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A THEORY OF TEMPORAL PLASTICITY IN TONAL MUSIC:
AN EXTENSION OF THE SCHENKERIAN APPROACH TO RHYTHM
WITH SPECIAL REFERENCE TO BEETHOVEN'S LATE MUSIC

by

FRANK SAMAROTTO

A dissertation submitted to the Graduate Faculty in Music in
partial fulfillment of the requirements for the degree of
Doctor of Philosophy, The City University of New York

1999

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Abstract

A THEORY OF TEMPORAL PLASTICITY IN TONAL MUSIC:
AN EXTENSION OF THE SCHENKERIAN APPROACH TO RHYTHM
WITH SPECIAL REFERENCE TO BEETHOVEN'S LATE MUSIC

by

Frank Samarotto

Adviser: Professor Carl Schachter

This dissertation sets out to answer the question: What theoretical framework is necessary to adequately describe the phenomena of temporal fluidity and variety in Beethoven's late music? It does so by defining, within a Schenkerian context, musical entities that have not been a formal part of music theory heretofore: temporal plasticity, temporal disjunction, and temporal plane.

Temporal plasticity is defined by the Temporal Plasticity Framework (TPF), an array of six elements that can coincide or conflict to varying degrees. There are three tonal elements, Uninterpreted Pitches, Tonal Structure, and Tonal Hierarchy, and three temporal elements, Uninterpreted Durations, Rhythmic Structure, and Metric Hierarchy. Special to this framework is a phenomenological arrangement modeling a spectrum of interpretedness. Plasticity is understood as a conflict among one or more elements, ubiquitous but rising to a level of markedness that can take on aesthetic import in some music.

Temporal disjunction is an abrupt change in plasticity characteristics that can act as a rupture in the musical fabric. Disjunctions can become boundaries between temporal planes, which are relatively stable areas of plasticity conditions. These are analytically significant when they do not coincide with typical formal segmentation. These latter concepts are illustrated fully through analyses of Haydn's last Piano Sonata and the first movement of Beethoven's Fifth Symphony.

These interdependent concepts are brought together in the analysis of selected late works: the Bagatelles, Op. 119, Nos. 3, 7 and 8, Op. 126 No. 1, the fifth movement Scherzo from the String Quartet, Op. 131, and the first movements of the Piano Sonatas, Opp. 109 and 110. These analyses reveal temporal-tonal structures that involve conflict and contradiction as much as coherence and continuity.

Preface

This dissertation began with intuitions about Beethoven's music, especially about qualities that I found especially compelling: its extraordinary temporal fluidity and variety. Nowhere are these qualities more evident than in the late works, and so I set myself the task of discovering what tools and terminology would help bring alive temporal manipulations that I heard in these pieces. Heinrich Schenker's concept of expansion seemed a promising mode of entrée, but I gradually realized that this revealed only a part of the picture. Working within Schenker's theory, I began to develop a more comprehensive temporal framework for the property I came to call plasticity. I later realized that all of the elements of this framework were already implicit in Schenker's treatment of rhythm; indeed, I have chosen to present them by teasing out the individual elements from a close reading of Schenker's work on rhythm and meter. However, Schenker did not recognize these elements as I present them. My theory is more than a simple derivation from Schenker and certainly goes beyond him in recognizing such entities as temporal disjunction and temporal planes, which Schenker would surely have rejected.

This dissertation belongs to a tradition of theoretical work, one which sets out to develop an apparatus to solve a certain aesthetic problem, but which later finds that apparatus to have a far broader applicability. Thus I have in the presentation of this theory backtracked to much music than Beethoven's; some of these analyses appear in the theoretical chapters of this dissertation. Analyses of the late works are reserved for the penultimate chapter. Whether or not these are completely successful, I at least feel that they articulate the intuitions about the

special temporal qualities of Beethoven's late music that drew me to this project originally.

Acknowledgements

My greatest debt of gratitude in this endeavor is owed to my teacher and advisor Carl Schachter. I cannot overestimate how much I have learned about music and Schenker's approach to it from his many seminars, lectures and patient, private corrections that I have had the privilege to experience. Though the material of this dissertation was developed quite independently of him, anything of value in it can surely be traced back to Schachter's influence. For this, and for unending personal support and inspiration, I remain forever grateful.

Among my other teachers, I must especially cite Joel Lester, whose seminars were a constant and powerful stimulus to my thinking, and whose book on rhythm I read avidly. In a way, this dissertation is my attempt to uncover the rhythms of tonal music that were the object of Lester's study. Though I did not have the privilege of studying with William Rothstein, his seminal dissertation on Schenkerian theory and rhythmic analysis was a very important influence which I studied carefully over many years. I was pleased that circumstances allowed him to be a reader on my own dissertation. In addition to Lester and Rothstein, I would like to thank my other readers, David Gagné, Joseph Straus, and Charles Burkhart, whose opinion, time, and patience have been invaluable to me.

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Regents of the University of California for permission to reproduce Example 5.20. I am thankful for the support provided by my employer, the College-Conservatory of Music of the University of Cincinnati.

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Chapter 1: Introduction

Lied und Gebilde

Mag der Grieche seinen Ton
Zu Gestalten drücken,
An der eignen Hände Sohn
Steigern sein Entzücken;

Aber uns ist wonnereich
In den Euphrat greifen
Und im flüss'gen Element
Hin und wider schweifen.

Löscht' ich so der Seele Brand,
Lied, es wird erschallen;
Schöpft des Dichters reine Hand,
Wasser wird sich Ballen.

Song and Shape

Let the Greek mold clay into shapes,
By the fruit of his hands
Let his pleasure increase.

But our delight is to dip our hands
into the Euphrates
And to roam here and there
in the fluid element.

When I have thus cooled the soul's fire,
Song will sound;
When the poet takes it in his pure hand,
Water will take on shape.¹

Johann Wolfgang von Goethe

Musical time is an elusive construct; that it is a construct is already a complex assertion. Susanne Langer has written that "music makes time audible," but it does more than this.² Music mediates time for us, presents it to us in a structured form. It is probably truer to say that music *creates* time for us, or at least creates a kind of time that we can sensuously experience, with which we can have a tangible relationship. Music is ultimately a metaphor

¹ Translation based on a prose translation by Leonard Forster in *The Penguin Book of German Verse* (Middlesex: Penguin, 1957) p. 228. Forster's rendering of the title is *Poetry and Plastic Form*.

² *Feeling and Form* (New York: Scribner's, 1953) p. 110.

for our experience of time, or better, what it is like to have experiences within time. That this is the only way we can have experience does not render this statement tautological. Art is frequently an essentially retrospective re-creation of experience. As Simone Weil has put it, “[The] object of art [is] to make space and time sensible to us, [to] contrive for us a human space and time, made by man, which nevertheless are time *itself*, space *itself*.”³

Thus one is led to the following distinction: an unfolding in time is arguably music’s most fundamental premise; however, the time of music is not time itself (whatever that may be), but rather an imaginative embodiment of temporal experience. The consequence of this aesthetic stance is that musical time may be recognized as having properties quite different from the ordinary experience of time. This outlook goes further than the separation of chronological and psychological time, since musical time clearly partakes of both. Musical time may frequently bring into being temporal experiences unique to itself, experiences unlike any that could take place outside of a musical context. A theory of musical time must therefore allow for its inherent musicality, for understanding on its own musical terms.

Many past approaches to these issues have tended to treat separately rhythm and meter on the one hand, and musical time on the other. The first subject, a rather traditional one, is assumed to be a nuts-and-bolts technical topic based on abstract constructions or on detailed analysis of a score. The second, a more recent interest, is treated as an aesthetic, philosophical or even critical subject, a more impressionistic approach based on listener response.

³ *The Notebooks of Simone Weil*, vol. I, trans. by Arthur Wills (G.P. Putnam’s Sons: New York, 1956) p. 4.

Clearly temporality in music must be more all-embracing than this dichotomy might suggest.⁴ Indeed it seems impossible to isolate any single element in a given piece of music that does not participate in some way in its temporal unfolding.⁵ As a practical matter this means that a theory of musical time must account for the interaction of many elements.

The diversity of recent approaches to rhythm and time is a result of the complexity of this interaction. I would suggest that these can be grouped into three conceptual categories, *divisional*, *sequential* and *spatial*, based on fundamental assumptions about the workings of musical time.

The divisional approach includes any technique whose main concern is the segmentation of time in any manner. For example, traditional metric schemes are premised on the division of time into equal units marked by a stream of pulses.⁶ Divisions into unequal spans can also be included in this category; phrasing and formal sectionalization serve to segment time in various ways, as does harmonic rhythm at any level. Whatever their individual purposes, all these methods for elucidating a score address musical

⁴ Jonathan Kramer's recent book is an attempt to bridge this gap, especially for twentieth-century music; nonetheless it seems to maintain this distinction in the tonal repertoire; see *The Time of Music* (New York: Schirmer Books, 1988).

⁵ One can do this for precompositional material; e.g., the relationship between I and V is not temporal in the abstract, but its realization in a particular piece is (of necessity).

⁶ Or more precisely the interaction of two strata of pulses, as meter is elegantly defined by Maury Yeston in *The Stratification of Musical Rhythm* (New Haven: Yale University Press, 1976). pp. 65–7. Meter is similarly represented in the system created by Fred Lerdahl and Ray Jackendoff in *A Generative Theory of Tonal Music* (Cambridge, Mass.: The MIT Press, 1983) esp. Chap. 4, pp. 68–104.

time by articulating durational segments that themselves may be internally divided (as in strong and weak beats, subphrases and motives, harmonic vs. non-harmonic tones). The divisional approach is the one most established in music theory,⁷ and belongs with the branch of writing associated with rhythm and meter (as opposed to time). This is probably because the development of rhythmic notation in Western music set out from the premise of the division of time into basic units.⁸ As a consequence this approach derives most of its data from a literal reading of the composer's notation, rather than from an inference or interpretation not obviously given in the score.⁹ The divisional approach thus tends to equate musical rhythm with notational symbols; its over-literality is its principal drawback.

The sequential category includes any view of time as a continuity. Though it may incidentally define segments of time, its primary concern is the undivided arc of motion within these segments, with the process of motion rather than with its boundaries. A clear juxtaposition of the sequential and the divisional approaches can be found in Edward Cone's conception of meter. In this view, meter is divisional at the beat level, but gives way at higher phrase levels to a wave-like motion with accented

⁷ The "atomistic" approach to musical time goes back at least as far the *chronos protos* of Aristoxenus. It is important to note that the divisional approach does not *require* a controlling metric hierarchy, but only an articulation of duration. Non-metric time spans, as in some recent music, might conceivably fall into either of the two following categories.

⁸ As in the *longa* and *breve* of Medieval polyphony.

⁹ Hypermetric analysis is the major exception to this. Meter is a part of notation; hypermeter is only rarely indicated. This is clearly the reason why the nature of hypermeter and its application to specific pieces are so hotly disputed. This is also a reason why hypermeter might belong as much in the third category, the spatial.

beginnings and endings.¹⁰ These higher-level phrase accents result from a strikingly different criterion of temporal structure, that motion determines accents, rather than the division of time. The coexistence of the divisional and sequential within one theorist's work only underscores their distinction.

The sequential category frequently entails an inference of activity directed to or from a goal, without necessarily specifying the boundary of that activity. Cone's concept of structural downbeat is an example of such an arc toward a goal; it is not premised on an exact segmentation of time or even on a division of time into pulses. Goal orientation is explicitly the focus of David B. Greene's and Jonathan Kramer's analyses of temporality in music of Beethoven and others.¹¹ Their approaches to musical time coincide with the more everyday experience of time's past/present/future orientation (as opposed to the experience of regular divisions of time). This concern has a long tradition in philosophy, but its application to music often requires inference of much not specified in the score.¹²

¹⁰ Cone, *Musical Form and Musical Performance* (New York: W. W. Norton, 1968) pp. 40. Victor Zuckerkandl's description of meter is similarly wave-like; see *Sound and Symbol: Music and the External World*, trans. Willard R. Trask (Princeton: Princeton University Press, 1956) pp. 196–74. Wallace Berry also stands out a theorist who discusses rhythm and meter in terms of dynamic impulses; see *Structural Functions in Music* (Englewood Cliffs: Prentice-Hall, 1976) pp. 326–34.

¹¹ See Greene's goal-oriented analyses in *Temporal Processes in Beethoven's Music* (New York: Gordon and Breach, 1982) and Kramer's multiply-directed temporalities in *The Time of Music*.

¹² For example, the climax of a phrase or movement is rarely marked as such in the common-practice period; a later exception is the marking "Höhepunkt" found in Alban Berg's Violin Concerto, the Adagio. m. 186. Even assuming that a climax is a goal requires inference.

It is not uncommon for a theorist's work to include aspects of both of these first two categories. While Schenker's approach to rhythm and meter takes as its starting point a traditionally divisional scheme, his view of tonal structure is strongly sequential: the distinction between opening and closing tonics, the purposefulness of *Züge*, and the goal-orientation of his voice-leading analysis impart a strongly temporal character to tonal theory.¹³ A more explicit connection between tones and temporal direction is found in Carl Schachter's idea of tonal rhythm, in its goal-oriented motion toward tonal points of stability.¹⁴

The spatial category is the one least recognized and the one most germane to this dissertation. This includes any approach that treats time as if it had the properties of a physical object existing in space. It is common in everyday experience to speak of time as a space in which we are located. Though this view is arguably misleading in real life, it has a particular cogency in music, for reasons worth reviewing at length.¹⁵

¹³ Temporality in Schenker's thought is carefully considered by Kevin Korsyn in "Schenker and Kantian Epistemology," *Theoria* 3 (1988). To be sure, Rameau's fundamental bass (and later harmonic theory derived from it) can be temporally directed, but only at local levels, and then not inevitably.

¹⁴ As opposed to durational rhythm, which is a divisional view; see "Rhythm and Linear Analysis: A Preliminary Study." *The Music Forum* 4, ed. by Felix Salzer and Carl Schachter (New York: Columbia University Press, 1976) pp. 313–34; rep. in *Unfoldings*, ed. by Joseph N. Straus (New York: Oxford University Press, 1999) pp. 36–51.

¹⁵ Henri Bergson's famous critique of conceiving time spatially is in fact directed at the conception that I am terming divisional (at least as it applies to music). Using music as an example of temporal experience, Bergson spoke of "the continuity of...melody and the impossibility of breaking it up" which would bring "spatial images into it." In *The Creative Mind* (New York: Philosophical Library, 1946) p. 149. Compare the recent reevaluation of Bergson by Gilles Deleuze, who reminds us that pure duration has a material quality: "A

It is common to characterize music as both spatial and temporal.¹⁶ Spatial characteristics belong to the domain of pitch; they can exist timelessly as abstract pre-compositional material (as, for instance, in the acoustic ratios of intervals). For pitch to become actualized as music it must be played out in time, in the sense that a melody or a harmonic progression can only exist in the temporalization of musical space.¹⁷ It is also clear that spatial descriptions such as “tone space,” “harmonic region,” and even “overtone” are metaphorical renderings of purely acoustic phenomena. It is less obvious that temporal descriptions are also at least partly metaphorical. The reason for this is that although musical time must take place in chronological time, the two are not necessarily equivalent.

Chronological time can similarly be thought of as abstraction; for it to become realized as musical time, it must be conjoined with concrete spatial events in music so that *time becomes spatialized*. Because this process is the converse of the temporalization of musical space, musical time can become spatial only when a listener steps outside of its time, that is, retrospectively. Schoenberg made this point when he said,

Music is an art which takes place in time. But the way in which a work presents itself to a composer...is independent of this; time

duration that is infinitely slackened and relaxed places its moments outside one another; one must have disappeared when the other appears.” In *Bergsonism* (New York: Zone Books, 1991) p. 86. A view of temporal space as flexible certainly avoids Bergson’s critique.

¹⁶See the basic discussion of this issue in Jonathan Kramer, *The Time of Music*, pp. 5–9.

¹⁷ Schenker’s concept of the horizontalization of the triad through the *Ursatz* is perhaps the ultimate temporalization of a musical entity.

is regarded as space. In writing the work down, space is transformed into time. For the hearer this takes place the other way round; it is only after the work has run its course in time that he can see it as a whole—its idea, its form and its content.¹⁸

Carl Dahlhaus echoes this idea in arguing for the substantiality of the musical text:

Like a work of plastic art, music is also an esthetic object....However, its objectivity is displayed not so much immediately as indirectly: not in the moment when it is sounding, but only if a listener, at the end of a movement or section, reverts to what has passed and recalls it into his present experience as a closed whole. At this point, music assumes a quasi-spatial form (Gestalt)....at a distance it constitutes itself as a surveyable plastic form.¹⁹

Since all analysis is necessarily retrospective, it is arguably appropriate to frame one's description of the temporal in metaphors drawn from the spatial and visual. Nonetheless there are few analytical approaches to time that explicitly address it as having the properties of a created substance.

¹⁸Quoted in Josef Rufer, *Composition with Twelve Notes*, trans. Humphrey Searle (New York: Macmillan, 1954), p. 49.

¹⁹*Esthetics of Music*, trans. William W. Austin (Cambridge: Cambridge University Press, 1982) pp. 11–12. The connection of this quotation with Schoenberg's is drawn by Nicholas Cook, *Music, Imagination, and Culture* (Oxford: Clarendon Press, 1990) pp. 39–40.

Schenker's concept of expansion (*Dehnung*), which will be addressed in detail in Chapter 2, treats musical time as a malleable substance that is being molded to exceed the constraints of the referential hypermeter.²⁰ This concept differs from the traditional sense of phrase expansion, that is, the addition or repetition of phrase elements, which belongs under the divisional category.²¹ To be sure, Schenker's expansion has an aspect of the sequential to it, in that a goal can be postponed by the enlargement of a phrase. However, I will argue in Chapter 2 that inherent in expansion, and in all of Schenker's approach to rhythm and meter, is an interplay of independent elements, both tonal and temporal, acting together to shape the rhythmic surface as if it were a tangible material.

This is a hallmark of the approach to time that will be developed in this dissertation. A drawback of the spatial understanding of time is that it could misrepresent time as static, an inert object. This defect is alleviated if that object is understood as dynamically shaped by forces, as a sort of alloy forged by tonal and rhythmic tensions. My metaphor for this will be *plasticity*, and plasticity in music will be concretized by understanding aspects of the tonal and the temporal to be forces providing the musical object with its contours, dimensions and boundaries.

It will be argued that it is Schenkerian analysis that allows, indeed necessarily entails, a coordination of pitch and rhythm. It is this combination

²⁰ It will become clear that Schenker regards meter as a fixed element and expansion as a rhythmic phenomenon; see Chapter 2, section 3.

²¹ Typical examples of this traditional approach can be found throughout Percy Goetschius, *The Homophonic Forms of Musical Composition* (New York: Schirmer, 1924) esp. pp. 25–55.

that ultimately realizes time's spatiality. Plasticity is time given shape through the addition of another dimension to what is essentially one-dimensional: tonal events create a second axis adding another dimension (at least) to time's single axis. This is in effect a definition of tonal music's virtual time.

Thus my third category, the spatial, understands musical time as a substance shaped by dynamic forces. There hardly seems a composer whose music seems so aptly described by this metaphor than Ludwig van Beethoven. Charles Rosen has written that, "Beethoven was the greatest master of musical time."²² The intense dramatic impact of Beethoven's music has long been associated with its rhythmic power. As familiar as this music is, much still remains to be investigated. In particular, the exploratory works of the late period, whose treatment of time seems to prefigure (and probably influenced) music of this century, still presents an enigma. In a recent review of Beethoven literature, one critic has remarked that, "...[for theory] an adequate description of Beethoven's late style—and, more importantly, of the qualities that mark it off from the pervasive classical language of the time—has been an elusive, yet alluring, goal."²³ More than any other quality, Beethoven's innovative and even shocking treatment of musical time remains the most in need of analytical scrutiny.

²² Rosen, Charles. *The Classical Style: Haydn, Mozart, Beethoven*. New York: W. W. Norton, 1971; p. 445.

²³ Peter McCallum, "Classic Preoccupations: Instruments for the Obliteration of Analysis?" *Music Analysis* 9/2 (1990): 207–8.

One such puzzle is Beethoven's sudden and disruptive juxtaposition of sharply differing rates of rhythm. A simple example is the repeated alternation of a slow tempo with a fast one; this technique is a frequent mannerism of the later works. There has been much heated controversy over what actual speed is intended by Beethoven's tempo markings, but very little consideration has been given to the meaning of a musical artwork that contains within itself such differing, perhaps even contradictory, sorts of musical time. It is precisely these contrasts and conflicts that are not captured by pure voice-leading analysis, at least as it has often been practiced. It will be argued, particularly in analyses of the first movements of Opp. 109 and 110, that temporal manipulation has such a powerful effect that the voice-leading structure must be understood as embodying basic contradictions. (See Chapter 5.) This is a natural consequence of the assumptions of spatial plasticity already described.

Given the radical nature of these assertions, the bulk of this dissertation is devoted to answering this fundamental question: What theoretical framework is necessary to adequately describe the phenomena of temporal plasticity in Beethoven's late music? By posing this sort of question about this extreme case, the impetus is created for the development of a theory of musical time that could have an applicability far beyond the problem posed by this repertoire, allowing analysis to address qualities not usually considered by theorists, in music where temporal manipulation is less obviously dramatic.

This development is premised on the metaphor of plasticity as a manipulation of temporal space. Having characterized aspects of Schenker's

theory as spatially oriented, I will begin by engaging in a close reading of Schenker's late work on rhythm and meter, in order to reveal his perspective as an implicit conflict of forces that shape temporal space, much as his powerful theory of tonal coherence is a description of the shaping of tonal space. This reading will draw elements from Schenker and rearrange them in ways that go beyond his work. This will produce the Temporal Plasticity Framework, a phenomenological model that combines tonal and temporal elements. These novel characteristics are at best only implicit in the Schenkerian approach to rhythm and seek to place the details of temporal experience at the center of the theory. (See Chapter 2.)

This framework will allow the articulation of related but separate concepts of temporal disjunction and temporal plane (in Chapters 3 and 4) These terms will recognize and make available for scrutiny musical entities that have not been a part of music theory heretofore. Although I will begin with abstractions and spend some time extrapolating from them, the new entities I develop were motivated by intuitions drawn from Beethoven's music, and it is to that music that I will eventually return in the hopes of opening a window into its unique time-spaces.

Chapter 2: The Temporal Plasticity Framework

This chapter is an introduction to the Temporal Plasticity Framework (abbreviated TPF). This is an analytical perspective which is based on Schenker's approach to tonal and rhythmic structure, but which allows a more broadly construed interpretation of temporality in music. This chapter comprises four sections: 1) an examination of some of Schenker's thought on meter and rhythm that will establish the basis of the TPF; 2) a presentation of the TPF in the abstract; 3) a further examination of Schenker's analysis in light of the TPF; 4) examples of the TPF as an analytical tool.

2.1: Schenker on Meter and Rhythm

Schenker's most explicitly formulated statements on the theory of rhythm and meter occur in Part III, Chapter 4 of *Free Composition*.¹ The chapter is organized in four sections as follows:

¹ *Der freie Satz*, Vol. III of *Neue musikalische Theorien und Phantasien* (Vienna: Universal Edition, 1935); second edition, ed. and rev. by Oswald Jonas (Vienna: Universal Edition, 1956); *Free Composition*, trans. and ed. by Ernst Oster (New York: Longman, 1979); unless noted, all references are to the English translation, hereafter *FC*. The most thorough discussion of Schenker's work in relation to rhythm is found in William Rothstein, "Rhythm and the Theory of Structural Levels." (Ph.D. diss., Yale University, 1981).

Needless to say, many of Schenker's tonal principles, especially those involving species counterpoint or invoking it as a model, implicitly involve rhythm and meter, either requiring one of these for its explanation, as in species, or having consequences for its understanding in free composition, as in the higher level tonal rhythm implied by prolongation. These are discussed by Rothstein in the above citation and in *Phrase Rhythm in Tonal Music* (New York: Schirmer Books, 1989). The rhythmic implications of the theory are developed analytically by Carl Schachter in a series of three articles: "Rhythm and Linear Analysis: A Preliminary Study," *The Music Forum IV*,

Section 1: Meter and Rhythm in General (§ 284)

Section 2: Meter in Music (§§ 285–289)

Section 3: Rhythm in Music (§§ 290–291)

Section 4: Antimetric Rhythmic Situations (§§ 292–300)

The title of the last section very significantly hints at a *leitmotiv* that runs through Schenker's entire treatment of this subject: The relationship between rhythm and meter is often painted as antagonistic, couched as a conflict between opposing elements.² To this must be added another recurring premise: the fundamental dependency of these temporal elements upon tonal structure. This suggests that a number of the analytical techniques described in this chapter could be structured into an interplay of elements that are to varying extents in conflict or agreement. I will begin by examining some of these techniques with this possibility in mind. A sequential discussion is useful because (as often in *Free Composition*) issues are alluded to that are not always coordinated with the explicit organization of the chapter.

ed. by Felix Salzer and Carl Schachter (New York: Columbia University Press, 1976) pp. 281-334; "Rhythm and Linear Analysis: Durational Reduction," *The Music Forum V*, ed. by Felix Salzer and Carl Schachter (New York: Columbia University Press, 1980) pp. 197-232; "Rhythm and Linear Analysis: Aspects of Meter," *The Music Forum VI Part 1*, ed. by Felix Salzer, Carl Schachter, and Hedi Siegel (New York: Columbia University Press, 1987) pp. 1-59. All three are reprinted in *Unfoldings*, ed. by Joseph N. Straus (New York: Oxford University Press, 1999) pp. 17-117.

² As noted by Rothstein, "Rhythm and the Theory of Structural Levels," p. 64. All of the examples discussed here are also discussed by Rothstein with a somewhat different purpose.

The brief first section argues that meter and rhythm in music share only general characteristics with those of language.³ At the same time Schenker asserts the independence of meter and rhythm from each other, setting them apart as clearly opposite:

Meter is absolute—the time-pattern itself; rhythm is relative—the particular play of successions of...tones within this time-pattern.
(§ 284)

The next section, however, goes on to describe meter as dependent on its internal content, that is, on repetitions of foreground diminutions (§ 285, “Repetition as prerequisite for a metric unit”).⁴ Schenker uses brief preludes to show that more than an explicit time signature is required to create genuine meter.⁵ While never completely clarifying the latter, the qualification made to meter suggests that it is absolute only in the abstract and that its inference requires something more concrete. Unfortunately, Schenker rarely explicitly

³ Schenker returns to this distinction in the final paragraph of this chapter (§ 300), “Rejection of prosody as the basis of rhythm in music.” An extended speculation on the Greek’s understanding of prosody leads to a remark that invokes conflict: “Therefore in German, too, the natural poetic foot of the words often conflicts with a predetermined metric schema.” Included in Appendix 4, O in *FC*.

⁴ The example from Haydn (Fig. 136, 6), in which a change to three-bar grouping is reflected in a change to groups of three sixteenth notes, is surely a felicitous case. Oddly enough, this example suggests the opposite of Schenker’s argument in § 285, in that it is meter that determines the patterning of the foreground, not the converse. Nonetheless, it confirms the importance Schenker places on the connection between meter and repetition.

⁵ Referring to Figure 136, 1–5, reductions of simple pedagogical pieces by Clementi, Schenker comments, “Nor does it make any difference that they have a metric scheme (2/4, 3/4, 4/4); the meter derives only from figurations whose repetitions are completely unessential and so can do nothing to alleviate the basic weakness.” (§ 285)

discusses how listeners infer any analytical structure. Furthermore, segmenting a surface into repetitions can be a matter of interpretation, as these can be ambiguous, varied, or hidden below the surface. Though Schenker might not agree, I would suggest that the dependency of meter on other elements opens the door to conditions under which meter could be weakened or negated altogether.

It is important to recognize that most of the examples in this chapter concern the hypermetric level, i.e., metric groupings of whole bars, which is almost never indicated by the composer and is thus inherently a matter of interpretation. Thus Schenker's presentation here is like that of *Free Composition* as a whole: a phenomenon is dealt with at the deepest level at which it first appears.⁶ While it is not always clear that he would be willing to apply every principle to the level of beats within bars, Schenker's observations on meter make no explicit distinction as to level.

Another sort of dependency is latent in the following subsection, which concerns duple metric grouping, asserted as the most natural (§286). Schenker feels it necessary to point out that, "The metric unit of four measures does not necessarily require four tones as its content." However obliquely, this suggests that tonal content has some role to play in metric ordering, even if it can be overridden. Indeed, Schenker uses tonal content to distinguish between duple

⁶ This chapter, the first time meter is discussed, appears in Part III, "The Foreground." Earlier, Schenker speaks of "the addition of meter" in the foreground.

groups of 8 and 16.⁷ It is unstated but implicit that duple meter in and of itself has no way of distinguishing among any unit divisible by two.⁸

The interaction among elements can be illustrated by examining Schenker's first example, of which he says:

A third-progression also can be the content of a 4-measure group, as in the first and second 4-measure groups [of the following]...This example very quickly shows us the difference between the 4-measure unit, which has an absolute metric grouping, and this particular third-progression, whose rhythm is only relative. (§ 286)

A reference is made to the figure reproduced as Example 2.1.⁹ Schenker later points out that the third progression $e^2-d\sharp^1-c\sharp^1$ binds this passage into a single 16-bar group, in other words, that tonal structure determines higher-level metric ordering.¹⁰ On the other hand, the lower-level four-bar groups shape the tonal content within them; rhythm arises from an accommodation of three units into four bars. This includes the third $e^2-d\sharp^2-c\sharp^2$ (a parallelism nested within the larger third) for the first four bars and $c\sharp^2-b^1-a^1$ for the second four bars. The

⁷ Figure 137, 2 infers an 8-bar group from the unfolding of a sixth (§ 286); Figure 137, 3 infers a 16-bar group, apparently on the basis of the harmonic unit I-III-V \sharp^3 ; a third progression spans the 16 bars of Figure 124, 6b.

⁸ Time signatures can be regarded as an instruction (not always unambiguous) to the performer and in any case do not apply to the hypermetric level Schenker usually discusses.

⁹ Schenker's example 124, 6b analyzes the second 16-bar group (mm. 17-32) in order to show how the larger third progression encloses the passage in a boundary play (§260). The opening eight bars are identical except for the recomposition of the upbeat.

¹⁰ In the commentary to Figure 137, 3.

former extends d^\sharp for the two middle bars; the latter inserts the chromatic passing tone b^\sharp^1 , thus essentially extending the time span of $\hat{7}$.

Example 2.1: FC, Fig. 124, 6b; Chopin, Waltz, Op. 64, # 2, mm. 17–32
(© 1935 Universal Edition A. G. Wien and by permission of the Estate of Ernst Oster)

An assumed factor is the parallelistic foreground patterning that is strongly determinative of meter from the beginning of the waltz. Example 2.2 illustrates: The two-bar patterning segments the thirds into descending steps.

Example 2.2: Chopin, Waltz, Op. 64, # 2, mm. 1–8, reduction

Two-bar harmonic units also structure the refrain-like passage that first occurs in mm. 33–48. Schenker's analysis of these bars is reproduced as Example 2.3; his notation implies that the previous descending steps are repeated in

diminution (shown as grace notes). The commentary to this example is also significant:

Auxiliary harmonies and those arising from neighbor notes and suspensions in no way disturb a metric ordering; in fact, they, too, can appear on the accented, strong measures....One can only call this a triumph of absolute meter...(§ 286)

Example 2.3: FC, Fig. 137, 1; Chopin, Waltz, Op. 64, # 2, mm. 33–48
(© 1935 Universal Edition A. G. Wien and by permission of the Estate of Ernst Oster)

The image shows a musical score for Chopin's Waltz, Op. 64, # 2, measures 33-48. The score is in 3/4 time and features a complex rhythmic pattern with many grace notes. Above the staff, there are numbers 1 through 8 indicating measure boundaries. Below the staff, there are Roman numerals and symbols indicating harmonic structure: () I, II, V, I, () I, II, V, I.

There are three distinct elements interlocked with each other in Schenker's exposition, in a manner that can seem somewhat contradictory: meter is represented as a kind of natural force that can structure tonal elements in an absolute manner but one that still might require a foreground patterned by repetition to come into being; tonal structure can be given a rhythmic profile by its disposition within a metric framework, but itself can confer unity on higher-level metric groups; repetitions of foreground patterns can bring a meter into existence but then can be shaped by it (as in Example 2.3, whose foreground diminution is repeated at the measure level). The dependency of these elements

is implicit but nonetheless crucial, in spite of the apparent emphasis Schenker gives to the power of meter.

The next subsection presents more subtle issues:

Measure orderings in odd numbers (such as 3 or 5) have their roots in a duple ordering in the background and middleground; this brings into clear relief the fact that metric schemes involving 3 and 5 are man-made and not as natural as duple orderings. (§ 287)¹¹

This introduces a dichotomy between the natural and the artificial analogous to Schenker's concept of tonal structure. The natural is given and preexistent; the artificial is the result of a volitional incursion that modifies, extends, or abbreviates the natural. Since, of course, all musical composition is the result of human activity, this dichotomy presupposes a metaphor of distinct agents working in concert or in tension with each other to actualize coherence.¹² In a similar sense, meter is characterized as having an absolute form (duple ordering) which is then modified through the effect of forces outside of it. The discussion of specific examples confirms this interpretation of Schenker's position, but it is not always obvious which force is at work. The following discussion will add another element to the interplay outlined thus far.

¹¹ There is a reference here to § 318, which asserts that even five-part rondo form derives from the combination of two three-part song forms and, thus, "this five-part ordering derives from a duple ordering in the background." However, Schenker never carries this principle to the shallow level of triple meter.

¹² To paraphrase the opposition as Schenker portrays it, the verticalization of the overtone series belongs to nature, but the horizontalization found in the fundamental structure creates motion and tension analogous to human life. Cf. *FC*, Chap. 1, Sec. 3 and Chap. 2, Sec. 1, §1.

Figure 138, 1 (reproduced as Example 2.4) is much-discussed as an example of a rhythmic analysis generated from background to foreground.¹³ Levels a, b, and c are not representations of any actual time span, but are simply metricizations of their pitch content according to the “natural” principle of duple meter. The conflict with meter’s basic state occurs at level d, about which Schenker explains,

The 3-measure grouping at d) arose from the fact that Bach, in order to arrive at the neighboring note bb^1 , approached it from d^2 .
(§ 287)

It is not of course necessary to have begun from d^2 in order to arrive at bb^1 .¹⁴ The implicit purpose of level e is to establish the integrity of the ensuing fifth-progression from d^2 to g^1 through an extraordinary motivic parallelism. It is also not inherently necessary for the additional pair of tones at level d (i.e., d^2 and c^2) to require an additional measure for their expression. Example 2.5a compares part of the actual score with two hypothetical versions based on the pitch material of level d (Example 2.5b and c).

