, but the Brandl was published in 1796, the Krommer in 1798, and the Eybler in 1799. The

[18] Please note that because I am using only one symphony from each non-Haydn composer, none of them is meant to serve as a summary of their composer's overall style. Rather they (as a group) are meant to form a backdrop against which Haydn's symphonies can be measured.

Danzi was not published until 1804, but there are surviving manuscripts from the early 1790s. Haydn's London Symphonies were premiered between 1792 and 1795 and published between 1796 and 1801. Given the limited information available, this is as close as I can chronologically cluster Haydn and non-Haydn symphonies, while still meeting my criteria about availability.

For the moment, we are going to look only at the allegro sections of first movements. We've gotten a grasp of Haydn's minuet style already. (And should I produce a book based on this dissertation, it would likely include comparisons between the slow movements of Haydn's "Military" Symphony and Paul Wranitzky's *Grand Characteristic Symphony for the Peace with the French Republic*.) Because none of the non-Haydn symphonies under scrutiny have clarinets in their first movements, I will largely exclude from consideration the four Haydn symphonies that do—Nos. 99, 101, 103, and 104.

We are going to look at the same four criteria that we examined in the minuets, but in a slightly different order. I'd like to start with the idea of internal variety within themes. This is the element that is closest to the continuous spectrum aesthetic that we saw in the previous chapter. All four of our non-Haydn composers evince his style in their expositions.

Unusually enough, in Brandl's symphony, the continuous spectrum aesthetic is evident in P space rather than S space. The movement opens with an eleven-bar theme (shown in **Example 7.13**) that has a rather periodic statement-response character, although the two halves are joined at the hip in m. 6. In the initial statement, we already have five different scoring combinations: tutti (m. 1), first violins alone (m. 1–2), all the strings (mm. 2–4), oboes only (m. 4), and oboes and horns together (m. 5). After the first MC attempt is declined in m. 31, we get a genuinely odd combination of instruments (**Example 7.14**). The same thematic material is now staged as a

dialogue between bassoons on one hand and a combination of flute and violins (an octave apart) on the other, with repeated notes in the oboes accompanying them from above.

Let's turn to Krommer next. **Example 7.15** shows the end of TR space and beginning of S space. The dominant lock leading to the MC (mm. 65–72) is already promisingly multi-layered, vertically and horizontally: overlapping flute-oboe dialogue on top, a first violin countermelody, and bassoons and strings underneath as harmony. $S^{1.1}$ (mm. 72–84) is a dialogue between the entire wind and string section. This is in itself is not particularly special, although he takes good advantage of this, giving the winds a triadic melody and the strings a chromatic to heighten the disparities between them. It is $S^{1.2}$ (mm. 84–103) in which things get interesting again, as we return to a multi-layered approach: overlapping flute-bassoon dialogue, a first violin countermelody (a particularly characterful one, full of grace notes), and harmony divided between sustained chords in the oboes and a string pulse underneath. Although the general idea of these components is similar to what we heard at the dominant lock, this combination has its own flavor and is even more colorful.

Eybler employs this style in both P and S space. The P theme is a compound period consisting of a strings-only antecedent (mm. 17–24) followed by a mixed-ensemble consequent (mm. 18–32), the latter of which is pictured in **Example 7.16**. As in the Krommer, this consequent has a lot of different layers. It is in sentential form (again with a dissolving third statement), and its presentation (mm. 18–24) has three different components: melody in the celli and basses, a complementary reply in the horns and violas (complementary because it moves when the melody rests), and a dialogue between violins and oboes. At the beginning of the continuation (mm. 24–32), the celli and basses seem to still have the melody, and the flute adds a little gleam to the

harmony, but then the roles suddenly switch in m. 30, with the melody now in flutes and violins, with a little help from the oboes. I'll have something to say about S space later on.

Danzi's example is his $S^{1.2}$ (mm. 55–71), which is shown in **Example 7.17**. It is three bars of strings plus horns (the latter delivering syncopated stings); three bars of tutti (minus trumpets and timpani); a two-bar interruption for oboes and bassoons; four bars of the strings pulling themselves together for the succeeding cadential idea; which is for solo flute, above a bed of oboes, bassoons, and horns, with the pulse provided by the strings.

Only one of the Haydn first-movement expositions under review has anything that can match any of this: and that is No. 97. **Example 7.18** shows mm. 25–39, from P space. Measures 25 through 31 feature a dialogue between oboes and bassoons (on the one hand) and strings and horns (on other). The dialogue in mm. 31–35 is between the oboe pair and the rest of the orchestra. Then, in mm. 35–39, there's a rapid succession of string and bassoon, then flutes and oboes, and then strings only. I don't count this as quite as modern as what we saw in Brandl, Krommer, and Eybler. There are two missing ingredients. First, these are not vertically multi-layered, which also means that the combination of instruments is automatically less ear-catching, since the instruments are all blended into one. Second, these are not woven horizontally into a continuous theme; instead this feels like an alternation of little self-contained blocks.

The S theme (mm. 76–91) also has a bit of internal variety to it. It is shown in **Example 7.19**. The first eight bars are a Hybrid 4. Low strings provide the "oom" and the bassoons the "pah-pah," which is already a quite novel bit of orchestration. The second violin plays a running figure that sometimes accompanies the melody and sometimes doubles it. Two codettas follow (mm. 83–87, 87–91). In the first, the melody is in the violins and oboes (doubled at pitch) with a

running figure in the cellos; in the second, the melody is in the flutes and violins (doubled at the octave), with the running figure in the bassoons. So, Haydn is perfectly capable of internal variety, even if it seems that he is at the back of the pack where this particular group of composers is concerned.

Then there is the matter of re-orchestration. When we looked at the minuet trios, we focused on re-orchestration from the A to the A′. Now that we are considering sonata-form movements, we should distinguish between two different sorts of re-orchestration. There is re-orchestration within the exposition (intra-rotational, specifically intra-expositional), and then re-orchestration from the exposition to the recapitulation (inter-rotational). The former occurs because many themes (secondary themes) are in two parts: either the antecedent and consequent of a period, or a varied repetition of the same phrase. Let's look at instances of this.

Haydn is inconsistent in this regard. Intra-expositional re-orchestration doesn't really happen in Symphonies Nos. 96 and 100. And the closest to this in No. 97 is the S theme we already looked at. In Nos. 98 and 102, the P themes are the one that receive this treatment. In No. 98, the strings alone introduce the theme in mm. 16–26, before the flute and first bassoon are added in mm. 27–31—the former to double the melody an octave up and the latter to double the viola at pitch. In No. 102, there is the reverse relationship. The P theme is first introduced tutti (mm. 23–30). It is an eight-bar period. In each two-bar basic idea, the first violins alone have the melody; and in each two-bar contrasting idea, they are doubled at pitch by the first oboe. When the P theme is repeated (mm. 31–37), everyone drops away except for the flute, violins, and violas, with the former two carrying the melody throughout. In No. 94, the C theme is the theme that receives this sort of treatment: strings only in mm. 80–87; and then in mm. 87–94, a horn pedal is

added, first flute doubles the first violin melody, and first oboe and first bassoon double the second violins and violas' inner lines.

The two most interesting in this regard are the S themes of Symphonies Nos. 93 and 95, which are shown in **Examples 7.20** and **21** respectively. In the former, mm. 74–83 form the strings-only phrase of the theme, with a melody in the first violins, toggling accompaniment in the second violins and violas, and pizzicato bass in the celli and bassi. When Haydn re-orchestrates this in mm. 83–95, he really pulls all the stops out. The melody is now for violin and flute an octave apart, the latter lending luster. The toggling accompaniment is reassigned to the bassoon pair, who give it a lively bustling quality. This leaves the second violins and violas free to play "pah-pah." In m. 86, the cello takes a break from playing the bass line to add a one-bar imitative reply to the main melody. All of this lasts until m. 88, at which points all the woodwinds have joined, the oboe is now in charge of doubling the first violins (at pitch), with the flute re-assigned to doubling the second violins an octave above.

No. 95's entire S theme is shot through with creativity. It consists of an eight-bar sentence played twice (mm. 29–36, 37–44). In the presentation of the first (mm. 29–32), the melody is for the violins, with downbeat chords from first bassoon and pizzicato low strings, and a "horn fifths" countermelody (of sorts). For the continuation (mm. 33–36), the bassoons and celli/bassi retain their roles, and the horns go away, but the viola doubles the first violin an octave below. (This puts this theme rather high up on the "internal variety" rankings, by Haydn's standards anyhow.) When this is repeated, the presentation melody (mm. 37–40) is doubled throughout by second violins and bassoons (an octave apart), the horns still play the same line, but now there is an additional upwards-scaling reply for flute and first violins. In the continuation (mm. 41–44), the melody is

still doubled, but now two octaves apart (flute and violin on top, bassoon on the bottom). Finally, at the cadence (mm. 43–44), Haydn adds back the horns at the beginning of the bar, with the oboes added on the last beat, to give things a little nudge towards the tonic.

While this re-orchestration satisfies the aesthetic of variety, it does so in a way that is not at all unusual for the 1790s. Danzi (who is generally the most conservative of the four) passes up the opportunity to do this with his $S^{1.1}$ theme (mm. 38–55) in the exposition. (It is hard to imagine Haydn declining to do this.) He does do this with the C theme (**Example 7.22a** and **b)**—a charming little earworm waltz. However, his rearrangement is not (during the exposition at least) a matter of re-scoring, as both times the theme is scored for strings alone. Instead, it is a matter of what function they serve. In the head of the first waltz (mm. 95–103), the first violins have the melody and the others play a simple oom-pah-pah underneath; in the head of the second waltz (mm. 112–120), every single string line is melodic, creating a lovely contrapuntal latticework.

Brandl's intra-expositional re-orchestration occurs in S space (mm. 58–77). After providing a strings-only statement (mm. 58–67), Brandl then brings in the woodwinds, with the melody now in the first flute and first bassoon, and the oboes supporting the strings as accompaniment. The quirky sound of this passage comes from the fact that the flute and bassoon are two octaves apart—which is an unusually gapped doubling. An additional nice touch is that the oboes withdraw in mm. 74–77 to soften the cadential arrival.

Eybler performs intra-expositional re-orchestration twice: once with the S theme and once with the C1 theme. All of S and C space is shown in **Example 7.23**. (This example is especially long because I will ask you to refer back to it later.) As I mentioned earlier, I could have discussed the S theme when we were looking at internal variety; this is because after the strings-only

beginning of the theme (mm. 56–63), we get four bars of playful overlapping dialogue between the first oboe, first bassoon, flute, and second oboe (mm. 64–68), in that order. The fact that he gives that two-bar lick to the second oboe is evidence of the egalitarian spirit, as that could just have easily gone back to the first oboe. The C theme too begins strings-only (mm. 83–90), before the melody is then doubled by an octave above by flute and below by bassoon (mm. 90–93), with sustained support from the horns. The push to the cadence displays even more internal variety: the oboes disappear in m. 94; then everyone but the first violins does so too in m. 97; then the offbeat unison pre-cadential phrase in mm. 98–102 is for strings and woodwinds (with the flute and first oboe having the top voice to themselves, giving them timbral control); the hemiola 6/4 chords in mm. 103–104 are for strings only; and when the winds return for the dominant chord in m. 105, it is the flute and first bassoon's lines that draw us onwards.

That takes care of intra-expositional re-orchestration. Let's consider extra-rotational re-orchestration now. The music that is most clearly re-orchestrated across rotations (just re-orchestrated, rather than being re-composed the way many TRs are) is often the same music that was re-orchestrated within the exposition. So, let's begin by looking at the Haydn themes that we just reviewed. The recapitulation of the C theme in Symphony No. 94 features reassignment: what had been for flute, first oboe, and first bassoon in the exposition (mm. 87–94) is now for first oboe and first and second bassoon in the recapitulation (mm. 236–43). The recapitulation of the S theme in Symphony No. 97 (mm. 216–31) features thickening: the first oboe has been added to the Hybrid 4, the first codetta is essentially the same, and the second codetta doubles the violins' melody with both flutes (above) and oboes (at pitch) instead of just the former. The recapitulation of the P theme in Symphony No. 98 (mm. 209–25) begins with an emphatic tutti (mm. 209–11)

before the orchestration from the exposition is restored. Symphony No. 102 is the odd one out: the second iteration of the P theme before the TR is simply cut.

As one might expect, the themes in Symphonies Nos. 93 and 95 that were the most interesting to begin with are the ones that remain the most interesting after re-orchestration. The S theme in the recapitulation of the former (mm. 218–42) is shown in **Example 7.24**. An imitative countermelody for bassoon has been added to what had been the strings-only portion in the exposition (mm. 218–228). In the second phase, the melody is now for oboes and violins (at pitch) rather than flutes and violins (in octaves), and the toggling figure stays in the strings rather than transferring to the bassoons. This alone would make things less interesting rather than more. Luckily, the string "pah-pah"s have been reassigned to the horns, and the flute and first bassoon (now free) can play the imitative reply (in mm. 230–31) two octaves apart.

In the S theme in the recapitulation of No. 95 (mm. 129–45)—shown in **Example 7.25**–Haydn plays a neat trick: he reverses the dynamic relationship between the presentation and the continuation in each sentence. In the exposition, each continuation was thicker than the presentation that preceded it; now the opposite is true. From the first presentation (mm. 129–33), it is clear that a ticking accompaniment is now present in the second violins and violas. Instead of horn fifths, the end of each basic idea includes the oboes doubling the violin melody, and bassoon thirds moving in contrary motion. But for the first continuation (mm. 134–37), the strings take center stage (with only a brief bit of help from the bassoons at the cadence in mm. 136–37), the melody un-doubled. The second presentation (mm. 138–41) is the fullest yet: the entire woodwind section has the melody. But the second continuation (mm. 142–45) is the barest yet: melody only in the oboes, the bassoons ticking away underneath. As before, this dedication to re-orchestration

fits Haydn's profile. But it fits everyone else's profile just as well—perhaps even better, as their re-orchestrations are even more extreme.

When discussing Danzi's exposition, I noted with dismay that he kept his $S^{1.1}$ theme as all strings. In the recapitulation, he solves that problem. He plays it all strings the first time (mm. 197–206), but then adds horns and bassoons to the background the second time (mm. 206–215). I showed $S^{1.2}$ from the exposition in **Example 7.17**. The same theme's appearance in the recapitulation is shown in **Example 7.26**. The three bars that had been for strings plus horns are now for everyone except for the trumpets and timpani; the two bars that been for everyone except for the trumpets and timpani are now for everyone. The next six bars are transposed but have the same orchestration. The melody of the cadential phrase is still for solo flute, but the oboes are gone from the harmonic support, and the string accompaniment underneath is now rocking figures rather than straight quarters. **Example 7.27a** and **b** shows the recapitulation appearance of the waltz theme whose exposition appearance was shown in **Example 7.22**. In mm. 231–38, the "oom" is now a half note instead of a quarter, the violas' "pah-pah"s are now legato sighs, and the second violins have a trill figure; in mm. 248–56, the whole thing has been re-arranged for the woodwinds (with the oboe in the lead), which sound perhaps like a hurdy-gurdy or like the sort of wind band that might accompany an aristocrat's dinner (as at the end of *Don Giovanni*).

The S theme in the recapitulation of the Brandl symphony is in mm. 148–63. What had been for strings alone (in mm. 58–67) is now for oboe and strings (mm. 148–57), with the first oboe playing the melody. Where the melody once was once for flute and bassoon two octaves apart (mm. 68–77) it is now for first violin and bassoon an octave apart (mm. 157–63). Things have become narrower.

For Eybler, much of the recapitulation could be held up as examples of creative re-orchestration, but I would like to focus on the recapitulation's P theme (mm. 154–62), shown in **Example 7.28**. The equivalent spot in the exposition can be found in **Example 7.16**. The melody—which had been in the celli and basses—is now in three-part imitation among the first violins, second violins, and celli/basses, first in ascending order and then in descending order. What had been the complementary reply in the horns and violas is now a dialogue between oboes and horns (as one participant) and pizzicato violas and second bassoon (as the other). The former dialogue between violins and oboes is now between first bassoon and flute.

Last of all is Krommer. Take a look at $S^{1.2}$ from the Krommer, as seen in **Example 7.15**. **Example 7.29** shows that theme as it appears in the recapitulation (mm. 269–88). What had been overlapping flute-bassoon dialogue is now non-overlapping oboe-bassoon dialogue (with a little insouciant turn figure added). The string pulse remains in the second violins, celli, and basses, but the violas have joined forces with the horns to sustain chords as the oboes did before. And above it all, the flute now has a pedal.

There is now the matter of egalitarianism. Dolan (2013, 151) approvingly quotes Kollmann's statement that symphonic themes "ought to be of such a nature, that all instruments can execute them, or at least join them in the principal key. If this rule is not attended to, a Symphony cannot answer the purpose of employing the whole orchestra to advantage. Haydn will be found very particular in attending to this rule." (1799, 17). However, as Page has pointed out before (with direct reference to the same statement from Kollmann), this is a fiction; only two themes in all of the London Symphonies satisfy these criteria: the primary themes of 97/i and 103/iv (1993, 135), and they are not even used in this fashion. The clarinets and bassoons never

have a main melody to themselves.[19] The horns' only one is not in a first movement; it is the "horn fifths" progression in the finale of Symphony No. 103. The lion's share of the woodwind solo melodies goes to the oboes, with the flutes in second, and these are mostly not to be found in first movements.

This is not to say that our four other composers are much different in this regard. There are just as few extended solos in their first movements. But perhaps the continuous spectrum aesthetic that is more evident in their work than in Haydn's can create more of an illusion of egalitarianism, because the individual instruments seem to be involved in so many different endeavors together (changing constantly), that they seem more genuinely social with each other.

Sometimes Haydn can be very good about using displaced doubling to let woodwinds cut through the texture. In tuttis especially, Haydn can double the woodwinds an octave apart from the strings to great effect. The sudden shift to E♭ major in 100/i/239–245 gets a splash of silver due to the fact that the flute is above everyone. The finale of No. 97 is filled with such moments: mm. 24–27 (in theory, at least; in practice, the overtones of the trumpets usually blot out the flutes), 95–106, 164–171, 182–186, 220–223 (the flutes get blotted out on this one too). In his tuttis, there are also glorious moments when there will be a shift from at-pitch doubling to octave doubling (or vice versa), thus causing that line to leap from the page: e.g. 97/iv/124–125 and 98/i/253–255.

[19] If you happen to read this chapter after reading Chapter 8, you may notice a discrepancy between this approach and one of the central claims I make there: namely, that a concept like melody is perceptual, rather than something determined by the score. Therefore, when I discuss who has "the melody," this is shorthand for who has "the line that I find primary when listening to most performances of the passage in question."

But in non-tutti passages, he can be maddeningly inconsistent. Symphony No. 102/i is particularly astonishing in this regard. The oboe doubling the violins and violas above in mm. 125–26 is the only instance in the movement of wind-string doubling at the octave. All other 83 measures of wind-string doubling are at pitch! In all of the places in the finale of Symphony No. 96 in which the flute plays with the strings, why does the flute never have a line to itself? Why must it always be doubled by the first violins?

It is situations like that in which the fundamental conservatism shines through: not merely in the decision to double at pitch where one wouldn't expect it, but also in the decision to double at all rather than to give a solo to a woodwind. The finale of Symphony No. 98—one of the movements Dolan holds up as an exemplar of "eachness"—is actually a prime example of how Haydn's penchant for doubling gets in the way of showcasing individual instruments. In the whole movement, the oboe is the only wind instrument that gets time alone with the melody (mm. 8–16). The initial presentation of the C theme (mm. 87–102) is a dialogue between higher and lower statements of a jaunty little figure **(Example 7.30)**. The dialogue is not actually a dialogue between two instruments/groups; instead it is contained within the first violins. This is understandable enough: the kind of accompaniment pattern Haydn wants to maintain requires the continual labor of all of the other strings.

When the C theme is immediately repeated in mm. 102–24, Haydn adds two elements: bassoon upbeats to complement the low string downbeats, and a flute upper pedal. These are nice touches. But then, Haydn has the first violins yet again play both sides of the dialogue, rather than letting it be a genuine exchange between the first violins and oboes. And by giving the pedal to the flute rather than the oboe, Haydn throws the spotlight back on the same woodwind that he

favored earlier, rather than giving someone else a try. (If you're thinking that this is because this pedal is too high for the oboe, then look back at mm. 47–86. Haydn has no problem with writing oboe parts that sit this high.) This theme's reappearance in the recapitulation in mm. 282–307 **(Example 7.31)** is even more telling in this regard. Instead of making this a dialogue between the flute and bassoon—neither of whom have had a solo melodic turn—Haydn doubles both of them with the first violin.