¹³ See Rothstein, “Rhythm and the Theory of Structural Levels,” pp. 138–47 and Joel Lester, *The Rhythms of Tonal Music* (Carbondale, Ill.: Southern Illinois University Press, 1986) pp. 197–8. While acknowledged as highly suggestive, aspects of this analysis have met with justifiable criticism, as in the Rothstein cited.

¹⁴ It is not untypical of Schenker to present an earlier level as causation of a later one while denying any determination of specific characteristics. Cf. *FC*, § 47.

While Example 2.5b may be too cramped and 2.5c too spacious, both accommodate the work's tonal material to a four-bar grouping far more typical of the dance music of Bach's time. What is missing from these realizations is a principle implicit in levels a through d of Schenker's analysis, that of equilibrium, which is derived from the fifth species of strict counterpoint.¹⁵ What this means for Schenker's analysis is that the tones of the upper voice are disposed with as much equality of durational values (i.e., not greater than a 2:1 disparity) as a metric scheme in its most basic state (i.e., duple) will allow. For levels a, b, and c, the number of tones is easily accommodated to a hypothetical duple meter. With the addition of two more tones of level d, the equilibrium of values is more difficult to maintain. (Neither Example 2.5b or c have as much durational equality as the original.)

The point here is that there is a conflict between the tonal content and the hypermeter, and the former wins, overriding meter's "natural" tendency. In contrast to the Chopin waltz example, where a duple framework rigidly orders the disposition of an odd number of tones, here a string of tones acts as an independent agent to overwhelm the normal metrical boundaries.¹⁶ Though Schenker couches this as a "man-made" metric phenomenon, it is better described as another interaction of musical elements already discussed, albeit a less usual one.¹⁷

¹⁵ Equilibrium is more fully discussed in Chapter 3 of this dissertation. See also Rothstein for the equalization of values at level b; "Rhythm and the Theory of Structural Levels," pp. 143-4.

¹⁶ They also determine the inner organization of those measures: the prolongation of IV that begins on the third beat of the first bar creates a hemiola effect in mm. 1-2.

¹⁷ Other examples of tonal content overriding meter include Fig. 138, 3, where the interpolation of a neighbor note adds an extra bar; also see Schenker's analysis of Mozart, K. 550, 3rd mvt., where

Duple hierarchy is overridden by a different element in Schenker's Figure 138, 2, reproduced as Example 2.6. Schenker's comments on the origin of this six-bar group:

As can be seen at a), a diminution with a neighboring note creates a duple ordering. The presentation of the foreground at b), however, shows three 2-measure groups. The triple ordering arises from the fact that the I chord fills a 2-measure group—which I have indicated in the sketch with a tie—and both subsequent 2-measure groups present parallelisms—which I indicate with slurs. Thus, this 6-measure group results from a purely organic growth. (§ 287)

Example 2.6: FC, Figure 138, 2¹⁸ (© 1935 Universal Edition A. G. Wien and by permission of the Estate of Ernst Oster)

Mozart, Sonata in A Major, K. 331, 3rd mvt., Coda

The image shows two musical staves, labeled 2a) and b). Both staves are in treble clef with a key signature of one sharp (F#). Part 2a) shows a six-measure phrase starting with a quarter note G4, followed by quarter notes A4, B4, and C5, then a half note G4 tied to the next measure. Part b) shows the same six-measure phrase but with different groupings: the first two measures (G4, A4) are grouped together with a slur and tie; the next two measures (B4, C5) are grouped together with a slur and tie; and the final two measures (G4, G4) are grouped together with a slur and tie.

The four tones of the upper voice represent essential voice-leading in Schenker's analysis, but these four would be metricized most simply as a four-bar group, not the six bars of the actual composition. Thus it is not the tonal content that disturbs the duple metric ordering. Schenker's explanation obscures

third progressions create three-bar groups; in *Das Meisterwerk in der Musik II* (Munich: Drei Masken Verlag, 1926); trans. by William Drabkin in *The Masterwork in Music II*, ed. by William Drabkin (Cambridge: Cambridge University Press, 1996) p. 87 (in the translation).

¹⁸ 2b analyzes mm. 96–102 of the Sonata's 3rd movement.

this by attributing the triple group to the elongation of the I chord to two bars, even though the reduction given above shows the I chord still present in the third bar. Schenker's reduction is fairly literal except for the fifth bar: this is a root position tonic chord in the score not only in m. 101 but also in the corresponding places in mm. 107, 114 (a varied repetition), and 120. The analysis shows this tonic as having the significance of a cadential 6/4 above V. The resulting harmonic progression I-IV-V is also not determinant of the three two-bar units, since there is no indication that Schenker regards the I chord in the third bar as displacing the time span of IV.¹⁹ Nor would the doubling of the duration of the $c\sharp^3$ in 2a result in a six-bar unit if applied to the other three tones of the neighboring figure.

Schenker's commentary notwithstanding, it is clear that tonal content plays no part in creating the six-bar group. The parallelism that Schenker speaks of actually refers to the two-bar pattern set in motion by the repetition of the first bar of this unit. It is only the inference of this foreground pattern that allows the second and third pair of bars to be heard as sharing a common feature with the first pair. (If anything, the tonal content as Schenker shows it would point to two 3-bar groups.) The degree to which the rhythmic structure can be heard as independent of the tonal structure can be illustrated by comparison with the opening four bars of the movement, where I would suggest that this figure

¹⁹ Schenker employs this kind of harmonic explanation in Figure 148, 6 (a *Gegenbeispiel* within § 297, the section on expansion). In Chopin's Prelude Op. 28, #6, mm. 9-14, he finds "a 6-measure entity which evolves organically out of a progression of the harmonic degrees I-VI- \natural II, with each harmony filling two measures." In fact, \natural II fills three bars, arriving in the fourth bar of this group, as Schenker's figure shows. Only the text explains the reading, such as it is.

originates. In the pattern of its figuration, mm. 1–2 are separate iterations, an upbeat leading to a downbeat; the third bar doubles up to lead more strongly into the fourth bar. Imitating this pattern, the coda phrase begins with two one-bar iterations of the tonic, followed by a third bar whose strikingly similar figuration has the effect of an upbeat. Example 2.7 juxtaposes the first four bars of each phrase.²⁰

Example 2.7: Mozart, K. 331/iii, rhythmic parallelism

a) mm. 1–4

b) mm. 79–100

²⁰ The six-bar coda phrase could be heard as an attempt to recreate the eight-bar norm of the opening (omnipresent until the coda) by attaching a final tonic chord that would hypothetically fill two bars. A tonic conclusion is added to the phrase in m. 109 as a seventh bar, but the eighth bar is reinterpreted as the first bar of a varied return of the six-bar phrase. Only the final tonic of the movement provides a satisfactory conclusion and it is expanded to six bars as if to compensate for its previous absence (mm. 122–7). The four bar insertion (mm. 122² through 126¹) recreates the impulse pattern shown in Example 2.7. Schenker presents a different interpretation of this passage in Figure 149, 3, one which clearly shows his sense of the organic integrity of the six-bar phrase.

In spite of Schenker's assertions about the preeminent role of tonal structure, this close reading clearly shows that foreground patterning can act as the primary element, or even the sole element, in conditioning tonal structure and overriding meter. Indeed, in other examples by Schenker, duration itself is distinguished as the active element. No element of tonal structure or foreground seems to be at work in generating the odd measure group in the analysis reproduced in Example 2.8.²¹ Schenker comments,

Here the 5-measure group results from a rhythmic shift. Without the eighth-note acceleration in measure 4, answered in parallelistic fashion in measure 5, six measures would have been required. (§ 287)

Example 2.8: FC, Fig. 138, 5; Chopin, Etude Op. 10 #3, mm. 1–5
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The manipulation of duration is not occasioned by any requirement of the tonal content, nor by any continuation of foreground patterning and especially

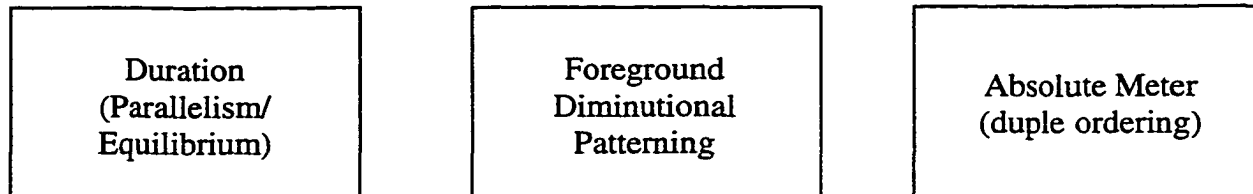
²¹ This analysis receives extensive commentary in Rothstein, *Phrase Rhythm*, pp. 221–4.

not by adherence to the meter (in the sense of duple hypermeter). Though the parallelism mentioned in Schenker's text refers to pitch (the motive of descending thirds), the parallelism indicated by the brackets in the example is purely one of duration. In a further durational parallelism, Rothstein also connects the syncopations shown in Schenker's analysis to the foreground syncopations of the accompaniment, suggesting that these are essential to the character of the piece. The agency at work in this passage seems to be rhythm itself.²²

The foregoing detailed explication allows three temporal elements to be distinguished. They are depicted in Figure 2.1. Though I am leaving these elements somewhat undefined at present, it is crucial to my argument that they be understood as distinct, at least as they figure in Schenker's analytical practice. Since Schenker is explicit about the opposition of rhythm and meter, it is the separation of rhythm into two elements that is novel. The second crucial aspect is the mutual interdependency of the three components: no one element inevitably predominates over the others. Left implicit here is that the principle of equilibrium (already mentioned in connection with Example 2.4) is derived largely from the durational element, i. e., from the aim of keeping as much roughly parallelistic equality among durations as possible. (This point will be discussed further in the following section.)

²² The same agency is at work in the much more complex Figure 138, 4, where the expansion in duration of a three-tone progression (mm. 3–4¹) is matched by parallel durational elongation of a single tone (mm. 4²–5).

Figure 2.1: Three temporal elements implicit in Schenker's practice



It is perhaps less clear, but an analogous distinction can be made among tonal elements as they relate to temporal elements in Schenker's practice. Tonal structure has already figured in the preceding discussion, but this overarching term can be teased apart further.

The examples that analyze Chopin's Waltz in C# minor reveal these elements *in nuce*. In Example 2.1, the highest level (the 16-bar group) is organized by the unity of a single third progression: i.e., tonal structure organizes meter. The rhythm of a lower-level third progression is the result of its disposition within a four-bar unit; i.e., meter shapes the rhythm of tones. In the first case, tonal structure plays its role because of its integrity as a third progression (which represents the simultaneity of a third at a deeper level), in other words, because of its structuring power. In the second case, the third progression in question is inferred as a middleground structure from the surface of the piece; however, once inferred, it exists for the purpose of analysis as a series of three pitches on a particular middleground level. It is *as* this series of tones that it plays its role in the creation of rhythm in accommodation with meter. It is neutral as to structure; the middle tone, which passes between the outer boundary tones of the interval, is not in any way subsidiary in the shaping of its durational allocation. This is

quite distinct from the first case, where the boundaries of a 16-bar group are established by the boundaries of the structure of the third progression.

The degree to which a series of pitch can be distinguished from tonal structure is even more evident in Example 2.4 (Figure 138, 1). At each level, the upper voice pitch series determines the rhythmic configuration by applying equilibrium within a simple duple ordering. Levels a, b, and c are not structural analyses of the time span of the composition; i. e., there is not a coordination between tonal structure and the actual duration spans. At level d, the series of pitches (that also have special motivic significance) determines the odd number of bars. It is not tonal significance that generates the three-bar group; the triple ordering at level d results only from the fact that there is a greater number of tones at that level. It is also significant that the upper voice of level d is almost exactly coincident with the actual score and is not embedded in some deeper level of tonal structure. There is nothing about the tonal content of prior levels that determines the metric ordering of level d, since this content per se could be accommodated in the alternative duple versions that had been shown in Example 2.5b and c.²³

The Chopin example brings in yet a third element. When Schenker speaks of “the triumph of absolute meter,” it is a triumph over analogously absolute tonal norms, that is, the requirement that dissonant or auxiliary tonal formations should not be placed on accented beats or hyperbeats. While such a formation

²³ There has been justifiable confusion about the extent to which Figure 138, 1 represents a generative analysis of the rhythmic structure. (See the critical comments in Lester, *Rhythms*, pp. 197–8.) Schenker’s misleading presentation results from his desire to assert that duple ordering is derived from deeper levels. This is partly a basic assumption of Schenker’s work and is partly derived from the simple counterpoint that governs deeper levels.

may be inferred as part of a particular middleground level, its place in a larger structure would not be relevant to its interaction with meter. This particular tonal aspect relates only to the absolute qualities of consonance and dissonance or of harmonic significance. This is also evident in the following section on “Meter and Cadence”:

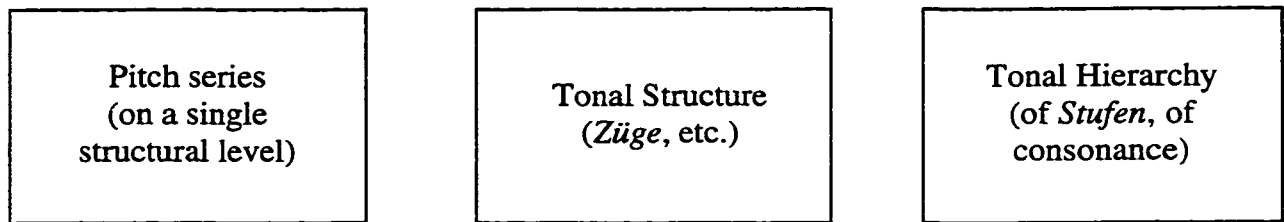
Unless there are rhythmic demands to the contrary...every metric scheme is capable of enclosing the cadence within itself in such a way that the I appears in the final unaccented measure of the measure group. (§ 288)

Irrespective of whether one agrees with this assertion, it is framed as an interaction with an absolute tonal element, the *I Stufe*, exclusive of any larger tonal structure of which it is a part.²⁴ The three distinct tonal elements are pictured in Figure 2.2. As with the temporal elements, each one of these can come to the fore individually as the preeminent factor or can combine with others. Added to the three temporal elements, these form the metaphorical agencies that create rhythm in Schenker’s analyses. Despite the distinction between tonal and rhythmic elements, Schenker clearly gives both equal weight in shaping the temporal surface, though in different ways and on different levels.²⁵

²⁴ This will later be understood in the terminology of this dissertation as an example of the non-coincidence of hierarchies of meter and tonality, which is “advantageous for synthesis.” (§ 288)

²⁵ This is explicitly recognized in Schachter’s distinction between durational rhythm and tonal rhythm, in “Rhythm and Linear Analysis: A Preliminary Study,” pp. 313–15.

Figure 2.2: Three tonal elements implicit in Schenker's practice



Schenker's celebrated statements about the origin of musical rhythm in counterpoint are never completely clarified, but may perhaps be related to the division of elements already suggested. These remarks occur in two places within the section on the background (§ 21) and within that on the middleground (§ 67). Essentially the same in character as the first statement, the latter passage is more specific and is worth quoting at length:

The descending fundamental line and the melodically rising bass constitute the first example of two linear progressions in contrary motion; this motion, regulated according to strict counterpoint, indicates the path for what follows.

The necessity to create a balance between the tones of the linear progressions, which may differ in number, leads for the first time to an intrinsically musical *rhythm*.

The roots of musical rhythm therefore lie in counterpoint!...

At the later levels rhythm undergoes corresponding changes until, still anchored in counterpoint, it receives its final form in the foreground, by the addition of meter. (§ 67)

Though he does not give an explicit example at this point, Schenker does seem to regard this concept of musical rhythm to be implicit in the transformation levels of the middleground. The crucial point seems to be the counterpointing of lines with differing numbers of pitches; that is, a single melodic line, or a line counterpointed in first species carries no information that would differentiate the time span of any tone or vertical interval from any other. When one line places two or more tones against a single tone of the other, a time span is demarcated that has no inherent specified durational value but is nonetheless distinguished from the others. Since the process of *Auskomponierung* presupposes the root of the implied *Stufe* as a potential contrapuntal bass, Schenker's definition of musical rhythm is in effect a description of the time spans delineated by harmonic prolongation. The fundamental structure (at least in the case of an *Urlinie* from $\hat{3}$) is arrhythmic because it is exempt from this qualification; that is, it is the most basic level of musical motion and presupposes no deeper root tone to which it could be reduced (other than the chord of nature, which is not an artistic musical utterance).²⁶

Put in terms of the elements set out above, rhythm is created by the difference in number between two pitch series which are combined in accordance with the tonal hierarchy (the conditions of consonance and dissonance); this results in a tonal structure with a rhythmic shape. It is not, however, a necessary characteristic of tonal structure that results in rhythm as Schenker defines it; two other elements must come together to generate it.

²⁶ See FC § 21.

Schenker's assertions notwithstanding, it is clear that this is not the whole story of rhythmic structure, even in his own exposition of the subject. This is not to imply that Schenker's thinking is incoherent, but that his practice is often richer and more complex than his theoretical statements would suggest. Indeed the last example in the section on meter shows a rich variety of rhythms represented only as durational patterns.²⁷ Schenker asserts that rhythmic figures within the bar are directed toward the next downbeat.²⁸ The examples from the literature from which the rhythmic patterns are clearly derived contain instances of repeated notes over static basses²⁹; thus they can scarcely derive from counterpoint. However, the three temporal elements can describe this situation: Durational units can be shaped by foreground patterning and can be given an impulse towards a downbeat generated by meter. Tonal elements are clearly implicated in this process, but are just as clearly not sufficient to specify it.

At least at foreground levels, musical rhythm is a much more complex interaction than he implies. This can be seen in the analysis that is the centerpiece of Section 3, on rhythm in music. Under the heading "The concept of rhythm in music," Schenker takes up musical rhythm in the sense explained above,

Since rhythm, like meter, is closely connected to specific contrapuntal situations, it changes from level to level. (§ 290)

²⁷ See Figure 140 and § 289.

²⁸ But see Oswald Jonas's criticisms of Hugo Riemann for upbeat phrasing of the theme of Mozart's Sonata, K. 331/I, in *Introduction to the Theory of Heinrich Schenker*, trans. and ed. by John Rothgeb (New York: Longman, 1982) p. 13; this piece is discussed by Schenker in the very next example.

²⁹ See Figure 140, Examples 1, 2 and 4.

Curiously, the example that follows analyzes an upper voice in isolation; however, a cross-reference to another example sheds light on the understood contrapuntal setting. Example 2.9 gives both of Schenker's figures.³⁰

Example 2.9: FC, Figs. 141 and 87, 5; Mozart, K. 331, 1st mvt., mm. 1–4
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The commentary is as follows:

This figure illustrates the origin, development, and meaning of a rhythmic motion. Were the subdivision of the fourth-progression into two third-progressions, as at a), developed by a diminution in broken thirds, six such thirds would be needed. But how are the two third-progressions to be fitted into a 4-measure ordering? The possible solution at b) would seem to suggest $\hat{3}$ as the primary tone; at c) the change in rhythm is too abrupt. Both

³⁰ Figure 141, and 87, 5; see also "Further Consideration of the Urlinie: I," in *The Masterwork in Music I*, trans. by John Rothgeb, ed. by William Drabkin (Cambridge: Cambridge University Press, 1994) p. 105.

these dangers are overcome by the 6/8 at d). This version, too, shows three broken thirds in the service of the first third-progression; but a bridge to the second third-progression—whose second note is treated as a passing tone—is organically established here by the insertion of a passing tone into the last broken third also. (§ 290)

Example 2.10 makes some of these points more explicit. Example 2.10a follows the principles of deriving rhythm from counterpoint set out above (by recombining the content of the two figures). The “original” fourth-progression $e^2-d^2-c\sharp^2-b^1$ would yield one rhythmic configuration against the given bass tones; the insertion of a third-progression from e^2 , presumably for the sake of parallelism, would produce another rhythm. The difference in rhythm is attributable solely to the difference in number of tones. However, Example 2.10b follows Schenker’s lead in showing bar lines that imply a four-bar hypermeter, which is in accord with Schenker’s conviction that duple meter is fundamental at deeper levels.³¹ It is the metric framework that allows actual durations to emerge by applying the principle of equilibrium as much as possible. Already the rhythmic picture in Schenker’s original figure requires input from four of the six elements, conflating the tonal (two series of differing numbers of pitches are combined according to the tonal hierarchy) and the temporal (a series of durations achieves equilibrium within a metric framework).

³¹ Compare Figure 138, 1, discussed above.

Example 2.10: An explication of FC, Fig. 141

a)  from 

b)  from 

c) 

d)  suggests 

e)  equals 

f)  disjunction is bridged by: 

Anticipating the broken thirds that embellish the actual theme, Schenker rejects the possibility of exhaustively attaching a third to each tone of the upper voice generated thus far. Had Mozart chosen this somewhat mechanical procedure, the presumption is that an irregular measure group of six bars would result as shown in Example 2.10c. By Schenker's criteria, this six-bar unit would be organically derived from its tonal content, that is the tonal elements shown in Example 2.10a would override the tendency of meter towards imposing a duple framework.

Schenker's level b already recognizes the reality of the four-bar organization of the actual piece and suggests a compromise disposition. As Example 2.10d emphasizes, this would conflict with the sense of the background. In other words, foreground diminution would conflict too greatly with tonal structure.³² Example 2.10e shows the disjunctive rhythm of another alternative version: here it is the allocation of durations that is unacceptable.³³ Example 2.10f shows the actual solution with its elegant compromise of elements. The disjunction is bridged by a parallelism which is effected by the inserted tone marked by Schenker's exclamation point. It is the similarity of the two strings of tones $a^1-b^1-c^{\sharp 2}$ and $d^2-c^{\sharp 2}-b^1$ that is finally decisive in the rhythmic gestalt. Schenker does not explain that the elongation (compared with the first two thirds) of the filled-in third, $a^1-b^1-c^{\sharp 2}$, comes about because of the tendency to

³² Schenker's example is a hypothetical extreme. However, some of that conflict remains in the actual composition, as can be seen in the notorious dispute as to whether $\hat{3}$ or $\hat{5}$ is to be understood as the *Kopfton*. How closely a Schenkerian tonal structure should match grouping patterns of the foreground is often a source of controversy.

³³ See § 291; on disjunction, see Chapter 3 of this dissertation.

organically repeat the prior durational units (quarter–eighth); thus there is an interaction of pitch strings with durational values.³⁴

Having examined some of Schenker's analyses in some detail, I have thus far attempted to show that one can understand six distinct entities at work in Schenker's view of musical time. Three are explicitly temporal: duration, foreground diminutional patterning, and absolute meter; three are tonal: pitch strings, tonal structure, and tonal hierarchy. I would further advance that these six entities can be understood as a part of a more formal scheme. Though this is based on Schenker's thought, it goes well beyond it. Nonetheless, I believe that the framework I will outline can serve to more clearly illuminate Schenker's theories of meter and rhythm and of decision-making in Schenkerian analysis in general. I will thus return to further discussion of the view of rhythm in *Free Composition* after having laid the groundwork for my own formulation of musical time, which I shall call the Temporal Plasticity Framework.

³⁴ The repetition of durations for each pitch is revoked in the consequent phrase to allow space for the final tonic. The effect of acceleration is well described by Rothstein in *Phrase Rhythm*, pp. 23-5.

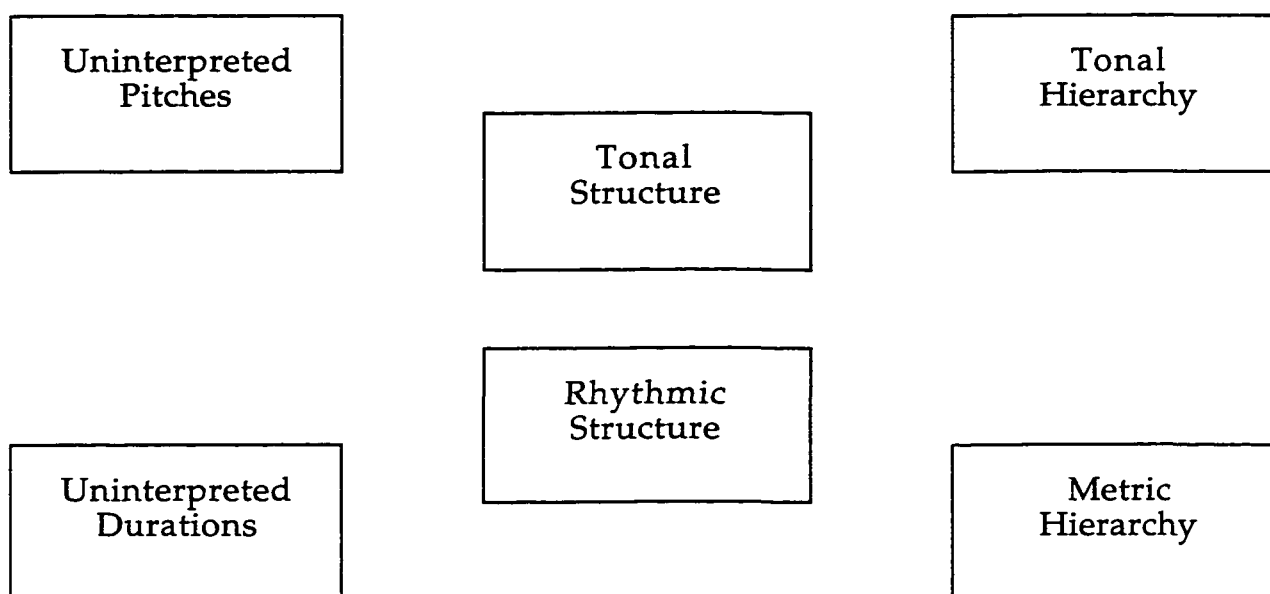
2.2: The Temporal Plasticity Framework

It was shown in the last section that Schenker's concept of meter and rhythm results from agreement or conflict among six distinct elements. Any amount of disagreement among these elements results in a quality that I will call *temporal plasticity*. There is no exactly corresponding concept in the music theory literature, although plasticity is generally inclusive of a number of common practices as well as some more specific to Schenker and his followers. Loosely speaking, plasticity could be described as the manipulation of musical time, manifest as aesthetic experience. It will be seen that plasticity is the opposite of the more neutral state called by Schenker equilibrium, especially as found in species counterpoint. Free composition almost inevitably involves conflict among these elements to some extent, so that it is normal to speak of degrees of plasticity. To make the concept useful to the analyst, I will distinguish plasticity that is *unmarked*, that is, expected within stylistic conventions, from plasticity that is *marked*, that is, standing out from its contextual surroundings.³⁵ This section will begin with examples of unmarked plasticity; however, it is to analyze marked plasticity that this concept was developed. The term plasticity used without qualification can be assumed to refer to marked plasticity.

³⁵ The concept of markedness was introduced into musical analysis by Robert Hatten; my sense of the charged meaning that marked plasticity has agrees with Hatten's use of the terms. See *Musical Meaning in Beethoven: Markedness, Correlation, and Interpretation* (Bloomington, Indiana University Press, 1994).

The Temporal Plasticity Framework is a mechanism for specifying the source of the effect of plasticity. The TPF is an arrangement of six elements related to those already discussed. The arrangement is designed to highlight special characteristics of their relationships that Schenker does not explicitly acknowledge. The framework will normally be displayed as follows:³⁶

Figure 2.3: The Temporal Plasticity Framework

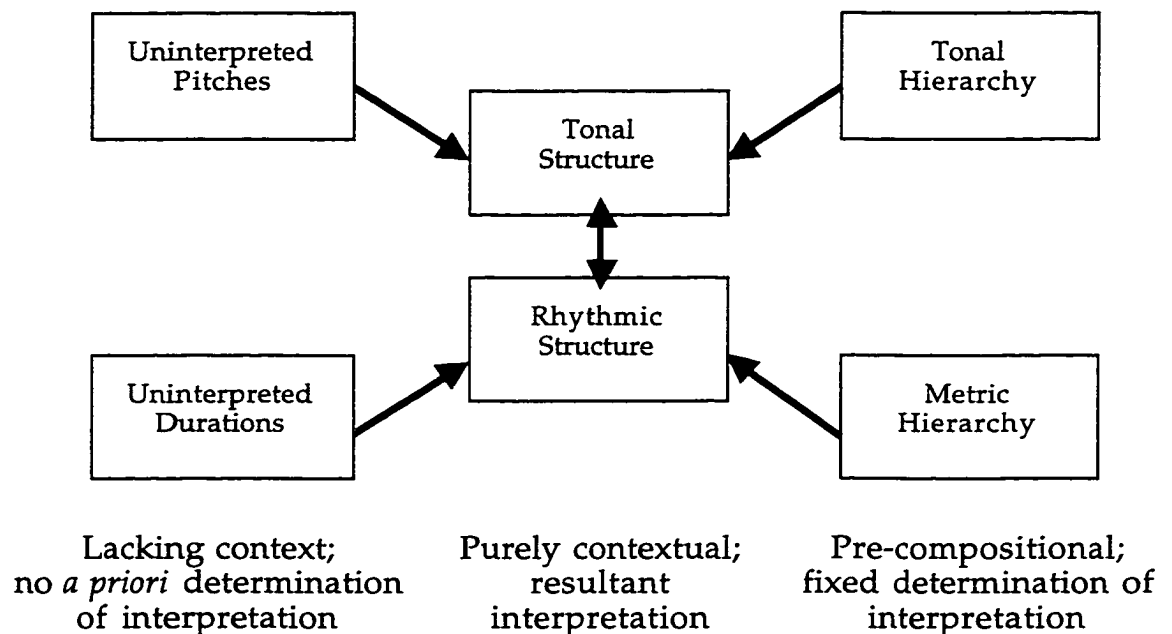


The vertical arrangement of the framework is divided between the traditional parameters of pitch (the top three elements; compare Figure 2.2) and rhythm in the inclusive temporal sense (the bottom three; compare Figure 2.1). The horizontal arrangement brings a relatively novel aspect to

³⁶ It is also possible to display the six elements in three dimensions along three axes at right angles to each other. Though conceptually preferable, this will not be used for practical reasons.

music-theoretic explanation: the left-to-right layout models degrees of interpretedness. The rightmost elements are the tonal and metric norms that are pre-compositionally fixed within the styles of the common-practice period. Meter is shown rather than rhythm because rhythm (in any sense) is never pre-compositionally determined (other than the common palette of durations). The leftmost elements are in principle completely uninterpreted; these are pitches and durations taken independently of each other and out of any context. In between these, pitch and rhythmic structures are understood to result from a combination of inputs from either side, but these also have their own repertoire of loosely determined interpretive schemes that interact with other elements in the framework. This could be pictured as follows:

Figure 2.4: Characteristics of the TPF



The outer elements represent artificial extremes abstracted for theoretical purposes. In the actual experience of any piece of music, all six elements are part of a holistic matrix. They are inextricable from each other but still identifiable individually. The TPF adopts a type of phenomenological perspective in which a complete analytical picture is represented as tension between different aspects of a single interpreter's conscious understanding. The assertion is that musical structure is the result of a combination of concrete events and abstract categorization, rather than a simple imposition of those categories on the raw material of experience.

Definitions of the six elements follow.

- Uninterpreted Pitches (UP): A series of single pitches [FS1](not pitch-classes) perceived as pure sensuous pitch phenomena, uninterpreted by duration, tonality or meter.³⁷ Uninterpreted pitches are heard outside of any hierarchical framework. This definition represents an abstract ideal, a kind of absolute zero temperature, which exists as a theoretical limit but which cannot be achieved in the real world. In practice, there are degrees of neutrality: a stepwise succession of pitches is most neutral, consonant leaps less so, dissonant leaps least so. In addition, pitches internal to the series are the most neutral, beginning and ending pitches less so. (The same applies to groups formed by leaps or rhythmic grouping.) In this state we can only speak of individual tone successions, because any verticality "interprets" the tones

³⁷ This definition of course presupposes a tempered diatonic system. As older modal practice shows, a diatonic arrangement does not necessarily entail a hierarchical tonality. At a logical extreme, the definition should refer to the undifferentiated spectrum of all audible pitches, but this is simply not a practical starting point. Thus there is strictly speaking a minimal intervention by Tonal Hierarchy in specifying the construction of scales.

within it, consonant harmonies most strongly, dissonant combinations less so. Dissonance often results from the collision of pairs of uninterpreted pitch series, sometimes together with an impulse to maintain equal uninterpreted durations (the tendency toward equilibrium).³⁸ A complete arpeggio strongly implies a harmony and is therefore much more interpreted than a stepwise succession.³⁹

The cantus firmus of strict counterpoint approximates the state of uninterpreted pitches, especially internally (i.e., except for the initial and final tonic notes).

- Tonal Hierarchy (TH): The fixed, pre-compositional materials of tonality (these can vary by style period). This includes the complete hierarchy of prescriptions or preferences of all vertical or horizontal relationships among pitches, including interval (i. e., consonance vs. dissonance), scale (diatonicism vs. chromaticism, modal elements), tonal centricity and overall unity.

At the level of Tonal Hierarchy, tones, intervals, and harmonies have fixed meanings. They can have contextual meaning only through the mediation of other elements. The fixed meanings are those of a particular listener (presumably the analyst employing the TPF model) prior to an interpretative hearing of a particular piece. Thus it is not possible or necessary for the tonal hierarchy to be specified for all cases, though one can usually

³⁸ See *FC*, § 261, Fig. 125.

³⁹ See Schenker, *Counterpoint*, vol. I, trans. by John Rothgeb and Jürgen Thym, ed., by John Rothgeb, (New York: Schirmer Books, 1987) p. 19.

assume a common practice drawn from Schenker's enhanced concept of *Stufentheorie* as presented in his *Harmonielehre*.⁴⁰

- **Tonal Structure:** Any contextually based pitch-structural interpretation applied to a particular musical passage. Unique contextual details ensure that a vast number of these are possible. Schenkerian analyses represent this element in this study, but other types of analysis could conceivably fulfill this condition also. This is distinguished from Tonal Hierarchy in that Tonal Structure is fundamentally a contextual hierarchy which exists as a particular hearing of a particular piece. Unlike the previous two elements, Tonal Structure has no independent existence and is the result of input from other TPF elements. To be sure, voice-leading schemata preexist in the mind of the listener-interpreter; in that sense, they belong to the element of tonal hierarchy (in the broad category of how tonality can be unfolded). However, the Tonal Structure of an individual piece is always a reconciliation of the particular and the general. This is to be distinguished from theories that rely on fixed categorization of musical elements and which are only weakly contextual.⁴¹

The interaction of these three tonal elements is relatively familiar. What is novel about this model is its frank acknowledgement of its interpretive stance. Tonal Structure is not assumed to be objectively inherent in a piece, but is rather the result of an informed listener's compromise

⁴⁰ *Harmony*, trans. by Elisabeth Mann Borgese, ed. and annot. by Oswald Jonas (Chicago: University of Chicago Press, 1954).