I invite you to re-listen to Mozart piano concerto passages from the previous chapter, or to the Brandl, Eybler, or Krommer movements from this one. Do any of the others do this? The point here is not that this is poor orchestration. It isn't by any stretch. But these are not the choices of someone who holds showing off individual instruments as a strong priority.

To conclude this lengthy comparison: Haydn's orchestration in his London Symphonies mostly kept up with the other symphonists of his time and place. Occasionally, it felt behind. But it did not leap ahead of them. To the extent that his orchestration could be called "revolutionary," it is only if you hear the whole movement as revolutionary, such that marching in the army automatically grants one such a status, regardless of whether one is at the front or the rear of the company.

❖ Conclusion

Several of our chapters thus far have been whirlwind voyages, but this has been the whirliest and the windiest. We began purportedly in search of possible origins for Mozart's style and found instead (perhaps unsurprisingly) that most people were too busy forming styles of their own to lay the groundwork for Mozart's. We discovered that a cohesive narrative of the

development of late eighteenth-century orchestration is, at this point in time, nearly untellable—the cast of characters is too varied, and the flashpoints too spread out. When we reached Haydn in the 1790s, the opposite was true: all of the composers we looked at had convergent stylistic traits.

The problem, then, with Great Man History (as it has infected our discussions of Mozart and Haydn) is not that its claims are automatically factually wrong. Indeed, these two chapters have more or less validated the claims about Mozart. The closest I have come to showing something that ushers in *Idomeneo* is Schweitzer's *Alceste* and I have not been able to find anything else in the 1780s that comes within a whisker of Mozart's piano concertos. But even if these assumptions have turned out to be right, they should not have been made in the first place. And our analyses of the Haydn symphonies show plainly how liable they are to go wrong.

If we were to draw cautionary tales from this chapter, there should be two—both about the relation of the individual composer to larger history. In our journeys through Paris, Mannheim, Madrid, Weimar, etc., we encountered an excess of individuality: it was hard to see the forest for the trees because there were so many different species of tree. In our examination of Haydn, we confronted the opposite problem: a lack of clear individuality. The defining traits of his orchestration are just the defining traits of the 1790s style as a whole, of which he is not a particularly progressive exponent. The degree of individuality of any particular composer cannot be assumed or dismissed.

In closing, I should dispel a notion you may have: that the second half of this chapter amounts to something of a hatchet job on Haydn. I certainly have attempted to hack away at his reputation for progressivism. But this is an indictment of Haydn's style only if we need his orchestration to be progressive. And why should we? Neither Mendelssohn nor Brahms was

particularly harmonically progressive. The former is easily overshadowed by Schubert, and the latter by Wagner.[20] That has not stemmed the flow of harmonic analyses of their works, because we understand that harmony still matters in their pieces—that a parameter can remain absolutely integral to the music's power without necessarily being manipulated in the most state-of-the-art manner. The same applies to Haydn's orchestration. Dolan is absolutely right: we miss a vital part of his art if we do not consider this facet. It can be and is vital regardless of what precedents we uncover. Such things can be good on their own terms.

To use her phrase, we should be "analyzing for orchestration." To acquire the tools to do that, you may wish to turn to the next chapter.

[20] Schoenberg is turning over in his grave as I say this; see his "Brahms the Progressive" (1950).

Chapter 8: Grasping Color

❖ Color-Coding Your Sound-World

In his classic essay on consciousness, "What Is It Like To Be a Bat?", philosopher Thomas Nagel muses on the impossibility of explaining color vision to a blind man. He writes: "The loose intermodal analogies—for example, 'Red is like the sound of a trumpet'—which crop up in discussions of this subject are of little use. That should be clear to anyone who has both heard a trumpet and seen red." (1974, 449). We music scholars have the opposite quandary when addressing timbre: we are stuck explaining that "the sound of a trumpet is like red." The main problem is not that the choice of modality is unsuitable. (In fact, it is quite apt: timbre *is* like color.) The problem is that we often exhibit a far too limited understanding of what color is for.

This is because we tend to think of color as an object of aesthetic perception—something to look at and contemplate. But here I must invoke the alternative perspective that I introduced in Chapter 3: that of ecological perception. In nature, colors are harnessed to perform vital tasks—to see whether a fruit is ripe enough to eat or a predator lies in wait in the grass. Colors grant us access to potential uses of our environment. These are, of course, its affordances.

Most existing investigations of timbre are not explicitly affordance-based, but their methods will nonetheless prove profitable to us as we attempt to construct an affordance-based approach. Timbre is generally conceived of as a psychoacoustic property. The "acoustic" part of this pertains to Nattiez's neutral level—to the objective qualities of the sound. The "psycho-" part pertains to the esthesic—to the subjective human reactions to these objective qualities. Therefore, most studies make some attempt to examine both sides of the coin, even if they end up favoring one over the other.

Many timbre scholars begin their works by providing some definition of the term—something writers on most other musical topics do not necessarily feel compelled to do. It is hard to examine timbre closely without growing uncomfortable with the concept. Consult any author who writes about it and you will find that they consider it under-theorized (still, despite all of these attempts!), and something of a catch-all term for a variety of different sonic dimensions that can and should be pulled apart and analyzed separately. In pursuit of this goal, scholars often find it useful to break timbre into a series of named components.

Let's take three prominent examples of this move. For composer Wayne Slawson (1985), who focuses on a specific element of timbre that he calls "sound color," these dimensions are openness, acuteness, laxness, and smallness, all of which are measured according to the ratio between the first and second resonant frequencies of the sound. For Kate Heidemann (2016), vocal timbres can be analyzed according to four criteria: (1) how the vocal folds vibrate, (2) the position of the vocal tract, (3) where sympathetic vibrations occur, and (4) the degree of support and muscular anchoring.[1] Lastly, for Megan Lavengood (2017), one can use a spectrograph to examine whether a timbre's sustain is bright/dark, pure/noisy, full/hollow, rich/sparse, beatless/beating, or harmonic/inharmonic; and whether the attack is percussive/soft or bright/dark; and whether the pitch is low/high or steady/wavering.[2]

[1] Heidemann's taxonomy thus complicates my claim that the acoustic components of timbre's psychoacoustics are generally understood in terms of the neutral level, because she is working backwards from the sounds to the bodily procedures that produce them, which is the poietic level. More on this soon.

[2] Lavengood's use of oppositions (e.g. these binary pairs) to analyze timbre is most directly inspired by the work of Robert Cogan (1984).

Each of these authors has a different practical application in mind for their taxonomies: Slawson's is to aid composers, to show what knobs they can twiddle with to create a range of effects.[3] Heidemann's is to provide precise descriptions of timbre to usurp the vague ones currently in use, and to use these descriptions to capture the particular qualities of individual singers' voices. Lavengood's is—besides providing a general method for spectrographical analysis—to analyze the relationship between timbre and formal function in popular music (most specifically that of the 1980s).

Of course, I cannot use any of these methodologies in analyzing the timbres of orchestral music. Slawson's and Heidemann's are on unrelated questions, and Lavengood's would work only if software allowed us to take recordings and pry apart the timbres of the individual instruments, so they could be assessed separately. (It doesn't yet.) Nonetheless, I mention the work of these authors because they are largely successful in what they aim to do, and are so because they are willing to introduce taxonomies of well-defined categories. I am, as a reader of the rest of this dissertation should know, fond of constructing such taxonomies. But the one I will construct later in this chapter is the largest yet; hence my eagerness to show that what I am about to do is in line with how these problems have been addressed before.

These taxonomies are, as I noted before, neutral rather than esthesic. Though the categories can be harnessed to analyze how timbre is used in a particular piece or style of music,

[3] Interestingly, one of the prime examples Slawson gives of how to hold pitch constant but change timbre is for a human voice to sing different vowels (1985, 152–57). This is precisely the technique used by Caroline Shaw in her *Partita for 8 Voices*, which David Blake chooses as his first analytical example for his article on timbre for the *Oxford Handbook of Critical Concepts in Music Theory* (2018). In regard to this issue, you may want to revisit my discussion of this in Chapter 3, pg. 93.

the categories themselves are not inherently about use. In other words, what has been systematized is the way that we describe timbres themselves and not what functions timbre can serve.[4]

The latter perspective can be found more readily in cognitive studies of how timbre affects listeners' perceptions.[5] This literature is vast—too vast to summarize easily—and I have already cited some examples of it in prior chapters. But there is an important subset of this research that I have not yet explored: the contribution of timbre to how listeners divide a musical texture, both vertically and horizontally.

The vertical component of this is called *stream segregation*, a term introduced by Albert Bregman.[6] According to Bregman, we do our listening in the midst of what he calls an "auditory scene"—the plethora of sounds that buzz about our ears. A basic cognitive task is making sense of this scene by treating some sounds as belonging together. A fundamental part of this is figuring out which sounds originate from the same source. For example, if I'm trying to have a conversation in a busy restaurant, I need to be able to distinguish the speech of my interlocutor from that of the other chatting patrons around me. Otherwise, I will attempt to process every single audible word spoken in the restaurant, and fail to understand anything. This act of distinguishing requires segregating one stream of audio input (my conversation partner) from the background.

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[4] One can, of course, use these systems to produce functional analyses, as Lavengood does. But the point is that analyses such as these do not emerge automatically from her theoretical categories, because the categories themselves are abstract and non-contextual.

[5] Overviews of contemporary cognitive research in timbre perception may be found in McAdams and Giordano 2009, McAdams 2013, and in the first three chapters of Wallmark 2014.

[6] The most sustained treatment of this concept is in Bregman 1990, but he introduces it in Bregman and Campbell 1971.

Note that in this case, I have collapsed all of the other people into one background stream. One could imagine a situation, however, in which I also wished to eavesdrop on the table nearest to me, while still attending to my companion at my own table. In this case, I would try to stream my neighbor separately from the rest of the background. Thus, although the number of streams I can maintain is constrained by both the audibility of the surrounding noises and the limits of my ability to attend, a certain amount of this is up to me. I have agency. This is why, although Bregman never uses the term "affordance," all scenes afford rather than determine particular forms of segregation.

It should be unsurprising to you that timbre plays a very large role in this process, sometimes even the largest role. If you close your eyes in the midst of a chatter-filled room, the timbre of each speaker's voice is what will help you the most in figuring out who said what. The same goes for music. The more dissimilar the timbres carrying two different musical lines, the easier it is for your ear to disentangle the lines (Iverson 1995; Bey and McAdams 2003; Marozeau, Innes-Brown, and Blamey 2013). Stream segregation studies in music cognition have a common lack, however: they can almost never use examples of real music. To eliminate confounding variables, they have to use samples that differ from each other only in timbre. And the pitch material tends to be about as rudimentary as plainchant, so complexity doesn't cloud the data.

Segregation is vertical separation. When we're separating horizontally instead, we are more likely to call this "segmentation." The term is common in post-tonal analysis, in which it need not be horizontal. In that context, it is the process of determining which pitches in a stretch of music should be evaluated as belonging together (i.e. as part of a set). Such pitches can be distributed

vertically, horizontally, or some combination thereof.[7] In tonal music, however—especially in harmonic or formal analysis—we can better understand segmentation through the geometrical analogy of divvying up a line (along an x axis) into line segments.

Timbre's impact on this process has recently piqued the interest of those who wish to develop more sophisticated computer algorithms for automatic music analysis (Levy, Noland, and Sandler 2007; Chen and Li 2011). (Your computer is not much of an analyst if it can't even tell when sections begin and end.) Unlike the stream segregation literature, this work does often deal with real examples of music. However, the object of study is no longer human listening. These studies assume that humans already know where the boundaries are, and the algorithm's success is measured by its ability to replicate this assumed knowledge.

Let's summarize all of this: On the one hand, there are neutral-level, acoustic-focused studies (within music theory) that analyze sounds, but not so much its effect on listeners. On the other hand, there are esthesic-level, psychology-focused studies (mainly within music cognition) that can examine how humans react to sounds, but which avoid dealing with real music. The sum total of this research can help us with the last two links of our chain of musical communication: the listener and the timbre; but they do not immediately suggest how to inject the score and the performer back into the equation, or to deal with the contingencies of different performances.[8]

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[7] Naturally, thoughtful theorists of post-tonal segmentation, such as Christopher Hasty (1984), consider timbre in their analyses. As Leonard Meyer rightly observed, the further one strays into the 20th century, the more one has to rely on secondary parameters to communicate form (1996, 340–41).

[8] As noted before, the exception here is Heidemann, who is very much performer-focused. However, her performers are designers only, and not users. Mine are both.

That is where this chapter comes in. I will begin by proposing a taxonomy of timbral functions—that is, tasks that a listener uses timbre to perform. I will then analyze three movements of orchestral music: one each by Beethoven, Schubert, and Rossini. As you shall see, I have chosen these movements in part for the highly variant responses they are capable of creating. Through these analyses, I hope to stretch your understanding of how timbre can affect how we listen to music of this period. Equally importantly, I wish to alter what features music scholars think to consider when analyzing orchestral music. The aspects of timbre that we will consider affect the perception of the most basic musical features.

❖ A Taxonomy of Timbral Functions

On pp. 79–80 in Chapter 3, I introduced an analogy between secondary parameters and doorknobs. I would like to extended that analogy here. One affordance of a doorknob's design is to signal to you that it is a doorknob. If it didn't protrude from the door and were not a different color, you might not notice that it was there. Another affordance of a doorknob is to signal that the thing it is attached to is a door. Were there no knob, you might think that it was just another part of the wall. In the first instance of signaling, the doorknob draws attention to itself; in the second, it draws attention to another object. Let's call the former category "first-order signaling," and the latter "second-order signaling."

Now, obviously, a doorknob's main function is not signaling but implementation: to be turned in order to open the door. That is a second-order implementation. You are not using the knob for its own sake, but rather as a means of using another object. However, doorknobs do

afford other uses, independent of opening doors. You can hang things off of them, such as a "Do Not Disturb" sign, or a shopping bag, or an umbrella. These are all first-order implementations.

I have summarized all of these categories in **Example 8.1**. Here is how this terminology would apply to timbre specifically: To determine whether the affordance is first-order or second-order, we ask: "Are we using the timbre itself for some *end* independent of its primary-parameter content (most often, pitch), or are we using it as a *means* of using a primary-parameter affordance?" The former are first-order relationships, and the latter are second-order. To determine whether the use is signaling or implementation, we ask: "Is the timbre drawing our attention to the presence of or boundaries between particular musical phenomena, or is it creating a use that was otherwise unavailable without the timbre?" The former is signaling, and the latter is implementation.

Naturally, all four of these types of use can occur at once. Imagine a low chord for trombones:

- Part of the first-order signaling would be the trombones drawing attention to their low, brassy timbre. You might think that timbres always draw attention to themselves, but this is not quite the case. I suspect that you are perfectly capable of listening to a passage of orchestral music without remarking upon any particular timbre, because they have blended into one picture that is "the orchestra" or because the combinations being used are so standard within the style that they don't merit any special consideration.
- Part of the first-order implementation would be the metaphors you bring to bear on their timbre. Does this sound warm, or harsh, or like growling, etc.?

- Part of the second-order signaling would be that you understand this low chord as apart from the rest of the texture. Without the trombones, these particular pitches might have been lost in the sea of sound, but the timbre allows you pick them out.
- Part of the second-order implementation would be when some of the timbral associations seep into the primary-parameter material (e.g. it is not merely the trombones that are harsh; you perceive the pitches themselves as harsher, or even as more dissonant), or when they combine with the primary-parameter material to create an impression that they could not create on their own (e.g. you hear the trombones as a male choir; the trombone timbre gives you the sound of the male voice, perhaps, but you can't hear it as a choir without a particular sort of chordal texture).

Let's break down some of the most common of these functions into distinct categories.

First-order signaling:

- *Timbral self-marking*: When a timbre is noticed because it is unusual. It might be unusual in a context-free way—the sound itself would be considered odd, regardless of the circumstances in which it is heard. Or it could be context-dependent—a particular color (which might be normative under certain circumstances) is withheld for some portion of the piece, such that its appearance (or re-appearance) is noteworthy. The context-free marked timbre might be produced by an uncommon instrument, such as the glass harmonica in the Mad Scene from Donizetti's *Lucia di Lammermoor*; or it might be produced by a common instrument played in an uncommon fashion, such as the high bassoon solo that begins Stravinsky's *Rite of Spring*.

Second-order signaling:

- *Event marking:* This is much the same as timbral self-marking except that what is marked is not the timbre itself, but rather the "event" (e.g. a chord, a passage, whatever the timbre permeates) as a whole. Timbral self-marking and event marking often occur together, but need not necessarily do so: orchestration can succeed in drawing your attention to an event without your remarking on the orchestration itself; contrariwise, you could notice a bizarre instrument without truly paying attention to what it is playing.
- *Vertical segregation* and *Horizontal segmentation:* Please consult the previous section for a full description of these functions. But to summarize briefly: the former breaks down a texture into voices, lines, and so forth; the latter breaks down a texture into ideas, phrase, sections, and so forth.

First-order implementation:

- *Timbral iconicity:* When a musical timbre represents some other (usually non-musical) sound that is perceived as similar. Examples of this include timpani rolls for thunder, flutes for birds, and so on.
- *Timbral topicality:* When a timbre alone has topical associations, independent of the primary-parameter material being played. The most obvious example in late eighteenth-century music is Turkish percussion. It doesn't really matter what rhythm the percussion instruments play; their mere presence is sufficient to establish the topic.
- *Timbral agency*: When the timbre represents an agent—be it the instrument(s) producing the timbre, the player, or some other fictional entity portrayed by the timbre.[9] The characters in

[9] For more about fictional agents in general, see Monahan 2013. For more about performers in particular as agents, see Klorman 2016.

Peter and the Wolf are a prime example. In those cases, of course, there is some iconicity involved too.

Second-order implementation:

- *Primary enhancement:* When a particular quality of a primary parameter (e.g. the pungency of a high pitch) is enhanced by correlating it with an associated timbre (e.g. piercing trumpet at the top of its range). This is a kind of conceptual blend between timbral and non-timbral qualities that are perceived as somehow analogous.
- *Topical reinforcement:* When the primary parameters of a topic (e.g. chorale texture) are paired with an associated timbre (e.g. organ-like orchestration). Notable examples of this particular topic/orchestration combination appear in the finales of Mendelssohn's *Reformation Symphony* and Brahms's Symphony No. 1. For this category, unlike for timbral topicality, the primary-parameter material needs to be there. Timbre alone cannot a chorale make. And such orchestration is usually perceived as "organ-like" to begin with only because the texture sounds like something an organ would play. Absent that, a listener might not even draw the analogy. Hence the idea of "reinforcement": timbre puts flesh on primary-parameter bones.
- *Force amplification:* "Force" here refers to two of Steve Larson's musical forces: gravity and magnetism (2012). The "pull" of a tendency tone can seem stronger if another instrument is added just at that moment to ratchet up the tension. The same goes for a general downward pull.
- *Agent multiplication:* When different sections within a formal unit seem to portray different agents, because they are orchestrated differently. For example, if the antecedent and consequent of a period are orchestrated the same way, one might hear a single agent trying

twice to achieve a goal, succeeding fully only on the second try; but if they are orchestrated differently, one might perceive two agents in dialogue, or making different attempts at achieving the same action.

This list is by no means exhaustive. These are just the tasks I have found myself most commonly using timbre to perform, and therefore the ones I felt it most useful to classify. Other scholars may add further functions. Now, let's see some of these in action.

❖ **Repainted Recap**

Although I have not always been kind to recapitulations in this dissertation, let's take this opportunity to pay close attention to how material is re-orchestrated within a movement. I am going to directly juxtapose the equivalent themes in each zones—setting P theme side-by-side with P theme, TR with TR, etc.—and I encourage you to (re-)listen to these themes this way as you follow along. This exercise is distinctly ahistorical—a luxury of the digital age. In the previous two chapters, we cared a great deal about history. In this chapter, we are not going to care at all. Timbral affordance—as I plan to explore it here—is about what timbre can do for us: the us alive in the present, availing ourselves of whatever accessible modes of listening appeal.

My chosen piece is the first movement of Beethoven's Symphony No. 8. I highly recommend that you listen along with one of the following recordings: Paul Kletzki and the Czech Philharmonic (2011 [rec. 1967]), Karl Böhm and the Vienna Philharmonic (2013 [rec. 1971]), Bernard Haitink and the Royal Concertgebouw Orchestra (1994 [rec. 1987]), Claudio Abbado and the Berlin Philharmonic (2008 [rec. 2002]), or Simon Rattle and the Vienna Philharmonic (2012 [rec. 2002]), if you prefer modern instruments; the Academy of Ancient Music and Christopher

Hogwood (1997 [rec. 1989]) if you prefer historical instruments; and Roger Norrington and the Radio-Sinfonieorchester Stuttgart (2003 [rec. 2002]) if you like period style without period hardware.[10] These seven are the recordings on which I am able to hear the wind instruments most clearly.[11]

Let's begin with the P theme (mm. 1–12), pictured in **Example 8.1**. When I listen to this passage, the wind timbres provide a feast of second-order implementations.

The first of these pertains to form: the 4 + 4 +4 grouping. Were this a matter of segmentation, this would be signaling. But I'm sure I would have segmented this into 4 + 4 + 4, even without the orchestration nudging me in that direction. The formal function is pretty straightforward either way: the three legs of this phrase are an antecedent (if you allow them to end with sevenths, à la Burstein 2015), a consequent ending with an IAC, and then a stronger consequent ending with a PAC. What changes is the agency multiplication. Were this all tutti, I would probably say: "the first consequent isn't strong enough, and so the music backs up four bars to try again." Given the orchestration, however, I am more liable to say: "the group makes a statement, individuals within the group make a tentative reply, and the entire group responds to affirm the reply."

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[10] I hasten to remind the reader that although I identify the recordings by their conductor, there is no particular reason to assume that the balances that I analyze are necessarily the results of conscious decisions by the conductor specifically. The musicians, size of the orchestra, acoustics of the studio, engineering, and so on all play intentional and unintentional roles, and it is impossible to say which factors were most determinative of the resulting mix. Kletzki's recording is the one where I would be least liable to credit the conductor, since the startlingly clear wind balances are also present on other Czech Philharmonic recordings of this era, on the Supraphon label, regardless of who is conducting.

[11] Kletzki's, Böhm's, and Hogwood's are (in roughly that order) the most superbly balanced Beethoven symphony cycles—positively revelatory in the details they disclose. Any person interested in Beethoven's orchestration owes it to themselves to grow familiar with at least one of them.

Another form of second-order implementation is topical reinforcement. There is a horn fifths progression in mm. 7–8. Playing it on actual horns fortifies its topicality. This is second-order because the defining feature of the topic is pitch-based: fifths necessary, horns optional.

A third form of second-order implementation is offered by the flute's entrance in m. 8. When it doubles the leading tone, I feel the magnetism of that scale degree $\hat{7}$ increasing, its pull towards $\hat{1}$ strengthening. I find this particularly effective because Beethoven delays the doubling. We land on the C chord, with its inherent tension, and then the flute ups that tension on the next beat.

Let's compare this to P space in the recapitulation (mm. 191–210), shown in **Example 8.2**. Whereas the initial P theme was structured $Ant_{(4)} + Con_{(4)} + Con_{(4)} = 12$, this one is structured as $Ant_{(4)} + Con_{(4)} + Ant_{(4)} + Con_{(4)} + Con_{(4)} = 20$. The eight-bar statement of the theme that opens the recap is played entirely tutti, and is probably the most problematically unbalanced passage in all of Beethoven's orchestral music.[12] On most recordings, the melody (which is in only the bassoons and the low strings) is significantly fainter that the accompaniment, sometimes to the point of inaudibility. In those rare cases where the melody is indeed audible, this audibility is achieved by drastically dialing down the other instruments, such that the overall dynamic of the passage is well below the *fortississimo* that Beethoven has prescribed.[13] Here is one way to frame this problem: the

[12] The other contender for this dubious honor is Symphony No. 5/ii/114–21, which I have already discussed on pp. 71–73.

[13] Considering our recordings: if nailing the climax while burying the melody is Option #1 and projecting the melody while lessening the dynamic impact is Option #2, then Hogwood, Haitink, and Rattle fall in the former camp and Kletzki and Abbado in the latter. (Hogwood and Kletzki are the strongest exemplars of each.) What Norrington does is, in my opinion, the worst of both worlds: he fools around with the dynamics, diminuendoing in mm. 191–94 and then again in mm. 195–98, thus leeching the power from the climax; but then he still doesn't project the lower instruments strongly enough!

passage affords being a full-throttle, full-orchestra climax and it affords having the bottom line function as the melody, but not both simultaneously.

At this point, it is worth addressing a misgiving you may have. When I start discussing issues like balance, haven't I left the realm of timbre and wandered into dynamics? Not so. Recall the example I gave earlier of the busy restaurant. The timbres of the different voices were not already pre-segregated. They were mingling in the auditory scene. They were part of what we might call a "timbrescape." Were you sitting in a different seat in the restaurant, the timbres of each individual voice would not change, but nonetheless the overall timbrescape you perceived would change as radically as the landscape of a meadow might were to you stand in a different corner of the meadow. And which voices you were able to pick apart would change as a result. Thus, while dynamics and timbre are not the same thing, one cannot discuss timbres in an orchestra without considering the relative dynamics of the different instruments; for by making some timbres more accessible than others, the dynamics alter which affordances a listener is most likely to exploit.

Returning to the P theme in the recapitulation: after the tutti statement of the whole period, the winds-only repetition of the antecedent occurs in mm. 199–202. This orchestration brings the antecedent into the sound-world that was occupied by the first consequent in the exposition. However, it differs from it in a few respects. The melody is now carried by flutes and clarinets in octaves, rather than just by the clarinets. The omission of the oboe from the first few measures is wise, I think. By allowing a listener to hear the mellower, downier sound of the reedless and single-reed instruments before introducing a double-reed, Beethoven maximizes the contrast with the bristling tutti we just heard. When the oboe enters (mm. 201–2), it does something rather surprising: playing in the soprano range what had previously been a tenor line

(i.e. doubling the bass line a third above). This takes what once was an outwards-pulling wedge and transforms it into a voice-crossing. Because oboes' timbres can often cut through other woodwinds easily, a listener's task of stream segregation is potentially much easier.

I described this passage as "winds-only" but that it is not strictly true. There are also the timpani. But they don't function as timpani are wont to do. Here, they supply the bass line. And they combine with the horns in complementary rhythm to establish a quarter-note pulse. Their part is precisely the sort that you would expect to be played by celli and/or basses. Now, if this is your first time looking at the score, you might be surprised to learn that there are timpani playing in this passage at all. If you listen to nearly any recording of this passage, it is very difficult to detect their presence. By this I don't mean that their part is usually inaudible. I mean that the pitches/rhythms are audible, but one cannot tell that they are being contributed by timpani specifically. The timpani are rendered nearly timbre-less. I admit that I am speculating, but I suspect that this timbre-lessness is part of the point. The bass line cannot be supplied by the bassoons. (They're busy.) And it cannot be supplied by the low strings, since it is essential that the passage be string-less. Beethoven's "solution" to this labor-distribution problem uses an affordance of the timpani that most composers would never have seen was there: to treat it as effectively a string-less cello. This works not only sonically but also visually in the concert hall: you get to see all of the strings stop playing, but probably never think to consider where the replacement bass line is coming from.

A tutti outburst (mm. 202–3) separates the second antecedent from the second consequent (mm. 203–6). I find the most crucial change to this consequent (vis-à-vis mm. 5–8 in the exposition) to be the re-orchestration of the "horn fifths." They are now horn-less. Even though

this is not, in any objective sense, a more substantial change than any of the others Beethoven has made, it is nonetheless the one that affects me the most, specifically because that union between timbre and topic has been broken. The topic still functions in its absence, but feels much weaker.

Looking at the score, the third consequent (mm. 207–10) suggests an affordance that I am unfortunately unable to exploit in any performance that I have heard, and that is complementing each successive string entrance with a different wind crescendoing on a held note (first bassoon with the viscas, horns with the second violins, oboes and second clarinet with the first violins).

We've done the P themes. Let's now compare the two TRs. The original TR **(Example 8.3)** consists of two elided trifold sentences (mm. 12–20, 20–32), the second one stalling on a B♭ 4/3 chord and collapsing rather than leading to a genuine cadence. The difference between the orchestration of these two sentences lies almost entirely in the note values the instruments play, and not in the orchestration. In the first sentence, the winds rest in between each new dotted-note "hurrah" that proclaims the next idea; in the second sentence, the winds sustain the "rah" of each hurrah. The former orchestration allows the highest note (the non-F note) in each violin figure to pop a bit more; those notes are covered more in the latter. But the latter presents an affordance that is rarely perceptible in the timbrescape of a performance. The only way the timpani can "sustain" as winds do is by rolling. Examine their part and you will see that Beethoven places a roll together with each long F in the first violins and a quarter on each high note. This has the potential to create an entirely new effect: the high notes sounding like the culmination of the timpani's roll, as if the timpani are barreling into that quarter note.[14]

[14] Of the recordings I have mentioned, only Norrington's makes this affordance audible. But I doubt most listeners will utilize it. One almost has to be searching for it.

In the recapitulation, TR space opens quite differently. **Example 8.4** shows the first sentence (mm. 210–18). What had been the melody is now in the celli and basses alone. (Not even the bassoons to help them, this time!) It has been replaced in the first violins with the melodic figure that Beethoven had layered above the consequent melody in mm. 207–10. The TR melody in the bass line tends to be more audible than the P melody was in the bass line at the outset of the recap. Even so, someone who does not know to listen for it in the bass might miss it entirely. For such a listener, the flavor of that original figure is probably best preserved by the wind hurrahs, which have carried over intact.

Well, mostly intact. There is one important difference. In the third basic idea, the horns sustain their notes (mm. 214–15), rather than keeping rank with the other winds; and they continue to do so at the beginning of the cadential idea that follows (m. 216). Beethoven clearly wants these sustained notes to shine forth, as he marks them *fortissimo* (while everyone else continues to play only *forte*). This has the potential to change the formal function of the third basic idea.

There are two ways to understand a sentence whose structure is aaab. The first is the one I have been using thus far: the trifold sentence, in which the "aaa" forms the presentation and the "b" the continuation. The other is what Matthew BaileyShea (2004) calls a "sentence with a dissolving third statement." In this formal type, "aa" functions as the presentation and "ab" as the continuation. When deciding between these two types, the main factor is whether the third "a" seems independent from the succeeding "b" (in which case this is a trifold sentence) or merges into it (in which case it has formed a dissolving restatement). I believe the sustained horns create precisely this sense of dissolving or merging.

Obviously, the distinction between these sentence types is not something most listeners contemplate while listening. And I am not suggesting that a switch flips in their brains, a bulb saying "aaa + b" is extinguished, and one saying "aa + ab" lights up. But I think the cadential idea in mm. 18–19 amounted to a gesture of sorts—of propulsion towards the tonic—and that that gesture now has grown to occupy half the phrase instead of a quarter. If so, some form of horizontal segmentation has been altered.

We will conclude by looking the beginning of S space (shown in **Example 8.5**). (I will not analyze all of the S themes, nor will I analyze the C theme.) As noted before, the music reaches the MC via a B♭ 4/3 chord. It now exits the MC in mm. 34–37 via an A 4/3 chord, acting as caesura fill. At first it seems as if the strings are going to conduct us to S, but then the bassoon takes over (m. 34), and then (in a twist) the strings come back again (m. 35). This toggling between timbres is a nice way of staging a series of surprises while nonetheless using only the instruments that will open S space proper.

$S^{1.1}$ begins (in m. 37) with three layers: a melody in the violins in octaves, a continuously strolling bassoon line, and occasional pizzicato contributions from the lower strings. Everything about this is somewhat odd. One normally doubles a melody in octaves in a thick texture, but the accompaniment here is unusually thin. The second violin is in the lowest part of its range, playing frequently on the G string, and yet not in circumstances that seem to merit such darkness. I find this sonority a little awkward and out-of-place. The *buffo* quality of the bassoon part—which darts around the pizzicato strings, such that neither is ever clearly the bass line—and the meandering harmony are in keeping with this strangeness. I thus hear this orchestration as affording both a

kind of timbral self-marking and a kind of primary enhancement, creating a conceptual blend of harmonic and timbral quirkiness.

The music lands on the subdominant in m. 44 (it is in D major, remember) via something that is not quite a cadence, producing what is not quite an antecedent. The second half of this theme follows in mm. 45–51. The orchestration has grown much thicker, pitch-wise at least. The melody is now two octaves wide—spread across the first flute, first oboe, and first bassoon—and the accompaniment is four-part pizzicato. Beethoven seemingly does not mind that this lets the oboe line get tangled up in the first violin line (especially in m. 48). This re-orchestration sounds to me like a normalization of the theme's timbre: it is now orchestrated more in line with how one expects an S theme to sound.

Beethoven's tweaks in the recapitulation all have the potential to create event marking, if one is able to keep the exposition orchestration in mind—something that is, as I noted before, much easier for a modern audience than for Beethoven's, although the exposition repeat aids both audiences. Things are already screwy harmonically, as the MC fill begins in m. 232 (**Example 8.7**). The harmony is what appears to be an E diminished-seventh chord (e.g. vii^{o}7 of F) over an F pedal. The orchestration seems fine, though: pizzicato strings just as in m. 34. If all continued in strict correspondence, this should last for one more bar (m. 233), until a new timbre (presumably still woodwind) would take over. Instead, however, the first flute and both French horns enter in m. 233, thus immediately creating a sort of event marking through their premature appearance. "Something is happening," they state. But they are not the instruments assigned to take over in m. 234; they, together with the strings, in turn pass the baton to the first clarinet and first bassoon. These two perform the job previously filled by the bassoon alone, while octave strings again take

the $S^{1.1}$ melody (mm. 235–43). Because the music is now pitched a major third lower, the lower line is now out of the range of the violins, and thus has been re-assigned to the violas. That the melody is even lower makes its orchestration stranger still (such a murky sound for a lighthearted S theme…), as does the addition of the clarinet above the bassoon, for that kind of walking line is far more idiomatic to the bassoon.

The pseudo-consequent (mm. 243–49) also has a few surprises thrown in. Were this like the exposition, the melody should thicken here, but it thins instead: the oboe is missing in m. 243 through the beginning of 245, thus leaving a gap between the flute and bassoon, who are two octaves apart. This sort of gap would make the melody seem rather bare under normal circumstances, but it sounds even barer if you expect fullness. The oboe returns to fill the void in m. 245, only for the flute to drop out in m. 247 and then return again in m. 249. Why is Beethoven doing this? Can there be any reason other than to pull your leg?

I could continue throughout the rest of the exposition, but this is enough for now. Even within just these few thematic zones, we have seen all of the timbral functions that I originally listed, with the two exceptions of timbral iconicity and timbral topicality—functions so common and straightforward that I trust you will have no difficulty thinking up a wealth of examples on your own.

❖ Schubert's Streams

In the analysis of the Beethoven, I recommended recordings that I think maximize the number of wind parts one can hear clearly. This treats performers as mere conduits to the contents of the score, minimizing potential disconnects between your visual and auditory appreciation of

the music. In other words, I have bypassed one link in the chain, acting as if the score transforms into sound with minimal mediation. In the next two analyses in this chapter, I am going to focus on performances that are so contrasting as to give rise to vastly different uses.

The first of these two analyses will be our closest reading yet. We're going to look at only twelve bars of music. They are the transition into and the beginning of the "sacred Romanesca" B section from the second movement of Schubert's "Great" C-Major Symphony.[15] We're going to break it into three four-bar segments: the transition (mm. 89–92), the first phrase of the B theme (mm. 93–97), and the second phrase of the B theme (mm. 97–100). Our focus will be not merely on the segregation of streams but also on their relationship.

One part of understanding the relationship between streams requires asking which one is dominant. Such dominance is not baked into the piece as notated; it requires being perceived as dominant by a listener, which means being a stream that attracts the listener's active attention. **Example 8.8** is a figure reproduced from the article "Divided Attention in Music" (2000) by Emmanuel Bigand, S. Fôret, and Stephen McAdams. It shows three different dispositions a listener might have towards a two-stream passage of music. The first is *figure/ground*, which corresponds to a traditional notion of "melody" and "accompaniment." The other two—*attentional switching* and *integration into a superstream*—are competing models (within music cognition) of what listeners do when actively attending to two streams at once. Which of these models is correct does not concern us.[16] What they both model is hearing the second stream as a "countermelody." From an esthesic perspective, we could say that whether a listener hears the second stream as

[15] The term "sacred Romanesca" comes from Sánchez-Kieselewska 2018.
[16] For more on this question, see Ragert, Fairhurst, and Keller 2014.

accompanimental or countermelodic determines whether the passage's texture is homophonic or polyphonic. It follows from this that if timbre can influence not merely how streams are segregated but also what degree of attention they garner, then the right adjustment to timbre can manufacture polyphony.

All of that is signaling. There is also a form of implementation to consider and that is the metaphors we can generate for the relationships between timbres. **Example 8.9** is a figure from Blair Johnston's conference paper "Sound-Quality Modulation in Sibelius's Orchestral Works" (2017), which shows several of these. Timbres that were once segregated meld into a single stream in fusion; the reverse occurs in separation. One stream breaks free of the pack in emergence; the reverse occurs in absorption. Fragmentation and separation are not metaphors that I think one is liable apply to early nineteenth-century (as opposed to late nineteenth-century) textures. Accumulation is exactly what it sounds like. Overlap is too, although we will shortly explore more specific forms of that. In transcendence, one stream overtakes another in primacy. In a shelf, one stream is left standing after the others fall away. (You can see how this metaphor differs from emergence in how much less agency it gives the stream that survives.)

With all of these complex metaphors and functions in mind, let's finally turn to the Schubert. We will start with the transition as played by Nikolaus Harnoncourt and the Royal Concertgebouw Orchestra (2005 [rec. 1992]). **Example 8.10a** is the score of this passage, with darker shades representing increasing prominence in my perception. I have marked the instruments only when I am capable of discerning what they are. When we start this passage, I notice that the bass part is played by low strings, but the lead voice is clearly the sustained A. Timbre-wise, I hear mostly bassoon. My attention pivots to the bass line in m. 91. I hear those

strings really digging into those F's—so much so that I cannot actually hear the timbre of the F–A dyad. In fact, without the score in front of me, I would not think "oh more instruments have entered"; I would just be vaguely aware of some harmonic support for the bass line. The F major chord in m. 92 is clearly woodwinds, with the flute color most palpable.

I can contrast this with how I hear this passage in Daniel Barenboim's recording with the Berlin Philharmonic (2011 [rec. 1985]), pictured in **Example 8.10b**. On this recording, the primary timbre I perceive on the sustained A is horns not bassoon—maybe a bit of a blend in the first bar, but certainly predominantly horns from there forward, as they boldly crescendo. When the dyad arrives in m. 91, I can hear clearly that those are clarinets. They don't quite blend with the horns. They sit above them. And then I am struck by the same sort of woodwind halo at the end. The strings are never my focus.

If asked to describe "what happens" in this passage, I would therefore give two very different accounts, particularly about how it feels to modulate to F major. In the Harnoncourt recording, it feels as if the music has tunneled down into F. But in Barenboim, with the horns acting almost as the protagonists, the music swells into F and relaxes upon arrival, with the clarinets like the cool, fresh glow of that F major space, and the other woodwinds like the afterglow.

Let's now look at the beginning of the F-major theme (mm. 93–97). We'll start with Benjamin Zender's recording with the SWR Radiosinfonieorchester Baden-Baden und Freiberg (2012 [rec. 2004]), which is pictured in **Example 8.11a**. The predominant voices I hear are the violins and the top voice of the bass line, which is quite clearly a bassoon. Everything else is in the distant background. This is figure-ground hearing. Although the bassoon is a figure, it is still not

quite a countermelody. It is still distinctly secondary to the violin line. This is not true for how I hear Leonard Bernstein's recording with the New York Philharmonic. (2011 [rec. 1967]), pictured in **Example 8.11b**. Here, the two upper voices are co-equal—both of them bona fide melodies. But the bass line is so recessed that it is almost impossible to tell what instruments are playing.

We can repeat the question from before: based on these performances, how would I characterize this passage? I hear something prayer-like, due to the mixture of the sacred Romanesca progression, the soft dynamics, and the vocal-like melody. I think both performances support this topical reading. But in Bernstein's recording, I hear two choirs weaving in and out of each other. In Zender's, I don't hear a choir at all. The combination of the bassoon's reediness and the strings' smoothness puts me in mind of a church organ (a nice bit of topical reinforcement). Even though these timbres are less blended, I nonetheless bind them into a unitary agent.

Returning to Harnoncourt's recording, I hear the second phrase (mm. 97–100) as I've depicted it in **Example 8.12a**. I hear the solo clarinet as taking an assertive lead, and I have no difficulty whatsoever in identifying it as a clarinet. I can contrast that with Ivan Fischer's recording with the Budapest Festival Orchestra (2014 [rec. 1984]), shown in **Example 8.12b**. (This is the live one on the Hungaroton, not the studio one on Channel Classics.) Here, the melody stays in the same octave the entire time (from mm. 93–100). It is passed off from violin to violin, almost in an unbroken line. I barely hear the clarinet as a clarinet. Instead it seems as if it is just the first overtone of the violin part.