⁴¹ An example is the *Funktionstheorie* of Hugo Riemann, in which the three chordal functions are assigned precompositionally; within a C-major tonality, a C-major chord can only serve Tonic function, an E-minor chord can only serve as Tonic or Dominant, etc.

between the sensuous material of music and the intellectual constructs that categorize it. This opens a range of interpretations but also limits it. Leaving aside the temporal elements momentarily, Tonal Structure can be thought of as ranging along a spectrum between Uninterpreted Pitches and Tonal Hierarchy, flexibly responding to either but constrained by both.

Any of these pitch elements may interact fully with or result from any combination of temporal elements. Definitions follow.

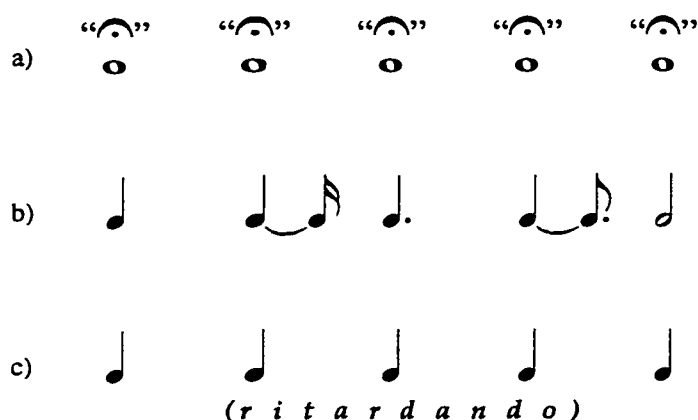
- **Uninterpreted Durations:** A series of durations perceived as purely temporal (in the strict sense) phenomena, i. e., durations uninterpreted by pitch,⁴² tonality or meter. Any division of time (musical or not) not measured by some other phenomenon would serve as an example; however, musical time is assumed to be a form of psychological time and thus subject to a non-literal flexibility. In this element, time is a continuous, undifferentiated fabric from which segments are marked out by ripples in the flow.

The extreme of neutrality is a series of durations completely unmeasured (or measurable only by an external chronometer), demarcated only a change in some audible parameter. Durations must of course be durations of *something*; this element addresses mental attendance to the purely durational aspect of musical events. Because these are in principle undifferentiated, equal durations represent the next level of neutrality (but still uninterpreted by a specific meter); this is one of the sources of the

⁴² An example of durations interpreted by pitch would be four quarter notes sounding four different pitches as opposed to all on a single pitch. This distinction is that made by Schachter between what he termed *tonal rhythm* and *durational rhythm* in "Rhythm and Linear Analysis: A Preliminary Study," pp. 313–16.

principle of equilibrium.⁴³ Roughly unequal durations are heard as approximately long or short; the tendency to relate them as if they were equal brings about an impression of temporal elongation or compression (as if equal spans were being traversed more slowly or quickly). Figure 2.5 illustrates: 2.5a shows undifferentiated durations; these are indicated by the notational device of a *quasi-fermata*, which suggests unmeasured time. Figure 2.5b notates a group of roughly unequal durations. A constant eighth is used only to notate the example and is not intended to be heard with exact precision. Figure 2.5c shows the elongation of tempo that allows the durations of level b to be heard as approximately equal.

Figure 2.5: Uninterpreted Durations



When durations differ too greatly to be heard as temporal elongations or compressions, the tendency to hear them as related by simple ratio obtains; at this point meter can be more readily inferred. Where meter is not clearly actualized, the possibility of hearing durations as uninterpreted allows even

⁴³ See Schenker, *Counterpoint*, vol. I, p. 18.

more greatly differentiated durations to be heard as elongations or compressions of each other.

The cantus firmus and first species of strict counterpoint approximate the condition of Uninterpreted Durations, as would any situation where meter is not clearly defined.⁴⁴

- Meter: a fixed yardstick by which groups of inferred pulses are measured with reference to a precompositionally regular standard. Meter is not an inherent property of the sounding material of music.⁴⁵ Thus, it is better described as the application to music of a regular framework by listeners/performers in a way not wholly determined by the music itself and dynamically adjusting to moment-by-moment context. For the purposes of this model, meter will be understood as in principle a fixed element preexistent to any particular hearing of any piece. This is in accord with the model of meter adopted here, which assumes a regular pulse grouped by another regular pulse.⁴⁶ As with the element of tonal hierarchy, stylistic norms dictate the range of possibilities (most likely duple or triple). Like the idea of centricity itself, regularity is perforce an a priori concept.

⁴⁴ An approach to rhythm involving similar assumptions has been adopted in the analysis of twentieth-century music where meter is minimally perceptible. See especially Elizabeth West Marvin, "The Perception of Rhythm in Non-Tonal Music: Rhythmic Contours in the Music of Edgard Varèse," *Music Theory Spectrum* 13/1 (Spring 1991) pp. 61–78. However, the analytical technique of this article employs relative distinctions among durations that often require rather fine discrimination among unmeasured durations.

⁴⁵ See Justin London, "Loud Rests and Other Strange Metric Phenomena (or, Meter as Heard)," *Music Theory Online* 0.2 (1993): 0-16. Also compare Lerdahl and Jackendoff: "Metrical accent...is a mental construct, inferred from but not identical to the patterns of accentuation at the musical surface;" in *A Generative Theory*, pp. 17.

⁴⁶ See Yeston, *Stratification*. pp. 65–7.

However the application of meter to a particular situation is a matter of inference and interpretation (and thus actually belongs under the element of Rhythmic Structure). That this is not obvious results from the identification of meter with the notated time signature. The time signature is, of course, frequently a reliable indicator of at least one level of metric organization. The time signature is also a *notational* device, without which music notation in the common practice period was considered to be non-syntactical (with rare exceptions). It is inherently unable to present the whole picture of possible metric inference and occasionally presents a completely misleading cue. Since the time signature carries with it little indication as to the actualization of meter, the performer is free to actualize that meter to any degree deemed suitable to a particular interpretation, including not at all; since the performer is simultaneously listener, the performer may also infer a metric organization different from the notated meter. For both listeners and performers, this could differ in the following ways: at a level higher or lower, with downbeats placed differently, or less regularly than the notated meter, as well as the entertaining of two simultaneous metric inferences in conflict with each other. All of these apply even more frequently to hypermeter, which is only rarely notated by the composer.

Metric hierarchy remains in principle a fixed element. Its application by inference is the first remove from this absolute extreme. A fully actualized metric scheme, with unambiguous attacks articulating every metric level, is

closest; an implied meter, where some beats are not attacked, represents greater interpretation, as well as conflict with uninterpreted durations.⁴⁷

Specific rhythmic impulses properly belong to the element of Rhythmic Structure. Meter also has an inherent sense of forward impulse; this is because it is cyclical and thus open-ended. (For pitch, the octave allows a return to the same “place”; the arrow of time makes every first beat a “new” one.) A downbeat has the greatest sense of closure after a higher-level metric scheme is brought to completion, e. g., after 4, 8, 16 or 32 beats or bars.⁴⁸

- Rhythmic Structure: Any contextually based temporal interpretation applied to a particular musical passage. This includes grouping at any level such as any formal segmentation from the motivic level to the complete movement. Besides division, it includes inferences of continuity such as rhythmic impulses toward a goal or even beginning, middle, and end as formal principles. As with Tonal Structure, Rhythmic Structure is always contextual and resultant. In practice, the listener approaches a piece with preconceptions about how grouping will occur (especially about form). However, these do not result from Metric Hierarchy as much as happens with Tonal Hierarchy. This suggests that the a priori schemata of Rhythmic Structure are fundamentally more contingent than those of Tonal Hierarchy;

⁴⁷ The terms implied meter and actualized meter were coined by William Caplin, based on distinctions made by Riepel, Koch, and Sechter, among others. See “Harmony and Meter in the Theories of Simon Sechter,” *Music Theory Spectrum* 2 (1980) pp. 74–89.

⁴⁸ The closure is strongest when a final tonic is placed on that downbeat. In TPF terms, this would be a coincidence of priorities of Metric Hierarchy and Tonal Hierarchy; see Table 2.2.

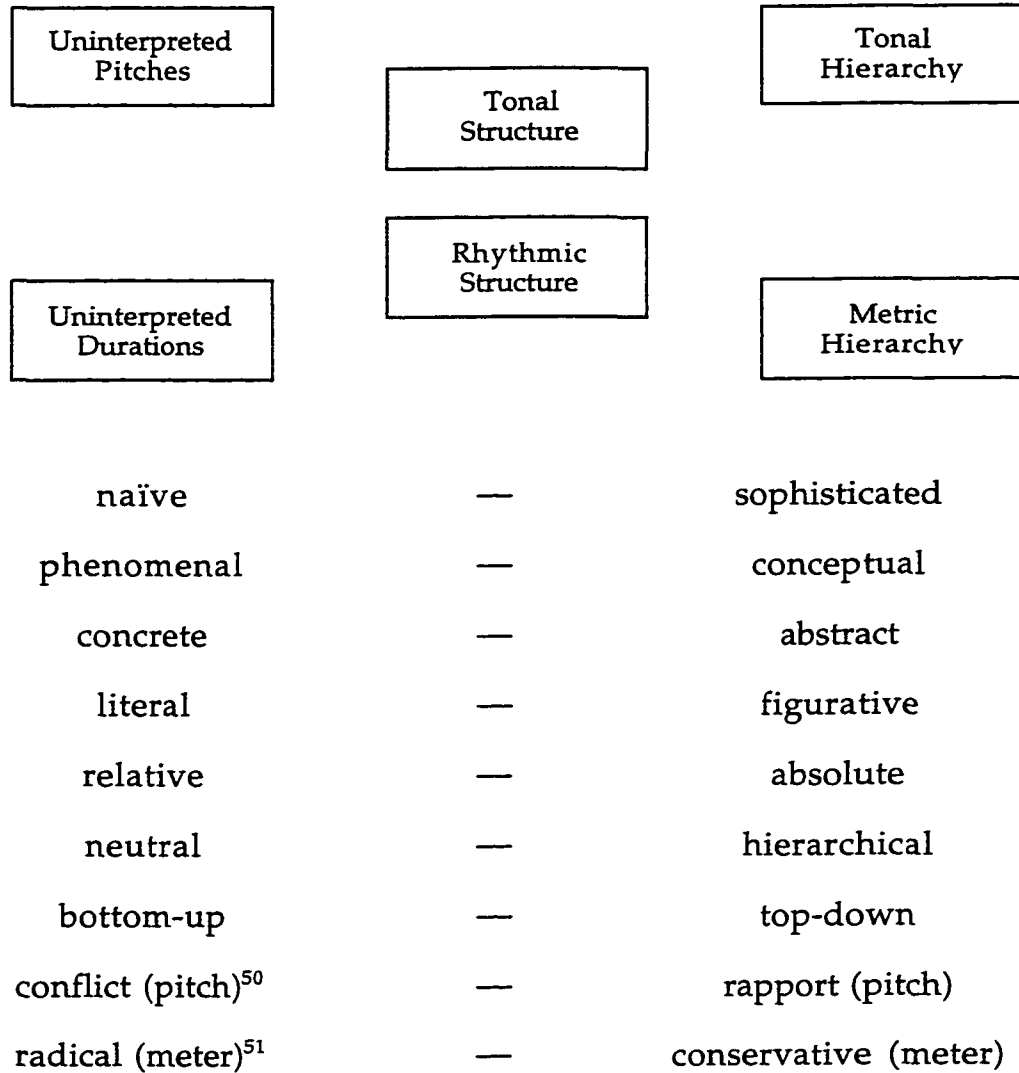
this may explain Schenker's approach to form, in that Tonal Structure always overrides formal design.⁴⁹

Though the preceding discussion segregated pitch and rhythm, the importance of this framework is that it assumes a necessary and inevitable relationship among tonal and temporal elements. This is done by postulating for each a parallel spectrum of interpretedness. Table 2.1 contrasts the characteristics that are shared by elements at the opposite extremes; structure is understood as a necessary blend of these opposites.

The elements of the TPF are in a constant state of tension between the two aspects pictured on opposing sides of the framework. What this means is that a listener attends to each element to a constantly varying degree and as a result gives weight to one over another, feels the contradiction between one and another more or less intensely, or experiences an ambiguous suspension of certainty as forces cancel themselves out. Interactions between elements of the framework can be reinforcing or conflicting, but the latter, called plasticity, is generally more interesting analytically. Before presenting these interactions more systematically, I will illustrate with a simple example to show how some common situations would be described using the TPF.

⁴⁹ FC, Sec. III, Chap. 5.

Table 2.1: The Temporal Plasticity Framework: vertical characteristics



⁵⁰ In Schoenberg's sense of challenges to the tonic; see *The Musical Idea and the Logic, Technique, and Art of its Presentation*, ed., trans., and with a commentary by Patricia Carpenter and Severine Neff (New York: Columbia University Press, 1995) pp. 62–3.

⁵¹ As characterized by Andrew Imbrie in "'Extra' Measures and Metrical Ambiguity in Beethoven," in *Beethoven Studies* (ed. Alan Tyson, New York: W. W. Norton, 1973) pp. 45–66.

Example 2.11 presents a score and a voice-leading sketch for the opening phrase of Beethoven's Op. 10 #1, 2nd movement. I will focus on interactions involving the note c^2 , which first appears as a dissonance in bar 1 (and is marked α). The fact that the implied suspension appears unprepared in its own register and sustained for three quarters of the beat highlights for consciousness the conflict between Tonal Hierarchy (consonance) and Metric Hierarchy (placement of consonance) on the one hand and Uninterpreted Pitch (hearing the c^2 as pure sonic experience) and Uninterpreted Durations (preferring more equal durations) on the other; Tonal Structure mediates between these by interpreting the tone as a suspension prepared by the previous chord (which requires Rhythmic Structure as well). The possible interpretation of c^2 as an appoggiatura gives greater weight to Uninterpreted Pitch and represents less interpretation, closer to the left side of the TPF. The reading is not determined by the TPF, but placement along the spectrum describes the characteristics of the analysis.

A deeper analytic choice is presented by the next occurrence of c^2 (marked β); despite its tonic harmonization, it can be heard as a neighboring embellishment to V, as shown in Example 2.11b.⁵² Such a reading is motivated by a parallel treatment to that of mm. 1–2. Thus the primary conflict is one where Rhythmic Structure (the parallel patterning) overrides Tonal Hierarchy (a root-position tonic chord) to produce a Tonal Structure that is supported by Metric Hierarchy.

⁵² This reading is identical to one presented by Allen Cadwallader and David Gagné, *Analysis of Tonal Music* (New York: Oxford University Press, 1998) pp. 175–182; but see Lester, *Rhythms*, pp. 184–6 for another opinion.

Example 2.11:

a) Beethoven, Op. 10 #1, 2nd mvt., mm. 1-8

b) voice-leading sketch

Of course so much theoretical framework is clearly unnecessary for such small events, but it points to principles that are relevant. All of these conflicts increase the quality of plasticity and what they underscore is that pitch and rhythm work to create the effect of a kind of temporal tension. This can be compared to the placid lack of plasticity audible in the c^2 in m. 5 (marked γ), where a long-held $\hat{3}$ profiled above a structural tonic coincides with the first bar of a four-bar group. Here all elements support each other.

A more complex situation is found at δ . Here the tonic chord is understood as consonant support for c^2 as a passing tone between db^2 and bb^2 . This reading is suggested by the chord's weak metrical position (Metric Hierarchy overrides Tonal Hierarchy). Related and perhaps more significant is the elongation of the IV^6 in m. 6; the cessation of measured activity, held across the bar line, suggests a fermata-like extension of the time-span of this chord. It is the Uninterpreted Duration *per se* that acts as an independent agent overriding both Tonal Hierarchy and Metric Hierarchy to result in a Tonal Structure connecting IV to V as shown. This can be illustrated by recomposing the passage to reduce the length of the elongated duration, as at Example 2.12a, in which a reading of the tonic as structural seems plausible. The even more curtailed IV at Example 2.12b makes this reading yet more convincing.

Of course duration is not the only factor here, but this is the point: all elements of the TPF can be understood to play a role. This description also recognizes the difference in phenomenological character of the various versions and draws analogies among them. The accented dissonance of m.1 is in a fundamental sense similar in effect to the antimetric elongation of m. 6. What is implicitly a part of the musical understanding is explicitly embodied in this model. In a sense it represents a hermeneutics of Schenkerian analysis, with its temporal bases drawn to the forefront.

Example 2.12: Recompositions of mm. 5–8

The image displays two musical recompositions, labeled 'a)' and 'b)', of measures 5 through 8. Both are written for piano in 4/4 time.
 Version 'a)' shows a treble staff with a complex, rhythmic melody consisting of eighth and sixteenth notes, some with beams, and several rests. The bass staff provides a steady accompaniment with chords and single notes.
 Version 'b)' shows a treble staff where the melody has been simplified to have equal durations for all notes, using mostly quarter and eighth notes. The bass staff accompaniment is very similar to version 'a)'.

The effect of the uninterpreted elements in this passage can be made clearer through a *plasticity analysis*. Example 2.13a reduces plasticity by equalizing durations in the upper voice; this brings Uninterpreted Durations to a more basic state of neutrality. However, the counterpointing series of Uninterpreted Pitches in the bass voice creates a longer duration that demands equalization, as shown in Example 2.13b. This demonstrates the tension between Uninterpreted Pitches and Uninterpreted Durations built into this passage. The issue here is related to Schenker's assertion that rhythm derives from counterpoint, but there is another aspect overlaid onto it in that the elongation in the actual piece is not a result of contrapuntal alignment.

Example 2.13: Plasticity Analysis of mm. 5–8

The image shows two musical staves, labeled 'a)' and 'b)', in G major (one sharp). Staff 'a)' shows a melodic line with eighth notes and a bass line with quarter notes. Staff 'b)' shows a similar melodic line but with a different rhythmic pattern, including a triplet of eighth notes. The notation is in treble clef with a key signature of one sharp (F#).

A simpler illustration of plasticity analysis can be drawn from the hermetically abstract laboratory of the species counterpoint.⁵³ Species achieves its value as a pedagogical tool by minimizing the degree of plasticity and introducing more of it in controlled stages. Fifth species allows the greatest opportunity for TPF interaction. Analysis of the following example suggests a number of operations that might create these interactions, among them elongation of a duration, skew from its more basic position and parenthetical interpolation.⁵⁴ The interactions that result are basic to strict counterpoint and require no further comment.

⁵³ Compare the approach to rhythm in species in Roger Graybill, "Phenomenal Accent and Meter in the Species Exercise," *In Theory Only* 11/1-2 (1989), pp. 11-43; see also the reply by John Rothgeb and the response by Graybill in 11/5, pp. 27-36.

⁵⁴ To a great extent elongation and skew are the reverse of the analytical technique of normalization. See Rothstein, "Rhythmic Displacement and Rhythmic Normalization," in *Trends in Schenkerian Research*, ed. by Allen Cadwallader (New York: Schirmer Books, 1990). Parentheses will be discussed in Chapter Four, on temporal planes.

imposing grouping on music (e.g., through prolongational spans, formal units, etc.); it is these groupings that coincide or conflict.

Once a structure has been inferred, neutrality and hierarchy once again come into play. Thus interactions could be heard at various levels of middleground or even background.⁵⁶

⁵⁶ See the example given in footnote 71 of the following table.

Table 2.2: Interactions in the Temporal Plasticity Framework: Tonal Elements as Actors

| ACTORS ⇒ ACTED UPON ↓ | Uninterpreted Pitches | Tonal Structure | Tonal Hierarchy |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Uninterpreted Pitches | — | Extracts series of pitches for inclusion at higher levels Example: middleground transformation levels | Tonal hierarchy determines meaning of pitches; Example: tritone locates tonic ⁵⁷ |
| Tonal Structure | Assert or displace underlying structure; Example of agreement: series of pitches outlines triad | — | Limits possible prolongations; Example: the <i>Ursatz</i> |
| Tonal Hierarchy | Fills or leaves gaps in tonal space. Example of conflict: implied tonic is omitted ⁵⁸ | Agrees with or modifies hierarchy; Example of conflict: “apparent” tonic | — |
| Uninterpreted Durations | Neutrality coincides or conflicts. Example: change of pitch interprets durations ⁵⁹ | Counterpoint creates relative durations; Example: balancing two lines of unequal numbers of pitches ⁶⁰ | Hierarchy suggests inequality of durations; Example: concluding tonic suggests extension ⁶¹ |
| Rhythmic Structure | Reinforces or overlaps rhythmic grouping; Example of conflict: phrase overlap | Prolongations coincide or conflict with groupings; Example of conflict: prolonged harmony overlaps sectional divide. ⁶² | Demarcates boundaries of grouping; Example: cadence marks end of phrase |
| Metric Hierarchy | Number of pitches coincides or conflicts with given meter or with duple hypermeter; Example of conflict: three tones generate three-bar group ⁶³ | Specifies or renders ambiguous metric placement; Example of conflict: harmonies overlap (hyper)beats ⁶⁴ | Hierarchies coincide or conflict. Example: tonic determines first bar of hypermeasure ⁶⁵ |

(Endnotes follow both tables.)

Table 2.3: Interactions in the Temporal Plasticity Framework: Temporal Elements as Actors

| ACTORS ⇒ ACTED UPON ↓ | Uninterpreted Durations | Rhythmic Structure | Metric Hierarchy |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Uninterpreted Pitches | Neutrality coincides or conflicts; Example of conflict: longer durations interpret pitches | Rhythmic patterning confers boundaries on a series of pitches; Example: upbeat phrasing ⁶⁶ | Metrical priority confers hierarchy on pitches; Example: Strong beats determine structural tones |
| Tonal Structure | Inequality of durations coincides or conflicts with structural superiority; Example: longer durations suggest greater structural significance ⁶⁷ | Groupings coincide or conflict; Example: slurs contradict tonal motion ⁶⁸ | Demarcates boundaries of prolongations; Example: suspensions, appoggiaturas, other accented dissonances ⁶⁹ |
| Tonal Hierarchy | Inequality of durations suggests location of hierarchy; Example: longer duration suggests tonal center ⁷⁰ | Groupings coincide or conflict with hierarchies; Example of conflict: non-tonic opening of group ⁷¹ | Hierarchies coincide or conflict; Example of conflict: weak placement of tonic ⁷² |
| Uninterpreted Durations | — | Groups durations into higher-level units; Example: rhythmic impulses group equal durations ⁷³ | Attributes accents and specific lengths to durations ⁷⁴ ; Example: tempo fluctuation understood as regular pulse ⁷⁵ |
| Rhythmic Structure | Inequality of durations suggests grouping; Example: longer durations define groups ⁷⁶ | — | Duple ordering determines temporal segmentation; Example: final empty bar ⁷⁷ |
| Metric Hierarchy | Actualizes or implies a metric scheme; Example of conflict: Long durations suggest suspension of meter ⁷⁸ | Grouping coincides with or overrides metric units; Examples of conflict: upbeat as contradiction to metric scheme ⁷⁹ | — |

⁵⁷ Also see the tendency in minor to gravitate toward III; as a counterexample, cf. Schenker's discussion of parallel fifths, *FC*, § 161, Figs. 51 and 52, where a pair of uninterpreted pitch series doubled in perfect fifths do not allow a tonal center to be determined.

⁵⁸ As in the opening *unisono* of Beethoven, Symphony No. 5, 1st mvt; compare the opening of Symphony No. 9, 1st mvt., whose empty open fifth is only partially interpreted.

⁵⁹ Cf. Schachter's tonal rhythm, "Rhythm and Linear Analysis: A Preliminary Study." *The Music Forum*, IV, (1976) pp. 313–15.

⁶⁰ See previous discussions of Schenker's "origin of rhythm in counterpoint," pp. 19–21.

⁶¹ *FC*, Fig. 138, 3, where an extended final tonic harmony modifies the five-bar rhythmic structure.

⁶² Cf. Schenker's concept of form, *FC*, Sec. III, Chap. 5, whose weakness is clearly that tonal structure always overrides any of the temporal segmentations covered under the element of rhythmic structure. In this respect, followers of Schenker have largely adopted a practice closer in spirit to the model given in the TPF.

⁶³ Cf. *Meisterwerk* II, pp. 86–7, on Mozart, K. 550, 3rd mvt, mm. 1–3

⁶⁴ *FC*, Fig. 146, 4; the opening of Beethoven, Op. 74, 1st mvt.

⁶⁵ *FC*, Figs. 147, 4; 149, 3. See also Fig. 146, 5 where the dominant determines a first bar.

⁶⁶ As often applied to Bach.

⁶⁷ Cf. Op. 10 #1, 2nd mvt, mm. 6–7, analyzed below.

⁶⁸ *FC*, Fig. 128 et al.

⁶⁹ See also Fig. 63, 1 where the metric scheme alone allows a change of harmony to be inferred.

⁷⁰ See the opening of the Overture to *Coriolanus*, Op. 62, where the octave Cs suggest tonic because of their long duration (also because of their priority, i.e., uninterpreted pitches suggest tonal hierarchy). The IV chord that follows is brief but highly interpreted (because it is a full chord); the high degree of conflict (plasticity) is programmatic.

⁷¹ Especially when this does not coincide with a metric downbeat; see Mozart, K. 515, 2nd mvt (analyzed below) where the upbeat implies dominant harmony.

⁷² *FC*, Fig. 137, 1 ("the triumph of absolute meter").

⁷³ *FC*, Fig. 140, 4 (as already noted); phrase rhythm is relevant here but also includes the influence of tonal structure (see Rothstein).

⁷⁴ See also the concept of *quantitas intrinseca*, which assigns an inherently longer (conceptual?) value to durations falling on strong beats. George Barth argues for its relevancy in performance practice as late as Beethoven, in *The Pianist as Orator* (Ithaca: Cornell University Press, 1992).

⁷⁵ See Joel Lester, "Beats mark off functionally equivalent spans of time," (ital. orig.); in *The Rhythms of Tonal Music*, p. 46.

⁷⁶ Cf. Lerdahl and Jackendoff's application of *Gestalt* psychology principles to music in *A Generative Theory*, pp. 40–43.

⁷⁷ As when a whole bar of rest is placed at the end of the movement to complete the duple hypermetric scheme and thus to include silence in the rhythmic grouping even when no elements remain to be grouped. For examples among Beethoven's Piano Sonatas, see Op. 2, #2, 1st mvt; Op. 7, 1st mvt; Op. 10, 1st mvt; Op. 10 #2, 2nd & 3rd mvt; Op. 10 #3, 1st mvt; Op. 13, 1st mvt; Op. 14 #1, 2nd mvt; Op. 14 #2, 3rd mvt; Op. 28, 1st & 3rd mvt; Op. 31/, 1st & 3rd mvt.

⁷⁸ Cf. expansion at hypermetric level; elongation at other metric levels; see the discussion in the following section.

⁷⁹ *FC* §§ 295–6, Figs. 146, 147.

2.3: Resumption of Schenker on Meter and Rhythm

Having introduced the Temporal Plasticity Framework as a model both derived from and expanding Schenker's observations on rhythm, I will return to Chapter 4 of *Free Composition*, especially in order to compare plasticity with the important concept of expansion. Section 4, entitled "Antimetric Rhythmic Situations," contains a diverse group of techniques that can now be understood as interactions overriding Metric Hierarchy.⁸⁰ Some of these can be treated briefly:

§ 292, "The rhythmic shift as a means of evening out metric values": This overlaps in content with § 291. An abrupt change of rhythmic values is avoided by a rhythmic shift that introduces syncopations against the meter or hypermeter. The preference for equilibrium stems from the tendency of Uninterpreted Durations to maintain neutrality (i. e., evenness); in this case, that tendency conflicts with Metric Hierarchy.

§ 293, "The hemiola": This is a familiar conflict with an established metric pattern; this might occur for a number of reasons.⁸¹ Both examples given by Schenker show an upper-voice string of Uninterpreted Pitches whose even (neutral) durations determine the hemiola.⁸²

⁸⁰ FC, §§292–300, pp. 122–7.

⁸¹ See Channan Willner, "The Two-Length Bar Revisited: Handel and the Hemiola," *Göttinger Händel-Beiträge* 4 (1991), pp. 209–212.

⁸² Fig. 144, 1 allows for another level of explanation in that the maintenance of a four-bar hypermeter characteristic of Baroque dance forms acts as a constraint at a higher level: the final four bars of the sarabande must accommodate six Uninterpreted Pitches at a slightly deeper level (i.e., $a^1-b^{\sharp 1}-c^{\sharp 2}-d^2-e^2-d^2$). Fig. 144, 2 is less strongly determined by a four-bar context. (M. 67, which begins the hemiola, is a reinterpretation of the fourth bar of the

§ 294, "The rhythmic shift as anticipation": Here more than usual, Schenker's language of conflict is especially vivid:

What strongly distinguishes the rhythmic shift from the syncopation is the rhythmic shift's almost violent intrusion into the subdivision of the measure. (§ 294)

Clearly, the distinction is one of degree, not of kind; greater plasticity comes into being when the conflict goes beyond the elements of uninterpreted durations contradicting meter to involve other elements in a significant way. In the first example, from the fourth movement of Chopin's Sonata in B \flat minor, Op. 35, the very brief final A \flat in m. 14 is singled out for expressive significance (convincingly, I believe). The anticipation of the following harmony has especial power because it not only contradicts the meter (the unmarked, ubiquitous sense of anticipation), but also because it contradicts the previous patterning (Rhythmic Structure). The final tone in mm. 12-3 is a passing tone and m. 14 is a sequential repetition of m. 13. There is a dizzying vertigo as the anticipatory A \flat sets off the most drastic change of surface pattern thus far in the movement. The sense is that the music veers off precipitously towards the relative major, through its dominant. This occurs because sequential repetition would lead us to expect that, like the neighboring G \flat which becomes a passing F \sharp , the A \flat should become a passing G \sharp . Doing so would at least divert from the goal of tonicizing D \flat major. Nonetheless it is the lone A \flat that takes on the purposeful role of actor, whose

previous group as a strong first bar.) The slurs in Schenker's example are not those of the Breitkopf & Härtel *Gesamtausgabe*.

rhythmic shift will eventually serve the long-range tonal goal (Tonal Hierarchy).

The second example for § 294 finds Schenker explicitly evoking parallelism as the source of the rhythmic shift; it is clear enough to require no further comment.

§ 295, “The upbeat” and §296 “Heightening of the conflict between rhythm and meter”: This section presents a perhaps truly unique idea in Schenker’s approach to rhythm: that an upbeat of any sort presents an automatic conflict with meter, which might then need resolution within the composition. More than a dozen examples testify to the importance that Schenker placed on this idea. Many of these do not do more than point to the outlines of an analysis; however, some of the analytical issues raised in these examples have been taken up by others.⁸³ Nonetheless, what has not been addressed is the central rationale behind Schenker’s assertion: durational values that are not enclosed within the metric frame are in contradiction with that meter. I would claim that this stance almost necessarily entails some sort of conflict model like that of the Temporal Plasticity Framework. The model specifies that plasticity occurs if Uninterpreted Durations are not completely coincident with the Metric Hierarchy. The quantitative nature of plasticity is evident in Schenker’s assertion that the conflict, i.e., the plasticity,

⁸³ See Roger Kamien, “Conflicting Metrical Patterns in Accompaniment and Melody in Works by Mozart and Beethoven; A Preliminary Study,” *Journal of Music Theory* 37 (1993) pp. 311–48; also see William Rothstein, “Beethoven with and without *Kunstgepräg*’: Metrical Ambiguity Reconsidered,” in James Webster and Glenn Stanley, eds. *Beethoven Forum* (Lincoln: University of Nebraska Press, 1995) pp. 165–93.

is increased when it is extended to the full measure, i.e., hypermetric level (see § 296). There is even a suggestion that pitch is implicated in this conflict in Schenker's statement that in some examples, "the upbeat, too, is supported harmonically, as if it were a downbeat." (§ 295)⁸⁴

§ 297, "Expansion": This concept is one of Schenker's most important and most characteristic contributions to the analysis of rhythm in tonal music. It overtly introduces something qualitatively different into the characterization of musical time. Descriptions of phrase expansion have both historical antecedents and formulations contemporary with Schenker's own, but none of these have such a clear interdependence with tonal structure. Indeed it is clear that rhythmic expansion in Schenker's sense is not intelligible without a theory of structural levels and prolongation.

From the viewpoint of the Temporal Plasticity Framework, rhythmic expansion presents a very active intrusion of pure duration into the absolute territory of meter; durational enlargement of the underlying Tonal Structure reveals a Rhythmic Structure in which meter must be understood as malleable, as overridden by uninterpreted Durations. The TPF suggests two other strong claims about Schenker's concept of expansion:

- 1) Despite Schenker's limited application of this concept, expansion is not clearly bounded. Durational elongation that affects phrase length is not qualitatively different from any other lengthening or shortening of durations that results in a conflict with metric hierarchy. Expansion will come to be seen as a special case of a

⁸⁴ This applies to Figure 146, Exx. 1, 3, 4.

more general process for which elongation or compression will be used as the more general terms (the latter instead of contraction).

- 2) The TPF postulates a fundamental relation between pitch and rhythm. It will therefore be possible to clarify the concept of expansion by understanding it as a temporal analogy to prolongation. Even though the latter is surely more general of application, the analogy may serve to define expansion more clearly.

These two points will require a detailed examination of expansion.

As a rule, Schenker tends to invoke expansion only in situations where a duple grouping of measures (at all levels) is impossible, or at least implausible, and then only in a subset of these cases.⁸⁵ However, Schenker gives no explicit definition of expansion. Indeed his exposition of the subject has more to say about what an expansion is not than what it is:

The concept of expansion does not include those 6-, 10-, and 12-measure groups which serve a diminution organically. Nor does it include the kind of measure-insertion which accompanies the repetition of upbeat forms. These phenomena, with their particular origins, belong in their own categories (§§ 287, 295). In contrast to these, an expansion follows from one or more measures of a metric prototype. There must be an

⁸⁵ An exception might be the analysis of the WTC I, Prelude I which appears in *Five Graphic Analyses* New York: Dover Publications, 1969). Because it is the *first* four bars that are labeled *Dehnung*, there is no prior duple context from which these bars depart.

organic relationship. Despite the fact that prototype and derivation follow one another in direct succession, their relationship can be recognized only from the middleground and background. Such recognitions are doubly difficult, for one must also be aware of the special laws which govern an expansion and mold it into a self-contained organism. All theories of meter err when they fail to recognize such expansions and simply trot along in the established metric scheme. (§ 279)

In order to examine more closely what Schenker meant by expansion, it will be useful to examine one of the clearer examples discussed within § 297, Mozart's Symphony No. 35, K. 385, movement II, mm. 5–33. Since the complete exposition spans thirty-five bars, a bar-grouping analysis based on duple units is guaranteed to require more than just "trotting along in the established metric scheme." Schenker's analysis is given in Example 2.15.

Example 2.15: FC, Fig. 148, 1; Mozart, Symphony # 35, 2nd mvt., mm. 5–33
(© 1935 Universal Edition A. G. Wien and by permission of the Estate of Ernst Oster)

The image shows a musical score for Mozart's Symphony No. 35, 2nd movement, measures 5-33. The score is written in G major and 4/4 time. It features a piano accompaniment and a melodic line. Above the score, there are several annotations indicating Schenkerian analysis. A large 'X' is placed above the first measure, with a bracket labeled '(expansion)' underneath it, and the numbers 1, 2, 3, 4 below the bracket. A large 'y' is placed above the second measure, with a bracket labeled '(expansion)' underneath it, and the numbers 1, 2, 3, 4 below the bracket. A large 'Z' is placed above the third measure, with a bracket labeled '(expansion)' underneath it, and the numbers 1, 2, 3, 4 below the bracket. There are also smaller annotations like '(?)' and '(?)' above the score, and a '1' above the first measure. The score itself shows a complex melodic line with many notes and rests, and a piano accompaniment with chords and moving lines.

Schenker's commentary is as follows:

The approach to as the $\hat{2}$ of the movement (see Fig. 124, 5b) takes up two 4-measure groups. The last measure of the second 4-measure group, which contains the a^1 , is expanded by a play of neighboring notes. This is combined with an octave coupling that serves to bring the fifth-progression descending from the $\hat{2}$ into the higher octave (see a^2-d^2 in mm. 18–33).⁸⁶

[§ 297]

This analysis has been cited as an unproblematic example of expansion.⁸⁷ Schenker identifies three instances of expansion in this analysis, which I have labeled x , y , and z . The latter two, y and z , are particularly clear. Both of these together satisfy two of Schenker's simplest criteria for expansion: they have what Rothstein has called a foreground prototype, and they occur within a non-duple group.⁸⁸ These criteria are related. Expansions y and z take place within a group of seven bars (mm. 26–32⁸⁹) that are a varied

⁸⁶ This sub-paragraph concludes, "Concerning the organic relationships within the diminutions here, see §§253 ff." These paragraphs concern "the achievement of organic relationship in genuine diminution." The commentary to Fig. 124, 5b occurs within this section and states, "...the richness of the rhythmically elaborate detour to the third, b^1 , in measure 4, and of the following embellished descent from e^2 to a a^1 gives the effect—despite the small number of measures—of symphonic breadth, of a true Andante."

⁸⁷ Rothstein, "Rhythm" pp. 154–5. Rothstein uses the term extension for expansions that occur at the ends of phrases, as in mm. 12–16 of this piece. The entire movement is analyzed in "Rhythm" pp. 243–65, incorporating Schenker's analysis.

⁸⁸ Rothstein, "Rhythm" pp. 152–161.

⁸⁹This is the grouping as indicated by Schenker in the example; he makes no specific reference to the number of measures involved.

repetition of musical material that previously occupied four bars (mm. 22–25). Thus this is an instance where “prototype and derivation follow one another in direct succession,” but where “their relationship can be recognized only from the middleground and background.” This can be clearly explicated by a simple vertical juxtaposition of prototype and derivation as given below in Example 2.16.

Example 2.16: Mozart, Symphony No. 35, 2nd mvt., mm. 22–33;
expansion of a foreground prototype

Prototype

Expanded derivation

D: I^6 IV $V^6 = \frac{5}{3}$

I^6 IV⁵ — 6 — $\sharp IV^{\flat 7}$ $V^6 = \frac{7}{3}$ I

However, it is reasonable to ask whether it is only the comparison with the prototype that confirms the presence of expansion. A productive way to examine this question would be to imagine whether and how one would hear the expansions if the four-bar prototype (mm. 22–25) did not exist. Expansion *y* would still be easy to recognize: mm. 28–30 contain largely athematic figuration, prolonging the outer-voice framework $G-b^2$, and thus can be understood as an elongation of an essentially static content, albeit with two changes in registral position for the upper voice and some prolonging alteration to the underlying IV harmony, which are indicated in Example 2.16. In addition, and not incidentally, this expanded IV fills a three-bar segment, the odd numbering of which already evokes one of Schenker's criteria for expansion. Furthermore, the third bar of this segment is less articulated than the first two: the bass of m. 30 is tied and the harmonic content is identical to the previous bar. This increases the effect that at least the third bar participates in an expansion.

This very criterion makes expansion *z* less obvious, since it occupies two bars (mm. 31–32). Schenker understands these to expand the content of m. 25, the fourth bar of the prototype. Whether that content represents one harmony or two is problematic, since the $V_4^6 \text{---} \frac{5}{3}$ can be understood to represent only the *V Stufe*. On the other hand the 6/4 can serve to support an essential element of the upper voice, as is the case here, where $f\#^2$ is an element in a descending fifth-progression from a^2 to d^2 . Again imagining the prototype did not exist, one could still perceive in mm. 31–32 characteristics that might lead one to infer an expansion of content. This is especially evident in comparison to the preceding four-bar group, mm. 18–21, where the harmonic rhythm is

four times faster,⁹⁰ the surface rhythm of all parts is more agitated, and the melodic activity is both more active and more periodic (the first violin excepted).

Thus even if no foreground prototype existed, expansions *y* and *z* share characteristics that set them apart from their surroundings. It is also clear that middleground prototypes alone do not provide sufficient information to recognize an expansion. This is especially true given that the increase of content is fundamental to the progression of levels toward the surface:⁹¹ Very little of this increase will result in metric expansion: it is only when middleground content is metricized and when some of that content recognizably conflicts with the metric hierarchy that expansion may exist.

It is also clear that this conflict involves more than simply exceeding the frame of duple hypermeter. This suggests a further interpretation of the passage in question. All of the expansive characteristics found in mm. 28–32 could be applied to mm. 22–23 and their embellished repetition in mm. 26–27; these latter two are the first two bars of both the foreground prototype and the expanded derivation in Schenker's analysis. Like expansion *z*, these bars contain a fourfold augmentation of the harmonic rhythm, a sudden cessation of melodic activity, and athematic figuration that in this case effects a double-octave transfer. (Significantly, the following double-octave transfer in m. 24 is accomplished within one bar; see below, Example 2.18d) In addition the *forte*

⁹⁰ Assuming that mm. 31–32 represent a single harmony, the *V Stufe*.

⁹¹ As Rothstein has put it: "Since the evolution of a composition from background to foreground is a process of continual expansion, it is only to be expected that most of the voice-leading transformations of the middleground serve this process, whether directly or indirectly," in "Rhythm" p. 150.

gesture in the first part arrives as a culmination of a series of loose melodic motives that begin with the slurred rising third in m. 1.⁹² The rising third of m. 22 suddenly slows the process in a somewhat grandiose *ritenuto*, as shown in Example 2.17.

Example 2.17: Mozart, Symphony # 35, 2nd mvt., mm. 22–33; a motivic process in the exposition

⁹² Schenker takes notes of the unusual articulation of this third in FC, § 273, Fig. 128, 2d.

The sudden elongation of the underlying harmony makes it conceivable to treat mm. 22–23 as if they represented the same process as the expansions cited by Schenker, even though this segment initiates a clear four-bar group (mm. 22–25). Because of this lack of irregularity in the surface grouping, one cannot as easily understand the two bars in question as representing a single bar of some prototype. It is nonetheless possible to hypothesize a model in which this passage would appear in unexpanded form, albeit at a deeper level of abstraction than was required for expansions *y* and *z*. This possibility is explicated in Example 2.18.

Example 2.18a realizes in simple form the fifth progression a^2-d^2 that governs the upper voice in Schenker's reading. (The final d^2 is actually achieved in m. 33 after an interruption of the line at e^2 in m. 25.) Because the five tones of the upper voice are counterpointed by four bass tones, some compromise is required, in this case that the $f\#^2$ and e^2 take place as a cadential six-four and its resolution over *V*. (It is possible to hypothesize a model in which the five upper-voice tones are equal in length, thus filling five bars. This step would be conceptually prior to level *a* and has been omitted from the present discussion for simplicity's sake.) This yields a four-bar model which can be felt as metric, but it does so by attaching a tonic conclusion not present in mm. 22–26. This is justified in part by Schenker's dictum that "Unless there are rhythmic demands to the contrary..., every metric scheme is capable of enclosing the cadence within itself in such a way that the *I* appears in the final unaccented measure of the measure group."⁹³

⁹³ FC, § 288. Schenker includes a reference to §296, which concerns "Heightening of the conflict between rhythm and meter."

Thus, Example 2.18a represents a kind of abstract potential. Example 2.18b shows an elongation of the first harmony to two bars; these represent Schenker's "rhythmic demands to the contrary" of meter. The effect of this elongation is to shift the tonic conclusion outside of the four-bar group so that it falls on a strong beat, which occurs in m. 33 after the varied repetition of this group. Example 2.18c and d elaborate in accord with Schenker's analysis.

Example 2.18: Mozart, Symphony # 35, 2nd mvt., mm. 22–25; a plasticity analysis

The image displays four musical staves, labeled a, b, c, and d, each representing a different plasticity analysis of the same musical passage from Mozart's Symphony # 35, 2nd movement, measures 22-25. Each staff is a grand staff with a treble and bass clef, and a key signature of one sharp (F#).

- Staff a:** Shows the original notation for measures 1, 2, 3, and 4. The notes are: Treble clef: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter); Bass clef: F#3 (half), G3 (half).
- Staff b:** Shows an 'elongation' bracket over measures 1 and 2. A note to the right states: 'tonic conclusion shifted to next hyperdownbeat'. The notes are: Treble clef: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter); Bass clef: F#3 (half), G3 (half).
- Staff c:** Shows an 'elongation' bracket over measures 2 and 3. The notes are: Treble clef: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter); Bass clef: F#3 (half), G3 (half).
- Staff d:** Shows an 'elongation' bracket over measures 3 and 4. The notes are: Treble clef: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter); Bass clef: F#3 (half), G3 (half).

There is an aspect of this model that represents a significant difference from Schenker's explanations of expansions y and z . Because there is no

concluding tonic immediately following m. 25, Example 2.18a is not a reductional model of the piece, but a hypothetical model of what might have occurred. By removing the elongated element the model shows a type of plasticity analysis that clearly overlaps with expansion but that can be distinguished from it. It is not a requirement of this sort of model that it fill regular bar-groups; it might show, for instance, that an elongation was exploited to fill out a four-bar group, setting in relief the conflict between Uninterpreted Duration and Metric Hierarchy.

Moreover, the model includes a tonic conclusion not to arbitrarily create a four-bar group but to capture a specific aspect of the passage, that is the inconclusiveness of m. 25. Though there is definitely an interruption in every sense in which Schenker used the term, m. 25 nonetheless does not exhibit the rhetorical pause of a half cadence: it is clearly about to achieve a perfect authentic cadence, anticipating \hat{i} on the very last thirty-second note of the bar.⁹⁴ I would argue that there is a palpable sense in which the tonic that acts as a conclusion has been pushed past the horizon of the four-bar group with which it belongs.

The foregoing analysis has suggested that, absent the requirement of departure from duple hypermeter, expansion reveals itself as a type of plasticity. Elongation, a term I will use for the broader phenomenon, is a common and significant element that participates in the same sort of tension against meter that expansion does.

⁹⁴ Rothstein regards the ensuing expanded repetition as an interpolation, commenting that, "The interpolative, disruptive character of mm. 26–32 is emphasized by the thirty-second-

Expansion can also involve a more complicated relationship with meter. Returning to Schenker's analysis in Example 2.15, we can observe that expansion x has additional analytic notation to indicate that the fourth bar of the hypermeasure beginning in m. 9 is expanded in such a manner as to create within it a four-bar group. In effect, this four-bar group is part of a different structural level enclosed within the expanded fourth beat of the main hypermeasure in mm. 9–12. The essentially static alternation of a^1 with its neighbor b^1 , over a dominant pedal, creates the Uninterpreted Duration that overrides the main hypermeter. The patterning created by the near-exact repetition of mm. 12–13 in mm. 14–15 is a Rhythmic Structure that enlists Metric Hierarchy at a lower level. The sense of conflict reemerges in another way, between the agitated and periodic melodic activity on the one hand and the cessation of harmonic progress as the phrase trails off on the other.

In all cases of elongation and expansion, some span of time is understood to represent some briefer span of time as its more fundamental content. In the case of expansion, the basic time span is almost always a duple hypermeter or at least a complete bar. In the case of elongation, the briefer time span may be loosely specified or even indeterminate, since it does not reduce to a predetermined metric hierarchy. (Examples more clearly of this type will be seen later.) In both situations, the process of understanding is directly analogous to the way in which a rich tonal content may be understood as representing a simpler content at a deeper level. Reduction to a

note anticipation at the end of m. 25, which points so strongly toward the expected cadence." "Rhythm" p. 256.

prolonged harmony is essentially the same sort of mechanism as reduction of an expanded phrase to a simpler model (at least in Schenker's practice).

The Temporal Plasticity Framework helps to make this clear. By definition, prolongation is a subset of Tonal Structure and elongation is a subset of Rhythmic Structure; these two are the corresponding pitch/time elements along the central axis of the framework. There is a more specific symmetry not evident in the framework. From a top-down perspective, one can view pitch and time as inversely proportional. That the composing-out of a deeper-level harmony marks out deeper level time spans is of course the basis of durational reduction across larger spans of music: thus a single prolonged harmony might be understood to encompass 16 bars.⁹⁵ As this harmony is elaborated through *Auskomponierung*, the time span will remain fixed, but the pitch material will increase in content. With elongation, an unprolonged harmony might be stretched out beyond its expected length; thus the pitch material is fixed, but the time span increases in content. Both prolongation and elongation reveal themselves as a kind of compromise between pure phenomena and pure interpretation within the conflict model of the TPF. Indeed, characterizing prolongation as embodying conflict with the surface is arguably in accord with Schenker's sense of the tension that linear progressions engender.⁹⁶

⁹⁵ See Schachter, "Rhythm and Linear Analysis: Durational Reduction," and Rothstein, "Rhythm and the Theory of Structural Levels," esp. pp. 206–65.

⁹⁶ See Richard Cohn, "Schenker's Theory, Schenkerian Theory: Pure Unity or Constructive Conflict?" *Indiana Theory Review* 13 (1992). To be sure, the conflict created by prolongation would constitute an unmarked plasticity, since it is ubiquitous.

§ 298, "Reinterpretation of Metric Values": This is almost always a matter of foreground patterning (Rhythmic Structure) overwhelming Metric Hierarchy by asserting a beginning (hyper)downbeat in defiance of the prevailing pattern. Patterning comes into play either by preference for parallel treatment or by recognizing a pattern that is clearly a beginning (on stylistic grounds). The nature of this interaction is strongly suggested by Schenker's noting that "rhythm and meter {might} interact [to] serve absolute diminution." (This recalls his invocation of "the triumph of absolute meter.") This technique does not require special discussion.⁹⁷

⁹⁷ Example 149, 3 has already been touched upon.

2.4: Analytical Application of the Temporal Plasticity Framework

This section will apply some of the principles of the temporal plasticity framework to the analysis of complete pieces in order to illustrate interactions in more complex situations. As already suggested, the TPF can be cumbersome as an analytical tool. Its main purpose is to provide a theoretical background to the analyses of plasticity that inform the approach to rhythm and time presented here. Nonetheless, if the conflicts made apparent by the TPF are cogent parts of musical experience, it should be possible to derive analytical insight from the exercise. There is thus a dual purpose to this section: to demonstrate the workings of the TPF in the abstract and to suggest how these might influence one's hearing of an entire piece.

Mozart, String Quintet in C Major, K. 515/ii, Menuetto

The first ten bars of this movement present an understated pair of phrases that act as a sort of cantus firmus for the whole minuet. An unbalanced antecedent-consequent pair (4 + 6 bars), they are subtly unbalanced in other ways as well. Since the movement is based on varied repetitions of the opening period, elements of the unbalance pervade the whole. Example 2.19 gives the score of the complete minuet.

Example 2.19: Mozart, String Quintet in C major, K. 515, 2nd mvt.

MENUETTO.
Allegretto.

5 10 15

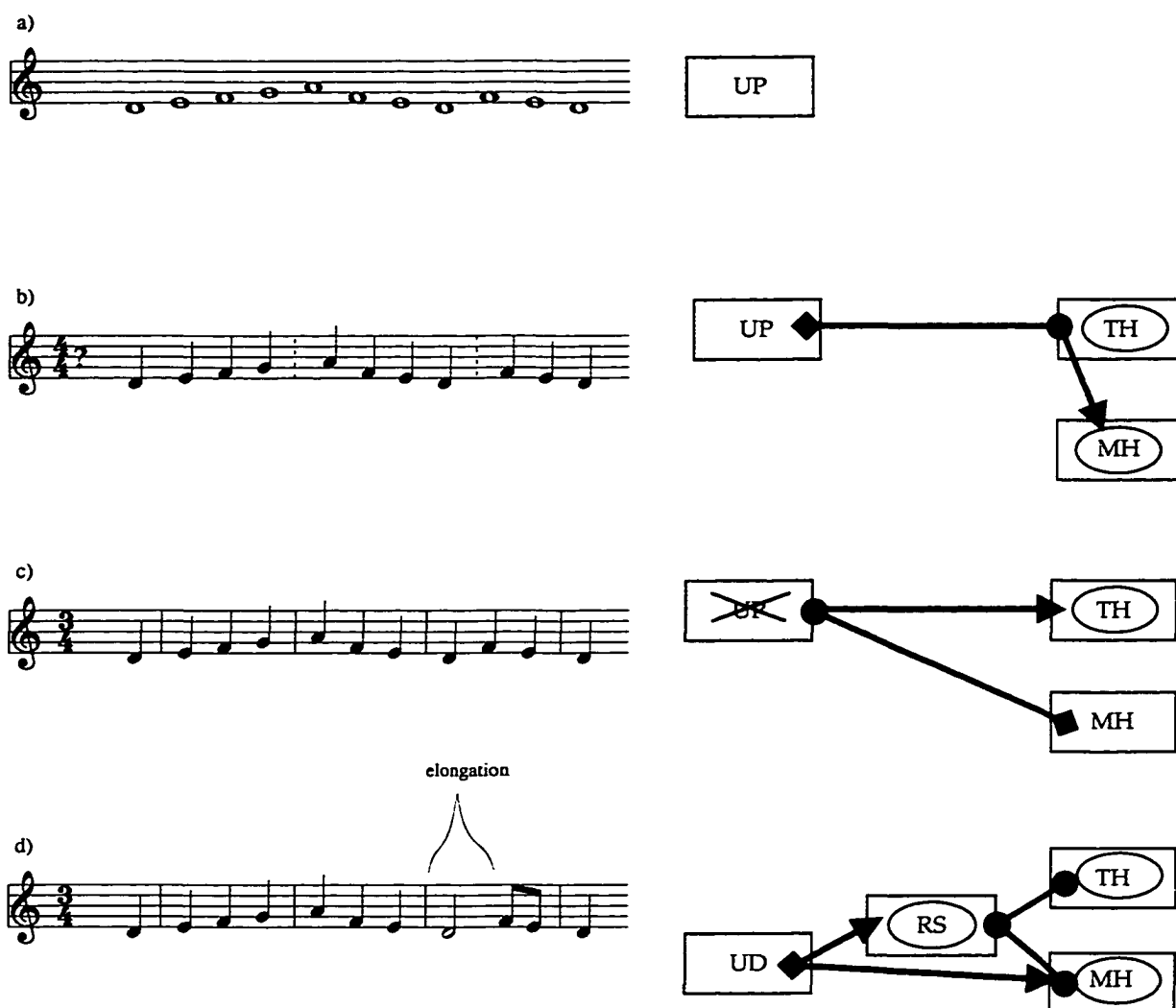
20 25 30

35 40 45

A detailed plasticity analysis could begin by considering in isolation the upper voice of the antecedent. In keeping with its character of unassuming simplicity, the first phrase contains only unmarked plasticity. Nonetheless, subtle conflicts within it have direct consequences on the following phrase and on the subsequent course of the piece. Example 2.20a begins by extracting the pitches of Violin I, mm. 0³–4¹ and regarding them as a series of uninterpreted pitches (UP). This display immediately suggests an interpretation by the tonal hierarchy (TH): The initial, final, and peak tones, as well as the leaps suggest a tonal center of D. Example 2.20b shows that the D-minor implication conflicts least with an interpretation in 4/4. Meter forcefully reasserts itself in Example 2.20c: imposing a 3/4 meter on the string on uninterpreted pitches results in a clear delineation of C major (the actual key of the piece).

Examples 2.20a and b reveal tensions within the phrase at a very *sub rosa* level. It might seem artificial to hypothesize these at all, but two factors support the exercise. First, in a way unusual in the Classical style, the single slur in mm. 1-2 bridges across the first two bar lines, with no accompanimental articulation. Thus the bar lines are expressed by the performer through dynamic nuance or remain ambiguous. It is not that a real implication of 4/4 remains, but the sense that the meter is in a sort of conflict with the tonal material has some tangible reality. Second, the D-minor implication is also barely present in the opening, but the sense that the tones D, F, and A are seeking realization as a harmonic unit does play a part in the subsequent development of the piece. I will return to this point for demonstration presently.

Example 2.20: Mozart, K. 515, 2nd mvt., unmarked plasticity in the first phrase



Before proceeding with this analysis, I will call attention to the plasticity diagrams on the right of Example 2.20. Plasticity diagrams are used to specify interactions among TPF elements. Arrows beginning with a diamond shape issue from the element that is the primary actor, circular nodes pass through other elements that are acted upon, and concluding arrows point to the element that is

most strongly acted upon. (Some interactions will involve more than one initiating or concluding element.) Elements are circled to show agreement or coincidence with the primary actor, which may enlist the support of the circled element in producing its plastic effect. Elements are crossed out to indicate disagreement or conflict with the primary actor, which may override that element's basic tendency partially or entirely. The diagrams do not show the degree of plasticity, which must be understood from the context. Diagrams are useful in singling out the salient effect of one or two elements on the others, symbolized by the single direction of the arrow; in reality, all elements usually have some degree of interaction with all others.

Returning to the previous example the plasticity diagram to the right of Example 2.20b would be read: Uninterpreted Pitches interact with Tonal Hierarchy to produce a Metric Hierarchy; as noted, this refers only to the artificial situation posited by the example. Example 2.20c, which adds in the effect of the actual meter of the piece, is read: Metric Hierarchy overrides Uninterpreted Pitches (I.e., the tendency shown at Example 2.20b) to produce a Tonal Hierarchy (C major).

More significant is the plasticity interaction shown in Example 2.20d. The elongation of an Uninterpreted Duration creates a Rhythmic Structure that reinforces the Tonal and Metric Hierarchies. The arrival on $\hat{2}$ over V and the durational accent on the downbeat of m. 3 confirm the local meter and generate a hypermetric grouping of $2 + 2 = 4$ bars. The elongation of this particular place in the phrase quickly acquires an independent character that takes it beyond the routine. Example 2.21a displays again the antecedent phrase in order to compare

it to the further elongation in the consequent (Example 2.21b), in which the d^1 - f^1 skip is elaborated with a passing tone and appoggiatura. Note that the structural difference between the f^1 in m. 3 and that in m. 9 is not relevant to the string of uninterpreted pitches to which the elongation is applied. Nonetheless, the difference may only be apparent: in both cases the f^1 could be understood as a seventh over a prolonged *V Stufe*. (Compare the voice-leading analysis in Example 2.25.).

The process of elongation overrides the Metric Hierarchy to generate a six-bar phrase. Example 2.21c suggests a hypothetical four-bar model which accommodates the uninterpreted series of pitches to the length of the antecedent. The eighth notes are an appropriate part of the model not just as an accommodation to the meter but also because the figuration suggests an appropriate recomposition of the previous phrase. In TPF terms, Tonal Structure overrides Uninterpreted Durations.

The six-bar phrase of the consequent (mm. 5–10) is a surprising deviation from stylistic expectations. Though divided clearly into 2 + 4 bars, the four bar group is qualitatively different from the ordinary. The presence of unexpectedly long durations in mid-phrase sounds like a forceful elongation that powerfully overrides metric and hypermetric hierarchy: There is a conflict with metric hierarchy at the beat level because the quarter notes that articulate the meter are absent from the upper voices; there is a conflict with hypermeter because of the 2 + 4 division (= 1+ 2 pairs of bars) created by duration, articulation, and dynamics. The sense that elongation is an active force in the music is heightened by the contrast in dynamics: a crescendo leads to a [*subito*] piano for the longer note in m. 3; the corresponding place in mm. 7–8 is given an emphatic forte.

These two bars are thus an example of marked plasticity in which Uninterpreted Durations override Metric Hierarchy. The complete plasticity diagram is read: Uninterpreted Durations create a Rhythmic Structure (the two-bar strong-weak unit formed by mm. 7–8) that overrides Metric Hierarchy and Tonal Hierarchy.

Example 2.21: Mozart, K. 515, 2nd mvnt., marked plasticity in the second phrase

a) 1

elongation

b) 5

further elongation

c) instead of hypothetical consequent:

UP

TS


RS

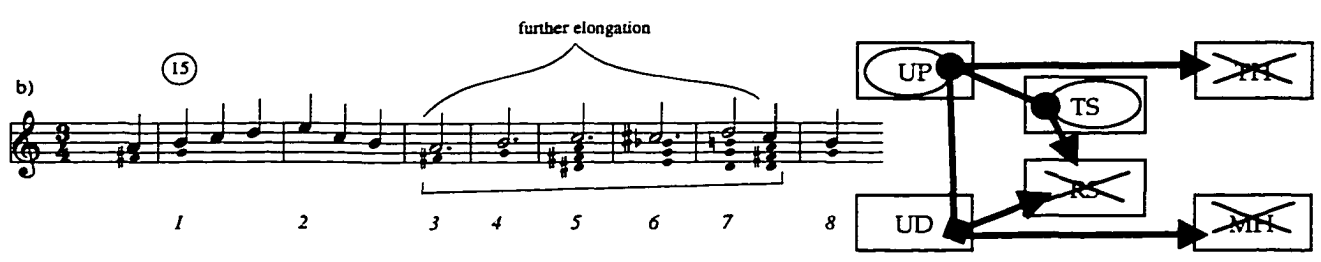
UD


The process of elongation goes further and generates still more marked plasticity. After the double bar, the opening period is repeated in the dominant. As in the first statement, the consequent undergoes an expansion through the agency of elongated durations. The degree of elongation remains the same, but the number of pitches increases. The Uninterpreted Pitches A–c (transposed from the prior d^1-f^1) are filled in more fully than before, including a chromatic

insertion: A- (B-c-c[#]-d)-c. Example 2.22 presents this analysis in a manner corresponding to Example 2.21. Example 2.22b simplifies the texture to reveal the relationship: in reality, an upper line is superimposed on this model to effect a stronger arrival on V (the descending line from d³ to g² doubled in octaves in the violins, mm. 13 and 17-22); adjustment for sonority causes this line to be distributed through the texture. (See also the voice-leading sketch in Example 2.25 for clarification of this point.)

Example 2.22: Mozart, K. 515, 2nd mvt., marked plasticity in the third phrase

a) 

b) 

c) instead of hypothetical consequent: 

This engenders a fairly complex interaction among TPF elements. The tendency toward elongation of Uninterpreted Durations enlists additional

Uninterpreted Pitches to override Tonal Hierarchy (especially in the unusual succession of diminished-seventh chords brought about by the insertion of c^\sharp). Uninterpreted Pitches work with the Tonal Structure to expand the Rhythmic Structure, in that the underlying prolongation (V of G) remains, but the number of bars increases. Finally, Uninterpreted Durations alter the Rhythmic Structure and override the Metric Hierarchy.

The last point requires clarification. Though mm. 15–22 are literally an eight-bar group, they result from a plastic elongation of a six-bar group, which itself resulted from an elongation of a four-bar group. The TPF reveals that mm. 17–20 contain a much higher degree of plasticity than the two-bar pairs that frame them. The eight-bar phrase is constructed not in accord with an eight-bar hypermetric structure, but rather is in conflict with it.⁹⁸ Of course, a lesser degree of conflict with the meter would occur if the disparately higher degree of plasticity were contained wholly within the first or second four-bar group, thus coinciding with the 4 + 4 division.

The disturbance within this variant of the consequent can be made dramatically clear by comparison with the eight-bar phrase that serves as a coda the movement (mm. 41–49). In this final phrase, antecedent and consequent are melded together in a manner that seems designed to serve as a resolution to the underlying tensions of the opening period. Example 2.23 arranges the upper voice of this passage to show surface symmetry and gives a simple reduction to show deeper regularity. Longer durations coincide, placing structurally significant tones on metrically regular locations. (Thus the plasticity resulting

⁹⁸ Compare Schachter's analysis of a Scarlatti Minuet in "Rhythm...Aspects of Meter," pp. 45–9.

from the longer durations is at least not greater than that of m. 3, i.e., unmarked.) Only Uninterpreted Pitches are in conflict with the meter, in the form of the accented neighbors of mm. 45–6. The g^2 of m. 46 is read as a dissonant appoggiatura, by analogy with m. 9 and similar situations. At a slightly deeper level, it becomes clear that Tonal Structure—both in the upper voice and in the harmonic support—and Rhythmic Structure are in agreement and are mutually reinforcing. Comparison with the prior texture is also telling: previously the lower instruments were held in reserve to underscore the elongations in mm. 3 and 7 and in later restatements of this material; in the resolving coda phrase the texture is much more homogenous. (See the score in Example 2.19.)

Example 2.23: Mozart, K. 515, 2nd mvt., comparison with coda phrase

The image presents a musical analysis of Mozart's K. 515, 2nd movement. It is divided into three main sections:

- Measures 41-44:** A musical staff in 3/4 time with a treble clef. Measures 41, 42, 43, and 44 are numbered below the staff. The melody consists of eighth notes.
- Measures 45-48:** A musical staff in 3/4 time with a treble clef. Measures 45, 46, 47, and 48 are numbered below the staff. Measure 45 has a sharp sign above the first note. The melody consists of eighth notes.
- Structural Diagram:** A diagram to the right of the notation. It features six boxes: 'UP' (top left), 'TS' (top middle), 'TH' (top right, circled), 'UD' (bottom left, circled), 'RS' (bottom middle), and 'MH' (bottom right). Arrows indicate relationships: UP to TS, TS to TH, TH to MH, MH to RS, RS to UD, UD to RS, and UD to TH.
- Harmonic Reduction:** Labeled 'yields reduction:'. It shows two staves. The upper staff has notes for I and II⁶₅. The lower staff has notes for V⁷ and I.
- Structural Diagram (Reduction):** A diagram to the right of the reduction. It features two boxes: 'TS' (top) and 'RS' (bottom). Arrows indicate relationships: TS to RS, RS to TS, and a vertical double-headed arrow between them.

There are two other issues suggested by the plasticity analysis of the first phrase. First, meter had to be imposed on the string of uninterpreted pitches for tonality to emerge unambiguously. This conflict is crystallized around the initial tones D and E and results in a tendency, however slight, for the D to reemerge as the main tone defining the underlying prolongation. The progress of this conflict is illustrated in the excerpts analyzed in Example 2.24.

Example 2.24: Mozart, K. 515, 2nd mvt., hierarchical conflict between D and E

Especially because a tonic opening is the norm for this style, the e^1 of m. 1 easily subordinates the d^1 upbeat. This relationship is reversed in m. 3 where the dominant is prolonged. More ambiguous is the situation of mm. 7–8, where either d^1 or e^1 could be heard as the goal, but where the force of the elongation argues for the former. As D builds momentum for its structural priority, the possibility arises that the differently orchestrated reprise that begins in m. 31 might be heard as less solidly anchored in the tonic. The reharmonization in m. 35–8 further weakens the tonic, suggesting that a structural return to the tonic is

displaced until the conclusion of the consequent phrase of the reprise. Thus, though the thematic reprise in m. 31 could well be heard as a true tonic return, its internal plasticity raises doubts. The possibility that D now prevails is realized in the voice-leading sketch of the complete movement given in Example 2.25. In this analysis the coda takes on yet more significance as a resolution, to extend the final structural tonic for the purpose of adding balance, and to restore the original register of the piece markedly avoided by the reprise.⁹⁹

⁹⁹ The conclusion of the *Urlinie* on c^2 does not negate the force of the obligatory register an octave lower. Schenker acknowledges this possibility in *FC*, § 268.

Example 2.25: Mozart, K. 515, 2nd mvt., voice-leading sketch of the entire minuet

A

Antecedent Consequent

⑤

3 IN (2) 3 IN (2) 1

5th 5th "5th"

I II⁶ V I II⁶ V I

B

⑪ ⑰ ⑳ ⑳

5th prog. "5th"

G: I (= 5 — 6) 8-7 6-5 4-3 I V

V V V

A'

⑳ ⑳ ⑳ ⑳

2 =Antecedent Consequent 2 1

(3 IN 2 1)

(= 9 — 8) V⁷ I I II⁶ V⁷ I

One other conflict subtly evidences itself in the deeper voice leading. As already noted, the opening uninterpreted pitches are built around a tension with the main tonality. Example 2.26 includes the parallel thirds of the second violin to show the three possible implications of the metrically undefined pitch material: The upper part alone outlines a D-minor triad; the thirds together imply a half-diminished seventh on B, or perhaps a dominant ninth on G. All of these harmonic entities are realized in connection with some form of the opening thematic material. The sequential progression over the dominant pedal point conjoins that theme with a tonicization of d minor, allowing that triad to sound over G followed by the full sonority of stacked thirds in the next bar (mm. 24–5). The sense of A as a ninth resolved is evoked again in mm. 31³–34 (see Example 2.25), fluctuating between A \sharp and A \flat . The full and half diminished forms of the B seventh chord also occur in the reharmonization of mm. 34³–37, and the tonicization of D minor recurs in mm. 38–9 (part of a voice exchange within the V). Finally a hint of D minor returns in the melody of mm. 45–6 (the source of the lone conflict with the meter; see Example 2.23) in a context where its resolution to C is unequivocal.

Example 2.26: Mozart, K. 515, 2nd mvt., harmonic implications of the parallel thirds

The image shows a musical staff with a treble clef and a key signature of one flat (B-flat). The notes are: B \flat , D \flat , F \flat , G \flat , A \flat , B \flat , C \flat , D \flat , E \flat , F \flat , G \flat , A \flat , B \flat . The word "suggests:" is written to the right of the staff. To the right of "suggests:" are three chordal diagrams, each consisting of three stacked notes on a three-line staff, separated by the word "or". The first diagram shows notes on lines 1, 2, and 3 (B \flat , D \flat , F \flat). The second diagram shows notes on lines 2, 3, and 4 (D \flat , F \flat , A \flat). The third diagram shows notes on lines 3, 4, and 5 (F \flat , A \flat , C \flat).

By applying plasticity analysis to the most characteristic and recurrent material of the piece, I have revealed underlying tensions in the composition that affect the piece in multiple ways.

Beethoven, Allegretto in C minor, WoO 53 (1796), mm. 1–48

Example 2.27 contains the score of the first part of an Allegretto in C minor by Beethoven. The piece takes the form of a free-standing Scherzo and Trio (which is in C major). The brief Scherzo presents a clear example of how tensions in the opening phrase can influence structure.