This raises an important point about the phenomenology of octaves. There are at least four ways to perceive them, which I have shown in **Example 8.13**. One is to say "A is doubled above by B," as in Fischer's recording **(13a)**; another is to say "B is doubled below by A," as in

Harnoncourt's **(13b)**. Two others would be to say that "A and B move in octaves" **(13c)**; or that there is only one moving entity, "AB," and it is an octave thick **(13d)**. When we describe passages in octaves, it behooves us to consider which formulation is apt (rather than reflexively defaulting to one metaphor), as they can signify very different experiences.

We have done this section in bits and pieces. To conclude, let's pursue one recording all the way through. It is George Szell's with the Cleveland Orchestra (1992 [rec. 1957]). Here is how I would describe this, as shown in **Example 8.14**: "In mm. 89–92, a stern bass line descends in the lower strings. French horns and bassoons, at first in the background, swell to overtake the texture. They surge into a clarinet dyad, almost melting into it. (So, this is unlike Barenboim where the horns were still the focus upon arrival in F.) A hymn-like duet for violin and bassoon begins (so, like Zender here), but soon a cello counter-melody rhapsodically bursts through the texture, momentarily overwhelming the violins (even more than in the Bernstein). (This is an example of Johnston's idea of transcendence.) A clarinet and the violins then take up the melody in octaves (so this is the third option that we saw earlier, the equal partnership), with the cello countermelody bobbing in and out of the foreground."

So many differences in texture, metaphor, agency, and register, from only twelve bars of music.

❖ Trims from the Barber

If I were to ask you if you have listened to Rossini's Overture to *The Barber of Seville*, you should wonder whether I am trying to trick you. (If you have made your way through all the prior chapters of this dissertation, you have hopefully learned to wonder this frequently.) You might

think that the trick lies in the fact that Rossini never wrote an overture for that opera. This is true. Instead of writing a new one, he just dusted off the overture to his earlier opera *Aureliano in Palmira* (written in 1813, three years before *Barber's* 1816), and tacked it onto *Barber*. Not that that overture had acquired much dust: in the brief interim, Rossini had used it for yet another opera—1815's *Elisabetta, regina d'Inghilterra*. Maybe you know all this already. It is, after all, a choice chestnut for those eager to ridicule Rossini's shameless self-borrowing. What you are less likely to know is that there are major differences between the *Aureliano* version and the *Elisabetta* version; and that throughout the twentieth century, both have been performed and recorded as the "Overture to *The Barber of Seville*" without any clarification. (Do you know which version(s) you have heard?) Thus, the best answer to my trick question is not "No, there is no such overture," but rather "Which one? There are two!"

The two overtures have bar-for-bar correspondence, so we are not dealing with *Leonore*-like levels of re-composition. The differences are chiefly in scoring. This might not seem surprising, as the two operas require different orchestral forces: compared to *Aureliano*'s orchestra, *Elisabetta*'s has two more trombones and calls for a piccolo and a flute instead of two flutes. But not all of the changes Rossini made can be explained by the different instrumentation alone. Many of the alterations to melodic or accompanimental figures result in passages that could be played equally well by either orchestra. For example, you can tell which version of the overture you are hearing after only four measures. When the piece's first dominant chord resolves back to tonic, is the lower neighbor of $\hat{3}$ a diatonic $\hat{2}$ **(Example 8.15a)** or a raised $\hat{2}$ **(8.15b)**? The latter is a wry touch

that is present only in the *Elisabetta* version, and is entirely unmotivated by the size of the orchestra.[17]

All of Rossini's changes, I will argue, can and have been exploited to create consequential differences for performers and listeners alike. At this point, you may already be skeptical of this claim. If these differences are so consequential, why doesn't everyone already know about the two editions? Shouldn't this be obvious as soon as one hears whichever edition one encounters second?

There are two answers to this: The first is that unless you are already predisposed to worry about edition issues, you are likely to attribute these differences to the performances themselves. For example, you hear the piccolo in the *Elisabetta* version and presume not that it has been added to the orchestra, but rather that it had always been there but was concealed behind the strings. The second (and perhaps more important) answer is that the differences can affect your perception without your directly perceiving the nature or even the existence of the differences. Many is the dinner table that I have sat at where one host says to the other some variation on "The X tastes Y-ier this time. What did you do differently?". (Their partner almost never knows.) Here too, the difference is discerned but the nature is not. Sometimes the length of time between experiences is long enough that one is not aware of the difference, even though one would be had the experiences been more proximate. The cook made the dish much spicier this time, the eater feels the burn more (and sweats more, drinks more water, etc.), but does not remember that the earlier

[17] If you grew up watching Looney Tunes cartoons, *The Rabbit of Seville* might have cemented those F double-sharps in your brain through Bugs Bunny singing: "Yes, you're next. You're so next," with the second F𝄪 granting that "so" an arch emphasis. I hasten to add that the performance of the overture in the cartoon is (of course!) not a fully faithful rendition of the *Elisabetta* version, as many stretches have been re-orchestrated for comic effect.

version burned less. I am interested here in the cause of such differences, even when the causes and the differences themselves both swim below the surface of awareness.

As in the previous Schubert case study, I would like to "close-listen" to a few passages from the overture, using contrasting recordings. This time, we'll listen to only four recordings, two each of the *Aureliano* version and the *Elisabetta* version. For the former, they are Gaetano Delogu's with the Czech Philharmonic (2015 [rec. 1978]) and Antonio Pappano's with the Orchestra dell'Accademia Nazionale di Santa Cecilia (2014). For the latter, they are Antal Dorati's with the Minneapolis Symphony Orchestra (1994 [rec. 1957]) and Thomas Schippers's with the Columbia Symphony Orchestra (1992 [rec. 1960]). Obtaining all four recordings is necessary to get the full effect of the analyses that follow. (All four are available on Spotify and YouTube.) This case study is not about merely repeating the findings of the Schubert with the added complication of divergent editions. As you shall see, passages from this piece introduce further challenges to how we represent listeners' possible perceptions of these performances.

We will restrict our discussion to the P and TR spaces of the exposition of the *Allegro vivo*, which is (as one should expect from Rossini) a Type 1 sonata. The P theme stretches from mm. 25–48. I think I conceive of this as an antecedent (mm. 25–34) and its consequent (mm. 38–48), with an interpolated "link" in mm. 34–38. I say "I think" because the link undermines at least one of the reasons why I hear the first part as an antecedent. (More on this later.)

Looking at just the antecedent **(Examples 8.16)**, we can see differences that lie outside of the realm of instrumentation: the head-motive is repeated exactly in mm. 27–28 in *Elisabetta*, but has one fewer pick-up notes in *Aureliano*; the melody and accompaniment are marked at different dynamic levels (melody louder) in *Aureliano* and at the same level in *Elisabetta*; the accent on the

dotted quarter note in m. 30 of *Aureliano* has been re-interpreted (rather implausibly, in my view) as a *decrescendo* hairpin in the Ricordi version of *Elisabetta* that we will be using; the rhythm of the fast descending notes in m. 33 is twice as fast in *Elisabetta* as *Aureliano*. These differences all have consequences, but it is orchestration that matters most to us, and the timbres it gives rise to.

The primary theme is introduced by strings alone in *Aureliano* and by strings and piccolo in *Elisabetta*. All-strings is normative; strings plus piccolo is not. In performances in which the piccolo is very prominent (such as Schippers's), it can give the theme a certain sound quality—part sprightly, part shrill—that sets it apart from most themes. It makes already avian music sound even more like twittering. (This theme has always struck me as more magpie-ish than anything on offer in the *Thieving Magpie* overture.) Even in performances in which the piccolo is not nearly as strong as the strings (such as Dorati's), I can still clearly hear that the theme is two octaves wide rather than one. I don't experience this as girth *per se*. It is almost as if the piccolo line is just the first overtone of the first violins, made conspicuous (like hearing **8.13a** for the Schubert). This is a kind of primary enhancement. The orchestration of this antecedent is consistent in *Elisabetta*; but in *Aureliano*, Rossini adds a flute in mm. 33–34. This is a kind of force augmentation: the bouncing-down-the-staircase towards $\hat{5}$ in the melody is made more energetic by that addition.

One can break the link (mm. 34–38) into four components, as I have done in **Example 8.17**: a basic idea, a repetition of that, a fragment, and then a cadential idea (which begins with a repetition of the fragment). The word "cadential" here warrants a bit of explanation. Although I hear the arrival on V in m. 34 as an HC (else I would not have called mm. 25–34 an antecedent), I can't help but hear mm. 37–38 as an elided PAC. What complicates this is that I hear mm. 34–36 as a dominant prolongation. If you add all of these things together, one cannot then characterize

this as an HC succeeded by a PAC, because there would need to be intervening non-dominant material. Instead, this seems like a case in which an HC *becomes* a PAC. (I'm being Schmalfeldtian again.) This more dialectical hearing means that I don't find myself going back to rip up the membership card of mm. 25–34 to the antecedent club.

Back to the question of orchestration. The link is begun by oboe and bassoon in *Aureliano*, and by the same plus the celli in *Elisabetta*. The former orchestration more sharply distinguishes it from the antecedent that just finished, since no string color is carried over. The latter orchestration can rumble more, since the bottom half of the octave has been strengthened. (Compare Pappano to Schippers to hear both of these aspects.) Both versions add the clarinet for the third idea. In *Aureliano*, the flute is added at the fragment, and the viola is added at the cadential idea; in *Elisabetta*, nothing is added at the fragment, and the flute is added at the cadential idea. The *Aureliano* version thus has more potential for dynamism here, since there is a more continuous accumulation of layers—public support building, voter by voter, for a return to the tonic.

I say "potential" because one needs to hear each successive entrance in order for this effect to take hold. I cannot hear the clarinet on either *Aureliano* recording. On Delogu's recording, I can hear the flute and viola entrances; on Pappano's recording, I hear only the flute entrance. On Dorati's *Elisabetta*, I hear the flute entrance fairly clearly, but not the clarinet. Schippers's recording is the only one on which I can hear everything.[18] This demonstrates another case of

[18] The most remarkably clear rendering I've ever heard of the *Aureliano* version of this passage is Kenneth Alwyn's with the New Symphony Orchestra of London (2012 [rec. 1959]). On most recordings of *Elisabetta*, one can hear the clarinet entrance, but not *as* a clarinet entrance: the second idea is louder than the first, and sometimes one can attribute this to another instrument entering; but the timbre doesn't change appreciably, and it could just as easily be another oboe.

performed timbre creating different segmentation effects. In *Aureliano*, there should (or at least, more easily could) be four timbre-derived segments—one more than there is in *Elisabetta*. But when I compare Pappano's *Aureliano* to Dorati's *Elisabetta*, I hear only two segments in both, with the second segment marked by the entrance of the flute. The difference, then, lies in where the border is drawn: after half a beat in m. 36 (in Pappano's *Aureliano*) or after two-and-a-half beats (in Dorati's *Elisabetta*).

Internal segmentation is also an issue in the consequent phrase (mm. 38–48), shown in **Example 8.18**. The antecedent was in a rather odd ABBC form, which Mark Richards (2016) calls a "periodic clause"; but the consequent is a straightforward sentence. Its first four bars copy the first four of the antecedent—this time serving as a presentation—and then there is fragmentation and a cadential idea. But where exactly do the fragments begin and end?

Were I working off something like a piano reduction—where timbre is not affecting segmentation—I would draw them as I have in **8.18b**, in the *Elisabetta* version. What Rossini emphasizes, then, with the oboe-clarinet and clarinet-bassoon iambs (within this version) are fragments-within-fragments—gestures embedded within gestures. Of course, this assumes that I am able to hear the wind entrances, which I'm afraid that I cannot do easily on either recording, or indeed on most others. I hear the bassoon a bit on both, but I cannot hear the clarinet-oboe pair on either. (I do hear the fragmentation on Schippers's nonetheless, because the first iamb is very accented, although the timbral mix gives the impression that this is just because the piccolo plays much louder on those notes, even though doubtless the oboe and clarinet are contributing

anonymously.[19]) *Aureliano* offers an entirely different segmentation **(8.18a)**: with the flute-doubled line and the oboe-doubled line each serving as their own fragments. Or, at least, that's what the score offers me. Pappano and Delogu offer me nothing, because I can't hear the flute or the oboe. (Those two conductors are not alone. Lots of luck hearing the flute and oboe clearly in any performance.)

When we get to the TR (mm. 48–90), the differences really multiply. We will break this into three phases. The two major cadences are the PAC:III in m. 64 and the HC:III in m. 72. So, the sections are: mm. 48–64, 64–72, and 72–90.

In **Example 8.19**, I have indicated three of the figures that vary across the two versions of mm. 48–64: the fanfare, the dotted bass melody, and the violin trill figure.[20] The last of these is just an entirely different figure—pitch-wise and rhythm-wise—between versions. For the fanfare and the bass melody, the difference is in their scoring. In *Elisabetta*, the fanfare rhythm is carried by two trumpets alone; in *Aureliano*, it is carried additionally by two horns and the timpani. In *Elisabetta*, the dotted bass melody is carried by bassoons and celli; in *Aureliano*, it is carried by only the bassoons.

If we turn to our four recordings, we can see ways in which the timbral affordances of these details are or are not capitalized upon in performance. When we did this before in the Schubert, I represented every instrumental line in my short scores. In this case, I am going to reduce further. Most reductions prioritize the lines that seem most structurally or conceptually essential—the ones

[19] The iambs are unusually clear on Vittorio Gui's recording with the Royal Philharmonic Orchestra (2002 [rec. 1962]).

[20] There are other differences, of course, the most glaring of which is the much wider voicing of the high woodwind lines, and the alteration to pitch and articulation of the second halves of mm. 51 and 59. I am focusing only on the ones that affect stream segregation.

most necessary to preserve the identity of the piece. In these reductions, I am going to focus instead on what is most perceptually essential: I am going to represent only the melodic streams.

Example 8.20a is the simplest of these: Pappano's *Aureliano*. To my ears, there is only one melodic stream going on at any given moment, and that is a dialogue that alternates every two bars between the first violins' lightning-like upwards streaks and the high woodwinds' chatter. The bassoon is audible as a bit of background bustling, but not quite as a melody: if I didn't already know the pitches of this line, and were asked to hum them back after listening to only this performance, I would struggle. The fanfare and trill figures are basically inaudible.

Example 8.20b is Delogu's *Aureliano*. For the "statements" (in this statement-and-response dialogue), both the fanfare and the violin streaks function as melodic streams. I hear the violins as somewhat in the background on each first triplet, as they are covered by the brass; then they bound into the foreground for each second triplet. The chattering winds are again the only melodic stream in the response, with the bassoon line being even less audible than it was on Pappano's recording.

Example 8.20c is Dorati's *Elisabetta*. It is virtually the polar opposite of Delogu's *Aureliano*. The fanfares are inaudible in the statements; only the first violins function melodically. But two melodic streams run through the response: one is, as before, the woodwinds (a rather quarrelsome-sounding crowd in this performance); the other is a dialogue between the now reinforced dotted bass line and the trill figure. (Hypothetically, one could imagine there being three streams, if Dorati had let the bassoon and celli continue beats 2–4 of m. 51 [and other equivalent bars] at the same dynamic, but he has them retreat instead.) I hear these two streams as approximate co-equals;

but if I had to deem one the more prominent, it would be the strings' stream and not the woodwinds'.

Example 8.20d, Schippers's *Elisabetta*, is the hardest to reduce, because I can hear all of the elements well (ouch, that knife-edged piccolo too well!): everything from Dorati's recording, plus the fanfares. (The fanfares are much louder than they are on Pappano's recording, despite their more robust orchestration in the latter's edition.) The difference is that the dotted bass and violin trill figures are much fainter, and therefore do not compete with the chattering woodwinds for primacy in the response. But if I intentionally listen closely enough, I can still hear them as countermelodic.

Things get only more complicated in the G-major section of the TR, the beginning of which is shown in **Example 8.21**. There are a multitude of elements for a listener to try to keep track of. Let's break the G-major section down into an antecedent (mm. 64–68) and consequent (68–72). (These aren't quite proper antecedent and consequent, since both end with an HC. But the earlier HC strikes me as weaker, and thus this basic relationship between the phrases seems to hold.) In the antecedent, there is a melody in the violins. Underneath it is a network of four-note figures each consisting of three anacruses (on a weak beat) and then a strong beat. At any given moment, there are generally two such figures: one moving stepwise upwards (which I have marked in red), and the other moving stepwise downwards (which I have marked in blue). Additionally, there is a cascade descending figure (which I have marked in purple).

We could summarize the main differences between the two versions like so: In *Aureliano* **(8.21a)**, the main four-note stepwise figures are sewn together in one bass line that runs continuously through the bassoon, celli, and basses; the contrasting four-note figures and the

frolicking figure are also sewn together in the viola line; the first flute and first oboe double the first contrasting figure of each bar; and the clarinet doubles the cascade in octaves. In *Elisabetta* **(8.21b)**, the viola part is the same; what had been for first flute and first oboe in *Aureliano* is now for first oboe and first clarinet; likewise, the cascade is now for oboe and clarinet in unison rather than for clarinet in octaves. But the biggest difference is that the main four-note stepwise figures are not in one continuous line: they alternate between trombone-bass and bassoon-cello pairs.

Example 8.22 presents additional perceptual reductions of the performances of this section. In Pappano's *Aureliano*, the two main streams I hear throughout the antecedent are the violins' melody and the collective bass line. And in m. 67, only the timpani and bass drum mark the syncopated accent. In Delogu's *Aureliano*, the main streams I hear are the melody and the flute-oboe contrary replies. The syncopated accent in m. 67 is marked primarily by the trumpets. In Schippers's *Elisabetta*, the secondary stream (behind the melody) is a dialogue between the two ascending stepwise figures: the trombone-bass pair and the oboe-clarinet pair. (I try not to let the piccolo become a tertiary stream, but it often persists.) The syncopated accent is marked primarily by the horns. (This is another difference that I didn't note earlier: the top of the trumpet's octave from *Aureliano* has been shaved off in *Elisabetta*.) In Dorati's *Elisabetta*, I hear primarily strings above and the trombone-bass pair below; no oboe-clarinet pair. At m. 67, it is not the syncopated accent that matters most, but the trombones' participation in the bass line. (They are, of course, absent from the *Aureliano* version.) In none of these four is the cascading figure particularly prominent, although it is by far the most discernible on Pappano's recording.[21] In none is the dialogue between ascending and descending figures a feature.

[21] In this passage too, Gui and the Royal Philharmonic are the only heroes I know of.

There is much less variation in the orchestration of the consequent than there is in the antecedent. This time, rather than working from the score, I am going to work only from reductions (**Example 8.23**). In Pappano's *Aureliano* (**8.23a**), this is a dialogue between pairs of ascending figures in the upper strings, with the melody in the celli and basses. In Delogu's *Aureliano* (**8.23b**), one can hear that bassoons are doubling the low strings' melody, and that the upper part in the dialogue happening above is not dominated by strings but by the high woodwinds (although the strings are still audible). As such, the ascending figures from the second violins and violas sound like they are answered by a descending rather than ascending figure. Surprisingly, Schippers's *Elisabetta* (**8.23d**) sounds very much like this. The major difference is that his woodwinds and upper strings are balanced more equally, and yet with strongly individual timbral profiles; thus, rather than hearing one as necessarily primary, I hear the voice-crossing. What a radical departure Dorati's *Elisabetta* (**8.23c**) is from all of this! The dialogue that I hear around the main theme is between trombone (doubled above by first violin) and the cascading figure from before (!), now audible in the oboe and clarinet. To summarize, there is always one main melody and two subordinate (more directly interacting) streams; but what the two are, and in what direction they seem to be moving varies quite a bit, and as much due to performance as due to scoring.

One last little bit of TR left to go before we leave this overture, and that is the dominant lock from mm. 72–76. **Example 8.24** is a reduction of our four performances. In Pappano's *Aureliano* (**8.24a**), I hear the interplay between the two violin lines as the foreground. In the distant background, I hear winds, but mainly the clarinets' parts (the tritone collapsing inwards). In Delogu's *Aureliano* (**8.24b**), I hear all of the winds and they are much more forward in the mix.

Indeed, I would go so far as to say that their gesture—clenching on the dominant, unclenching on the tonic—becomes the focal point of the passage.[22] The first violins' ascent feels more like a lead-in to this wind gesture, and less like the main melody (as it seems in Pappano's performance). Thus far, Schippers's timbrescapes have often been the most replete, but his performance of this passage **(8.24d)** is the only one of the four that I hear as completely dominated by the strings. I suspect that he would not have been tempted to balance this passage as he did were he working from the *Aureliano* edition rather than the *Elisabetta* edition. I have not included full scores for this passage, but should you consult them, you would see that are no counterlines in celli and basses in *Aureliano*—only D pedal-tones. Schippers can focus so much on the strings in *Elisabetta* because there is enough going on to hold our attention. As was the case in the previous four bars, Dorati is the odd man out: he has yet again taken what the others treat as a subsidiary element (in this case, the double-dotted rhythm in the bassoons and trombones, although I hear only trombones) and placed it center stage. Indeed, I can't help but hear it as the main line in his performance, with the strings only intermittently cutting through (hence my discarding, in my reduction, the portions of their lines that I don't think manage to step into the spotlight).