Plasticity is most marked in the first complete bar, as well as the parallel place in the fifth bar. The long held d^1 , supported by a consonant triad, embodies the conflict between the two sides of the framework. While the G-major sonority asserts itself as stable sonorous experience, the tonal context imbues it with the quality of a passing tone, specifically, filling in the passing third $c^1-e^b^1$. In TPF terms, Uninterpreted Durations are in conflict with Tonal Hierarchy. A similar conflict occurs in the corresponding rhythmic components. The relatively long duration and the downbeat placement of the G-major chord assert its status as a long duration for its own sake. This contradicts the meter in two ways: in the standard sense of being an accented passing tone and in an idiosyncratic distortion of the patterning that follows it. (To be sure, the repetition of the durational pattern of the first four bars in the second four bars establishes a measure of normalcy for the elongated duration by placing it within the context

of a larger-scale symmetrical statement.) Example 2.28 isolates the plasticity in the particular rhythmic element and includes a plasticity diagram that specifies the intense interaction at work.

Example 2.27: Beethoven, Allegretto in C minor, WoO 53, mm. 1–48

Allegretto.

The musical score is presented in six systems, each with a treble and bass staff. The tempo is marked 'Allegretto.' The key signature is C minor (three flats). The time signature is 3/4. Measure numbers 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, and 48 are clearly marked at the start of their respective lines. The notation includes various rhythmic values, slurs, and dynamic markings such as *ff* (fortissimo) and *f* (forte).

Example 2.28: Beethoven, Allegretto in C minor, mm. 1–8, plasticity analysis

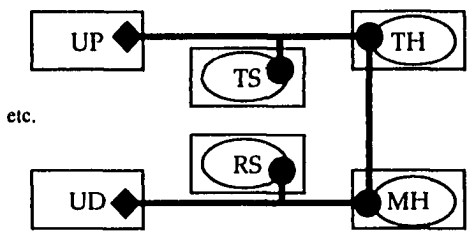
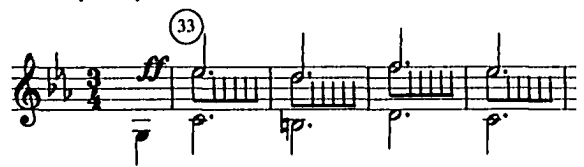
a) Marked plasticity in the rhythm of the first phrase



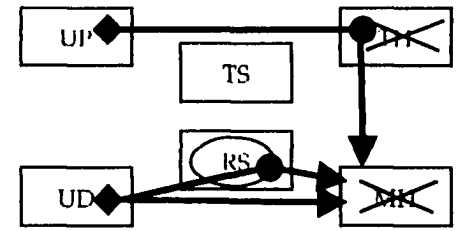
b) With less plasticity



c) Compare reprise



For mm. 1 and 5:



The analysis at Example 2.28b removes most plasticity by shifting the upbeat C forward onto the downbeat, but in doing so it also divests the phrase of a motivic logic that the initial upbeat provides. The varied reprise of this phrase in mm. 33–40 provides a more creative solution to resolving the tensions of the opening. The rhythm of the opening is pressed into service as a bass, while the metric hierarchy that is only implied at the opening is fully actualized in an array of eighths in the right hand (though the underlying rhythm is still a dotted half note). Most important, the metric positions of tonic and dominant are reversed, placing the I chord forcefully on the downbeat and enclosing the first four bars of this phrase in a solid tonic prolongation. (Compare the plasticity diagram adjacent to Example 2.28c.)

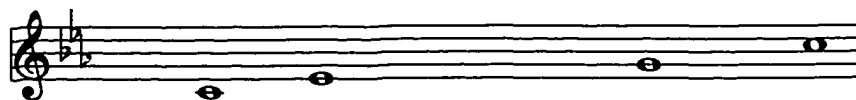
There is also a subtle tension in the pitch structure of the first phrase. The eight-bar unit outlines a tone space from c^1 to bb^1 in the upper voice. Example 2.29 contrasts this series of Uninterpreted Pitches with the underlying Tonal Hierarchy inherent in the opening triad. The elaboration at Example 2.29c suggests a possible course from which the actual music is deflected. The plasticity here is tonal, made acute by the Rhythmic Structure that isolates this phrase as a unit. As with the previous example the tension is resolved in the reprise phrase, which prominently completes the octave left wanting at the opening (see Example 2.29e). (The eight-bar coda, mm. 41–48, restores this octave to its original register.)

Example 2.29: Beethoven, Allegretto in C minor, mm. 1–8, plasticity analysis

a) Uninterpreted Pitches in the first phrase



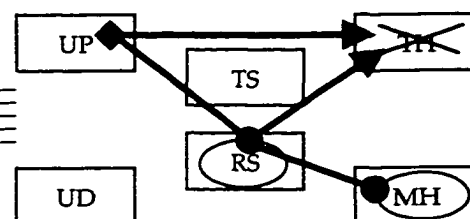
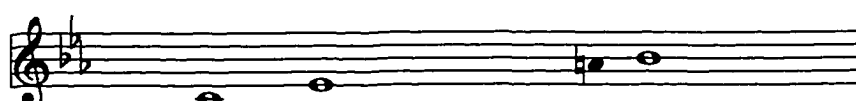
b) The underlying Tonal Hierarchy



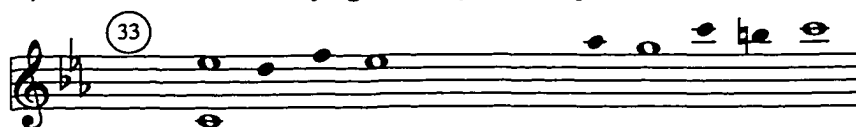
c) The hierarchy elaborated



d) The actual seventh span in conflict with the Tonal Hierarchy



e) Resolution to the underlying hierarchy in the reprise



This less marked plasticity is linked with the previous example in a subtle way. The elongation of the chromatic passing tone $a\sharp^1$ is precisely the agent of deflection that arrests the progress of the upper voice, causing it to fix on $b\flat^1$ as $\hat{5}$ of III. It is not that Beethoven could not have worked out a continuation more in accord with the tonality; instead the issue is the deliberate conjoining of the situations described in the prior two examples to create a phrase that is internally conflicted. Taken as a whole, there is an effect of temporal tension that is special, perhaps unique to this phrase. The Temporal Plasticity Framework is a useful

tool in teasing apart the whole into its constituent elements and then discovering their interrelationships. Moreover, the fact that there is often more than one type of conflict means that it is not always possible to show one analytical model to explain a passage; often two or three that may conflict with each other are needed for plasticity analysis.

There is a subtle connection to the coda as well. Perhaps even more obviously than the climactic reprise, the eight-bar coda (mm. 41–48) recomposes the opening phrase to allow for a conclusion on the tonic, restoring the original register. (Compare the voice-leading sketch in Example 2.32.) However, an element of tension resurfaces here in the rhythmic *imbroglio* of syncopated chords. What this jumble of activity conceals is the relationship to the opening rhythm, where an upbeat c^1 led to an elongated d^1 . This recurs in distorted form as $Bb-db^1$ (in eighth-note elaboration) over the tonic inflected to a dominant ninth. While the syncopated harmony preserves the character of the upbeat, the crucial elongation is preserved in the elongation by repetition of this $Bb-db^1$ motive, as shown in Example 2.30. Removal of this elongation and a parallel treatment of the second half suggests a four-bar model with less plasticity (2.30b). Elongation is the term used here in preference to expansion because the actual phrase encompasses eight bars and therefore does not fall under Schenker's usual sense of expansion. As noted, however, practice is not always so limited. The recomposition of the opening plasticity involves recreating a surface elongation at a larger level; the motivic connection is the cue, but the real affinity is a more abstract sort of tension.

Example 2.30: Beethoven, Allegretto in C minor, mm. 41–48, plasticity analysis

a) Marked plasticity in the rhythm of the coda

b) With less plasticity

(Fundamentally: I IV V D)

The opening has consequences for the middle section as well. The elongated value takes over and, as in the opening, seems to halt the progress of the music: the quasi-fermatas open up space for cadenza-like insertions, which are shown within parentheses in Example 2.31. Dotted half notes finally come to dominate in mm. 17–24, such that they no longer seem elongated. The basic pace of the piece has slowed considerably. Mm. 17–32 are what I call a change of *temporal plane* (a term which will be discussed in Chapter 4); in this case the original elongation becomes the main rate of activity. The dominant pedal in mm. 25–32 slows the harmonic rhythm considerably. (Even the passing chords above this pedal change in pairs of bars.) The flickering eighth notes in the right hand seem to split off in their own register and remain a kind of foil to the slow pace of the lower register.

Example 2.31: Beethoven, Allegretto in C minor, mm. 9–33, rhythmic analysis

a) Temporal analysis of middle section

Musical score for Example 2.31a, showing temporal analysis of the middle section (measures 9-33). The score is in C minor, 3/4 time, and consists of two staves: Treble and Bass. The analysis includes measure numbers 9, 17, 25, and 33. Fingerings (1-4) are indicated for the right hand. Dynamics include *pp.* and *f*. A plus sign (+) is placed above the staff at measure 25, indicating a specific temporal event.

b) More basic model

Musical score for Example 2.31b, showing a more basic model of the middle section (measures 9-18). The score is in C minor, 3/4 time, and consists of two staves: Treble and Bass. The analysis includes measure numbers 1, 2, 3, 4, 5, 6, 7, and 18. Fingerings (1-4) are indicated for the right hand. Dynamics include *pp.* and *pp.*.

The difference in rates of activity suggests the possibility of equalizing them to yield a simpler model; Example 2.31b shows a more deliberate pacing that traverses the path between III and V.

The disparate planes of activity fuse back together at the reprise at m. 33, which is also a climactic arrival. Besides the emphatic overcoming of tensions heretofore described, which are underscored here by the *fortissimo* dynamic, the reprise can also be heard as the culmination of an initial ascent to the *Kopfton* $\hat{3}$, as shown in context in Example 2.32. The eb^1 in m. 2, the first attempt at $\hat{3}$, seems somehow bypassed as a goal. The rising third $d^3-eb^3-f^3$, in mm. 26–9, is a slow-motion echo of the initial third ascent. (See the beams in Example 2.32; these two thirds can be understood as an expression of an underlying stepwise ascent to $\hat{3}$.) It sets in relief the tonic return in m. 33, which is equally underscored by its reunion of contrasting temporal elements. The overall shaping of this page of music can thus be seen as an attempt to state $\hat{3}$ more definitively.

The two foregoing analyses employ the principles of the Temporal Plasticity Framework to reveal a complex dynamic of temporal and pitch-structural elements. This approach is perhaps cumbersome in its focus on the small scale, but this is also its strength: its ability to reintegrate the salient and vital details that constitute immediate musical experience into a picture of the whole in both rhythmic and tonal structure. More important, this picture of the whole is not one of simple unity, but a more realistic tension among manifold elements that makes up our complete temporal experience of music.

Example 2.32: Beethoven, Allegretto in C minor, mm. 1-48, voice-leading sketch

The image displays a voice-leading sketch for the first 48 measures of Beethoven's Allegretto in C minor. The score is presented in two systems of staves. The first system covers measures 1 through 20, with an 'initial sketch' bracketed over measures 1-10. Roman numerals I, III, VI, and V are placed below the staves to indicate chord positions. A circled number 20 is at the end of the first system. The second system covers measures 21 through 40, with circled numbers 33, 34, and 40. Roman numerals VI, II⁵, V⁴, and I are placed below the staves. A brace at the bottom right indicates a 3-measure phrase. The notation includes various musical symbols such as notes, rests, beams, and slurs.

Chapter 3: Temporal Disjunction

This chapter introduces the concept of *temporal disjunction*. Superficial disruptions to the temporal flow of music are rarely the central focus of the theorist. Most analytical approaches to tonal music, including Schenkerian theory, have tended to emphasize coherence and continuity over conflict and discontinuity. However, disruptions to the even flow of time can be among the most significant aesthetic elements of Western music (and are especially characteristic of Haydn and Beethoven). I will try to show that it is possible to address these aspects of musical time by understanding them to belong to a spectrum of disjunctions: the mildest of these is found in disjunct rhythms so commonplace that it might seem odd to call attention to their significance; the severest of disjunctions can threaten the integrity of the musical organism. I have coined the term temporal disjunction to create a general analytical category that can subsume both extremes.

3.1: An Historical Example

Though disjunction is rarely discussed by theorists, an early recognition of the issue came not long after disjunct writing became a commonplace of the Classical style. In a treatise published in 1793, as his final and most extreme example of exceptions to normal metric patterning, Heinrich Koch cited a passage by his teacher Christian Scheinpflug. Example 3.1 reproduces Koch's example, with some analytical notation added.

Example 3.1: Christian Scheinpflug, unknown work quoted in Koch, *Versuch*;
(analytical annotations added)

Poco vivace

2 Violini

Sopran.

Fondam.

Dir dan- ket, dir sin- get die Welt, dir dan- ket, dir sin- get die Welt, Gott!

hö- re die freu- di- gen Lie- der, nun jauch- zet die Menschlichkeit wie- der, nach lan-

gen, lan- gen Trau- er- tön- en; denn Chris- tus ist da, etc.

D - C C - B \flat - A

10

15 20

D \flat C C - B \flat - A

The image displays a musical score for a vocal and instrumental piece. It consists of three systems of music. The first system includes staves for two violins, soprano, and bass. The second system continues the vocal and bass parts. The third system continues the vocal and bass parts, ending with 'etc.'. Analytical annotations include chord progressions (D-C, C-B♭-A, D♭-C, C-B♭-A) and measure numbers (5, 10, 15, 20) circled in the original image. The tempo is marked 'Poco vivace'.

Koch comments,

For special reasons the accepted metrical motion [*angenommene metrisches Bewegung*] is occasionally even interrupted on purpose for a few measures. An example in which this happened is the following composition; the beginner can, without difficulty, explain the reasons for this himself from the contents of the poetry.¹

Koch understands “accepted metrical motion” to require explicit articulation of the pulse, especially by the bass. In this example, it is clear that the motion is interrupted at m. 13, where the variegated rhythms of the opening are replaced by *sostenuto* long notes in order to depict the “langen Trauertönen.” More typical motion is resumed at m. 21. Example 3.1 includes annotations to suggest that these interrupting measures recreate the d^2 - c^2 neighbor motion of mm. 1-2 as db^2 - c^2 (mm. 17-19). (The opening gesture of a leap from c^2 is also recreated in mm. 12-13.) After the interruption, the melody proceeds with the motive of mm. 2-3, c^2 - bb^1 - a^1 at the original pace (see mm. 21-22). It is also notable that the lamenting is described as a past event; thus the temporal plane created

¹ Heinrich Christoph Koch, *Versuch einer Anleitung zur Composition*, trans. by Nancy Kovaleff Baker, *Introductory Essay on Composition*, (New Haven: 1983), p. 76. Example 3.1 is reproduced from Example 226, pp. 77-8, including the English translation of the text but not the annotations above the score. The source of this passage was unidentified by Baker; Christian Gotthelf Scheinflug (1722-1770) was Kapellmeister at Rudolstadt where Koch was a member of the court orchestra and also gave Koch his first formal education.

by the disjunctions at mm. 13 and 20 is set apart from the present of the piece as if a kind of flashback. (Temporal plane is defined in Chapter 4.)

Koch's following comments point to the need for additional scrutiny:

It would be superfluous to seek out more examples in which the composer has purposely interrupted the meter. There are so many cases that they cannot be classed in definite, precise types. The justification for such exceptions, especially in connection with purely instrumental pieces, is for the most part easier felt than explained. Thus, in this matter too, the beginning composer must study good scores in order to compensate for the lack of theory.²

Rather than undertake the taxonomy suggested by Koch, I will attempt to show the value of disjunction as an analytical category for its own sake and not just as an interruption of some other parameter.

3.2: Disjunctive Rhythm

Of course it is commonplace to speak of disjunct rhythms where any greatly differing durational values appear in succession. The concept of temporal disjunction generalizes this still further: it assumes that musical time (as opposed to chronological time) is continually created not just by durational values but also by pitch, texture, dynamics, articulation, and any other element that might be deemed musical. Though durational disjunction is still paramount in creating

² Koch, *Essay*, p. 76.

uneven flows of time, my desire to include all musical parameters has motivated my broadening of the term to *temporal* disjunction.

Ordinarily a juxtaposition of rhythmic values greater than 2:1, such as 16th-dotted 8th or 8th-8th-half might be termed rhythmically disjunct. However, in combination with a change in other parameters, and sustained for more than a single iteration, durational difference need not be so extreme (or present on the surface at all) for an interruption in the flow of musical time to be felt.

In addition, a sense of disjunction is greatly increased when longer values follow shorter ones, rather than the reverse. This is perhaps because a gradual diminution of note values is a stylistically common progression (and perhaps in some sense natural). In any case, long duration has a more pronounced effect when immediately it follows shorter ones, especially when the long duration is in conflict with the meter (i.e., is syncopated). Short-long successions will be treated as relatively more marked than long-short ones; the former are often more analytically significant than the latter.

One situation where differing durational values, even very simple ones, retain their disjunctive force is the fifth species of strict counterpoint, where the maintenance of rhythmic equilibrium is a crucial hallmark. Schenker has shown that many of the principles of strict counterpoint remain in effect in free composition, albeit in less than obvious ways, and he seems to include rhythmic equilibrium as one of these principles. In *Free Composition*, under the heading, "An abrupt change of rhythmic values is to be avoided," Schenker asserts that

The fifth species of strict counterpoint...reveals that a succession of sharply defined groups of contrasting rhythmic

values (four half-notes and four quarter-notes) creates a poor effect. Since the same holds true in free composition, the masters sought to avoid such abrupt changes by spreading out the different metric values into a more even pattern.³

The examples that follow do not include the immediate foreground, where this principle is normally violated quite frequently, as it is even at deeper levels. Schenker addresses surface rhythm in his earlier *Kontrapunkt*, where he explains that the rhythm quarter-quarter-half is excluded from fifth species because of its caesura effect, but goes on to state that

Free composition, on the contrary, has access to countless reasons that justify [this durational pattern] and incorporates this type without hesitation precisely because of its unique and special expressive value...⁴

An example follows from Haydn, reproduced in Example 3.2. Curiously, rather than allow this rhythm for its own sake, Schenker goes on to explain that

If the appoggiaturas in bars 1 and 2 are removed, we have in each bar only two half notes: g¹-e¹ / f^{#1}-d¹; since our instinct has

³ *FC*, § 291

⁴ *Counterpoint*, Vol. I, 316.

knowledge of this, it accepts such a [rhythmic figure] without resistance in free composition.⁵

Example 3.2: Haydn, Symphony #104, 4th mvt., mm. 3–6



The implication is that even in free composition the caesura rhythm is capable of creating a resistance that hearing must overcome. (Schenker goes on to explain that the rhythm quarter-quarter-half is often combined with other durations to create a composite rhythm allowable in strict counterpoint.)

Schenker also cites this particular durational pattern in his analysis of Haydn's Piano Sonata No. 52 in Eb.⁶ Schenker finds the rhythmic figure quarter-quarter-half in the inner voice of the first bar, and observes that,

This rhythm, known in strict counterpoint as the caesura [*Einschnitt*], becomes the lifeblood of this movement. [The above passage from *Counterpoint* is cited.] Right in m. 2 the *Urlinie*, with a

⁵ *Idem.*

⁶ Hoboken XVI/52. Schenker's analysis appeared in the third issue of *Der Tonwille* (Vienna: Albert J. Gutmann, 1922) 3–21; present references are to the translation by Wayne Petty in *Theoria* 3 (1988) 105–160.

consecration all its own, confirms the caesura and thus elevates it to a motive of a special kind.⁷

Schenker's reduction of the first two bars follows. (More of this movement will be discussed later.)

Example 3.3: Haydn, Sonata #52, 1st mvt., mm. 1–2

Schenker later traces a number of motivic parallelisms to this disjunctive rhythm, thus conferring on it the status of a source of organic coherence.⁸ But within the same essay, Schenker is at pains to point out the maintenance of the principle of equilibrium, noting that Haydn

...deliberately avoids having one note value change abruptly to another; instead he inserts a fitting preparation each time.

Although Schenker celebrates the presence of a disjunctive rhythm as a motivic entity, he is not willing to forego the principle of equilibrium as a

⁷ Petty translation, pp. 113–4.

⁸ The parallelisms involve conventional sorts of augmentation and diminution; see fn. 13 and Petty's fn. 39, p. 121.

structuring force. Of course, Schenker does not maintain that the caesura rhythm has the same disjunctive force that it does in species counterpoint, though he comes very close when he later comments that this rhythm naturally lends itself to a fermata on its final note.⁹ Even more basic, asserting the freedom of free composition is a part of Schenker's larger agenda of disentangling from any superficial resemblance to polyphonic texture the principles of strict counterpoint that apply at a more fundamental level.

Nonetheless, Schenker maintains that the desire for rhythmic equilibrium is a palpable aspect of free composition. Disjunct rhythms disturb equilibrium, however slightly, and effect a kind of resistance to the musical flow, an unevenness in the musical fabric. This may be no more than a potential for disjunction, but, just as any series of tones may blossom into a motivic enlargement, a seemingly insignificant surface disjunction may become the source of a larger disruption later on. Here is where I would go beyond Schenker: rather than treating the specific rhythmic pattern itself as a motive, I consider the disjunction per se as an entity that may be compositionally developed, varied or enlarged as an essential part of music's expressive force.

In the case of Example 3.3, the cessation of motion on the longer note places a disjunction on either or both boundaries of the duration, as I have graphically indicated. Of course many contextual factors beyond simple duration will affect the strength of either possible disjunction. It is thus impossible to assess music's disjunctive elements without including all the possible parameters that can create an unevenness or interruption in the musical flow. (Of course, any

⁹ Petty trans., p. 124.

parameter that can be segmented temporally can be defined as a duration.) The general term *temporal* disjunction will serve to indicate a separative boundary occasioned by any parametric change, durational or otherwise, that disrupts equilibrium at any level.

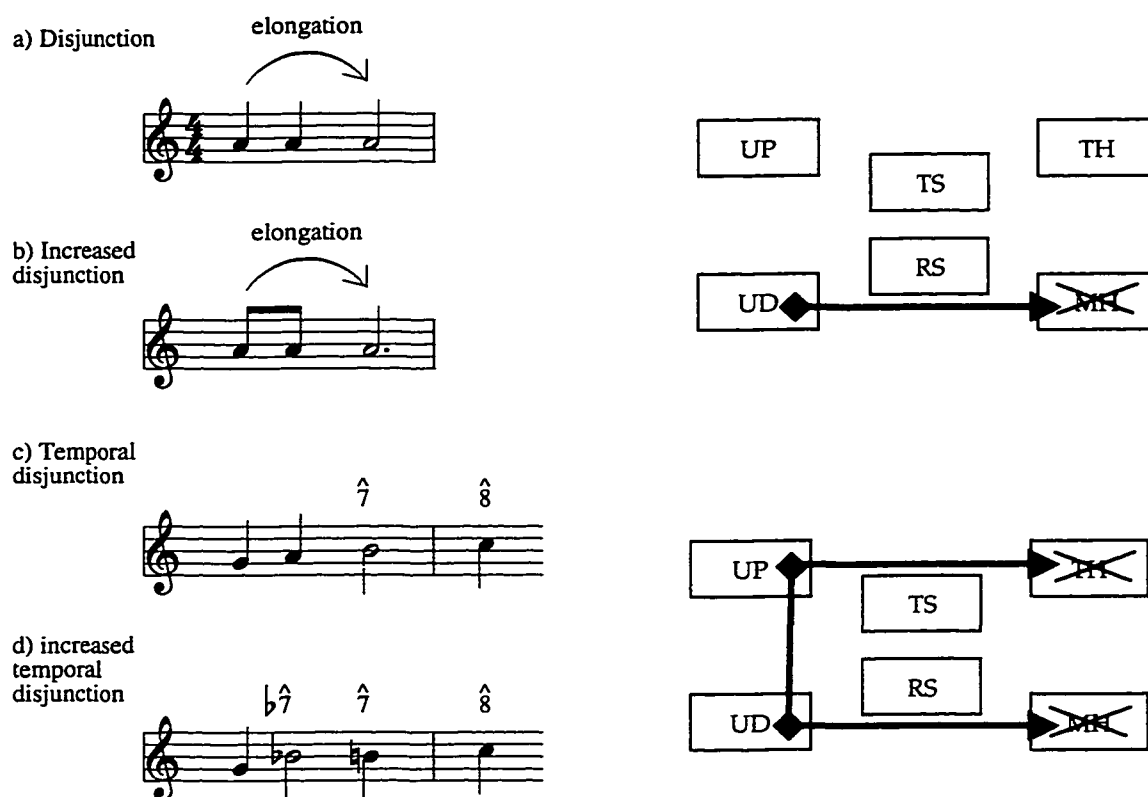
3.3: Disjunction and Temporal Plasticity

The linkage of disjunction with fifth species counterpoint suggests a deep connection between rhythm and voice-leading, a connection that has been integral to Schenkerian approaches to rhythm. The Temporal Plasticity Framework is predicated on a sense that, in music, pitch and rhythm are woven into a single fabric that at some level must be taken as a whole. Extending the metaphor, I will suggest that a disjunction is any tear in that fabric, whether in pitch or rhythm.

Some types of conflict among elements of the TPF can create or exacerbate tears in the musical fabric. A simple disjunctive rhythm already represents less than the ideal level of neutrality embodied in the extreme left side of the TPF. When the longer duration is placed in a weaker metric position, plasticity results as indicated in Examples 3.4a and b; increasing the disparity of durations could result in marked plasticity, depending on the context. The disjunctive effect can be greatly increased by an alliance with pitch. Examples 3.4c and d illustrate how the drawing out of the leading tone can conflict with both Tonal Hierarchy and Metric Hierarchy. The elongation of the leading tone results in a relatively mild disjunction because its tendency to resolve as much predicts the tonic as suspends it. Displacing $\hat{7}$ through chromatic inflection (especially common in

Beethoven's music) creates a more intense drag against the tonality and decidedly places this plasticity into the marked category.¹⁰

Example 3.4: Disjunction viewed through the TPF



It is peculiar to the definition of temporal disjunction as a separate phenomenon that the type of plasticity interaction shown in the previous example be a momentary or abrupt change, often underscored by changes in other parameters. If the new set of interactions remains in effect for some time,

¹⁰ Some celebrated examples include Op. 55, 1st mvt. mm. 7–10; Op. 59 #3, 1st mvt. mm. 41–2; Op. 74, 1st mvt. mm. 4–6. See also the discussion of Op. 119 #8 in Chapter 5.

then the temporal disjunction can be thought of as the boundary of a temporal plane. (This will be discussed in Chapter 4; an example of a disjunction demarcating a new temporal plane is the elongation of B \flat shown in Example 3.5b.)

Though low-level disjunctions are ubiquitous, the effect of any one of these can be rendered compositionally significant when pitch structure is implicated as well. Ultimately the salience of any single example must be judged in the context of the whole. Like traditional motivic development, temporal disjunctions can be repeated and varied, often tending toward an increase in severity. However, unlike the cohesive effect of motivic repetition, disjunctions can be disruptive of the whole.

An example can illustrate. Example 3.5a shows how temporal disjunctions could be inferred in a Rondo by C.P.E. Bach. In m. 2, three quarters follow a succession of eighths, but these quarters are further differentiated by a *piano* dynamic (*forte* is implied at the opening) and by the change in texture. At the turn of m. 4 another disjunction is created by the change to sixteenths compounded by the change in articulation from staccato wedges to paired slurs. These changes create points of disjunction that segment musical time into separable units.

Example 3.5: C.P.E. Bach, Rondo III from the third *Kenner und Liebhaber* collection (1781)

a) Temporal disjunction in the refrain (mm. 1–8); voice-leading sketch aligned below

Allegretto

Points of disjunction:
 (duration, dynamics, texture) (duration, texture) (duration, texture) (duration, articulation, rest)

N.B.: A disjunction B ↓

Antecedent Consequent

F: I II^o V⁴⁼³ I^o IV V⁴⁻³ I

b) Mm. 79–87

Disjunction deepened

(=Antecedent) A B ↓ expanded as Stufe

Restores original disjunctive parameters while expanding B ↓ Stufe

To illustrate this, Example 3.5a also gives a voice-leading sketch of Bach's rondo refrain; in the antecedent form of this phrase (mm. 1–4), the underlying tones A and B \flat , central tones of a motivically repeated triad, are each associated with segments that are separated by a temporal disjunction. Example 3.5b shows that when the antecedent is restated in m. 79, the segment belonging with B \flat is dramatically altered and expanded, inserting new music that effects changes in dynamics, harmonic rhythm, articulation, texture, and register, while prolonging the underlying B \flat as its own *Stufe*. When the original parameters of m. 2 are restored five bars later, the course of the voice-leading has been changed, continuing a long prolongation of IV that is extended well past the given example, leading to a statement of the rondo refrain in B \flat (mm. 123ff.). Similar, if less extreme examples can be found throughout this Rondo and much of Bach's music.

This example suggests that a point of temporal disjunction has the potential to become a kind of fissure in musical time, a place where temporal continuity and musical discourse can break apart. The *fortissimo* passage in Example 3.5b seems to have dropped in from another piece, perhaps a free fantasy, after which interruption the former music resumes its previous discourse. And yet the passage is not simply a parenthetical interpolation that can be removed without consequence: the establishment of B \flat as a harmonic area determines the music's continuation. Thus, temporal disjunction can create a paradoxical passage that in different senses stands both within and without the structure of the piece.

Further study of a piece already cited will help demonstrate the value of temporal disjunction as an analytical category.

3.4: Haydn, Sonata No. 52, 1st and 3rd mvts.

As an analytical demonstration of the connection between small- and large-scale temporal disjunctions, I will first turn to the same Haydn sonata addressed by Schenker, but I will start with the third movement.

The opening of this movement, shown in Example 3.6, features the very mild disjunction of a five-eighth-note upbeat settling into a quarter-note downbeat; the sense of elongation is heightened when the last of these repeated g's is slurred to a different note (b^{b1}) which initiates a string of eighths.

Example 3.6: Haydn, Sonata No. 52, 3rd mvt., mm. 1–8

The second theme in m. 49 is monothematically based on this upbeat motive, as shown in Example 3.7a.

Example 3.7: Haydn, Sonata No. 52, mvt. iii, mm. 49–65

a) Score:

b) Analysis:

c) Hypothetical model:

Example 3.7 (cont.)

d) Voice-leading sketch:

The musical score shows a voice-leading sketch in B-flat major. The treble staff features a melodic line with a fermata in the first measure, followed by a 'figure' (a sequence of notes) and then a sequence of notes with accents. The bass staff has a bass line with a slur over the first two measures, followed by a 'figure' in parentheses, and then a sequence of notes. Harmonic analysis is provided below the staves: Bb: I, II⁶, V⁴/₃, I. Above the treble staff, there are labels: Bb: 5, IN, 4, 3, 2, 1.

The disjunction latently present in the first theme is conferred an acute intensity in the second theme by the unexpected leap to a new pitch for the longer note ($f^{\sharp}-a^{\sharp 2}$), with the change of harmony underscored by accent. The *sforzando* V^7 to I (based on the slur of m. 2) is singled out for obsessive repetition, creating a pressure that suddenly gives way to an even more pronounced temporal disjunction.

The abrupt replacement of the $a^{\sharp 2}-bb^2$ step by $b^{\sharp 2}-c^2$ is heightened by the elongation of note values; the effect of tonal disjunction is intensified by the unexpected resolution of the diminished seventh harmony on B^{\sharp} as a common-tone diminished seventh to an A^b -major chord, with the effect of dissonant suspension. The rate at which the resolution takes place suggests that m. 53 is heard as a *subito adagio*, as depicted in Example 3.7b; the quarter-note upbeat (replacing the eighth note) of m. 54 and the subsequent fermatas seem to confirm

this. This non-notated change to a slower tempo grows directly out of the disjunctive long note of the opening theme and its effect is directly analogous. The presto tempo must then gradually be reconstituted, and equilibrium seems to fully take hold in m. 64; the five-eighth-note upbeat returns to frame the passage as shown in Example 3.7b. Removing the central disjunction entirely collapses the framing motives into the simple model given in Example 3.7c.

This change to an apparently slower tempo is a sort of large-scale temporal disjunction, analogous to a disjunctive long note following a series of shorter ones. (In the following chapter this will be termed a change of temporal plane.) It has another effect as well: this passage creates the impression that another movement has intruded into the world of this Presto. This entails temporal disjunction in another possibility: the disruption of a movement's progress can open up a space in which some other movement can be adumbrated or recalled.

The latter possibility does seem to occur in this sonata. I have already discussed Schenker's citation of the caesura rhythm in the first movement. The declamatory statement in m. 33 is the latter of two themes within the second-theme group to be directly based on it.¹¹ (See Example 3.8a.)

The longer note of m. 33 is mildly fermata-like, momentarily arresting the bb^2 destined to fall back to the more structural d^2 . The variation of the caesura rhythm in the next bar comes to rest on a stronger disjunction on $e\sharp^2$. It takes

¹¹ Schenker notes two other hidden parallelisms: the 8th-8th-quarter rhythm underlying the *scherzando* music of m. 27 and the 16th-16th-8th of the B \flat -minor theme that enters mid-bar m. 29. He also hears an augmentation of the caesura rhythm in the opening chords of the development (mm. 44–45). See Petty translation, pp. 121–2 and 124.

more than a full bar to recover from this wrong turn, as obsessive retracings of $g^2-f^2-e^b2$ seek to erase the effect of the disjunctive halt.¹² The emphatic tonic arrival in m. 36 spills into a frenetic series of six-three chords.

This harmonic motion in sixteenths is suddenly brought up short by disjunctive long notes followed by a dramatic pause. The unexpected stillness simulates a slow tempo, just as in the third movement. This admittedly faint adumbration is strengthened by a more precise association. The third movement's simulation of a slower tempo begins with the sudden elongation of the $b^{\sharp2}-c^2$ step followed by a return to $a^{\sharp2}-bb^2$. (See again Example 3.7.) In the first movement, this exact pitch sequence appears coinciding with the sudden long durations. (Compare Example 3.8, mm. 36–7). The connection goes further: in Example 3.7b, note the curiously-voiced *piano* chords supporting $f^{\sharp2}-g^2$ that I have shown as parenthetical echoes; these pitches recur in the first movement as the $G-G^b$ given special prominence by the markedly longer notes and a *unisono* texture.

¹² This is recalled in m. 40.

Example 3.8: Haydn, Sonata No. 52, 1st mvt., mm. 33–40

a) Analysis of disjunctive surface:

Surface hypermeter: 1 2 3 4 5 6 7 8=1

Annotations: disjunction, anticipatory parenthesis, disjunctive interruption

b) Model with disjunctive rhythms more equal (i.e., with greater equilibrium):

Annotations: 3, 4, 3, 4, 2, 1

c) Normative model removing upper-voice digression:

Annotations: 3, 4, 3, 2, 1

Thus both the specific tonal sequence and a simulated slow tempo created by temporal disjunction are replicated in both movements.¹³

The remainder of Example 3.8 applies plasticity analysis to the disjunctive surface. Despite the disjunctions, this phrase spans eight bars (understanding the last bar as an elision). Example 3.8b restores equilibrium by equalizing much of the disparity in note values. This of course removes most of the disjunction, including the simulation of a slower tempo, and yet fits within a four-bar framework. Example 3.8c removes the two melodic digressions from bb^2 and is still more rhythmically even, but a bit artificial.

Indeed, the disjunctions in this phrase are very basic and echo through the movement at very deep levels. Example 3.9a is a foreground sketch of the entire development of this first movement. A key surface feature is a pair of grand rhetorical pauses on a G-major chord, one at the outset, the other ushering in the retransition with the unexpected and celebrated E-major entrance. The middleground summary at 3.9b and the staff below it reveal that at a deep level of structure, the disjunctions of the development replicate the disjunctive separations of the phrase just examined. Even the degree of disjunction is similar; the second is the more pronounced in both cases. (At the same time, the upper voice composes out a motivic enlargement of the figuration from the first theme that served to reintroduce the tonic in the opening bars of the piece, a counterforce to the separative disjunctions.) This is more than the typical motivic

¹³ Connections among movements in the works of Haydn have come increasingly to be recognized in recent literature. See especially James Webster, *Haydn's "Farewell" Symphony and the Idea of Classical Style* (Cambridge: Cambridge University Press, 1991) and Wayne Petty, "Cyclic Integration in Haydn's *E♭* Piano Sonata Hob. XVI: 38," *Theory and Practice* 19 (1994) 31–55.

enlargement shown in the upper voice: the temporal disjunctions act as structuring forces on the design of the entire development.

The sort of analysis just presented raises questions about matters of organic coherence. Temporal disjunctions are cessations in the musical flow, separations in the musical fabric. They are by nature antithetical to unity and coherence (which is why they are forbidden to strict counterpoint). In the Haydn, severely disjunctive passages in separate movements seem more related to each other than to their immediate surroundings. To my mind, much of the expression of these passages is tied to the impression of a foreign element challenging the integrity of the piece. And yet disjunction can represent a source of unification and structure at even deep levels.

Example 3.9: Haydn, Sonata No. 52, 1st mvt., mm. 44–76, voice-leading sketch of the development

a) foreground

Musical score for the foreground (a) of the development section, measures 44–76. The score is in E-flat major and 3/4 time. It features voice-leading sketches with slurs and ties connecting notes across measures. Circled measure numbers 44, 51, 57, 64, 71, and 77 are placed above the staff. Below the staff, harmonic analysis is provided: Eb: I V (C: I VI) VI 7 II 7 V 16 IV 6 VI (IV⁷ V 4) III 4 V I. Fingerings are indicated with numbers 1-5. Intervallic analysis is shown below the notes, such as 5 7-5 7-5 7-5 7-5, 10 7-10 7-10 7-10 7-10, 7-6 (=7-6) 5-6 7-6 7-6 7-6 7-6, 10-10-10-10-10-10-10-10-10-10-10-10-10-10-10, and 10-10-10-10-10-10-10.

b) middleground

Musical score for the middleground (b) of the development section. It shows voice-leading sketches with slurs and ties. A section is labeled "motivic enlargements of:" followed by a small musical fragment with a circled number 3. Harmonic analysis below the staff includes V NN V⁷ I.

Disjunctions derived from mm. 33–40:

Two musical examples of disjunctions derived from measures 33–40. Each example shows a short melodic phrase with a slur and a checkmark above it, indicating a specific voice-leading feature.

A possible way of reconciling this contradiction would be to adopt a more complex and older model of organic coherence. This would be based on a tension between two opposite impulses: the centripetal, an attraction to a centralized unity; and the centrifugal, a diversification into free variety; the centripetal, an ever-present assurance of coherence, the centrifugal, a constant threat to its cohesion. The role of these two forces in Schenker's theories is perhaps greater than has been recognized. Their place in Schoenberg's metaphor of coherence has been openly acknowledged; the relation to Goethe's thought has been recently discussed by Severine Neff.¹⁴ Recognizing a tension between these two forces can allow disjunction a place as a structuring element in its own right. Temporal disjunction derives primarily from centrifugal organicism, in which the tendency toward diversity creates unevenness and interruption, but it can yield to centripetal force as well, generating its own unities.

The tension between unity and disunity is an integral part of the concept of temporal disjunction, which takes as its premise the idea of separation. Further proof of the value of this analytical perspective will be taken up in Chapter 5.

¹⁴ See "Schoenberg and Goethe: Organicism and Analysis," in *Music Theory and the Exploration of the Past*, ed. by Christopher Hatch and David Bernstein (Chicago: The University of Chicago Press, 1993) 409–33; the centripetal and the centrifugal are explained on p. 413.

Chapter 4: Temporal Planes

This chapter will introduce the concept of *temporal plane* as a way of describing temporal changes within a piece of music. A temporal plane can be defined as a segment of relatively stable conditions of plasticity interactions as described by the Temporal Plasticity Framework. Sudden changes of TPF interactions can create temporal disjunctions; if the new conditions persist, it is useful to refer to a change of temporal plane, with the disjunction serving as a boundary. As an example: a plastic elongation of prevailing quarter notes into half notes will create a sense of slower pace (perhaps accentuated by changes in other parameters).

The term *temporal plane* is closely linked with the term *tempo*, and by default a single movement will comprise at least one temporal plane. I will begin by demonstrating the need for a new term and explaining its metaphorical basis. After that I will turn to the definition of planes and the analysis of their interactions.

4.1: Tempo and Pace

Beginning at least with the eighteenth century, the idea of tempo is linked with an individual musical entity called a movement. In some languages, the terms are identical, as in Italian, French, and Spanish. "Movement" itself implies the identity of the sectional entity with the flow of musical time. Different tempi can of course be given during the course of a movement, the slow introduction being the most frequent possibility. Nonetheless, there is a sense in which a movement may cohere around a

single tempo, a sense analogous to the coherence of a movement around a single key. Like the opening tonality, the opening tempo is frequently used to identify a movement. A movement with a slow introduction is usually named by both the slow and subsequent fast tempi, implying that the slow tempo does not stand for the movement as a whole. Since this sort of movement usually occupies the place where a fast movement is expected (i.e., first or last in a cycle), the slower tempo is thought of as delaying the faster.

Tempo is, first and foremost, associated with speed. This association is valid in the narrow and strict sense of specifying the rate of pulses to be counted by the performer in deciphering musical notation. Even allowing for some flexibility in this rate within a movement, it can be misleading to equate tempo with the pace of time in the perception of music. While the rate of the notated pulse may continue steadily, a multiplicity of other rhythmic, tonal, and textural events may occur at any number of different rates of speed to collectively create a sense of the music's pace.¹ They may reinforce the notated pulse or they may suggest a pace that is at odds with the prevailing tempo. The pulse may be so greatly submerged that the tempo may seem to the listener to have temporarily changed. Thus even passages marked with a single tempo may seem to include non-notated changes of tempo.²

¹ Wallace Berry's unusually heterogenous approach to rhythm allows for both the common aspect of tempo as the "frequency of pulsation" which he calls *pulse-tempo*, and an aspect like that under discussion here, "the eventfulness of music (degree to which the temporal continuity and flow are filled with articulate impulses or related silences)" which he calls *activity-tempo*; in *Structural Functions in Music* (Englewood Cliffs, N.J.: Prentice-Hall, 1976; reprinted New York: Dover, 1987), p. 305.

² Joel Lester calls this a change of the primary metric level, the level at which the basic pulse is felt. He gives as an example Tchaikovsky's *Romeo and Juliet Fantasy-Overture*, in

A clear example of this may be found in Beethoven's Sonata for Violin and Piano, Op. 47, first movement. Aside from the slow introduction and the other notated changes of tempo,³ the beginning of the second theme group suggests a pacing that is markedly different from the immediately preceding agitated activity. From m. 37 (the 19th bar of the Presto) until m. 89 there are continuous eighth notes (a quadruple division of the pulse, given the cut-time signature); these give way rather abruptly to a homorhythmic texture largely in whole notes. The jump to a rhythmic value eight times slower than the prevailing eighth note value creates a radical change in pacing, perhaps enough to suggest to a listener that the pulse has slowed. Example 4.1 shows this change and gives a possible renotation of the second theme that starts in m. 91.

Two points need to be clarified. I am not claiming that Beethoven should have notated mm. 91ff. as in the previous example. Rather I am assuming that the choice of notation is purposeful and relevant to the hearing of the music (though possibly in an indirect way). Nor am I claiming that these changes are audible only to a listener ignorant of the score, or inept at maintaining a pulse through passages where it is not clearly expressed. The notation suggests that the pulse should be maintained *at some level* by

which the change takes place between the Allegro giusto beginning in m. 111 and the second theme beginning in m. 183. *The Rhythms of Tonal Music*, pp. 117–18. Grosvenor Cooper and Leonard B. Meyer also identify what they call the primary rhythmic level, but are mainly concerned with building hierarchic levels above this than with observing rates of change; in *The Rhythmic Structure of Music* (Chicago: University of Chicago Press, 1960) p. 2.

³The introduction is marked "Adagio sostenuto"; the main body of the movement, a Presto, contains four occurrences of the marking "Adagio", at mm. 115, 416, 555 and again, superfluously, at 559.

performer and listener alike. What I am claiming is that there is an essential tension between the rhythmic surface and the underlying tempo. This passage expresses a sort of time that is not quite a comfortable Andante nor yet projecting a solidly fixed Presto. I would argue that the descriptions involving tempo are inadequate to categorize the many shades of temporal fluctuation possible in music.

Example 4.1: Beethoven, Sonata for Violin and Piano, Op. 47, 1st mvt., mm. 87–98

(Presto)

The image displays two musical staves for a passage from Beethoven's Sonata for Violin and Piano, Op. 47, 1st mvt., measures 87–98. The top staff is the original notation, marked '(Presto)'. It features a violin line and a piano accompaniment. The violin line starts with a circled measure number '87' and contains a series of sixteenth-note patterns. The piano accompaniment consists of chords and moving lines. Dynamic markings include *sf* (sforzando), *f* (forte), *f* *decresc.* (forte decrescendo), and *p dolce* (piano dolce). A second ending bracket is marked with a '2' and a repeat sign. The bottom staff is labeled 'as if notated:' and shows an alternative notation for the same passage, marked '(Andante)'. This version features a slower tempo and a more spacious feel, with the piano accompaniment playing chords and moving lines in a more relaxed manner. Dynamic markings include *p dolce* (piano dolce).

as if notated:

(Andante)

Moreover, there is more to the contrast embodied in Example 4.1 than just tempo or pacing. Even though m. 89 begins the slower note values, it is the arrival of the second theme at m. 91 that decisively marks a new sort of temporality in the musical unfolding. This is due to the stabilization of a new key (V^\sharp in A minor), the introduction of new thematic material,⁴ as well as the change in texture, dynamics, affect (*dolce*) and bowing. I would suggest that all of these are as much a part of the music's temporality as changes in rhythm and pacing (and apparent changes in tempo). In effect, a new temporal entity constitutes itself that is not the result of any one factor and that is not merely an apparent change of tempo. I believe that it would be valuable to be able to name this sort of entity to consider its role as an independent operator in music.

4.2: Temporal Planes and Temporal Facets: The Spatialization of Musical Time

Taking a cue from the plastic arts, the concept of plane is suggestive of a metaphor for describing musical time in a tangible way. The following is excerpted from a definition of plane:

In creating works of art and in analyzing them, it is often convenient to reduce complex three-dimensional

⁴ Though completely contrasting on the surface, the new theme $g^\sharp{}^1-a^1-g^\sharp{}^1-f^\sharp{}^1$, bears some resemblance to the motive at m. 45 (the most definite arrival of A minor thus far in the movement) in both contour (a-b-c-d-c-b-a) and scale degree (both include $\hat{3}-\hat{4}-\hat{3}-\hat{2}$). The similarity increases the sense that the later idea is a slower version of the earlier.

bodies—whether a single object, figure, or entire composition—to a few basic planes or facets.⁵

Thus I propose to call the entities I will identify temporal planes; occasionally, smaller divisions will be called temporal facets.⁶ To return to Example 4.1, the contrast of time that occurs in m. 91 would be identified as a change of temporal plane. (Similar passages in the Haydn sonata analyzed in the previous chapter should be similarly identified.) This term will not only be more inclusive than either tempo or pace; it will also capture an aspect of the spatiality of musical time heretofore addressed in only ad hoc fashion. Before defining these new terms more precisely, I will briefly explore further the nature of the spatial metaphor I am proposing.

A quality of spatiality is evident in some remarks made by Schenker on Beethoven's *Leonore* Overture No. 3, Op. 72. Referring to the A \flat harmony that appears in m. 9 to support the quotation of Florestan's aria, Schenker says, "...the chord *shapes itself into a virtual stage*, and on it Florestan, arisen from a dream, takes up his song (*italics mine*)."⁷ It is clearly the dramatic context

⁵ James Smith Pierce, *From Abacus to Zeus: A Handbook of Art History*, 2nd ed. (Englewood Cliffs: Prentice-Hall, 1968) p. 46. My emphasis will be as much on plane as a flat surface as on plane as an analytic abstraction derived from contemplation of a finished artwork. Of course, the perception of visual planes is both temporal and atemporal; a plane can be traversed in time in all its detail or apprehended at once as a simplified abstraction.

⁶ The term *temporal plane* was first introduced (in the analysis of music by Beethoven) in my paper, "Strange Dimensions: Regularity and Irregularity in Deep Levels of Rhythmic Reductions," in *Schenker Studies II*, edited by Carl Schachter and Hedi Siegel (Cambridge: Cambridge University Press, 1999) p. 234.

⁷ *Free Composition*, § 177, p. 64; figure 62, 2. Florestan's aria, "In des Lebens Frühlingstagen," together with an introduction and recitative, is No. 11 of the opera *Fidelio*.

that motivates Schenker's language in this instance, but that context also makes available a metaphor that allows Schenker to describe a phenomenon that would otherwise not fall within his analytic scope. In Example 4.2, I analyze the passage in question, mm. 9–14, as a separate temporal plane from the surrounding measures (mm. 5–7 will be discussed presently). In the graphic depiction, planes left open continue or lack a definite ending. Separate planes are placed on different levels. Facets are placed under the plane of which they form a part. Here the decisive factor is not an extreme change of rhythmic values. Though there are somewhat faster values, it is primarily the quotation itself that defines a new temporal plane in its role as a "foreign" melodic element, prolonging a chromatic passing tone and orchestrated with the distinctive tone color of clarinets and bassoons.

Schenker's main concern is to comment on the effect of the chromatic note A^b within the C major tonality; again his language turns toward the spatial:

Beethoven achieved the effect of the vision in the Adagio by placing it in a passing tone of chromatic origin, which is more remote than the diatonic a^{\sharp} . It is this which makes the vision more distant, more visionary. (§ 177)

Schenker does not appear to be referring to the temporal, but the fact of chromaticism alone does not explain his observation. Example 4.2 describes the passage as a parenthetical temporal plane. This is because the quotation of Florestan's aria is not needed to generate the passing tone A^b , which would be

present even if the music skipped from m. 8 directly to m. 14 (allowing a change to C in the first violins), at which point the chromatic motion resumes along with prevailing quarter-note motion. It is because the passing tone is realized in time, and in a special way that segments it from the surrounding time, that it becomes a "virtual stage," upon which action can occur, combining both stability and evanescence. Thus, paradoxically, it is the action itself, Florestan singing his song, that creates the place of action, the temporal plane.

Beethoven somewhat separates the two through orchestration, by allowing the strings to sink into the background, as if representing the stage, and giving the melody to the woodwinds, the singer. This is, however, a metaphor superimposed on another, more basic metaphor, the transmutation of time into space.

Example 4.2 also shows mm. 5–7 playing the role of a temporal facet subsidiary to the main temporal plane. This passage shares with the first four bars the quarter-note rhythm, and the *unisono* texture in the strings, but with a prominent new motive in the bassoons. It is subsumed within a local prolongation of V from mm. 1–8: Schenker remarks that the F# is an insertion, whose resolution to G prepares the ascending chromatic motion that follows.⁸ (In addition, the motion to B as upper third of V in m. 7 prepares the similar motion across mm. 1–20.) Thus it belongs within the main temporal plane, but the combination of pitch, orchestrational and motivic elements engenders a sense of departure from it.

This interpretation can be compared with Carolyn Abbate's reading of a passage from the first movement of Mahler's Symphony No. 2 in C minor. Referring to the contrasting "*Gesang*" theme (so-called in Mahler's sketches) that begins in m. 48, Abbate notes that it is "not merely a musical *contrast*, but a registral shift to musical discourse that signals a *singer* and a *song*. (author's italics)"⁹ "Registral shift" here refers to a "gesture of intrusion—music contextually detached from the music that embeds it" that imparts to music a quality of narration.¹⁰ In my terminology the *Gesang* theme would be termed a change of temporal plane. Like the Florestan quotation, the effect is greatly heightened by placing the theme within the space opened up by a chromatic passing tone. Example 4.3 gives a middleground sketch of the exposition, together with a plane analysis. The opening C minor is prolonged until m. 45,

⁸ *Free Composition*, § 255, p. 101; fig. 120, 1.

⁹ *Unsung Voices* (Princeton: Princeton University Press, 1991) p. 151.

¹⁰ *Op. cit.*, p. 139

where C in the bass gives way to C \flat ; rewritten as B \sharp ; this tone supports the *Gesang* theme in a notated E major, but the six-four position does not allow confirmation of E as a key.¹¹ B \sharp then passes on to B \flat in m. 59, which resolves as a dominant to III \flat in m. 62 (which eventually is led to V). Abbate does not take note of the role of the destabilizing effect of the tonal structure, but I believe it is essential in imparting to the passage a special quality of distance from the ongoing discourse.¹²

¹¹ The *Stufe* represented by this theme remains inherently ambiguous. Because this theme clearly takes the role of a traditional second theme, it seems reasonable to consider it as III \sharp ; the voice-leading sketch in Example 4.3 suggests an identification with \flat IV, or perhaps no definite status as a *Stufe* at all. It is my view that the ambiguity is deliberate and an inherent part of the characterization of this plane as somehow separate from the more conventional C-minor music that surrounds it. For a different view of the tonal relations in this passage, see Richard Cohn, "Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions" *Music Analysis* 15/1 (1996) pp. 21–22.

¹² Though in principle every boundary of a temporal plane is a temporal disjunction, the analysis in Example 4.3 also makes a distinction between the beginning and end of the *Gesang* theme plane based on characteristics not evident from the voice-leading alone. The end point in m. 62 is strikingly abrupt as the tremolo and bass figuration that open the movement suddenly reappear. On the other hand the entry into the theme in m. 48 is fairly smooth, marked as much by the character of the theme as the strangeness of the tonal area. Nonetheless the plane is a distinct entity that reappears throughout the movement.

Example 4.3: Mahler, Symphony No. 2 in C minor, 1st mvt., mm. 1–80, voice-leading sketch and plane analysis

The image shows a musical score for Mahler's Symphony No. 2, 1st movement, mm. 1–80. The score is in C minor and features a 'Gesang theme' (voice-leading sketch) and a 'Plane alpha' analysis. The score is divided into five sections: 1 (mm. 1–45), 2 (m. 46), 3 (mm. 48–59), 4 (mm. 62–64), and 5 (mm. 74–80). The 'Gesang theme' is notated as E major. The 'Plane alpha' analysis shows a sequence of chords: I, III^b, and V^b. The score includes a piano accompaniment with a bass line and a treble line. The bass line is annotated with Roman numerals I, III^b, and V^b. The treble line is annotated with scale degrees: 5, 6, 6^{b5}, ^b6, 5, (= 5 – 6), 5, ^b7, 5. The 'Gesang theme' is annotated with scale degrees: 5, 6, ^b5, ^b6, 5, (= 5 – 6), 5, ^b7, 5.

4.3: The Definition of Temporal Planes

A temporal plane is a constellation of musical characteristics, which can be described as a relatively stable set of plasticity interactions, contextually defined and occurring within a relatively small range of variance. The degree of relative stability depends greatly on stylistic expectations. Planes are segmented by sudden changes in their attributes and thus are defined by the boundaries between them. In principle every boundary between planes is a temporal disjunction. Planes can often be identified with sectional divisions (at any level), but their identification becomes more than trivial when they do not correspond to conventional formal segmentations. Division into

temporal planes will vary according to the scale of music under analysis. The term temporal facet is applied to the smallest level of planes, for details on the immediate foreground.

Temporal planes are not solely defined by rhythmic characteristics. If we accept the premise that music creates its own time, then it does so by giving it an audible substance that can be experienced in temporal succession. Almost any element can conceivably participate in the concretization of musical time: any aspect of rhythm or pitch, form, texture, orchestration, articulation, dynamics, text or program, affect, intertextual associations could be relevant. While rhythm will often play a primary role, it is the combination of characteristics that will be crucial; generally, change of a single characteristic will not effect a change of temporal plane. Planes are most clearly defined by a sharply disjunct change of several attributes at once and subsequent maintenance of the new set of attributes. This broader temporal perspective distinguishes the concept of temporal plane from other purely rhythmic terms such as Lester's "primary metric level," or Cooper and Meyer's "primary rhythmic level," which do not sufficiently recognize the wholeness of musical experience.¹³ (Compare the important antecedent discussed in Section 4.6.)

Some degree of variance in characteristics is admitted into the definition of a plane. Introducing gradual diminutions of note value is so typical that it seems normal to subsume them within a single plane. A reasonable yardstick is provided by Schoenberg's "tendency of the smallest

¹³ See fn. 2

note,” the gradual proliferation of the smallest durations.¹⁴ The extent of variance is contextually defined. Rhythmic values might typically vary over a range of four to one, but a greater range is possible if maintained consistently for a period of time.¹⁵ Conversely the same rhythmic values can characterize two adjacent planes if conjoined with other factors.

It will be clear that identifying temporal planes is an interpretive act and as such admits of some ambiguity. The technique will, however, be shown to be valuable precisely because it asserts the presence of entities that are not otherwise objectively verifiable (and often not coincident with other segmentations of a piece). This is in principle not different from the use of other common terms such as “phrase” or “key”; though musicians frequently agree on their application, they often do not and it is hard to find agreement on objective definitions.

4.4: An Example of a Single Temporal Plane

To aid in the definition of temporal planes it will be useful to show how a complete piece can embody a single plane. It will also illustrate how a degree of plasticity can operate within a plane without creating a disjunctive boundary between planes.

¹⁴ In *The Musical Idea*, p. 257.

¹⁵ As for instance in a piece characterized by double-dotted rhythms, such as Variation XIV of the *33 Variations on a Waltz by Diabelli*, Op. 120. This variation is in a single temporal plane, as is common in variation form. The degree of variation in pacing possible within the single plane of this variation is well illustrated by Berry in a diagram representing the rhythm of each element separately. (*Structural Functions*, pp. 313–16)

The uniform rhythmic surface and its composing-out of a single harmonic progression makes Bach's Prelude #1 in C major, from the *Well-tempered Clavier*, Book I, a clear example of a unified plane. Nonetheless, below the surface there can still exist a conflict of accents created by the elongation of an Uninterpreted Duration; this can only be made evident by examining durations at the hypermetric level. Example 4.4, which is based on Schenker's well-known analysis,¹⁶ presents a durational reduction in which each bar is represented as a quarter note. Schenker considers the first four bars to be an expansion of an underlying single hyperbeat, a sort of *exordium* (though Schenker does not use this word). Within this expansion, the f^2 in bar 2 is held for two hyperbeats before relaxing back to e^2 . This creates the pattern quarter-half-quarter in which the half note can be thought of as an elongated duration whose syncopated position places it in conflict with the Metric Hierarchy. If one does consider the first four bars as an expanded hyperbeat, that is, as representing a single quarter note in the durational reduction, then it can serve as the first note of the quarter-half-quarter pattern that is formed when E leaps to A and remains undisplaced until G takes over. Once this gesture is established it echoes through the fabric of the prelude, more prominently in either the melody or in the bass and harmony.

The arrival at the dominant pedal (mm. 24–31) has the effect of a further elongation, indicated in Example 4.4 by the meter signature of 4/2. The upper voice here composes out the third from d^1 as $\hat{2}$ to f^2 as the prolonged seventh. As shown above the staff, I take these two tones as the

¹⁶ In *Five Graphic Music Analyses*, pp. 36–7.

first two notes of the basic gesture; the third is supplied by the final peroration on the closing tonic. Again unlike Schenker, I regard the final four bars as another expanded hyperbeat corresponding to the opening one, composing-out a cadenza-like delay of $\hat{1}$ until the final measure. The close of the piece mirrors the beginning, restating the gesture at a different temporal level.

The broadening of pace at the dominant pedal has a mild effect of marking out an area of slower pace; this could perhaps be defined as a separate temporal plane. The curiously cramped space given to the subdominant (mm. 21–3) makes the boundary at the turn of m. 24 seem a bit disjunctive. Nonetheless, the analysis in Example 4.4 has shown that the elongation underlying the dominant pedal is part of an organic rhythmic gesture that itself contains an elongation. This, plus the undifferentiated textural surface of this piece, make it clear that the changes in pacing are best considered a plastic fluctuation in underlying duration within a single unified temporal space.

Example 4.4: Bach, Prelude #1 in C major, the *Well-tempered Clavier*, Book I,
 durational reduction after Schenker showing plastic elongation of underlying durations

a) Durational reduction

Underlying Uninterpreted Durations:

expanded hyperbeat

expanded hyperbeat

hyperbeats: 1 expansion --- 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 + 2 + 3 + 4 + 1 expansion ---

Underlying Uninterpreted Durations:

b) A deeper reduction

hyperbeats: 1 2 3 4 1 2 3 4 1 2 3 4 1 2 (3) 4 1 2 (3) (4) 1

4.5: Successive versus Simultaneous Temporal Planes

As suggested above, it is not only Beethoven's music that can be analyzed with respect to temporal planes. However, arrangements of planes unlike those frequent in music of Beethoven's time can be commonly (though not exclusively) found in pre-Classic music. In these earlier styles, two or more temporal planes are often layered together simultaneously; a *cantus prius factus* could be set in longer note values against faster moving voices. In Classic and Romantic music disparate planes are more often juxtaposed successively (as in the above examples). Simultaneous temporal planes create a metaphor of composition that is architectural/pictorial, a structure that is built up in layers. Successive planes employ a rhetorical metaphor: an ongoing discourse that undergoes sudden shifts of scene or of speaker. Simultaneous planes present a heterogenous vision for external, public view; successive planes present changes of scene within a single theater of action and is more suited to personal expression.

Both of these modes can coexist, as in J.S.Bach's *Matthäus Passion*. In the opening E minor double chorus, "Kommt ihr Töchter," a separate temporal plane is reserved for the chorale "O Lamm Gottes unschuldig," which is set in G major in slower values and symbolically notated at the top of the score. The effect is a visual partition between the numinous and the earthly; the listener is invited to empathize with the scene as introduction to the passion story. Once the narrative begins, the listener is fully involved with the action, as in the tenor recitative "O Schmerz!" where the interjections of chorales (on a separate but successive plane) represent the voice of human sentiment.

Rudolf Arnheim, in a discussion of the pictorial interplay between plane and depth, makes a related analogy between art and music:

The third dimension enriches pictorial possibilities in somewhat the same way as the addition of more voices to the monophony of the simple melodic line created new opportunities in music....In music, the several voices are at first relatively independent of each other. With the passage of time, they become interrelated in an integrated composition; finally, the separate voices fuse in modern homophony.... Rather similarly, pictorial depth is represented at early stages by separate horizontal strips, one on top of each other. At a later stage, overlapping is employed to obtain a three-dimensional stacking of foreground, middle ground, and background, more or less interrelated. Later still, the whole depth dimension fuses into one indivisible continuum, leading from front to back, from back to front.¹⁷

While this analogy certainly presents a greatly oversimplified picture of the development of music history, it nonetheless conveys a sense of how the metaphor of visual planes would be applicable to the rhythm of different styles. Examination of other styles will be beyond the scope of this study,

¹⁷ *Art and Visual Perception*, (Berkeley and Los Angeles: University of California Press, 1954; revised and expanded 1974) p. 127. Arnheim gives the Sleep leitmotif from Wagner's *Die Walküre* as an example of "modern homophony"; a Willaert ricercar represents earlier polyphony.

which is basically concerned with the successive juxtapositions of temporal planes.¹⁸

4.6: Marked Changes of Planes

Temporal planes will frequently coincide with commonly accepted phrase or sectional groupings; at other times planes will divide at points not congruent with typical groupings. The latter situations will be identified as marked changes of temporal plane and will often be the most analytically significant. Unmarked changes will be those that agree with expected divisions. Occasionally a change at a sectional division will be so extreme as to seem marked. The second theme of a sonata form, for instance, will frequently bring a change of plane (which would thus be unmarked); however the second theme shown in Example 4.1 (at m. 91) is a markedly distinct change from the prevailing plane.

The analyses that follow will perhaps be reminiscent of the approach to Stravinsky's music taken by Edward Cone. Identifying sudden interruptions in texture as a hallmark of Stravinsky's style, Cone identifies a technique he calls *stratification*, by which he means, "the separation in musical space of ideas—or better, of musical areas—juxtaposed in time; the interruption is the

¹⁸ Simultaneous opposed temporal planes will not be ruled out, however, especially as a special effect. An example occurs in Beethoven's Piano Sonata Op. 57, first movement: at the recapitulation, m. 136, the first theme with its own plane is combined with a dominant pedal point in triplets, a separate plane associated with the bridge material that begins in m. 24.

mark of this separation."¹⁹ These strata seem to me to strongly resemble what I mean by temporal planes, and interruptions clearly correspond to temporal disjunctions. It is significant, however, that Cone applies this analytical technique only to a post-tonal composer. Earlier music is typically treated as temporally more uniform. It is also significant that another writer concerned with Stravinsky, Jonathan Kramer, has inferred a somewhat similar procedure in Beethoven's late music, finding what he calls *multiply-directed time* in the last quartet.²⁰ Again, this approach is mainly applied to music of this century, with the Beethoven work treated as a special case. I would argue that marked changes of plane have a long history, originating in the eighteenth century (at least) and eventually, through Beethoven's music primarily, forming the basis for some of the rich diversity of post-tonal temporality.

To illustrate a marked change of plane that does not coincide with a sectional division, Example 4.5 presents the first theme, bridge and beginning of the second theme group of Beethoven's Piano Sonata, Op. 2 #1, first movement. The first theme presents the initial temporal plane α , with a

¹⁹ "Stravinsky: The Progress of a Method," *Perspectives of New Music*, 1/1 (1961) p. 19; reprinted in *Perspectives on Schoenberg and Stravinsky*, ed. by Benjamin Boretz and Edward T. Cone, (New York: W.W. Norton, 1972) pp. 156; and *Music: A View from Delft*, ed. by Robert Morgan (Chicago: University of Chicago Press, 1989) p. 294.

²⁰ *The Time of Music*, pp. 150–66. These pages are a revision of an earlier article, "Multiple and Nonlinear Time in Beethoven's Opus 135," *Perspectives of New Music*, 11/2 (1973) pp. 122–45.

typical acceleration towards the cadence.²¹ The plane continues into the bridge through the counterstatement in the dominant in mm. 9–10, but in the next bar, the driving quarter-note motion freezes into the static whole notes in the left hand of mm. 11–14. Despite the development of the rhythmic motive of m. 10, the whole-note passage seems to be on a slower plane, as if the basic pulse has shifted from two beats per measure to one. This change creates a temporal disjunction that interrupts the bridge.

The sense of two rates of time is heightened by a motivic juxtaposition. The motive that caps the counterstatement at m. 10, essentially the third $E_b-D\sharp-C$, is drawn out in slow motion: proceeding from the prolonged e_b^2 of m. 10, the expanded motive dwells on db^2 for three measures (mm. 11–13) before settling on c^2 . This C in m. 14 recreates the upbeat of m. 10 and drives it towards the dominant of III, making the transition into a faster plane ($\beta 2$) that restores the two-beat pulse. To further effect this acceleration, the third motive is restated at faster speed. Taken together, the descending lines of mm. 16–20 reconstitute the descending line at the peak of the first theme (m. 6–7, see Example 4.6).²² These lines are not just motivically connected but are both associated with the sense of acceleration. Thus the boundary between plane $\beta 2$ and the following music is reconnecting it with the urgent acceleration of the initial temporal plane.

²¹ The acceleration is two bars per harmony, then one, reaching one-half in. 6. This passage is Schoenberg's classic example of the reduction and liquidation of a motive; in *Fundamentals of Musical Composition*, pp. 58–9 and 63.

²² This motivic parallelism is indicated by Schenker in his analysis in *Der Tonwille II* (Vienna: A.J. Gutmann, 1922).

The opening of the second theme group establishes a plane (γ) that seems faster because of the agitated eighth notes in the bass. (This could be considered part of the transition, since it remains on the dominant of III, but it is the strong arrival at a stable temporal plane that argues against this reading.) Yet the inversion of the opening arpeggio now conceals the recurring third motive, on the same pitch-classes E^b-D^b-C , at a pacing that recalls that of plane β_2 (see Example 4.5 and especially the longer duration of the D^b). The effect of the temporal disjunction at m. 11 reverberates through later planes.

To return to mm. 11–14, it should be noted that the slow unfolding of the third motive is not significantly slower than the harmonic rhythm of the opening measures (which is initially two bars). I would argue that in temporal analysis it is the immediate juxtaposition that is most decisive. It is the immediate experience at the turn of mm. 10–11 that determines the quality of the succeeding measures.

Example 4.5: Beethoven, Piano Sonata, Op. 2, No. 1, 1st mvt. plane analysis

Initial temporal plane α

Allegro

Plane α , cont.

Slower transitional temporal plane $\beta 1$
(from expansion of third E_b , D_b , C)

Faster transition temporal plane $\beta 2$
(resumption of faster thirds)

Third E_b

Third E_b , D_b , C

D_b

C

Third E_b , D_b , C

9

[1]

[ϕ]

Second main temporal plane γ
(acceleration of initial plane but third pacing from slower plane)

Plane $\beta 2$, cont.

Third E_b D_b C

18

19

Example 4.6: Beethoven, Piano Sonata, Op. 2, No. 1, 1st mvt., a motivic parallelism

10

L.H.