❖ Conclusion

Let's review what we have accomplished in this chapter. I began by presenting the general advantages of a taxonomical approach. I then synthesized this with my own affordance-based perspective to produce a taxonomy of timbral functions, with listeners serving as agents and timbre

[22] Note that Rossini has omitted the A from the wind parts here, thus emphasizing the dissonant components of the dominant seventh chord. This makes the tension/release dynamic of these chords even more potent.

as a tool for accomplishing particular tasks. I used the Beethoven excerpts to show how individual short themes can contain hosts of affordances, and how these affordances are altered or replaced during the process of re-orchestration. I used the Schubert excerpt to demonstrate just how much power performers have to change what we hear as the relationship between different lines—from the hierarchy between them, to the metaphors for their interactions. Lastly, in the Rossini excerpts, I pursued both of these ideas to their extremes, showing passage after passage of music that is utterly transformed by small changes in scoring and the dynamics of performance.

Coda: At the End of the Rainbow

Unlike musical codas, scholarly codas are often recapitulations. But this one will be only a partial recapitulation—one suggesting further developments and ending on an unresolved harmony, as I would much rather focus on what I have left unsaid than on what I have said. (You can consult pp. 22–24 if you seek chapter summaries.) This dissertation's chapters have addressed three main types of questions: theoretical/philosophical (Chapters 2 and 3), historical (Chapters 4, 6, and 7), and music-analytical (Chapters 5 and 8). Although I have attempted to braid these intellectual strands together, I will conclude by considering each of them separately.

Chapters 2 and 3 specifically focused on that mysterious figure, "the listener." In these chapters, I lightly drew upon music cognition and analytic philosophy of music: two sub-disciplines that mainstream music analysis could benefit from engaging with more deeply and more often. Central to my critique was the claim that the figure of "the listener" in music analysis generally serves as a poor representation of most listeners—one constructed to allow textualist approaches to pose as aural ones. My alternative strategy was to avoid constructing a hypothetical listener that represents any particular orientation towards music, but rather to use affordance theory to allow me (and, by extension, other scholars) to access as many different listening experiences as possible—to frame analysis in terms of potential rather than necessarily actualized experience.

This strategy nonetheless has some obvious drawbacks. It still overrepresents traditional "elite" listening. One could instead harness music cognition to construct a more realistic picture of an "average" listener, and attempt to produce analyses that focus on only the phenomena that they are likely to be able to hear. Analytic philosophy is useful because it (as a discipline) has been scrupulous in critically evaluating terms like "listening," "hearing," "understanding," "perceiving,"

and so forth, in ways that music analysis as a whole has not. Exercising such care can prevent us from being too facile in our use of those words. All of this might cause us to re-evaluate the aims and limits of analysis with an eye that is even more critical than mine.

My general orientation towards musical experience in this dissertation can be understood as a kind of diversification, almost as the term is used in investing to describe creating a portfolio of different asset classes. I pursued this goal through broadening the musical parameters that analysis considers (to include sonority), attending to details that might be more noticeable to those who have not received "expert" training, celebrating and learning from a wide variety of individual performances and performing traditions, and paying due consideration to composers who were deleted from music history. However, this is not "diversity" in the sense in which that term is generally used in the academy: that is, embracing the experiences of people of varying races, gender, sexual orientations, and so forth, with an emphasis upon giving voice to those who have been most marginalized.

Over the years in which I wrote this dissertation, the Society for Music Theory and Project Spectrum have redoubled their efforts to make progress on this issue. Because diversity is often framed as something that manifests first and foremost in the music we study, the proposed solutions often involve paying greater attention to composers and artists who are not straight, cis, white males and/or placing less emphasis on classical music and more on non-classical music. When the focus is not on diversifying repertoire, it is then usually on diversifying the body of scholars that work in the field or are assigned in classes. But, in general, far less emphasis has been placed on how different populations might hear or experience the same repertory when consuming it.

Creating tools capable of representing such a range of experiences is the approach to diversity I have favored in these pages. However, I have tackled this issue only from the standpoint of capability, and not explicitly according to the identity characteristics of the listeners. This is because: (a) executing an identity-based approach properly requires more space and different methodological tools than are available to me at this time; (b) I am extremely leery of essentializing categories like "female listening" or "queer listening," as was all too common in the 1990s. I leave it to future scholars to take the work that I have started in Chapter 2 and move it in that direction, if they choose.

More aligned with my own aims is considering the role of socioeconomic status, as that seems the most determinative of whether one will become the kind of "elite" listener that music theory depicts. Race is, of course, tied to that; but I would argue that socioeconomic status plays a greater causal role, as it more directly impacts the kind of educational resources one will have access to. I am the kind of listener I am today because I was regularly exposed to live classical music at a relatively early age, have parents who valued and encouraged my interests, received childhood music lessons from a world-class teacher, and was able to go to a university with a robust (and fairly conservative) music program. (I exclude my graduate studies since my hearing was mostly shaped well before then.) Opportunities such as these are far from evenly distributed across the population, and they are not accounted for in the cognitive and philosophical literature that I have mentioned. Future studies might profit from making socioeconomic matters a central focus.

Leaving theoretical matters, let's turn to historical ones. Although my historical chapters primarily functioned as narratives—about the development of techniques in writing for the keyboard and the orchestra—they also functioned as methodological critiques of two tendencies

within music history: (1) divorcing hermeneutics from matters of empirical fact; (2) automatically treating "great" composers as innovators or as representative of the standards of their era (or, contradictorily, as both).

I have used the concept of empiricism rather broadly to mean the responsibility of scholars to substantiate the falsifiable claims that they make. But the form of empiricism I've practiced has been somewhat casual, certainly compared to the norms in the sciences and social sciences. This dissertation lacks the wealth of tables and charts that one might expect in connection with the word "empiricism." This was a practical choice—motivated not only by the intention of making my life easier (given the pressures to complete a dissertation in a timely manner), but also by wariness of raising the bar for substantiation too high.[1]

Put bluntly, my (perhaps cynical) belief is that if the criteria for what counts as "substantiation" are too taxing—if substantiation requires using tools that currently are commonly found only in journals such as *Empirical Musicology Review*—scholars who do not consider themselves to be part of the narrow sub-field of "empirical musicology" will be unwilling to engage. No one wants to have to perform a massive corpus study (or cite an existing one), every single time a minor matter of musical style is implicitly invoked. But if substantiation can entail merely performing straightforward comparative score analysis and displaying the fruits of this analysis with reference to some individual examples, then there can be little excuse for failing to meet this standard. This is true regardless of whether a scholar labels themselves as a "historian,"

[1] With all of that said, I hope the matters I have pursued in the historical chapter can be re-examined even more rigorously in future work—whether by me (such as in the book that may result from this dissertation) or by others. (An example: for any particular trait discussed—such as whether there is intra-expositional re-orchestration—one could list every single piece in the corpus and say whether or not the trait is present.)

"musicologist," "theorist," or what have you. Where Western art music (of the sort discussed in this dissertation) is concerned, any claims about compositional practice (in pre-recording eras) ultimately have to be grounded in scores, because scores are the surest records we have of compositional practice.

My main points about our over-reliance on "great" composers follow naturally from this. We cannot tell the trend-setters from the trend-followers from the trend-buckers unless we know the trends, and not-so-"great" composers are essential elements of those trends. There are arguments for and against examining the music of these composers when performing analysis for its own sake (that is, not in service of some broader historical or theoretical argument). On the one hand, it is consonant with the desire of many to break free of the constraints of the canon, and embrace a wider range of music. On the other hand, as classical music struggles to hold audiences' attention, shifting our focus onto increasingly obscure composers may be a step in the wrong direction, as *kleinmeister* music is even less culturally relevant. (If you can't convince people to listen to Joseph Haydn, how will you convince them to listen to Joseph Eybler?) These are worthwhile topics of discussion. But my consideration of these composers was not as part of analysis for its own sake, but as part of music history. And within that disciplinary context, the presence of these composers in the narrative is crucial. Whether or not they seem relevant to us in the present time and place, they were relevant to the cultures we write about.

Those are my main takeaways regarding the practice of historical writing in general. Regarding the specific time periods about which I wrote, there are some clear gaps in our knowledge. I will briefly mention three repertoire areas that are overdue for systematic reappraisal: (1) the role of the London pianoforte school in all major compositional developments of the turn

of the 19th century; (2) the use of the orchestra in concertos and how it differs from its use in symphonies (a subject I explored only with regards to Mozart); (3) practically anything pertaining to non-Mozartean Italian opera of the late 18th century, including figures such as Domenico Cimarosa, Giovanni Paisiello, and Niccolò Zingarelli.

Moving at last from theory and history to analysis: the analytical chapters of this dissertation dealt with music of the early nineteenth century, because those are the chronological boundaries of the dissertation. These boundaries were dictated by history—by the fact that I wanted to center this dissertation around when sonority burst into prominence, rather than hurtling straight from the late eighteenth century to the late nineteenth or early twentieth centuries. But the tools that I built work even better for that later music. Rimsky-Korsakov, Richard Strauss, Mahler, Ravel, and Stravinsky are examples of composers whose work I think would greatly benefit from the application of the tools I built in Chapter 8. Indeed, the timbral categories from that chapter are meant to form the foundation of a semiotic system applicable across musical genres, and I would hope to see them applied to popular music too. Chapter 5's tools should prove particularly profitable in analyzing the music of Schumann, Chopin, Liszt, Debussy, Mussorgsky, and Scriabin, to name just a few.

Above all, the analytical chapters (and the dissertation as a whole) hopefully prove not merely the value but the necessity of considering performance when discussing how music sounds, even when something is not meant to be a "performance analysis." Music is, after all, a performing art. Analyses should not allow you to forget that.

I'll conclude with some words from John Keats. In his poem "Lamia" ([1820] 1884), he complained:

> Philosophy will clip an Angel's wings,
> Conquer all mysteries by rule and line,
> Empty the haunted air, and gnomed mine—
> Unweave a rainbow (II.34–37)

With due respect to Keats, unweaving the sonorous rainbow was precisely my aim—with the belief that once the colors are woven back together again, what they might have lost in mystery is more than made up for by what they have gained in vividness and clarity. I don't know what music studies will find once we follow that rainbow further across the horizon. We have barely left the ground. But I thank you for journeying with me this far.

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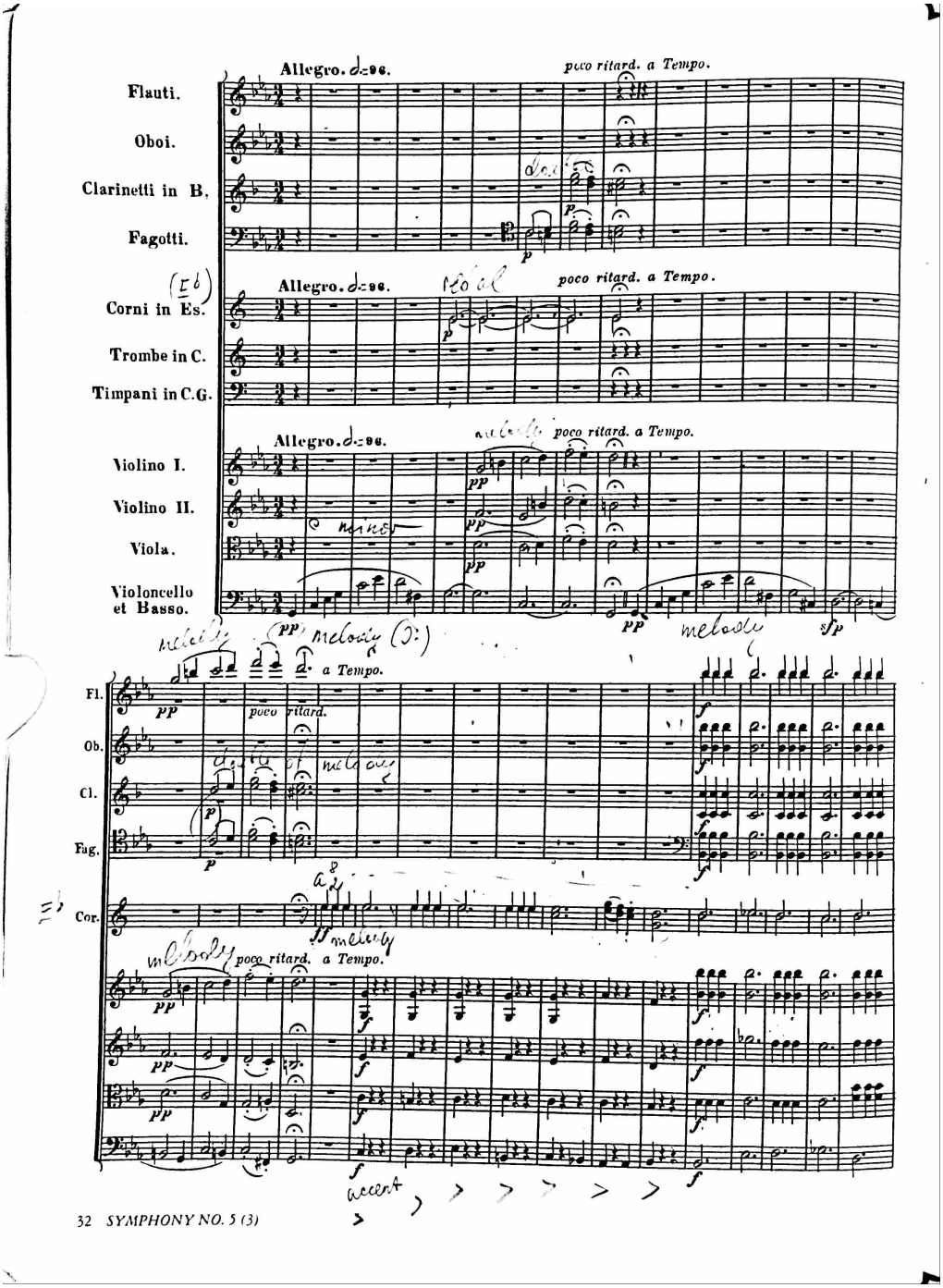
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PART II: MUSICAL EXAMPLES

Example 1.1

Margarita Zelenaia's annotations to the opening page of
Beethoven: Symphony No. 5 in C minor, Op. 67/iii



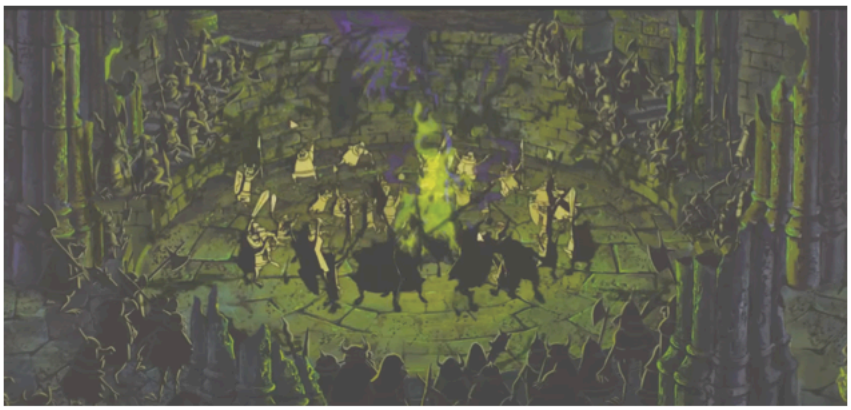
Example 1.2

Margarita Zelenaia's annotations to Beethoven:
Symphony No. 5 in C minor, Op. 67/iii, mm. 109–22



Example 1.3

Still from Disney's *Sleeping Beauty* (1959)



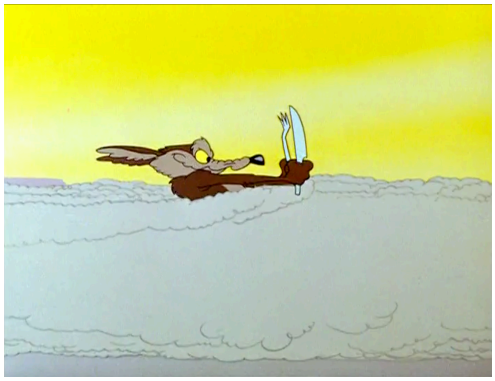
Example 2.1

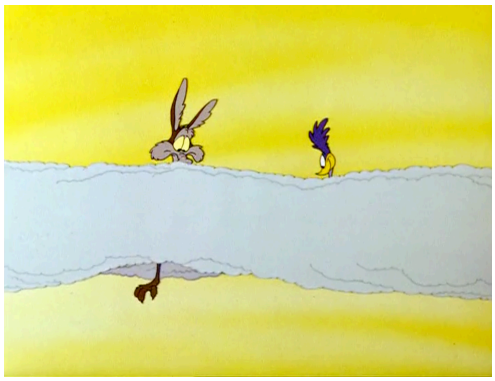
Haydn: Symphony No. 102 in B♭ major/iv, mm. 1–12

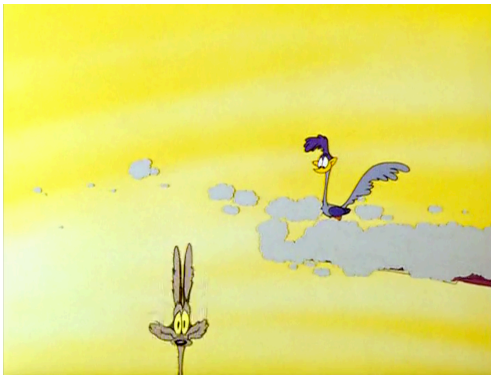


Example 2.2

Stills from *Zoom and Bored*

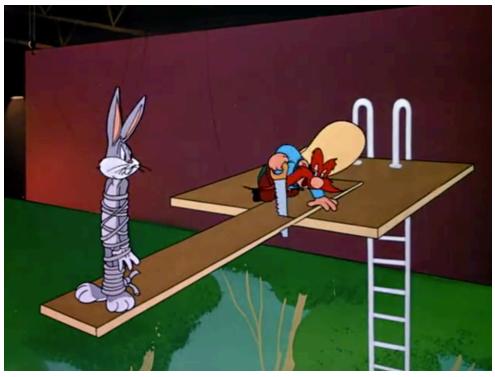


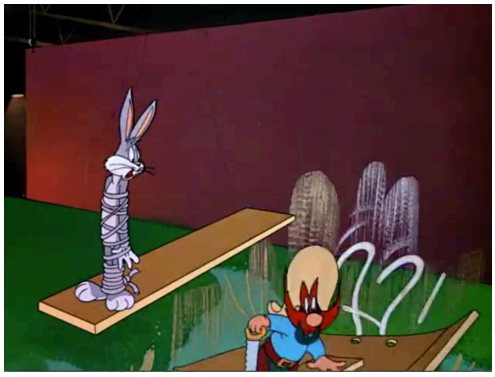




Example 2.3

Stills from *High-Diving Hare*





Example 2.4a

Haydn: Piano Trio in E major, Hob. XV:28/i, mm. 1–5



Example 2.4b

Haydn: Piano Trio in E major, Hob. XV:28/i, mm. 42–47



Example 3.1

Chopin: Mazurka in F minor, Op. 7/3, mm. 9–16



Example 3.2

Beethoven: Symphony No. 5 in C minor, Op. 67/ii, mm. 185–90



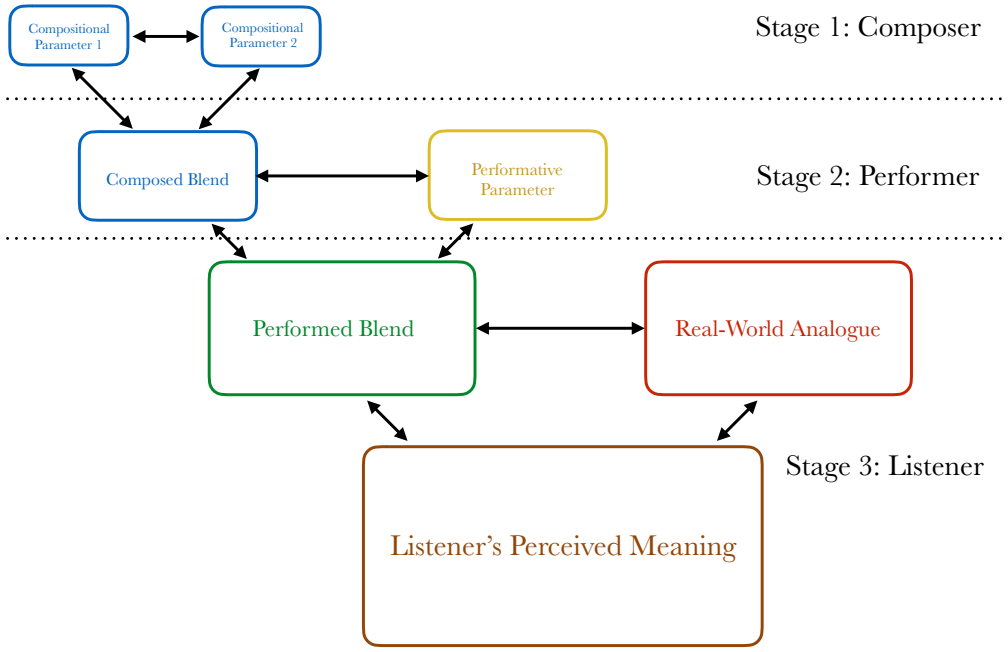
Example 3.3

Chain of Communication

Designer	Object	User	Use		
Composer →	Score →	Performer →	Performance →	Listener →	Meaning
		Designer	Object	User	Use