7

Example 4.7 presents an even more marked change of plane in the midst of the first theme of Beethoven's String Quartet Op. 59 #1, first movement. The first nineteen bars present a resolutely-paced plane (α) that expands gradually in both dynamics and register. The first eight bars present an antecedent phrase closing on $V\frac{4}{3}$. The consequent begins by repeating the previous four bars, now less comfortably placed over the dominant, and continues as it might have begun, with this melody a fourth higher on G (mm. 13–16). Example 4.8 shows how a possible (if banal) consequent could have been constructed by beginning on G, proceeding a fourth higher to return symmetrically to the first segment, and making a close on the tonic. Beethoven almost does this, since in mm. 16–19, he presents the C–D–E–F of m. 1 in whole notes, dovetailing the last segment.²³ These longer notes almost threaten to form their own temporal plane, as the pressure of an unresolved consequent finally bursts in m. 19.

²³ As noted by Lewis Lockwood, "Process versus Limits: A View of the Quartet in F Major, Opus 59 No. 1," in *Beethoven: Studies in the Creative Process* (Cambridge, Mass.: Harvard University Press, 1992) p. 200. He does not note the possible continuation in m. 30 shown below.

Example 4.7: Beethoven, String Quartet Op. 59 #1, 1st mvt., mm. 1–35,
temporal plane analysis

Initial temporal plane α

Allegro

Plane α . cont.

Plane α . cont.

Facets β_1 β_2 β_1 β_2 β_1 β_2 β_1 β_2

Parentetical temporal plane β

Plane α . cont.

Plane α transformed

Example 4.8: Beethoven, String Quartet Op. 59 #1, 1st mvt., a hypothetical first period

Antecedent in two four-bar segments

Hypothetical symmetrical consequent

At this point of temporal disruption in m. 19, a new and quite markedly different plane intrudes. Though this plane will turn out to be parenthetical, it overlaps the previous plane. This is because the point of disruption takes place right on the dotted half of m. 19, since the longer value in all parts suddenly replaces the continuous eighths. While dynamics and registral spread assert the power of this tonic chord as an arrival, the overlap simultaneously suspends the discourse.²⁴ The equivocal quality of this tonic is increased by the denial of the expected melodic continuation for the consequent. Example 4.9 shows that the melodic implication of mm. 16–19 is continued in the relaxed pastoral music at m. 30 (at the finish of the interrupting second plane).

However, m. 30, which does fully stabilize the tonic, is not quite an answer to the opening antecedent nor a simple return to the initial plane. The resumption of the melodic continuation at m. 30 renders the

²⁴ In this I disagree with Lockwood, *op. cit.*, p. 200 and Joseph Kerman, *The Beethoven Quartets* (New York: W. W. Norton, 1966) p. 94.

interrupting temporal plane parenthetical to the main discourse, but when plane α returns it has been transformed by the intervening events. This is the result of a conflict between the two facets that make up plane β . The first (β_1) consists of staccato eighth notes; the second (β_2), which grows out of the long note of bar 19, consists at first of a single, slurred half note, but gradually becomes more and more prominent until it takes over at the second half of m. 26. The slower facet β_2 sets the terms on which plane α returns in m. 30. The constant accompanying eighth notes are replaced by long held chords and the melody, after echoing the dotted half note of m. 19, is transmuted into a pastoral of flowing eighth notes. M. 30 also realizes a latent implication of the first two measures: the temporal disjunction between the quarter notes of m. 1 and the dotted half of m. 2, as well as the tendency to hear that longer note as a downbeat, as shown in Example 4.9.

Example 4.9: Beethoven, String Quartet Op. 59 #1, 1st mvt., the recreation of m. 1-2

The image displays two musical staves. The upper staff is in bass clef and shows measures 1 and 2. Measure 1 begins with a circled '1' and contains three quarter notes. Measure 2 begins with a circled '2' and contains a dotted half note. An arrow labeled 'quasi-upbeat' spans from the end of measure 1 to the start of measure 2. The lower staff is in treble clef and shows measures 16 and 30. Measure 16 begins with a circled '16' and contains a dotted half note. Measure 30 begins with a circled '30' and contains a quarter note. An arrow labeled 'quasi-upbeat' spans from the end of measure 16 to the start of measure 30.

4.7: The Generation of Planes from a Disjunction

Example 4.9 highlights a relation between temporal disjunction and temporal planes already alluded to in Chapter 3. (See especially Example 3.4.) A low-level disjunction such as that created by a long note following shorter ones has several effects:

- 1) a mild disjunction is heard between these types of values, one which has the potential to be recomposed in a more intense way;
- 2) the longer note has the effect of an elongation of the shorter ones, and this may result in a more pronounced elongation later in a composition;
- 3) the sense in which these two values are on separate durational planes may be realized in a full-fledged temporal plane later in a composition by means of the elongation and continuation of the longer value for a longer period.

In the case of Example 4.9, the disjunction is associated with the leap from F down to C. When this melodic motion is re-created (in mm. 16–9), the space between these tones breaks apart and a parenthetical plane is inserted (see Example 4.7). When the expected C arrives in m. 30, the character of the initial plane is altered to include a more sustained accompaniment. This suggests the possibility of a generative process whereby surface disjunctions can be the motivation for the development and contrast of temporal planes on a larger scale and can affect many characteristics of the planes. (This sort of process can also be seen in Examples 3.5 through 3.9, which analyzed music by C.P.E Bach and Haydn.)

In this chapter a conflict of planes motivated by temporal disjunction will be illustrated through an analysis of the first movement of Beethoven's Symphony #5 in C minor, Op. 67.²⁵ The initial disjunction is an integral part of the celebrated opening motto; though the longer value is placed in the expected downbeat location, its capacity for elongation and increased disjunction is realized almost immediately and less obviously in later instances. (The fermatas further invite the performer to exaggerate the effect.)

Example 4.10: Beethoven, Symphony #5, Op. 67, 1st mvt., the disjunctive motto

An examination of the temporal planes that are generated by this disjunction and of the relations and conflicts among them will require

²⁵ This movement has been subject of dispute over the reading of its hypermetric structure. The analysis presented here is most closely aligned with that of Schenker in *Beethovens fünfte Sinfonie* [reprinted from *Der Tonwille* I, 1921] (Vienna: Universal Edition, 1925), see especially Fig. 6. See also Donald Francis Tovey, *Essays in Musical Analysis I* (London, 1935) pp. 38–41; and Imbrie, “‘Extra’ Measures...,” pp. 55–66.

detailed analysis of the tonal and temporal contents of this movement. Example 4.11 begins by presenting a picture of the first theme, one that finds the entire theme centering on a double neighbor turn around $E\flat$. As indicated in the small staff, the turn begins with motto in unison; this introductory motive seems to stand outside the time of the piece. The $E\flat$ and D highlighted in the example receive evenly measured four-bar spans, but these are followed by obsessive repetitions that seem stuck in the same temporal space. When F and $E\flat$ arrive, those pitches become the logical conclusion of a four-tone unit; at a deeper level they comprise the plastic manipulation of an underlying four-bar hypermeasure, as indicated in the larger hypermetric numbering.

The double-neighbor motive becomes more explicit in the bridge, but another motive emerges in this passage that is crucial to my analysis. Example 4.12 presents a plasticity analysis of the opening ten-bar group of the bridge by means of a derivation from a more basic eight-bar group. From the basic harmonic framework at the top of the example is derived a more melodic diminution that includes an augmented second step. This is disguised somewhat by the elaboration with double-neighbor figures (a reaching-over technique in service of a rising stepwise line). At the final stage, the pace is accelerated through simple rhythmic diminution (resulting in ten actual bars in the composition). Example 4.12b also attributes a rhythmic impulse to the augmented second melodic pattern. It not only leads to a strong hypermetric downbeat, it also does so after a period of some rhythmic instability.

Example 4.11: Beethoven, Symphony #5, Op. 67, 1st mvt., mm. 1-39, rhythmic analysis

The image displays a musical score for the first movement of Beethoven's Symphony No. 5, Op. 67, measures 1 through 39. The score is presented in two systems, each with a piano (piano) staff on top and a double bass (basso continuo) staff on the bottom. The key signature is one flat (B-flat major or E-flat minor), and the time signature is 4/4. The first system covers measures 1 to 15, and the second system covers measures 16 to 39. The piano part features a prominent rhythmic motif of a dotted quarter note followed by an eighth note, which is analyzed as a double neighbor figure. The double bass part provides a steady accompaniment, often using a similar rhythmic pattern. Annotations include circled measure numbers (7, 15, 22, 26, 34) and labels such as "Double neighbor begins:" and "Double neighbor completed:". Fingerings (1, 2, 3, 4) are indicated for various notes in both parts. The score concludes with "etc." at the end of measure 39.

Example 4.12: Beethoven, Symphony #5, Op. 67, 1st mvt., mm. 34 (plus upbeat)–44, plasticity and motivic analysis

a) Basic harmonic framework...

hyperbeats: 1 2 3 4 5 6 7 8 1

c: I⁸ 7⁴ IV⁵ 3⁶ 4⁴ I

b) ...from which emerges a recurring melodic pattern.

+ 1 2 3 4 5 6 7 8 1

Aug. 2nd melodic pattern

c) Elaborated by double-neighbor motive in service of reaching-over progression

+ 1 2 3 4 5 6 7 8 1

d) Final stage

rhythmic diminution

1 + 2 + 3 4 5 6 7 8 1

(1 2 3 4 5 6 7 8 9 10)

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This melodic/rhythmic pattern is one key to the temporality of the rest of the exposition. Example 4.13 overlaps with Example 4.11 to show the entire bridge, second theme, and closing theme. The emphatic *tutti* of m. 44 asserts a powerful and unambiguous hypermeter, shown by the larger hypermetric numerals. This resumes the pace at which the first theme set off. The metric group makes deliberate progress towards completion, but at the third hyperbeat, an unexpected diminished-seventh sonority seems to cause a disruption of some sort. When another harmony arrives, a B \flat 6/3, it is so tentative that the listener could be unsure whether this counts as a fourth hyperbeat, comparable to the previous three. It is just at this point, when metric stability seems to dissolve, that a return to the opening motto in extended form presents the greatest degree of hypermetric ambiguity.²⁶ The two basic alternatives are counted below the middle system.

As already seen in Example 4.10, the final note of this horn motto settles on a B \flat pedal of seemingly endless length. The plastic elongation of the motto's long durations has now blossomed into a temporal plane of markedly different character; reminders of the opening three-note upbeat in the lower parts do not disturb the overall effect of longer and more placid durations.

The lyrical melody that follows could support a number of possible motivic interpretations. One is that which is shown in the middle staff: a double-neighbor figure on the same tones as the first theme. The fact that the final tone E \flat is only implied is significant: the denial of the goal tone both weakens the sense of possible downbeat and motivates the need for a better continuation. The music seems held in a state of suspension, not lending certainty to any one hypermetric scheme. The

²⁶ These bars have fomented some of the greatest disagreement in hypermetric scansion in the literature. See fn. 25.

sequential pattern leading through II to IV shows more promise of definition, but here too there is difficulty proceeding.

Example 4.14 presents a plasticity analysis of the difficult passage that follows; it begins with the simplest assumed continuation from the IV leading through a bass A \sharp to V. Deflection of the melody from this course makes possible a voice exchange, but it also brings into being a recomposition of the augmented-second melodic pattern in its fully extended form. (Compare the dotted brackets with those of the companion Example 4.12.) As in the bridge, the augmented second is associated with rhythmic instability, this time a hesitating expansion that draws out the voice exchange prolonging a diminished seventh harmony.²⁷

The larger context of the previous Example 4.13 also shows that the augmented second retains another important attribute: it leads to a powerful downbeat, shown both at the beginning of the example and at the end of the second system. Just at this moment, a confluence of events comes together. Just as important, the diminished seventh on A that is the content of the expansion is also the same harmony that disrupted the bridge at the third hyperbeat; the voice exchange in fact serves to bring it into the same 6/5 inversion as before. When this chord resolves to the B \flat harmony, it is to a sonority that is strikingly similar to the bridge passage, a first inversion chord with chordal seventh added and register changed. We can now see the hesitating melody, the expanded voice exchange and the gradual *crescendo* as a kind of struggle to resume the direction that was previously interrupted, to regain a sure foothold on the hypermetric path. The fourth hyperbeat that was so tentatively ventured at the end of the bridge now

²⁷ This example is largely based on Schenker's analysis.

arrives to initiate its own lower-level eight-bar group that both makes up for its cursory treatment before and brings the harmony into the register that it previously occupied. (The V harmony is prolonged through this eight-bar phrase.) At the arrival at I of E \flat , at a passage usually identified as the closing theme, the thematic material of the bridge resumes, completing the sense that one plane has simply picked up where it left off.

The second theme represents a clear example of a parenthetical temporal plane, one whose boundaries are an occasion of struggle and uncertain progress. The plane of the second theme is not just durationally more elongated, but also seems to present a somewhat different kind of time from its surroundings. It seems hypermetrically fuzzier, less defined, a temporal space where deciding on hypermetric counting is pointedly harder. This ambiguity serves the formal function of impelling the music forward in a way that sweeps across the span of the exposition.

The sense of suspension affects tonal structure as well. The second theme is in E \flat , but if this key is held within a plane parenthetical to the main discourse, then there is a sense in which E \flat does not fully arrive until the closing theme, that is, when the discourse of the initial plane resumes.²⁸ Conflict between planes can also act to color an otherwise straightforward prolongation that is difficult to capture in pure voice-leading analysis.

²⁸ This can be compared to the analysis of Op. 109, 1st mvt. in Chapter 5.

Example 4.13: Beethoven, Symphony #5, Op. 67, 1st mvt., mm. 34 (plus upbeat)-122, rhythmic analysis

34 44 52

Aug. 2nd melodic pattern

1 2 3 4 5 6 7 8 1 2 3 (? -) (4 ? (? ?) Interruption...

60 Double neighbor (but goal denied) 82 Aug. 2nd melodic pattern ...resumption... 94 4! (=1 2

1 2 3 4... ...or 1 2 3 4?

94 102 110

...continuation... ...arrival!

4! (=1 2 3 4 5 6 7 8) repeat: (1 2 3 4 5 6 7 8) 1 2 1

E♭: V⁶ 1

[echo repetitions of cadence removed]

Example 4.14: Beethoven, Symphony #5, Op. 67, 1st mvt., mm. 83–94, plasticity analysis

Assumed continuation

a)

Deflection of top line creates voice exchange.

b)

Aug. 2nd melodic pattern

Voice exchange is filled in...

c)

...and expanded.

d)

Vls. Vel.

Tension between planes materializes as a powerful dramatic element in the final phase of the development of this movement. Example 4.15 identifies motivic elements that are familiar from the exposition. At this point in the development the thematic material being developed is the horn call that introduced the second theme; it is appropriate that the double-neighbor motive that dominated the second theme appears with it, now in inversion. This double-neighbor motive elaborates an F-minor 6/3 harmony whose ultimate role is as a passing sonority within a prolonged dominant. But that passage will not be easy.

The crucial misstep occurs when the double-neighbor motive is followed by its usual companion, the augmented second melodic pattern. Despite the different overall harmonic context, the augmented second is restated at the same pitch level as before. What is doubly odd in this context is that the augmented second leads again to a B \flat harmony in 6/3 position, but as if to acknowledge that this is in fact the wrong direction, it is B \flat minor that appears, the wrong sonority, at least with respect to previous history. The augmented second motive still retains its impulse towards an accent and while the B \flat 6/3 does rest on a hypermetric downbeat, it is a rather feeble downbeat that quickly loses energy. Instead of an attainment of metric clarity, we get a gradual stretching out of time, like a dream state where everything happens in unreal slow motion. The D \flat 6/3 offers a way out by hooking into a 5–6 series that at least has the potential to move us forward. (The small staff at bottom of the example shows the potential normative form of this series.)

Example 4.15: Beethoven, Symphony #5, Op. 67, 1st mvt., mm. 196 (plus upbeat)–252, rhythmic analysis

Annotations above the staff:

- (196) Double neighbor
- (204) Aug. 2nd melodic pattern... ...but wrong sonority!
- Impasse... (215)
- ...confrontation... (233)
- ...restoration. (249)

Dynamic markings and performance instructions:

- dim.* (measures 204-215)
- p* (measure 215)
- pp* (=8 bars + elision) (measures 215-223)
- ff* (measures 223-233)
- pp* (=8 bars + elision) (measures 233-241)
- ff* (measures 241-249)
- f* (measures 249-252)

Lyrics below the staff: e - l - o - n - g - a - t - i - o - n

Harmonic analysis annotations:

- $G_b (= F^\#)$
- to $G_b?$
- to $F^\#!$

Measure numbers and rhythmic markings below the staff:

- $V^\# (=5)$
- 6 - 5 - 6
- (=5?)
- $=V^\#?$
- 8 = 3

from:

Measure numbers below the staff: 5, 6, 5, 6, 5?

Instead there is an impasse at the G \flat minor triad; at the second 5–6 exchange, progress is stilled, frozen in musical space and time. Somewhere here the sense of background diatonicism begins to allow G \flat to be heard as F \sharp , though precisely where is not easy to say. (Beethoven's mixed notation of this chord is telling.) This tonal situation here would not be exceptional, but the temporal context makes it so. The necessity for enharmonic reinterpretation has become a conflict between two temporal planes that seem as spatially removed from one another as G \flat minor is from C minor. When the *fortissimo* unison interrupts the reverie with its implication of G major, it is distinctly a confrontation and one to which the dream time responds in its own manner. Invoking the viewpoint of harmonic dualism, one might paint a picture of an archetypal conflict between flats and sharps, where the movement in the subdominant direction is actualized as one sort of time and the intrusive return of the dominant is in aggressive opposition to it, demanding restoration of its hegemony.²⁹

This entire passage and perhaps the whole development dramatizes the struggle simply to get from F to G. The augmented second pattern is deeply involved in this; in its main form, centering on G \flat –A, it implies the one diminished seventh uniquely qualified to resolve either to V of E \flat , or to V of C (which is employed in the recapitulation) dependent solely on the reinterpretation of G \flat as F \sharp . Just as this motive is crucial to the exposition's struggle to get from I to III, it is similarly involved in the development's tortured path from IV to V. Both of these involve the confrontation of temporal planes that seem to belong to different

²⁹ The dramatic experience of the G \flat /F \sharp transformation is particularly well characterized by David Lewin in "Music Theory, Phenomenology, and Modes of Perception," *Music Perception* 3/4

worlds. Example 4.15 also shows eight-bar groups under the *pianissimo* breves; this is followed by an eight-bar group at the return of the *fortissimo*. Belonging to two separate temporal planes, these groups are only superficially the same length. The conflicting temporal planes represent the composing-out of musical times that are, at some level, fundamentally incommensurable with each other.

Temporal plane analysis brings together the concepts presented in Chapters 2 and 3. Together these techniques allow a richly textured explication of tonal/temporal structure. Chapter 5 proceeds to apply these to selected works from Beethoven's late repertoire.

Chapter 5: Analyses of Selected Late Works

This chapter will include analyses that exemplify the principles introduced in the prior three chapters. These are intended as demonstrations of how these concepts can inform an analysis without necessarily embodying the full theoretical apparatus. Where the concepts reveal themselves is in the extent to which each analysis dwells on aspects of the music which are typically glossed over as inessential. Thus the whole character of the analyses is implicitly shaped by an awareness of temporal plasticity, disjunction and planes.

The following are presented in three sections corresponding to the previous three chapters, but it is not always possible to confine each piece to a single temporal concept. The smaller-scale Bagatelles are particularly useful illustrations and provide a window into methods that might be applied to shorter segments of larger pieces.

5.1: Temporal Plasticity in the Bagatelles, Op. 119, #8 & #7

The little Bagatelle in C major, the eighth of Opus 119, is on the surface unassuming, yet quickly reveals a quirkiness more typical of these late fragmentary pieces.¹ The score is given in Example 5.1.

¹ This piece has attracted a fair degree of attention, including Edward T. Cone, "Beethoven's Experiments in Composition: the Late Bagatelles." in *Beethoven Studies 2*, ed. Alan Tyson, (Oxford: Oxford University Press, 1977) pp. 89–92 [Reprinted in *Music: A View from Delft*, ed. by Robert P. Morgan, Chicago: University of Chicago, 1989]; Lawrence Kramer, *Music and Poetry: The Nineteenth Century and After* (Berkeley and Los Angeles: University of California Press, 1984) pp. 11–15; Nicholas Marston, "Trifles or a Multi-Trifle? Beethoven's Bagatelles, Op. 119, Nos. 7–11," *Music Analysis* 5/2–3 (1986) pp. 193–206; Christopher Hatch, "Normality and

Example 5.1: Beethoven, Bagatelle, Op. 119 #8, score

The image shows the first 15 measures of Beethoven's Bagatelle, Op. 119 #8. The music is written for piano in G major and 3/4 time. The tempo is 'Moderato cantabile' and the articulation is 'molto legato'. The score is divided into three systems. The first system (measures 1-6) shows the right hand playing a steady ascending 5-6 series (G4-A4-B4-C5) with outer-voice tenths. The left hand provides a harmonic accompaniment. The second system (measures 7-14) shows the right hand beginning to distort the steady pacing with plastic displacement and elongation. The third system (measures 15-18) continues this distorted pacing. Dynamic markings include 'cresc.' in measure 14. Measure numbers 7 and 15 are indicated at the start of their respective systems.

Much of its idiosyncrasy results from plastic displacement and elongation of more normative voice leading. This is already evident in the first phrase, which sets out on a steadily-paced ascending 5–6 series and proceeds to freely distort this pacing in an almost casual manner. Example 5.2 details the chain reaction of plasticity by which lumps appear to disturb the smoothness of the *molto legato* style. Example 5.2a presents a normative model with a low level of plasticity; it carries out the 5–6 series with outer-voice tenths mechanically to the turning point in m. 6 (after which a cadence in the dominant follows). Example 5.2b introduces two contractions that compress two tenths into single bars. The faster pace of the tenths at the first contraction (i.e., half-quarter)

Disruption in Beethoven's Bagatelle Op. 119, No. 8," in *Music Theory and the Exploration of the Past*, ed. by Christopher Hatch and David W. Bernstein, (Chicago: University of Chicago, 1993) pp. 341–55.

suggests the reaching-over figures in mm. 4-5 (see also the voice-leading sketch in Example 5.3); motivic repetition of this figure generates the second contraction, as indicated by the brackets. The chromaticism introduced at the next stage both prepares the half-quarter rhythm created by the contraction and breaks up the upper-voice parallels that occur in m. 3 of Example 5.2b.

Example 5.2c shows a backward skew of the alto voice that is echoed in the bass; the unexpected impatience shown by the alto f^1 greatly strengthens the sense of a V7 prolongation, against which is heard a significant Bb inflection (really an $A\sharp$ as neighbor to $B\flat$). Example 5.2d & e show a parallel impatience in the latter part of the phrase, as alto and tenor voices answer each other, adding to the puzzling sonorities of m. 6.

One seemingly incidental consequent of the first phrase's irregularity becomes the focal point of the antithetical second half of the piece. The first point of marked plasticity, m. 3, brings in the wake of its scrambled rhythm a passing Bb in the bass. The voice-leading sketch of Example 5.3 shows that this Bb fills in an unfolded third $G-B$ prolonging a local V7, a harmony called to our attention by its plastic treatment. What is more significant is the extraordinary recomposition of the bass motion $G-Bb-B-C$ in the second half in a manner that gives startling prominence to the previously passing Bb . (See the brackets under both levels a and b.) The second half opens with a lone Bb , which seems to lead to a cadence on F. This proves fleeting: A diminished seventh chord on $B\flat$ interrupts so forcefully that it links back to the previous Bb and completes the motion to C. These tones are also linked by their plastic elongation, part of a complex temporal play. Example 5.4 illustrates.

Example 5.2: Beethoven, Bagatelle, Op. 119 #8, plasticity in the first phrase

a)

b)

c)

d)

e)

6 5-6 5-6 5-6 5-6 5-6 5-6 5 etc.

10 10 10 10 10 10 10 10

contraction contraction

5-6 6 5-6 5 etc.

10 10 10 10

skew

5-6-7! etc.

(echo)

(pedal tone)

skew skew

(echo) (echo) (echo)

skew

Example 5.4: Beethoven, Bagatelle, Op. 119 #8, plasticity in mm. 9–16

The image displays three parts of a musical score, labeled a), b), and c), illustrating hypermetric and shadow meter concepts in mm. 9–16 of Beethoven's Bagatelle, Op. 119 #8.

Part a) shows the original notation with a hypermeter indicated by numbers 1, 2, 3, 4, 1, 2, 3, 4 below the staff. The bass clef has a key signature of one flat (Bb) and a time signature of 3/4. The notes are: m. 9 (Bb, Bb), m. 10 (Bb, Bb), m. 11 (Bb, Bb), m. 12 (Bb, Bb), m. 13 (Bb, Bb), m. 14 (Bb, Bb), m. 15 (Bb, Bb), m. 16 (Bb, Bb).

Part b) shows the same notation with a shadow meter indicated by numbers 1, 2, 3, 4, 1, 2 (= ant.), 3, 4 (= ant.), 1, 2 etc. below the staff. The notes are: m. 9 (Bb, Bb), m. 10 (Bb, Bb), m. 11 (Bb, Bb), m. 12 (Bb, Bb), m. 13 (Bb, Bb), m. 14 (Bb, Bb), m. 15 (Bb, Bb), m. 16 (Bb, Bb). The shadow meter is indicated by a "shadow meter" label and a "skew" label.

Part c) shows the same notation with a shadow meter indicated by numbers 1, 2, 3, 4, 1, 2 (= ant.), 3, 4 (= ant.), 1, 2 etc. below the staff. The notes are: m. 9 (Bb, Bb), m. 10 (Bb, Bb), m. 11 (Bb, Bb), m. 12 (Bb, Bb), m. 13 (Bb, Bb), m. 14 (Bb, Bb), m. 15 (Bb, Bb), m. 16 (Bb, Bb). The shadow meter is indicated by a "shadow meter" label and a "skew" label.

The *unisono* B \flat that unexpectedly fills m. 9 presents a puzzle both tonally and temporally. Its sudden cessation of motion is a disjunct break from the previous deliberate movement. Meter continues only by implication; the sustained dotted-half note of m. 9 has the effect of an elongation of an unspecified duration, as depicted by the quasi-fermata in Example 5.4b. (In terms of the Temporal Plasticity Framework, an Uninterpreted Duration is in conflict with Metric Hierarchy.) The melodic upper voice and outer-voice tenth that enters in m. 10 seems like a new beginning detached from the previous bar. This generates the hypermetric conflict also shown in Example 5.4b: a continuation of the prior four-bar hypermeter is undermined by a shadow hypermeter at odds

with it.² The tonal content of four tenths that follow could well have filled out its four-bar shadow meter, as hypothesized in Example 5.4a. The skew backwards of the G–bb tenth compresses its content into three bars and dissolves the shadow meter.

The quasi-fermata at m. 13 is cognate with the previous one on Bb. In this case the B diminished seventh sonority is elongated beyond one bar; Example 5.4a shows a more normative model. The elongation takes time from the resolution to C major to the point where the latter becomes an anticipation of its real arrival in m. 17. (See Example 5.4b.) Example 5.4c presents a picture closer to the actual piece: The VII⁷ itself is anticipated and anticipations of the tonic chord are prepared by passing adumbrations of the tonic on the same third beat.

Anticipation reverberates through the final four bars. Example 5.5a shows how the final phrase might have been approached if the VII⁷ harmony had persisted through m. 16; this places the return to $\hat{3}$ in the upper voice on the hyperdownbeat. Example 5.5b adds an upper-voice anticipation that displaces that $\hat{3}$ to the next bar; this motivates a corresponding delay of $\hat{2}$, which now occurs as a suspension over the final tonic. Example 5.5c supports the first and third anticipations with full chords. The plastic treatment of the upper voice in

² Shadow meter refers to a subsidiary, displaced meter that trails behind the main meter, sometimes supplanting it. In TPF terms, a durational span formed by some pattern or grouping (an Uninterpreted Duration) can act to challenge the written Metric Hierarchy; this often occurs at the hypermetric level, as is the case here. The term was introduced in my article, "Strange Dimensions: Regularity and Irregularity in Deep Levels of Rhythmic Reduction," in *Schenker Studies II*, edited by Carl Schachter and Hedi Siegel (New York; Cambridge University Press, 1999) pp. 235–6; shadow meter in Beethoven's earlier music is insightfully explored by William Rothstein, "Beethoven with and without Kunstgepräg': Metrical Ambiguity Reconsidered," *Beethoven Forum* 4 (Lincoln & London: University of Nebraska Press, 1995) pp. 165–93.

mm. 17–18 find a counterpart in the running thirds of the left hand, which seem oblivious to the bar line, freely placing false harmonies on strong beats. The V^7 supporting $\hat{2}$ in the final bar spills over the bar line also; it still retains its effect as a suspension (as in Example 5.5b), creating a kind of pressure against the closing tonic.

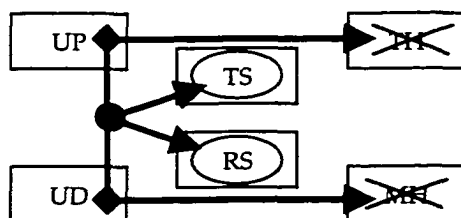
Example 5.5: Beethoven, Bagatelle, Op. 119 #8, plasticity in mm. 16–20

The image displays three musical examples, labeled a), b), and c), illustrating plasticity in measures 16–20 of Beethoven's Bagatelle, Op. 119 #8. Each example shows a piano score with treble and bass staves. Example a) shows a simple harmonic structure with fingerings 4, 1, 2, 3, 4 and accents on notes 3, 2, 1. Example b) shows 'ant.' markings above the treble staff and diagonal lines connecting notes between staves, with accents on notes 3, 2, 1. Example c) shows 'ant.' markings below the bass staff and a more complex melodic line in the treble staff, with accents on notes 3, 2, 1.

The elongation of $B\flat$ and $B\sharp$ that is the focal point of this bagatelle conjoins both tonal and temporal plasticity and is thus a clear example of marked

plasticity. The emphasis placed on $b\hat{7}$ is already a mild conflict with Tonal Hierarchy; when it is forced upward to $\sharp\hat{7}$ (rather than being subordinate to IV), the overriding of tonal norms is more acute. Plasticity is further heightened by the sense of elongation created by the quasi-fermata treatment of both $B\flat$ and $B\sharp$; Particularly for the former, the sustained empty octave immerses our hearing in the sound of $B\flat$ as an Uninterpreted Pitch. Figure 5.1 illustrates the specific TPF interactions. In addition to conflicts already discussed, the figure shows that Uninterpreted Pitches and Uninterpreted Durations join forces to sway Tonal Structure from recognizing the F-major cadence as structural (and thus thwarting the usual weight that a cadential goal would receive in the Tonal Hierarchy); they similarly encourage Rhythmic Structure to hear the C-major chords in mm. 15 and 16 as anticipatory, not as delayed (and thus disrupting the more normal harmonic rhythm, shown in Example 5.4a, that is desired by Metric Hierarchy).

Figure 5.1: TPF interaction for Beethoven, Bagatelle, Op. 119 #8, mm. 9–16



The acute plasticity of the elongated $b\hat{7}$ - $\sharp\hat{7}$ has more than local significance. The immediately preceding bagatelle in this opus is one of the

oddest in the set, resembling nothing so much as a freely improvised prelude.³ It is indeed a fitting prelude to No. 8, not merely because it is the same key, but more significantly because it composes out the same sort of $b\hat{7}-\natural\hat{7}$ plasticity charted by Figure 5.1. Example 5.6 presents the complete score of Op. 119 #7. Example 5.7 details some significant plasticities in this piece.

Example 5.7 suggests a link between the opening premise of this piece and its fantastical final cadence. Example 5.7a presents a hypothetical preparation for the opening bar. Example 5.7b suppresses the preparation so that a dissonant suspension of a dominant seventh enters immediately with the tonic; this is the Bagatelle's recurring opening gambit. Example 5.7c shows the form in which this idea takes in mm. 16ff. The plasticity of the opening unprepared suspension is markedly increased by insertion of $B\flat$ as a delay of $\natural\hat{7}$. Example 5.7d shows the realization at a middleground level. The insistent presence of $b\hat{7}$ overrides the momentary resolution to a (a 6/4 above C, cognate with the non-structural tonicization of F major in No. 8) and presses onward and upward to a registral and dynamic climax. That this climax coincides with a definitive resolution to I suggests that more is to come. The Bagatelle No. 8 answers this need with its own working out of the $b\hat{7}-\natural\hat{7}$ plasticity.

³ Op. 119 #7 is also discussed in the articles by Cone and Marston cited in fn. 1. Marston suggests specific connections between Nos. 7 and 8 quite different from that proposed here.

Example 5.6: Beethoven, Bagatelle, Op. 119 #7, score

The image displays a musical score for Beethoven's Bagatelle, Op. 119 #7, consisting of five systems of music. The first system begins with the number 'Nº 7.' and the tempo marking 'scherzando'. The second system starts at measure 8. The third system starts at measure 15 and includes the markings 'cresc.' and 'poco'. The fourth system starts at measure 22. The fifth system starts at measure 26 and includes the markings 'mf' and 'p'. The score is written for piano on a grand staff with treble and bass clefs.

Example 5.7: Beethoven, Bagatelle, Op. 119 #7, plasticity issues

a)

b)

c)

d)

C: I IV (=5-#5-6) V b^3 I b^7 -6- b^7 b^7 - 8
2 - 1

5.2: Temporal Plasticity in the Bagatelle, Op. 126, #1

This subtle Bagatelle embodies on a small scale many of the temporal eccentricities associated with Beethoven's very latest music.⁴ It begins with a murmured conversation between the soprano and tenor voices. Their dialogue is interwoven with the first and central plasticity in this piece, built around what Schenker termed an unfolding (*Ausfaltung*).⁵ Example 5.8 illustrates both the concept and the initial voice leading of this piece. The originally simultaneous intervals of a third, a neighboring diminished fifth, and the initial third again are unfolded into the succession $\hat{8}-\hat{7}-\hat{4}-\hat{3}$ (the $\hat{3}$ of the initial third is implied by the following $\hat{4}$). The separation of a simultaneity into two spans (the $\hat{7}$ and $\hat{4}$) creates a kind of tension in that two durations demand to be heard as if split from one. In TPF terms, Tonal Hierarchy permits Tonal Structure to conflict with all other temporal elements.

Example 5.8: Unfolding and plasticity

The diagram illustrates the unfolding of simultaneous intervals. On the left, a musical staff shows a simultaneous interval of a third. This is followed by the text "unfolded as:" and a staff showing the intervals $\hat{8}-\hat{7}-\hat{4}-\hat{3}$ in sequence. To the right, the text "or in two voices:" is followed by a staff showing the intervals split into two voices. Below the musical notation is a TPF diagram. It consists of several boxes: a box labeled "UP" (Unfolding Plasticity) on the left, a box labeled "TH" (Tonal Hierarchy) on the right, a box labeled "TS" (Tonal Structure) in the center, and two boxes labeled "UD" (Unfolding Dissonance) and "MD" (Melodic Dissonance) at the bottom, both of which are crossed out with an 'X'. Arrows point from "UP" to "TS", from "TH" to "TS", and from "TS" to both "UD" and "MD".