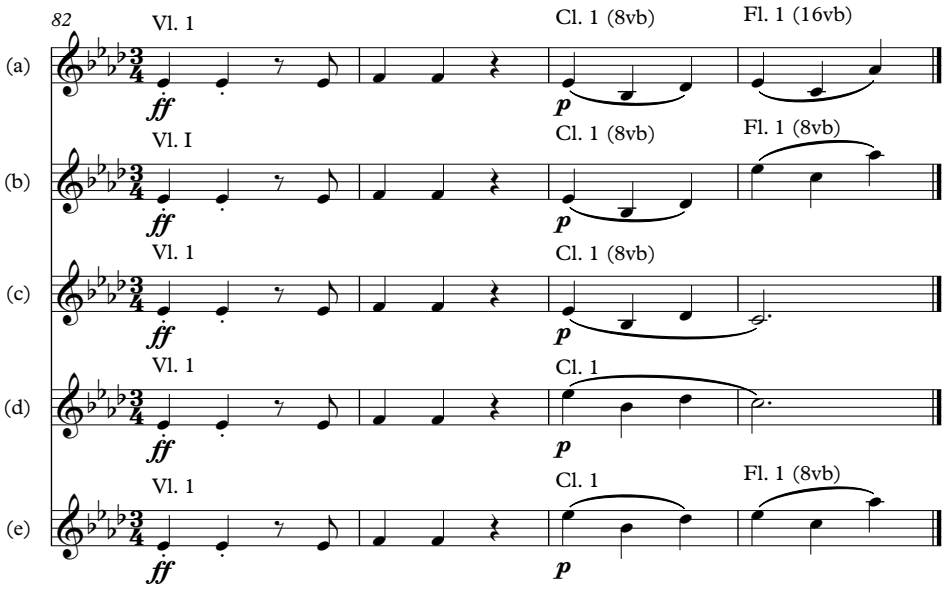
Example 3.4

Multi-stage blending



Example 3.5

Five ways of humming of Beethoven: Overture to *Egmont*, mm. 82–85



Example 3.6

Beethoven: Overture to *Egmont*, mm. 74–88



Example 3.6, cont.

Beethoven: Overture to *Egmont*, mm. 89–101



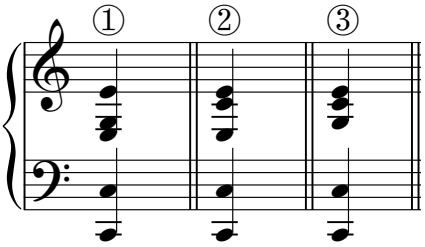
Example 4.1

Beethoven: Piano Sonata No. 4 in E♭ major, Op. 7/ii, mm. 1–17



Example 4.2

Three five-voice C1-to-E4 Chords



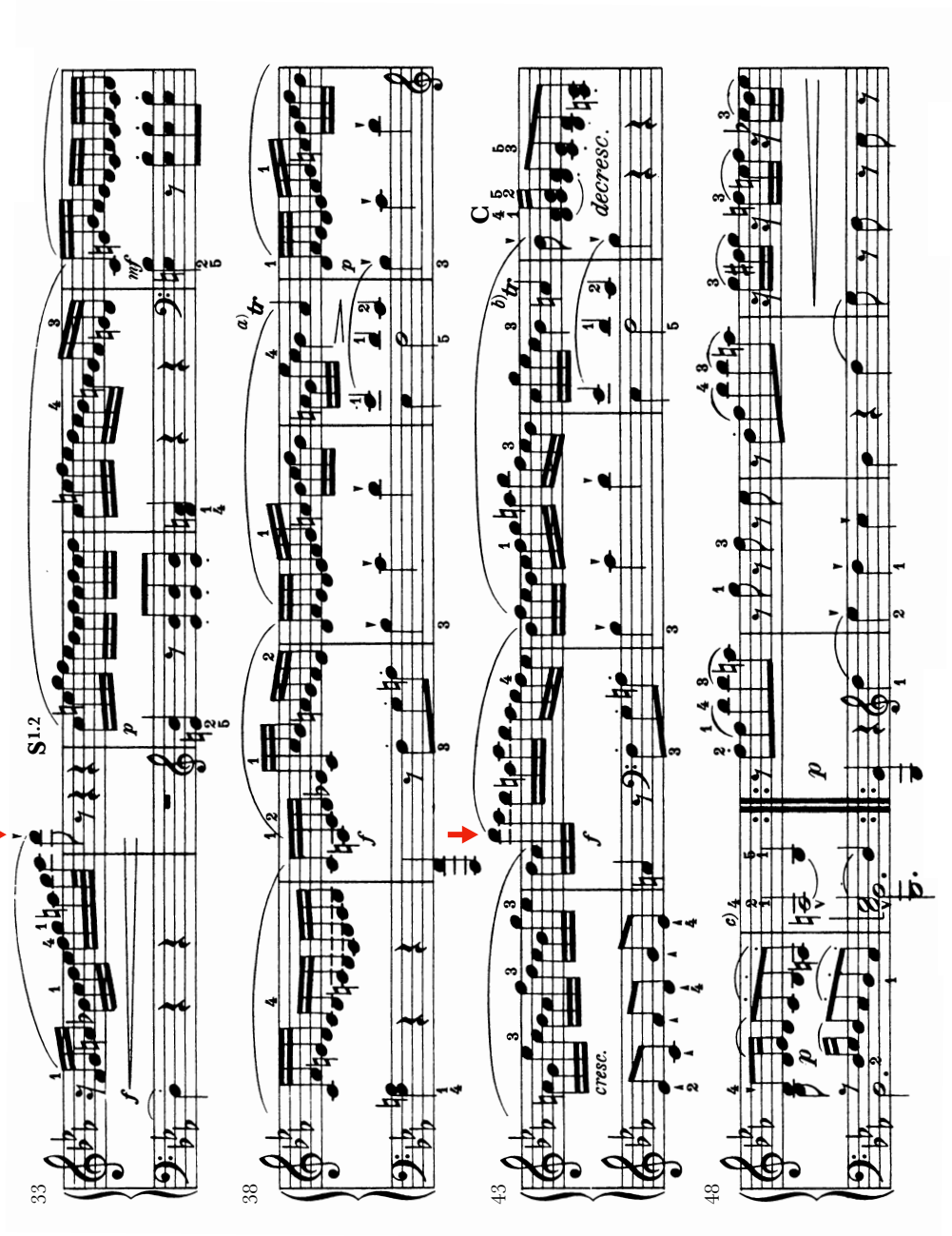
Example 4.3

Haydn: Piano Sonata in E♭ major, Hob. XVI:45/i, mm. 16–32



Example 4.3, cont.

Haydn: Piano Sonata in E♭ major, Hob. XVI:45/i, mm. 33–53



Example 4.4a

Haydn: Piano Trio in F major, Hob. XV:37/ii, mm. 1–48



Example 4.4b

Haydn: Piano Trio in F major, Hob. XV:37/ii, mm. 127-end



Example 4.5

(a) Beethoven: Piano Sonata No. 7 in D major, Op. 10/3/i, mm. 14–23



(b) Beethoven: Piano Sonata No. 3 in C major, Op. 2/3/ii, mm. 23-28



(c) Beethoven: Piano Sonata No. 5 in C minor, Op. 10/1/i, mm. 127-33



Example 4.5, cont.

(d) Beethoven: Piano Sonata No. 27 in E minor, Op. 90/i, mm. 211–22



Example 4.6

Beethoven: Piano Sonata No. 9 in E major, Op. 14/1/i, mm. 36–41



Example 4.7

(a) Beethoven: Piano Concerto No. 1 in C major, Op. 15/i, mm. 170–74



(b) Beethoven: Piano Concerto No. 1 in C major, Op. 15/i, mm. 386–89



Example 4.8

Beethoven: Piano Sonata No. 30 in E major, Op. 109/i, mm. 176–81



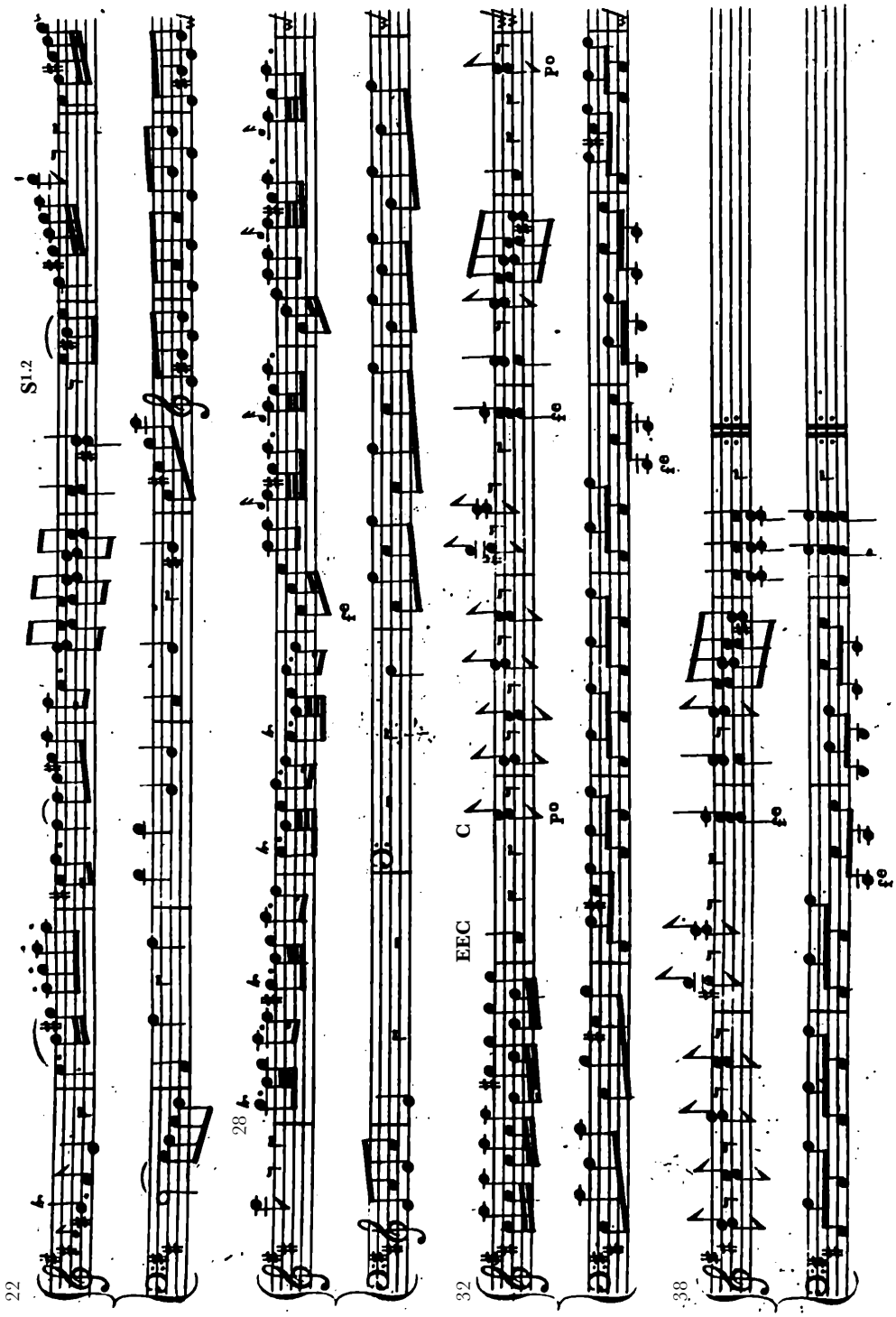
Example 4.9

J. C. Bach: Sonata in D major, Op. 5/2, mm. 1–21



Example 4.9, cont.

J. C. Bach: Sonata in D major, Op. 5/2, mm. 22–41



Example 4.10

Clementi: Sonata in B-flat major, Op. 2/6, mm. 1–26



Example 4.10, cont.

Clementi: Sonata in B-flat major, Op. 2/6, mm. 27–48



Example 4.11

Steibelt: Piano Sonata in G minor, Op. 23

(a) mm. 1-8:
- Left-hand lines in octaves



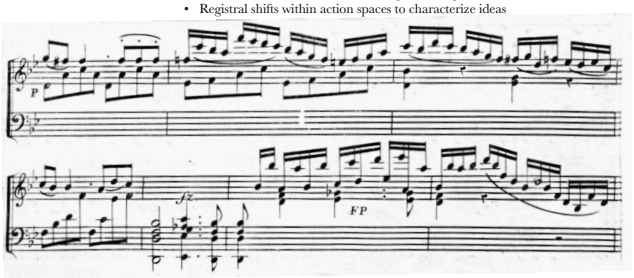
(b) mm. 17-19:
- Octave writing in the right hand even at a piano dynamic



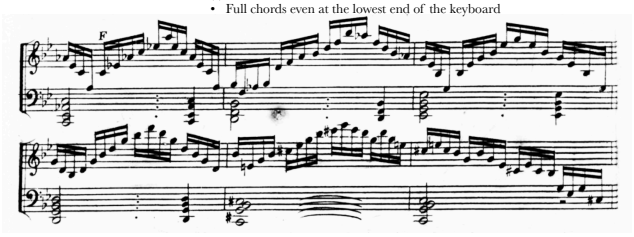
(c) mm. 74-81:
- Selective doubling within a phrase



(d) mm. 86-92:
- Right-hand melodies that dip into "left-hand space"
- Left-hand melodies that rise into "right-hand space"
- Registral shifts within action spaces to characterize ideas



(e) mm. 257-62:
- Full chords even at the lowest end of the keyboard



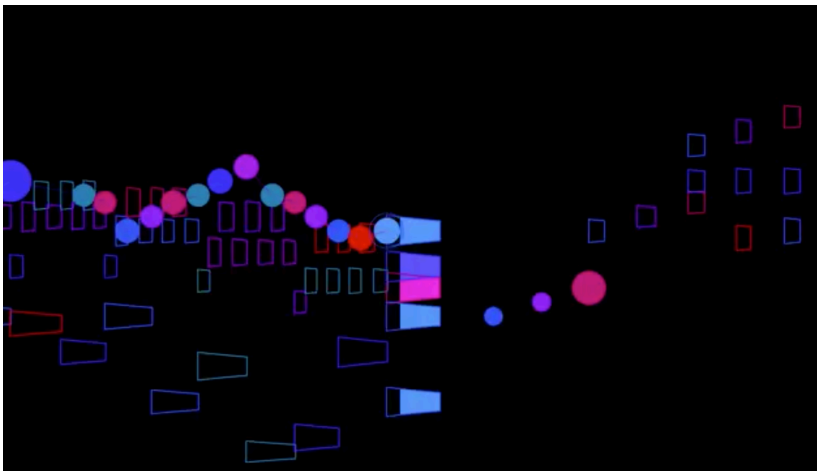
Example 5.1

Still from Rousseau's video of Beethoven: Piano Sonata No. 14 in C♯ minor, Op. 27/2, "Moonlight"/iii



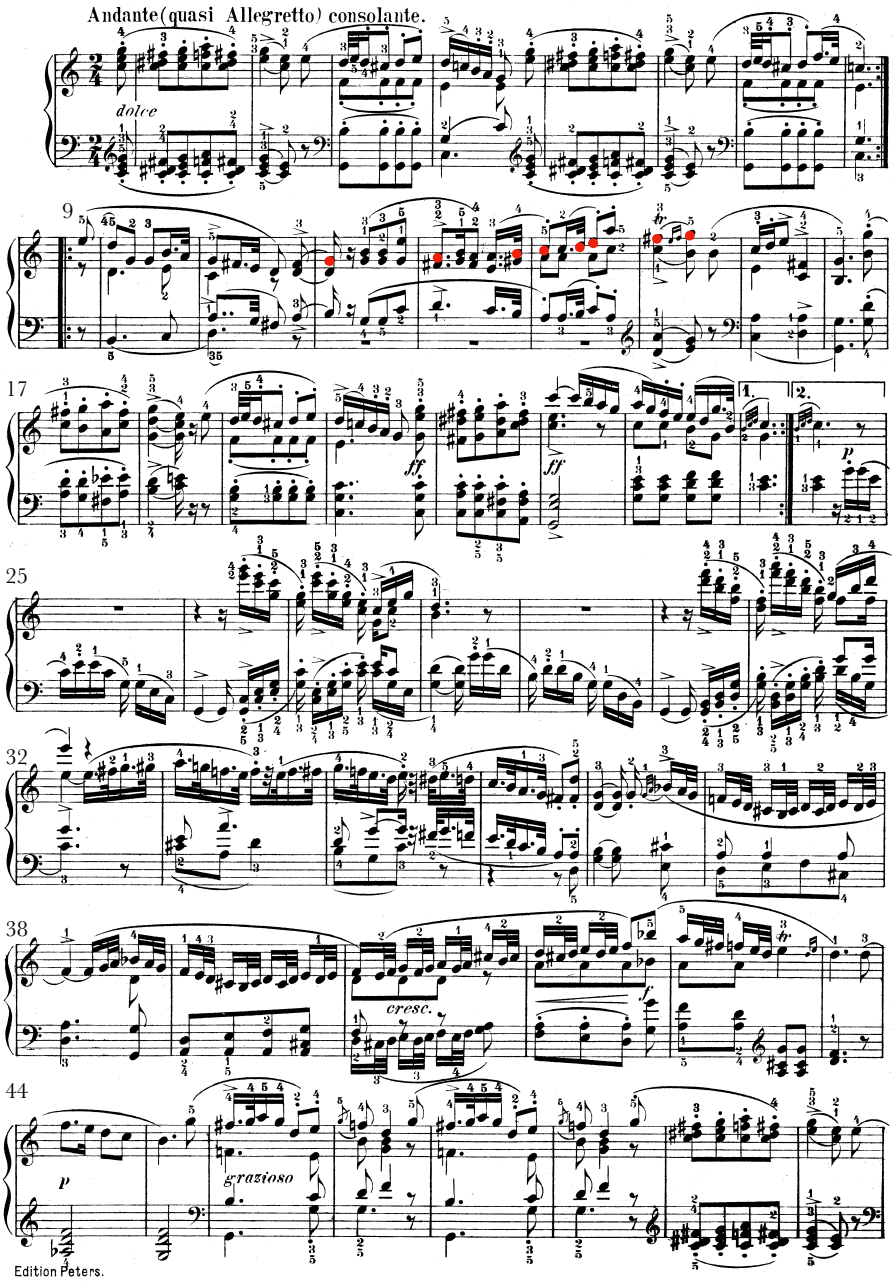
Example 5.2

Still from Stephen Malinowski's video of Beethoven: Cello Sonata No. 2 in G minor, Op. 5/2/ii



Example 5.3

Weber: Piano Sonata No. 4 in E minor, Op. 70/iii, mm. 1–51



Example 5.3, cont.

Weber: Piano Sonata No. 4 in E minor, Op. 70/iii, mm. 52–92



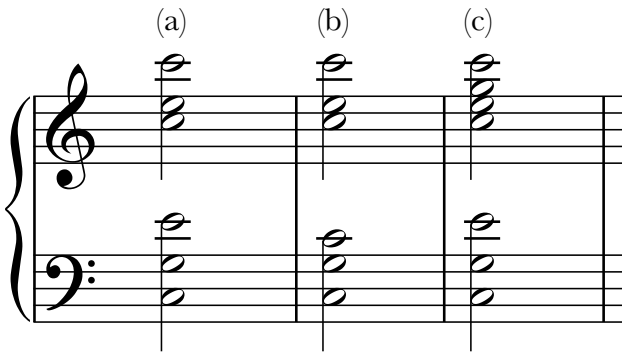
Example 5.3, cont.

Weber: Piano Sonata No. 4 in E minor, Op. 70/iii, mm. 93–end



Example 5.4

Weber: Piano Sonata No. 4 in E minor, Op. 70, final chord possibilities



Example 6.1

Mendelssohn: Symphony No. 5 in D minor, "Reformation"/ii, mm. 65–86



Example 6.1, cont.

Mendelssohn: Symphony No. 5 in D minor, "Reformation"/ii, mm. 87–106



Example 6.1, cont.

Mendelssohn: Symphony No. 5 in D minor, "Reformation"/ii, mm. 107–28



Example 6.1, cont.

Mendelssohn: Symphony No. 5 in D minor, "Reformation"/ii, mm. 129–39



Example 6.2

(a) Mozart: Symphony No. 14 in A major, K. 114/iv, mm. 53–63



(b) Mozart: Symphony No. 27 in G major, K. 199/ii, mm. 8–15



(c) Mozart: Piano Concerto No. 8 in C major, K. 246/i, mm. 23–29



Example 6.2, cont.

(d) Mozart: Symphony No. 24 in B-flat major, K. 182/i, mm. 63–77



(e) Mozart: Piano Concerto No. 6 in B-flat major, K. 238/i, mm. 106–8



Example 6.2, cont.

(f) Mozart: Symphony No. 15 in G major, K. 124/ii, mm. 42–end



(g) Mozart: Symphony No. 29 in A major, K. 201/ii, mm. 50–57



(h) Mozart: Symphony No. 16 in C major, K. 128/iii, mm. 23–30



Example 6.2, cont.

(i) Mozart: Symphony No. 21 in A major, K. 134/i, mm. 1–8



Example 6.3

Mozart: *Lucio Silla*, "Il tenero momento," mm. 1–20



Example 6.3, cont.

Mozart: *Lucio Silla,* "Il tenero momento," mm. 21–48



Example 6.3, cont.

Mozart: *Lucio Silla*, "Il tenero momento," mm. 49–75



Example 6.3, cont.

Mozart: *Lucio Silla,* "Il tenero momento," mm. 76–103



Example 6.3, cont.

Mozart: *Lucio Silla,* "Il tenero momento," mm. 104–17



Example 6.4

Mozart: Piano Concerto No. 6 in B♭ major, K. 238/ii, mm. 1–14



Internationale Stiftung Mozarteum, Online Publications (2006)

Example 6.4

Mozart: Piano Concerto No. 6 in B♭ major, K. 238/ii, mm. 15–31



Example 6.4

Mozart: Piano Concerto No. 6 in B♭ major, K. 238/ii, mm. 32–47



Example 6.5

Mozart: *Idomeneo,* "Zeffiretti lusinghieri," mm. 1–24



Example 6.5, cont.

Mozart: *Idomeneo,* "Zeffiretti lusinghieri," mm. 25–49



Example 6.5, cont.

Mozart: *Idomeneo,* "Zeffiretti lusinghieri," mm. 50–60



Example 6.5, cont.

Mozart: *Idomeneo,* "Zeffiretti lusinghieri," mm. 61–88



Example 6.6

Mozart: Piano Concerto No. 22 in E♭ major, K. 482/i, mm. 1–26



Example 6.6, cont.

Mozart: Piano Concerto No. 22 in E♭ major, K. 482/i, mm. 27–49



Example 6.6, cont.

Mozart: Piano Concerto No. 22 in E♭ major, K. 482/i, mm. 50–68



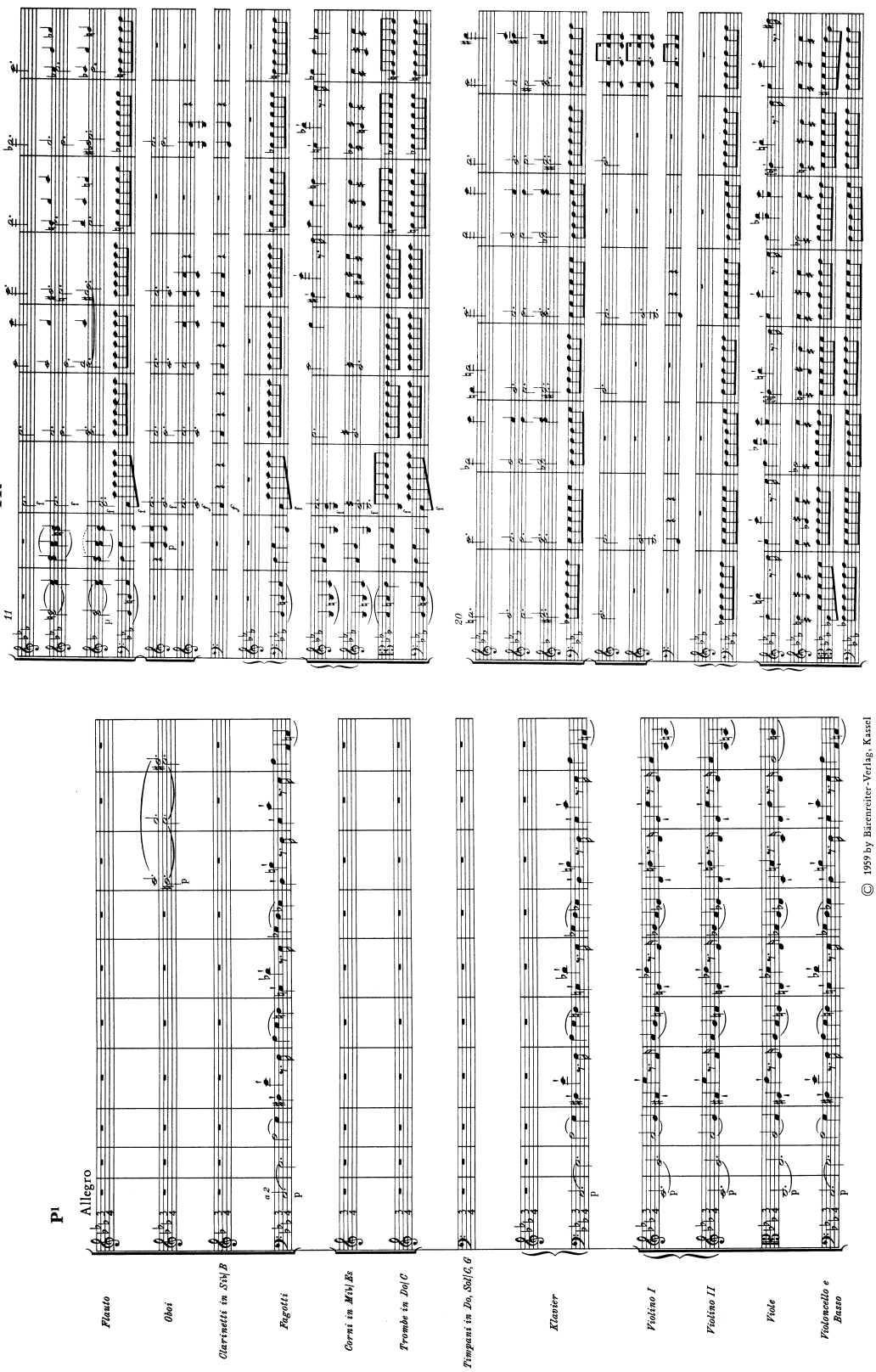
Example 6.6, cont.

Mozart: Piano Concerto No. 22 in E♭ major, K. 482/i, mm. 50–68



Example 6.7

Mozart: Piano Concerto No. 24 in C minor, K. 491/i, mm. 1–27



Example 6.7, cont.

Mozart: Piano Concerto No. 24 in C minor, K. 491/i, mm. 28–60



Example 6.7, cont.

Mozart: Piano Concerto No. 24 in C minor, K. 491/i, mm. 61–98



Example 7.1

Winds uses in Mozart K. 181 and Cannabich D13

	# of bars:	%	# of bars:	%
	Mozart: K. 181		**Cannabich: D13**	
Harmonic:	88	48.6%	57	32.8%
Doubling an octave above:	22	12.2%	31	17.8%
Doubling at pitch:	16	8.8%	2	1.1%
Solo melody:	3	1.7%	53	30.5%
Mid-doubling at pitch:	0	0%	15	8.6%
Wind-string dialogue:	10	5.5%	8	4.6%
Rest:	42	23.2%	8	4.6%
Total:	181		174	

Example 7.2

Mid-doubling in Cannabich: Symphony No. 59 in D major, D13/i:
(a) as doubling the melody; (b) as harmonic support



Example 7.3

Oboes doubling the violins an octave above in Cannabich: Symphony No. 59 in D major, D13/i



Example 7.4

C theme from Gossec: Symphony in E♭ major, Op. 12/5/iii



Example 7.5

Opening of Gossec: Symphony in E♭ major, Op. 12/5/i



Example 7.6

Gossec: Symphony in E♭ major, Op. 12/5/i, mm. 172–80



Example 7.7

Woodwind figures from Holzbauer: *Günther von Schwarzburg,* "Schönster Sohn des Himmels"



Example 7.8

Schweitzer: *Alceste*, "Wem dank ich dies Leben," mm. 1–24



Example 7.8, cont.

Schweitzer: *Alceste*, "Wem dank ich dies Leben," mm. 25–40



Example 7.9a

Mozart: Symphony No. 31 in D major, K. 297, "Paris"/i, mm. 53–76



Example 7.9b

Mozart: Symphony No. 31 in D major, K. 297, "Paris"/i, mm. 215–28



Example 7.10

Boccherini: Symphony in A major, Op. 37/4/i, mm. 16–32



Example 7.11

Boccherini: Symphony in D minor, Op. 37/3/i, mm. 26–38



Example 7.11, cont.

Boccherini: Symphony in D minor, Op. 37/3/i, mm. 39–43



Example 7.12

Cannabich: Symphony No. 64 in F major, F10/i, mm. 1–17



Example 7.13

Brandl: Symphony in E♭ major, Op. 12 /i, mm. 1–11



Example 7.14

Brandl: Symphony in E♭ major, Op. 12 /i, mm. 30–36



Example 7.15

Krommer: Symphony No. 1 in F major, Op. 12/i, mm. 60–91



Example 7.15, cont.

Krommer: Symphony No. 1 in F major, Op. 12/i, mm. 92–101



Example 7.16

Eybler: Symphony No. 2 in D minor/i, mm. 24–34



Example 7.17

Danzi: Symphony in D minor, P 220/i, mm. 55–71



Example 7.18

Haydn: Symphony No. 97 in C major/i, mm. 24–42



Example 7.19

Haydn: Symphony No. 97 in C major/i, mm. 76–91



Example 7.20

Haydn: Symphony No. 93 in D major/i, mm. 70–95



Example 7.21

Haydn: Symphony No. 95 in C minor/i, mm. 29–47



Example 7.22

Danzi: Symphony in D minor, P 220/i:

(a) mm. 96–102



(b) mm. 110–20



Example 7.23

Eybler: Symphony No. 2 in D minor/i, mm. 56–73



Example 7.23, cont.

Eybler: Symphony No. 2 in D minor/i, mm. 74–93





Example 7.23, cont.

Eybler: Symphony No. 2 in D minor/i, mm. 94–113



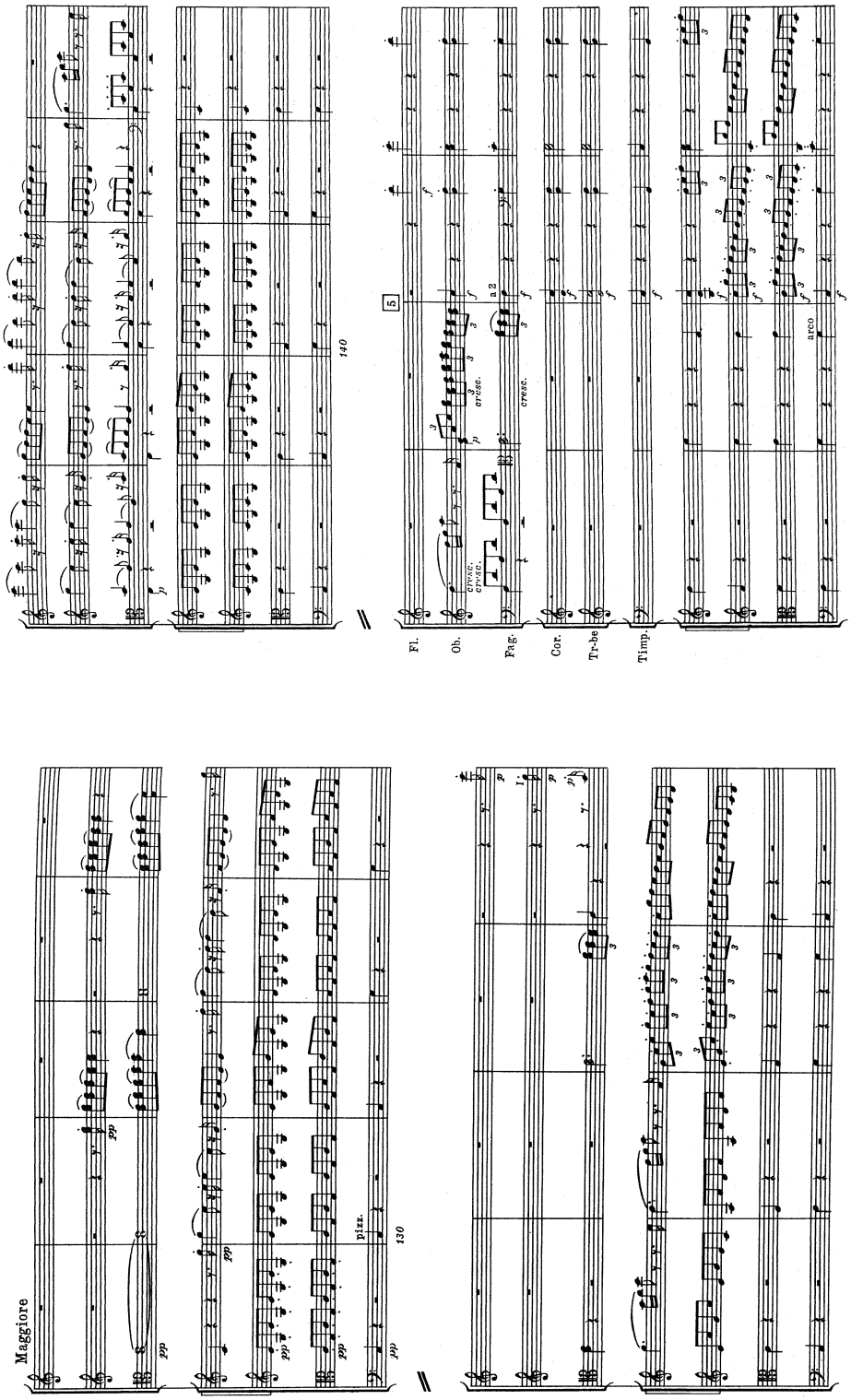
Example 7.24

Haydn: Symphony No. 93 in D major/i, mm. 216–41



Example 7.25

Haydn: Symphony No. 95 in C minor/i, mm. 129–46



Example 7.26

Danzi: Symphony in D minor, P 220/i, mm. 215–31



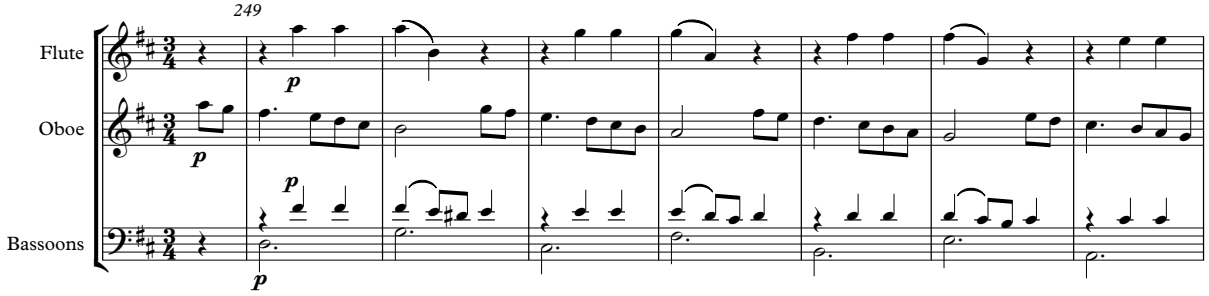
Example 7.27

Danzi: Symphony in D minor, P 220/i:

(a) mm. 232–38



(b) mm. 249–55



Example 7.28

Eybler: Symphony No. 2 in D minor/i, mm. 154–61



Example 7.29

Krommer: Symphony No. 1 in F major, Op. 12/i, mm. 268–86



Example 7.30

Haydn: Symphony No. 98 in B♭ major/iv, mm. 87–124



Example 7.31

Haydn: Symphony No. 98 in B♭ major/iv, mm. 278–308



Example 8.1

Categories of affordance

	signaling	*implementation*
first-order	"this is a doorknob"	use knob independently
second-order	"this is a door"	use knob to open door

Example 8.2

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 1–12



Example 8.3

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 191–210



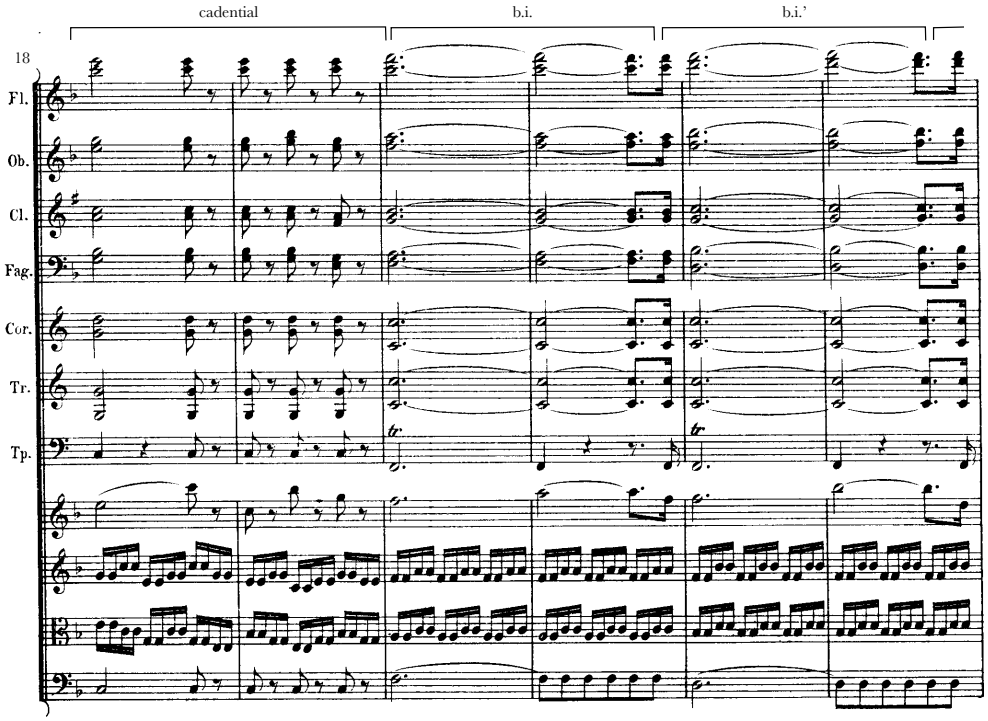
Example 8.4

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 12–23

Trifold Sentence #1:

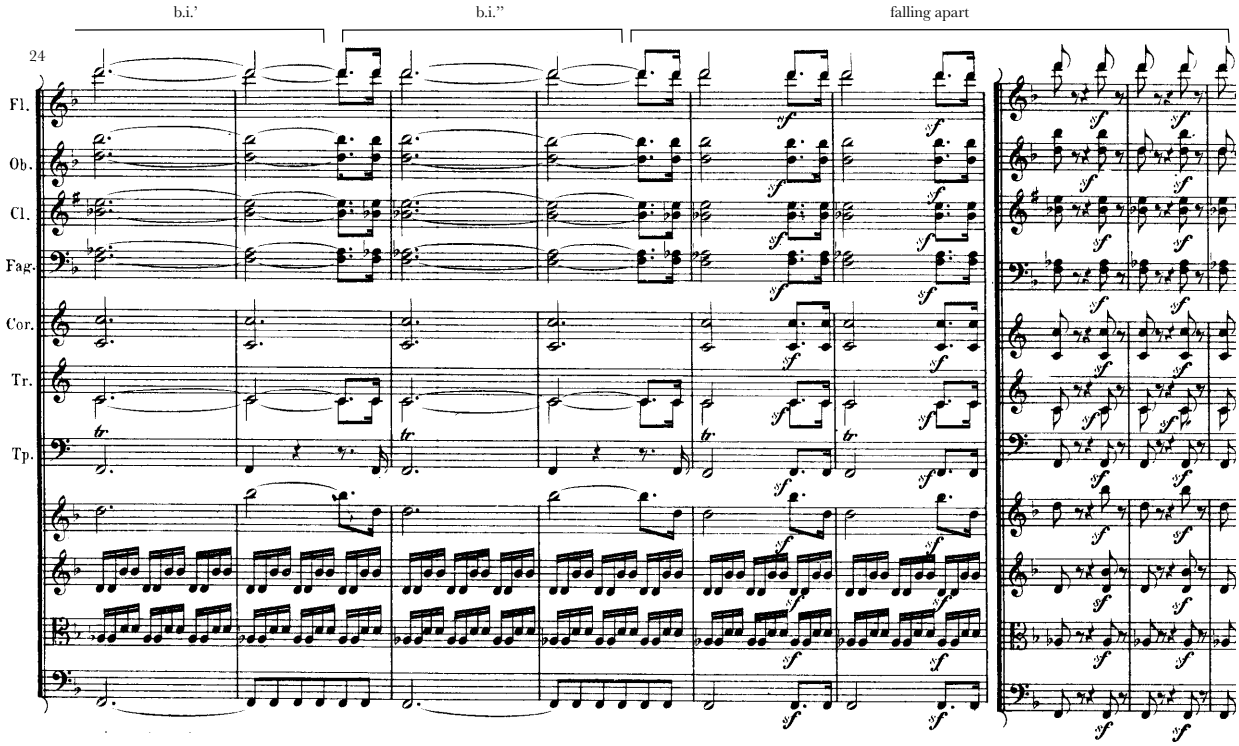


Trifold Sentence #2:



Example 8.4, cont.

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 24–32



Example 8.5

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 210–18



Example 8.6

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 34–51



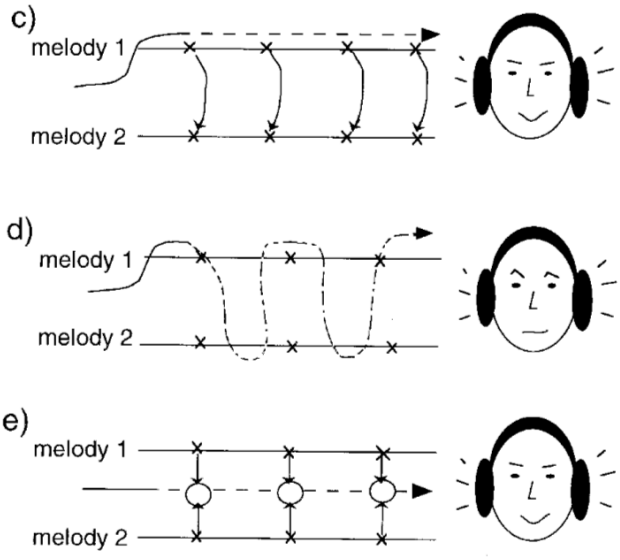
Example 8.7

Beethoven: Symphony No. 8 in F major, Op. 93/i, mm. 232–49



Example 8.8

Figure from Bigand, McAdams, Fôret (2000)



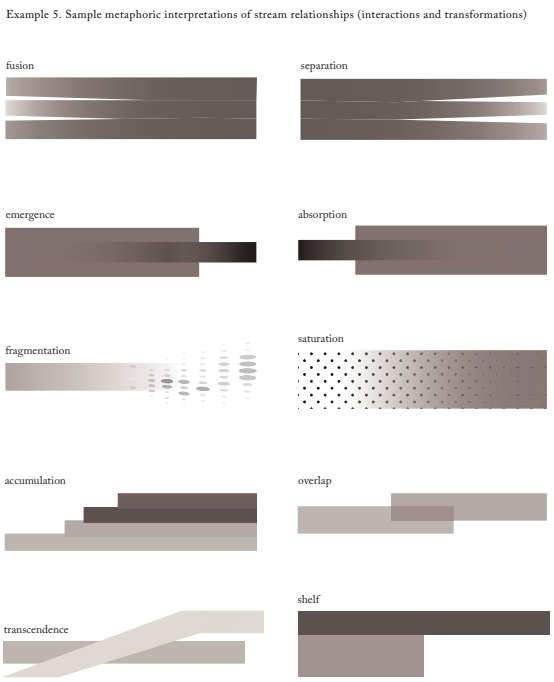
Figure/Ground

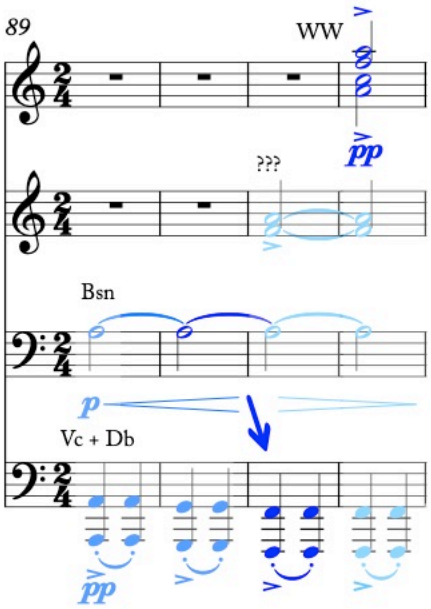
Attentional Switching

Integration into a Superstream

Example 8.9

Figure from Johnston 2017



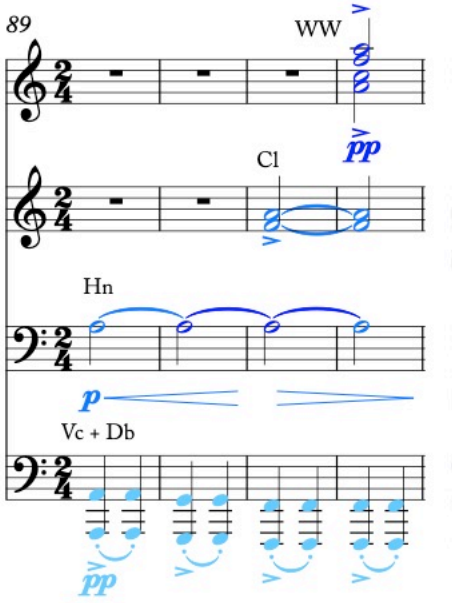


Example 8.10a

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 89–92 (Harnoncourt)

Example 8.10b

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 89–92 (Barenboim)



Example 8.11a

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 93–97 (Zender)



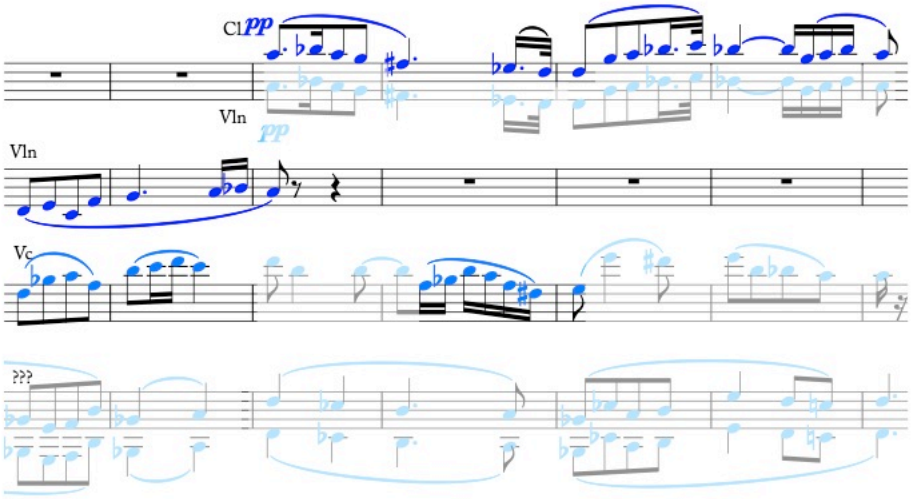
Example 8.11b

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 93–97 (Bernstein)



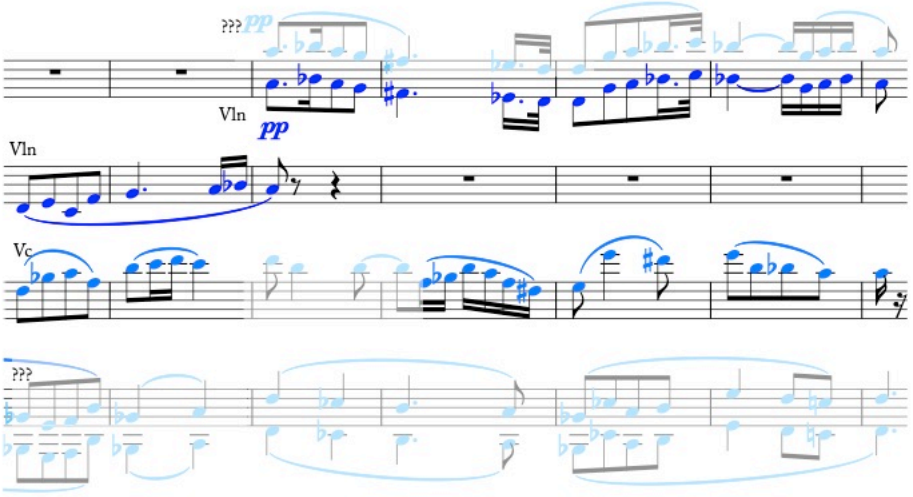
Example 8.12a

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 95–101 (Harnoncourt)



Example 8.12b

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 95–101 (Fischer)



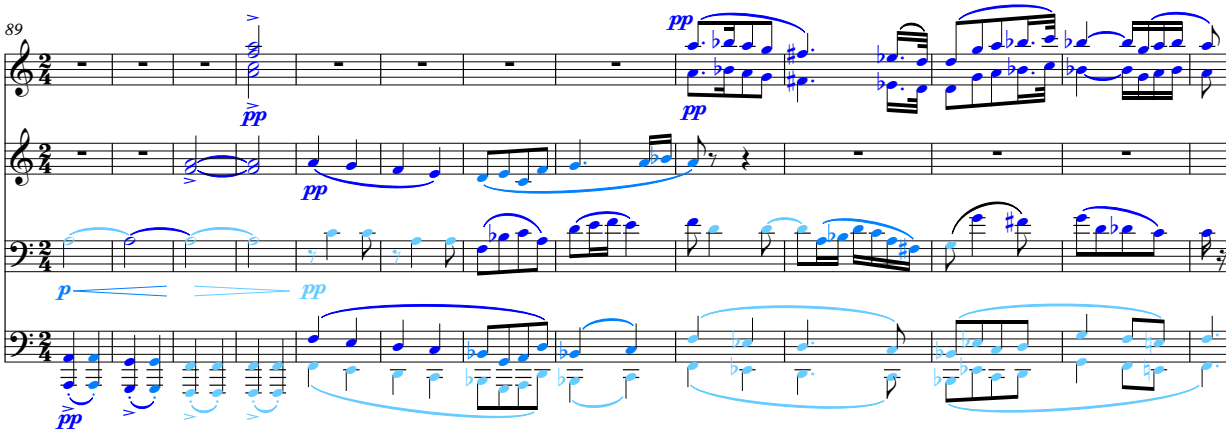
Example 8.13

Phenomenology of Octaves



Example 8.14

Schubert: Symphony No. 9 in C major, D. 944
"Great"/ii, mm. 89–101 (Szell)



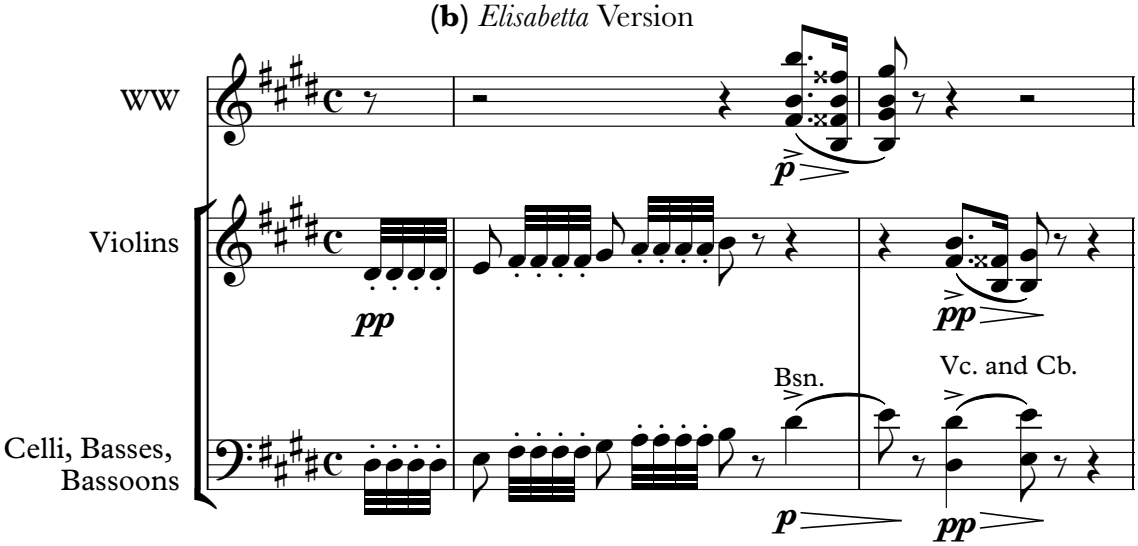
Example 8.15

Rossini: Overture to *The Barber of Seville*, mm. 4–5

(**a**) *Aureliano* Version



(**b**) *Elisabetta* Version



Example 8.16

Rossini: Overture to *The Barber of Seville*, mm. 25–34

(**a**) *Aureliano* Version



(**b**) *Elisabetta* Version



Example 8.17

Rossini: Overture to *The Barber of Seville*, mm. 34–38

(**a**) *Aureliano* Version



(**b**) *Elisabetta* Version



Example 8.18

Rossini: Overture to *The Barber of Seville*, mm. 39–47

(**a**) *Aureliano* Version



(**b**) *Elisabetta* Version



Example 8.19

Rossini: Overture to *The Barber of Seville*, mm. 48–53

(**a**) *Aureliano* Version



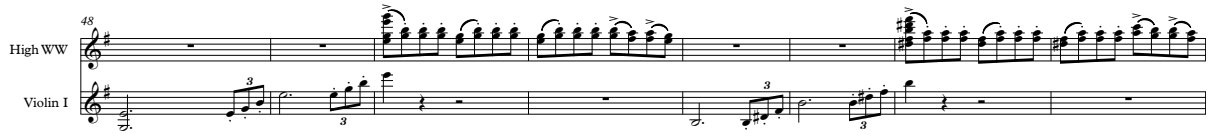
(**b**) *Elisabetta* Version



Example 8.20

Rossini: Overture to *The Barber of Seville*, mm. 48–53

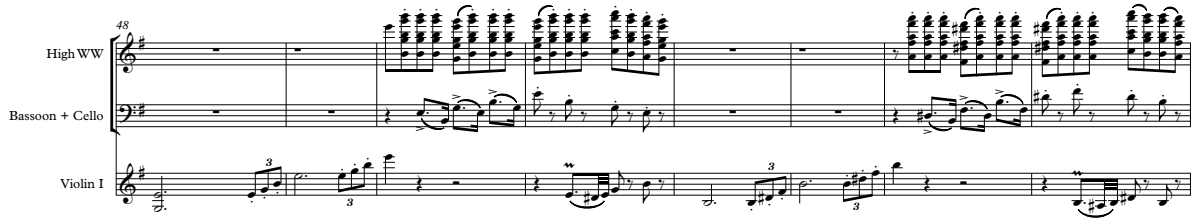
(**a**) Pappano



(**b**) Delogu



(**c**) Dorati



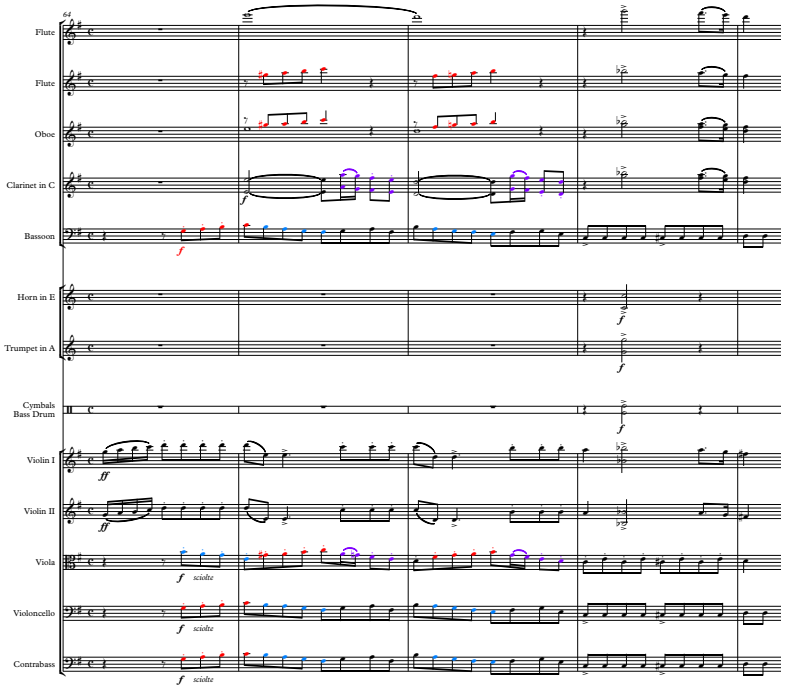
(**d**) Schippers



Example 8.21

Rossini: Overture to *The Barber of Seville*, mm. 64–68

(**a**) *Aureliano* Version



(**b**) *Elisabetta* Version



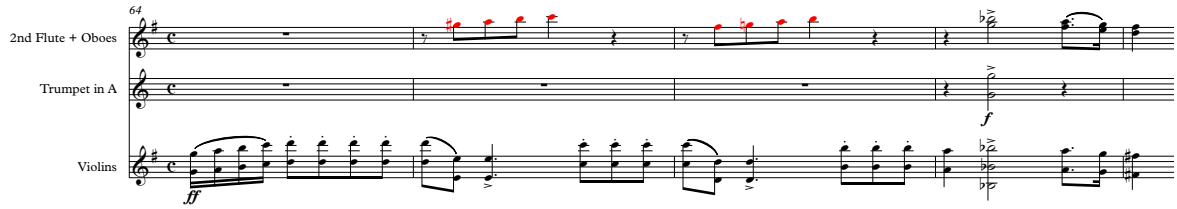
Example 8.22

Rossini: Overture to *The Barber of Seville*, mm. 64–68

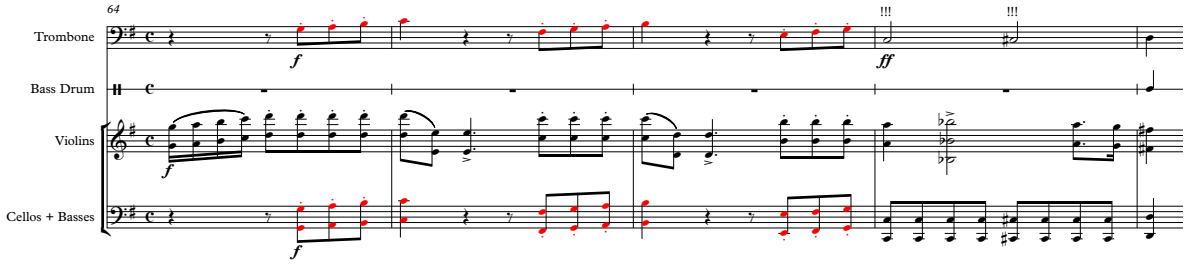
(**a**) Pappano



(**b**) Delogu



(**c**) Dorati



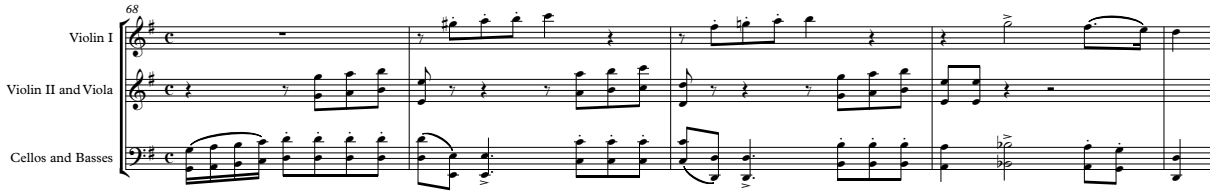
(**d**) Schippers



Example 8.23

Rossini: Overture to *The Barber of Seville*, mm. 68–72

(**a**) Pappano



(**b**) Delogu



(**c**) Dorati



(**d**) Schippers



Example 8.24

Rossini: Overture to *The Barber of Seville*, mm. 72–76

(**a**) Pappano



(**b**) Delogu



(**c**) Dorati



(**d**) Schippers