⁴ Cone, "Beethoven's Experiments..." (pp. 99–100) makes some points that overlap with those presented here, but lacks the interconnection with voice-leading structure that is essential to my analysis.

⁵ Unfoldings of the sort under consideration here are described by Schenker in *FC* § 140 and especially Fig. 43d and e.

This particular unfolding pattern lends itself to a two-voice setting, as is also shown in Example 5.8. From this point it is possible to trace the temporal plasticity that unfolding invests in the opening phrase. Example 5.9 develops this through several stages. Example 5.9a rhythmicizes the two-voice unfolding in a four-bar setting; at this stage the only plasticity is that caused by the tension inherent in the unfolded upper voice. It is thus unmarked. Example 5.9b elongates the third bar of 5.9a (Uninterpreted Durations acting against Metric Hierarchy); this displaces the content of the second bar backward so that the initial tonic is rendered only as an appoggiatura (increasing conflict with Tonal Hierarchy). Example 5.9c elaborates and counterpoints the motion up to $\hat{4}$; the change to 4/4 recognizes the unity of the elongated and decorated inner voice $\hat{7}$. Example 5.9d supplies further diminution and a dissonant upbeat. Example 5.9e changes to triple meter; with further addition of embellishing tones, Example 5.9f is essentially the piece.

Thus the plasticity of the original unfolding of a vertical interval is increased by gradually drawing the unfolded tones further apart, creating an elongated span in marked conflict with the four-bar unit it fills. The following analysis will show how this unfolding is developed and expanded to become the work's overarching gesture. Example 5.10 provides the score of the complete piece. Example 5.11 sketches the entire piece (with the coda summarized).⁶

⁶ The reading of mm. 1–4 differs significantly from that of Oswald Jonas in *Introduction to The Theory of Heinrich Schenker*, trans & ed. by John Rothgeb (New York: Longman, 1982) p. 102.

Example 5.9: Beethoven, Op. 126 #1, plasticity in mm. 1–4

a)

b)

c)

d)

e)

f)

Example 5.10: Beethoven, Op. 126 #1, score

*Andante con moto.
Cantabile e romanzesco.*

N.º 1.

p dolce

cruc.

7

13

cruc.

19 *L'istesso tempo.*

25

cruc.

dim.

30 *molto len. un tempo poco.*

p grando

31

cruc.

37

42

cruc. dim.

pp

p

La seconda parte due volte.

Example 5.11: Beethoven, Op. 126 #1, foreground sketch

The image displays a musical score for Example 5.11, Beethoven's Op. 126 #1, foreground sketch. The score is written on a grand staff with treble and bass clefs. It features two main layers: a foreground layer and a sketch layer. The foreground layer includes measures 1-8, with annotations such as "double NN" and "V: 3-3". The sketch layer includes measures 16-31, with annotations like "Coda:", "V: 3-3", and "D: II^o V^o 3-3". The sketch layer also includes a section labeled "Coda:" with measures 31-33. The score is annotated with various musical symbols, including circled numbers (16, 20, 27, 31, 33) and Roman numerals (I, V⁷, I). The text "mm. 9-10 = rep. of mm. 1-8" is written above the sketch layer. The score is oriented vertically on the page.

Example 5.11 shows that the two-voice unfolding pattern that governs mm. 1–4 is answered in mm. 5–8 by a corresponding pattern that adds the upper thirds B–A and E–D (actually in the bass, which carries the melodic voice here); thus the internal unfolded harmony sums to $F^\sharp-A-C-E$, a half-diminished seventh or, as in the context of this piece, an implied dominant ninth. (The ninth can be thought of as embellishing the more fundamental V^7). It is this second form of the unfolding that is taken up in the middle part of the bagatelle, in a sprawling expansive fashion. The second system of Example 5.11 shows that the first pair of thirds (G–B to $F^\sharp-A$) is treated in parallel fashion to the upbeat to m. 1: tones belonging to the tonic are made to embellish the dominant *Stufe*. As with the first unfolding, the second composes out two harmonies, V^7 (or 9) to I. The second leg of the unfolding effects the transition back to the tonic and the reprise of the opening; this enters in at the unexpected $C\sharp$ of m. 30. However, because the opening phrase of this piece is constructed on the auxiliary cadence V^7-I , the reprise does not reach its tonic goal until m. 35. Thus the second unfolding figure spills over into the reprise and absorbs the content of the first unfolding (i.e., the $F^\sharp-C$ to G–B) into itself. The material of the coda restores a straightforward version of the first unfolding, albeit with a quite different appearance. (Compare Example 5.11, the coda, with the basic unfolding shown in Example 5.8.) The middleground sketch presented in Example 5.12 aims to make clearer the hidden repetition of the second unfolding figure, as indicated by the braces above the small staff.

Example 5.13: Beethoven, Op. 126 #1, plasticity in mm. 17–32

The image displays two musical staves, labeled 'a)' and 'b)', representing different versions of a passage from Beethoven's Op. 126 #1, measures 17–32. The notation is in treble and bass clefs with a key signature of two sharps (F# and C#). The score is annotated with several terms and lines:

- bifurcation:** This term is used twice. In version 'a)', it points to a point where the melody branches into two paths, labeled '1' and '2'. In version 'b)', it points to a similar branching point, with the paths labeled '1' and '2'.
- elongation:** This term is used twice. In version 'a)', it points to a section where the melody is extended. In version 'b)', it points to a section where the melody is extended further, labeled 'elongation 1' and 'elongation 2'.
- expansion 1** and **expansion 2:** These terms are used to describe the overall structure of the passage in version 'b)', indicating areas where the music is expanded.
- etc.:** This abbreviation is used at the end of the first staff in version 'a)'.

The annotations use curved lines and arrows to connect the text labels to the specific musical notes and measures on the staves.

When the first step of the unfolding, b^1-a^1 , is recalled in m. 20, the music seizes on this fragment and begins to fixate on the final two quarter notes of that bar. (See the brackets in Example 5.11 and the change to 2/4 in Example 5.10.) The two-bar model bracketed in Example 5.13a (the fifth and sixth bars) is expanded in two stages.⁷ A single V-I motion in D major is bifurcated into two motions, labeled expansion 1, a slower-paced plane, and expansion 2, a surface increase of activity.⁸ When the music finally gathers enough energy to get out of this rut and moves on to a cadence in D major, a deceleration is employed to counteract the energy of the surface figuration; the II^6 chord of m. 27, beat 2, is elongated past the bounds of the bar line, while the upper voice elaborates a three-note arpeggio cognate with previous figures (as in Example 5.13a). The V^7 in m. 30 is elongated in a conventional cadenza-like manner; the change to 3/4 is merely notational at this point. Now the piece struggles to reconstitute the upbeat that will not only reinstate the original 3/4 meter, but also usher in the reprise. This attempt is bifurcated into upbeat 1, a false start, and upbeat 2, which gradually proceeds to take on the physiognomy of the opening music.

Thus the plasticity is keyed to the unfolding: the tones b^1-a^1 is a trigger that disrupts straightforward temporal progress; the second stage, e^2-d^2 , is the cue to restore more normal progress. In between is a span of intense plasticity, born of a hearing that seeks to temporally rejoin the inner unfolded tones. In this

⁷ The term “expansion” is here used deliberately with the presumption that Schenker might have placed this example under that rubric.

⁸ “Bifurcation” is used here in the same sense meant by Arthur Komar in *Theory of Suspensions* (Princeton: Princeton University Press, 1971) pp. 62. Bifurcation is closely related to unfolding in that one time span is split into two essentially equivalent segments.

eccentric middle section, the threads of tonality and temporality are woven together and stretched thin. The change to 2/4 is only a surface sign of a profoundly deeper phenomenon, a relation between tonal structure and time that is an inherent part of the Temporal Plasticity Framework.

5.3: Temporal Disjunction in the Sonata Op. 109, 1st Movement

A temporal disjunction is the central expressive event in the fantasia-like first movement of Beethoven's Op. 109. An obvious feature of this movement is the alternation of tempi and meters: a *Vivace* in 2/4 time is suddenly interrupted by an *Adagio espressivo* in 3/4 time. This is a clear instance of a marked contrast of temporal planes. What marks it is that this *is* an interruption: the *Vivace* is clearly in mid-statement when the ongoing crescendo peaks in an diminished-seventh arpeggio that is unexpected harmonically, melodically, rhythmically and metrically. The interruption at m. 9 fully characterizes an extreme temporal disjunction. Here it is the change in tempo that creates the change in sounding durations, which coincides with a drastic recasting of the texture. The disjunction between planes is just as strongly felt in the tonal realm: the exposed A \sharp in m. 8, the highest note thus far, is denied its expected resolution as leading tone to V.

The interrupting plane creates a kind of parenthetical interpolation, the sense of a foreign intrusion being heightened by the change in tempo. William Kinderman has written insightfully about the parenthetical nature of the *Adagio* sections, suggesting that, "the effect is created of a suspension of time in the parenthetical section, or the enclosure of one time within another."⁹ The completion of enclosure is effected at the end of m. 15, not just because the *Vivace* resumes, but because its resumption brings precisely the resolution denied at m. 9. Example 5.14 shows that the leading tone A \sharp not only attains its

⁹ "Thematic Contrast and Parenthetical Enclosure in Beethoven's Piano Sonatas, Opp. 109 and 111," in *Zu Beethoven*, iii, ed. Harry Goldschmidt and Georg Knepler (Berlin: Verlag Neue Musik, 1988) pp. 43–59.

expected goal at the return of the Vivace tempo, but also that the broken octave in which it was first presented is reconstituted in the figuration of m. 15.¹⁰

Example 5.14: Beethoven, Op. 109, 1st mvt., the parenthetical interpolation

The image displays a musical score for Example 5.14, illustrating a parenthetical interpolation in Beethoven's Op. 109, 1st movement. The score is presented in two systems. The first system shows the transition from the 'Vivace' section to the 'adagio espressivo' section. A large bracket spans across the measures, indicating the interpolation. The second system shows the return to 'tempo I'. The score is written for piano, with a treble and bass clef. The key signature is E major (three sharps). The tempo markings are 'Vivace', 'adagio espressivo', and 'tempo I'. The measure numbers 'Mm. 9-15' are indicated between the two systems. A small exclamation mark is placed above the first staff of the first system.

The manner in which the parenthetical interpolation can be related to the surface sense of temporal disjunction is not immediately obvious. It is my contention that the large-scale disjunction represented by the interrupting Adagio finds its origin in the small details of the Vivace's disjunctive rhythms and particularly in the movement's much-discussed opening motive, shown in Example 5.15.¹¹ With respect to voice leading, the opening G \sharp actually has two distinct melodic implications: the arpeggiation to the B above and the stepwise motion to F \sharp below in parallel tenths with the bass. (Beethoven's double

¹⁰ This example after Oswald Jonas, *Introduction*, p. 142.

¹¹ The motivic significance of the pitch-classes G \sharp -B has been well noted by Schenker, "On Organicism in Sonata Form," trans. by William Drabkin in *The Masterwork in Music II* (Cambridge: Cambridge University Press, 1996) p. 28; also by Allen Forte, *The Compositional Matrix* (New York: Baldwin, 1961); and Nicholas Marston, "Schenker and Forte Reconsidered: Beethoven's Sketches for the Piano Sonata in E, Op. 109," *19th-Century Music* 10 (1986-7) pp. 24-42 and *Beethoven's Piano Sonata in E, Op. 109* (Oxford: Oxford University Press, 1995).

stemming on the G \sharp vividly suggests a dual interpretation.) The two implications are further bound up with the disjunction created by the dotted rhythm. Example 5.15 suggests that this rhythm can be understood as generated by an anticipation, a backward skew of a quarter note B that encroaches into the time-span of the previous G \sharp . The effect is to place a disjunctive fissure between G \sharp and either of the melodic strands it might follow.

Example 5.15: Beethoven, Op. 109, 1st mvt., the opening motive



This disjunction is brought to the fore when the Adagio plane appears. Just as A \sharp is about to reach its goal B, the possibility arises that the first strand linking G \sharp to B is about to be realized. Instead we are surprised by a dramatic interruption that suspends rhythmic motion as well. Taking the alternative path, the music wends its way to F \sharp , actually realizing the other strand implied by the two-pronged opening motive.

This presents something of a paradox: of the two strands, the one linking G \sharp to F \sharp is surely more important to the deeper structure of the voice-leading (especially if one takes G \sharp to be the *Kopft*on). This F \sharp in question makes its most

definitive appearance in m. 11, where a clear cadential motion in B major finally crystallizes. Yet this occurs in the midst of a parenthetical suspension of the opening plane's discourse, across a disjunctive divide that separates the opening assertions of the Vivace from the ruminations of the Adagio.

This paradox creates a conflict between two alternative accounts of the structure of the exposition, mm. 1–15, which are pictured in Example 5.16. Alternative 5.16a considers mainly the tonal structure and sets in relief the $G^\sharp-F^\sharp$ strand inherent in the opening sequence. The first statement of a tonicized B major chord, which arrives in m. 6, still within the Vivace, is not yet a definitive arrival at the key of B major; in part, this reflects how the music drives forward to the interrupted cadence of m. 8. (Details of this are found in Example 5.17.) This first alternative may present an adequate account of voice-leading structure, but it flatly ignores the juxtaposition of vastly different temporal planes that is the extraordinary feature of this movement.

This special temporal rhetoric is better captured by Example 5.16b, which highlights the second alternative, the $G^\sharp-A^\sharp-B$ strand. This model is strongly influenced by the motivic implications of the opening, the ubiquitous $G^\sharp-B$. More significantly, the model allocates a single coherent structure to the continuous plane of discourse represented by the Vivace portions in this excerpt, relegating the Adagio portion to a secondary level of structure not even pictured in my schematic representation. (The $G^\sharp-A^\sharp-B$ is more of a motivic unity than a voice-leading one: as noted to the right of Example 5.16b, these tones are highlighted within two possible four-note derivations.)

Example 5.16: Beethoven, Op. 109, 1st mvt., two alternative views of the exposition voice leading, mm. 1–15

a) the G \sharp -F \sharp strand

b) the G \sharp -A \sharp -B strand

It is not that it is not possible to give a more conventional account of voice-leading structure in these measures. The nature of temporal disjunction and the tension-based model from which it originates argues that a truer picture of this extraordinary piece must embrace the contradiction and hear an underlying tension between both models.

Example 5.17: Beethoven, Op. 109, 1st mvt., voice-leading sketch of the exposition, mm. 1–15

The image shows a voice-leading sketch for the first five measures of the first movement of Beethoven's Op. 109. The score is written for piano, with treble and bass staves. The key signature is E major (one sharp). The time signature is 3/4. The sketch highlights voice-leading patterns with various annotations:

- Measure 1:** Treble clef, E4 quarter, G4 quarter, B4 quarter. Bass clef, E3 quarter, G3 quarter, B3 quarter. Roman numeral: IV V7.
- Measure 2:** Treble clef, E4 quarter, G4 quarter, B4 quarter. Bass clef, E3 quarter, G3 quarter, B3 quarter. Roman numeral: IV6.
- Measure 3:** Treble clef, E4 quarter, G4 quarter, B4 quarter. Bass clef, E3 quarter, G3 quarter, B3 quarter. Roman numeral: V6.
- Measure 4:** Treble clef, E4 quarter, G4 quarter, B4 quarter. Bass clef, E3 quarter, G3 quarter, B3 quarter. Roman numeral: V.
- Measure 5:** Treble clef, E4 quarter, G4 quarter, B4 quarter. Bass clef, E3 quarter, G3 quarter, B3 quarter. Roman numeral: 16.

Other annotations include '3rd' (thirds), '5th' (fifths), '10' (tenths), 'div.' (divisions), 'am.' (accents), and circled measure numbers 4, 9, 11, and 15. The sketch shows how these intervals are formed and resolved across the staves.

Thus the third progression that begins on the A \sharp of m. 8 and leads to the F \sharp of m. 11, is, because of the temporal disjunction, not quite as coherent a linear unity as it would ordinarily be. Though present in Example 5.17, the connection of A \sharp to F \sharp is unable to resolve the disagreement between Example 5.16a and b, since each tone bears a separate allegiance to the two possible voice-leading strands. The disruption between these tones is strengthened when the structured model and sequence of mm. 9-10 undergoes a varied repetition so free that it seems like a complete collapse. Because m. 12 is a repetition of the disjunctive m. 9, it becomes necessary to re-create that initial disjunction, to pile disruption upon disruption.¹²

The analysis thus far has shown how the temporal disjunction of the Adagio interruption can be heard to have a profound effect on voice-leading structure and how this effect is seeded in the disjunct rhythm of the opening motive. There are also issues relating more specifically to rhythm in which this temporal disjunction is also enmeshed.

As shown in Example 5.18, a first complication comes with the initial upbeat, or perhaps one should say *notated* upbeat, since it is quite plausible to hear the first quarter duration as a downbeat. Two assumptions support this: that the first full texture one hears is taken as a downbeat by default and that it is at least more typical for an opening tonic to be placed on a downbeat. It is the disjunct dotted rhythm that gives the G \sharp an accentuation that suggests a

¹² The non-functional D \sharp major sonority of m. 13 maintains the underlying parallel tenths while its F \times suggests an ironic recollection of the F \times appoggiatura in m. 10.

downbeat. Of course, the dotted rhythm of the second beat renders the two beats equal competitors and maintains the ambiguity.

Example 5.18: Beethoven, Op. 109, 1st mvt., metric ambiguity



Nonetheless, the plausibility of hearing the first as a downbeat is supported by two outside sources. The first is given in Example 5.19, the third movement of Beethoven's Sonata Op. 79, whose opening seems like an early version of Op. 109. The melodic and harmonic structure is nearly identical through the sixth measure. (It even features the same motivic element, the third B–C#–D.) The rhythm and notation of this piece allow for little metric ambiguity and the result is correspondingly flatter.

Example 5.19: Beethoven, Op. 109, 1st mvt., Op. 79, 3rd mvt., mm. 1–10

The second source, given in Example 5.20, actually *is* a sketch for Op. 109. It places the opening motive on the downbeat of a 4/4 measure. Significantly, the

lack of ambiguity extends to the tonal realm as well: the A \sharp in the fourth bar resolves to B as expected. The notation that Beethoven finally chose creates an ambiguity essential to the work's basic premise.

Example 5.20: Beethoven, sketch for Op. 109, 1st mvt., Grasnack 20b, fol. recto, staves 10 and 11 (transcription by Marston, *op. cit.*) (© 1986 by The Regents of the University of California)



Example 5.21 presents three models of the rhythmic structure of the exposition, each of which captures a different aspect of its temporality. Example 5.21a is a fairly straightforward simplification of the rhythmic surface, with some formal indications. Example 5.21b, on the other hand, recognizes the metric ambiguity of the Vivace section by adding dotted barlines and hypermetric counting to show the meter as heard (or at least potentially heard) when it is in conflict with the notation. Also, because this model is meant to convey listener impressions, the Adagio is renotated in durational values that approximate the tempo change's audible effect (assuming approximately four times slower, i. e., ♩ = ♩♩; the exactness of the ratio is not crucial to this analysis). This has the effect of setting the point of disjunction into visual relief.

Example 5.21c acknowledges the special plasticity of the Adagio plane. The meter of the fantasia-like Adagio is not just slower than that of the Vivace; it is vaguer, more elastic, at first hardly defined at all. Example 5.22 demonstrates the plasticity of its meter. In the second half of m. 8, the broken octave $A\sharp-A\sharp$, a kind of partial arpeggio, is answered in the next measure by a full arpeggio spanning $A\flat-A\flat$ that is temporally elongated (to an indeterminate extent, of course, though the wide spacing in the autograph suggests a leisurely performance). This is echoed in the left hand by what is essentially the same arpeggio, this time yet more elongated. This suggests that the first two notated quarters of this Adagio represents a single elongated beat. The meter only becomes activated at the third eighth note, when the bass changes to $B\sharp$. The result of this interpretation is that the Adagio's apparent 3/4 bars can be understood to conceal an underlying 2/4 meter with an elongated first beat.¹³

Example 5.22: Beethoven, Op. 109, 1st mvt., mm. 8–9, the elongated beat

The image shows two musical staves for piano. The left staff is in treble clef and the right in bass clef. The key signature has three sharps (F#, C#, G#). The tempo is marked 'Adagio'. The first measure (m. 8) contains an arpeggiated broken octave in the right hand and a single note in the left hand. The second measure (m. 9) contains a full arpeggio in the right hand and a more elongated arpeggio in the left hand. Below the staves, an equals sign connects the original notation to a simplified notation. The simplified notation shows the first two quarters of the second measure as a single elongated beat, indicated by a wavy line, followed by two regular quarters. The labels '1 elongated + 2' are placed below the simplified notation.

¹³ The elongated Uninterpreted Duration yields to a Metric Hierarchy, albeit a new one.

Example 5.21c incorporates this interpretation in its analysis of the Adagio. (Notated durational values are used in order to facilitate comparison with 5.21a and with the score.) In the first two measures of the Adagio, the first beats are elongated; this is removed in Example 5.21c to reveal the 2/4 meter. In the third measure, it is the cadential six-four on the second beat that is stretched out relative to the previous harmonic rhythm. As already mentioned, the repetition that begins in m. 12 is freely varied in fantasia style, making the impression of plasticity still more pronounced. The 2/4 meter even continues into the apparently non-metric m. 15: there the bass clearly expresses a first and second beats before the meter dissolves in preparation for the return of the Vivace. What this metric analysis suggests is that across the divide of the change of meter and tempo a basic duple patterning persists in a freely molded shape.

However, as with the tonal structure, there is a disjunction in the metric structure as well. I have already described the Adagio plane as a parenthetical interpolation. Tonally the Adagio could be removed and a plausible continuity would result, but metrically it could not. The Vivace breaks off at a complete measure, but when it returns, it begins again with an upbeat. The torn pieces of this plane cannot be simply stitched back together. Within the parenthesis the Adagio replaces an essential metric element.

The missing beat would of course contain the concluding B major chord that is cut off in m. 9. This could have been supplied in one of two ways: by including the cadence within a four-bar hypermeasure—In Example 5.21a, this could have occurred within the second four-bar group labeled the *Nachsatz*; a cadence on V could have paralleled the cadence on I in the *Vordersatz*—or by arriving at the cadential chord on the hyperdownbeat of the next four-bar group

(m. 9 of the score). The latter would require a codetta to fill out the succeeding four-bar group; this would also remove any metrical ambiguity and confer complete closure on this section of the piece.

It is this second possibility that Beethoven sets out to do: vacillating on the dominant of B major disturbs the symmetry of the phrasing (see Example 5.21b where the cadential 6/4 on the notated downbeat confuses the metric scheme, as indicated by the label "1?"). This implication is interrupted by the disjunction. The paradox comes when the parenthetical Adagio supplies the downbeat conclusion within a metrically regular framework. Example 5.21c gives a hypermetric counting below the staff showing a group of three bars which, like the Vivace, is interrupted at a half cadence. This is followed by a consequent which occupies four bars, supplying one extra bar to in which to place the expected B major chord. The metric completion that should have come at bar 9 occurs here. It is precisely when this missing piece is found that the Vivace begins to reconstruct itself. Paradoxically just as this meter is achieved it must be dissolved to exit the parenthesis and enter the development.

This analysis will conclude with a brief consideration of the coda. Example 5.23 provides a sketch of the voice-leading; among other significant details, both G \sharp and B have assumed stable positions within the final prolonged tonic chord and both receive motivically parallel embellishments, shown in the upper staff. Thus a disjunction between them is no longer an issue.

Example 5.23: Beethoven, sketch for Op. 109, 1st mv't., coda, voice-leading sketch

N. B.:

E: I VI II⁶ II⁷ V I

Example 5.24 addresses the rhythmic issues. As previously in the Vivace, the meter sounds displaced from the notation. But gradually a new grouping pattern begins to take hold, a pattern in which the first three quarter beats take on the character of an upbeat to the fourth quarter. Suddenly, in m. 75, these three quarter beats, prolonging a V⁷ harmony, are isolated in a halting change of rhythmic texture. The effect is a mild temporal disjunction, with the slower durational values creating a shift to a momentary slower plane. This recalls the previous explicit changes of tempo in more ways than one: not only does the following passage embody the similar sort of plastic time as did the Adagio (though in a different way), but it also explicitly quotes one of the Adagio's elongated beats.

Example 5.24: Beethoven, sketch for Op. 109, 1st mvt., coda rhythmic structure

The image shows a musical score for the coda of the first movement of Beethoven's Op. 109. The score is written for piano and consists of two staves. The tempo is marked '(Adagio) (Vivace)'. The key signature has two sharps (F# and C#). The score is divided into measures 49 through 66. Annotations include:

- Measure 49: '49 (Adagio) (Vivace)'
- Measure 50: '50' with a bracket and '1 + 2' below it.
- Measure 51: '51' with a bracket and '1 + 2' below it.
- Measure 52: '52' with a bracket and '1 + 2' below it.
- Measure 53: '53' with a bracket and '1 + 2' below it. Above the staff, there are notes with 'ant.' and 'expanded' written above them. A bracket spans measures 52 and 53 with '2 expanded' written below it.
- Measure 54: '54' with a bracket and '1 + 2' below it.
- Measure 55: '55' with a bracket and '1 + 2' below it.
- Measure 56: '56' with a bracket and '1 + 2' below it.
- Measure 57: '57' with a bracket and '1 + 2' below it.
- Measure 58: '58' with a bracket and '1 + 2' below it.
- Measure 59: '59' with a bracket and '1 + 2' below it.
- Measure 60: '60' with a bracket and '1 + 2' below it.
- Measure 61: '61' with a bracket and '1 + 2' below it.
- Measure 62: '62' with a bracket and '1 + 2' below it.
- Measure 63: '63' with a bracket and '1 + 2' below it.
- Measure 64: '64' with a bracket and '1 + 2' below it.
- Measure 65: '65' with a bracket and '1 + 2' below it.
- Measure 66: '66' with a bracket and '1 + 2' below it.

 There are also dynamic markings 'P' and 'ant.' throughout the score.

Compare Adagio chvegalkin in m. 58:

The image shows a comparison of rhythmic structures. The top staff is labeled 'Compare Adagio chvegalkin in m. 58:' and shows a rhythmic pattern with notes and rests. The bottom staff shows a similar rhythmic pattern from the sketch, with notes and rests. The comparison highlights the rhythmic structure in measure 58 of the Adagio and its relation to the sketch.

Example 5.24 shows my interpretation of the underlying metric structure. Below the second, very expanded hyperbeat, appears the related passage from the Adagio (given as it appears in the recapitulation to match the key). What Beethoven has done is to re-create within the Vivace tempo the suspended time of the Adagio, but in a much less disjunctive manner.

The re-creation of the Adagio has one more purpose: the change in patterning with the Vivace that I mentioned was gradually pointing to a more and more definitive downbeat. The expansive passage at m. 78 composes out an underlying four beat hypermeasure, resolving to the tonic on the first beat of the next hypermeasure, just as the texture of the Vivace resumes. The effect of this is to finally resolve the ongoing metric ambiguity: the notated barline now asserts itself with perfect clarity. With one stroke this Coda recalls and resolves conflicts crucial to this piece.

Echoes of disjunction reverberate through this movement, deeply informing its underlying idea. The paradoxes that result from this disjunction are perhaps in keeping with Carl Czerny's characterization of the movement:

The whole has a very noble, calm, but dreamy character. The quick passages in the Adagio must be played very lightly and dream-like...¹⁴

The structure follows a kind of dream logic, one that embraces contradictions as an essential part of its meaning.

¹⁴ Carl Czerny, *On the Proper Performance of All Beethoven's Works for the Piano*, (a facsimile of the edition published by R. Cocks & Co., London) ed. and with a commentary by Paul Badura-Skoda (Vienna: Universal, 1970) p. 65.

5.4: Temporal Disjunction in the String Quartet Op. 131, 5th mvt.

This scherzo-like movement begins with a disjunction, a sort of stutter from the cello, in that the first four notes of the main theme are suddenly broken off and followed by a measure of rest. This disjunction of unexpected continuation is incorporated into the full theme through a disjunction of duration and articulation: staccato quarter notes are followed by two slurred half notes (mm. 3–4). Other disjunctions in the first phrase are indicated in Example 5.25.

Example 5.25: Beethoven, Op. 131, 5th mvt., mm. 1–10

The musical notation shows two staves: Violin I (Vcl.) and Violin II (Vi. I). The Vcl. staff begins with a forte (f) dynamic and a staccato quarter note. The Vi. I staff begins with a piano (p) dynamic and a slurred half note. The notation includes various fingering indications (I, v7, I, II⁶, III⁴!) and dynamic markings (f, p). The music is in 3/4 time and features a disjunction between the first four notes and the following measure of rest.

As is often the case with a durational disjunction, the legato longer notes of m. 4 suggest the possibility of a slower rate of motion. After a repetition of this phrase an octave higher, this tendency is realized. A sequential development of mm. 3–4 that begins in m. 19 is abruptly broken off in m. 25. The rate of all activity is dramatically curtailed, leaving only reiterations of the slurred rising fourth of m. 24 echoing through each instrument in a metrically displaced position. Example 5.26 depicts this in a durational reduction of 4:1. The unexpected halt in the headlong rush of this piece is directly occasioned by the disjunctive longer durations associated with the fourth motive. This sudden quiescence approximates a slower tempo, forming a distinctly contrasting temporal plane. After four more bars in which the fourth is replaced by a major third, an actual slower tempo is notated, but the halving of note values produces only a small increment in retardation.

Example 5.26: Beethoven, Op. 131, 5th mvt., mm. 1–66, rhythmic analysis in durational reduction

♩ = J Presto

A (7) *2da volta ottava sopra*

B (19) (23) (33) (37) (41) *disjunctions simile* [= adagio plane] *Tempo!* [= retransition to initial plane]

Internal structure of slower temporal plane:
 submergence *Molto poco adagio* reemergence
 1 2 3 4 *pp*

A' (43) (49) (53) (59) *3...expansion...* (=V 1)

Simpler melodic model (cf. Ex. 5.24):
 1 2 3 4 1 2 3 4

...continued in mvt. vi

This disjunctive interruption carries the music far from its expected progress. Example 5.27 suggests a likely continuation. (The bass is filled in schematically.) Note that the fourth bar shows the interval of a rising third, as required by the harmonic sequence, rather than a fourth, as Beethoven wrote. That e^2 - a^2 fourth is imposed on the VI chord through 5-6 exchange. This is an issue with this piece: it seems obsessed with maintaining fourths at all costs.

Example 5.27: Beethoven, Op. 131, 5th mvt., hypothetical continuation of B into A'

The image displays a musical score for a piano piece, specifically a hypothetical continuation of section B into section A'. The score is written in G major (one sharp) and 3/4 time. It consists of two systems of music, each with a treble and bass staff. The first system is labeled 'B' and contains eight measures. The second system is labeled 'A'' and contains six measures. A note above the second measure of the first system reads 'N.B.: not 4th'. The bass line is filled in with a schematic pattern of notes, primarily consisting of half notes and quarter notes, with some rests. The treble line features a melodic line with various intervals, including rising fourths and thirds, and some slurs. The overall structure shows a transition from section B to section A'.

Example 5.28 shows the obsessive pattern of rising fourths that themselves rise by step. However, because a return to the tonic is expected, the fourth $f^{\sharp 2}$ - b^2 must be followed by the third $g^{\sharp 2}$ - b^2 , not the fourth $g^{\sharp 2}$ - $c^{\sharp 2}$. Stymied by this eventuality, the music freezes on the $f^{\sharp 2}$ - b^2 , slowly compressing this interval as if reluctant to close in on the inevitable third. The perfect fourth gives way to a diminished fourth (with the $G\sharp$ understood as $F\times$), but the status of the goal seems uncertain. The $g^{\sharp 2}$ - b^2 does not coincide with an arrival on the tonic.

Just before the reprise in m. 44, a final attempt is made to include the $c^{\sharp 2}$ that would have realized the fourth $g^{\sharp 2}-c^{\sharp 2}$, albeit in the distorted form $fx^2-c^{\sharp 2}$.

Example 5.28: Beethoven, Op. 131, 5th mvt., pattern of rising fourths

The image shows musical notation for Example 5.28. The top staff contains measures 4, 8, 20, 22, 24, 29, 33, and 43. Circled numbers 4, 8, 20, 22, 24, 29, 33, and 43 are placed above the corresponding measures. A bracket labeled "Pattern disrupted..." spans measures 29 through 33. Below this, a smaller staff labeled "cf. mvt. vi:" shows a similar melodic pattern with a bracket labeled "4th" and another labeled "3rd".

The progress of the harmony is also deflected. Example 5.29 shows a voice-leading sketch of the Scherzo proper; at issue here is the reading of the B section. The G^{\sharp} -major chord that concludes the A section does not go on to resolve as a dominant; it reemerges as a minor III chord eventually to unfold back into the tonic. This transformation is tenuous at first, expressed as an implied six-four. Prolongation through its own dominant removes the III chord even further from the home world of E major.

The turn toward G^{\sharp} minor combined with a slower tempo reinforces the sense of a separate temporal plane at odds with the movement's basic plane. The previous Example 5.26 displays this plane and also shows the gesture of submergence and reemergence that structures this slower plane. The return to the Presto tempo appears to reconstitute the opening plane, but this attempted transition will be quickly cut off. Both harmonically and thematically the G^{\sharp} harmony is separated from the main tonality by disjunctions.

Example 5.29: Beethoven, Op. 131, 5th mvt., mm. 1-66, voice-leading sketch

The sketch illustrates the voice leading for a vocal part in G major. It is divided into sections A, B, and A'. Section A (measures 3-5) shows a vocal line starting on G5, with a 3rd interval (through register transfer) leading to B5. Section B (measures 19-41) shows an expanded repetition of the A section, with a 3rd interval (through register transfer) leading to D6. Section A' (measures 45-57) shows a further expansion, with a 3rd interval (through register transfer) leading to F#6. The sketch includes various annotations such as '(=f)', '(g# : I - V7)', and chord symbols like V7, II6, and III#.

Inherent in the juxtaposition of temporal planes is the suggestion of the intrusion of music from a different movement. As noted, the *Tempo I* brings an effort to recover the opening theme, but the dominant seventh left hanging seems to demand a different continuation. One possible continuation is found in the G \sharp -minor tonality of the sixth movement. The tonal plan of that movement reverses the harmonic disjunction of the Presto's B section: G \sharp -minor is eventually converted into a dominant that resolves and flows *attacca* into the final C \sharp -minor movement. The large-scale disjunction strives to reach outside the body of this movement, a centrifugal impulse that imbues the movement with an instability driving the quartet toward its final movement. This tendency is noted in Examples 5.25 and 5.27. In retrospect, the unexpected turn to a G \sharp -major harmony in the last two bars of the opening phrase (mm. 1–10; see Example 5.25) can be heard as this impulse erupting from below the surface. Both tonally and temporally the Scherzo is imbued with an instability, a drive towards C \sharp minor that binds together the final three movements of this monumental quartet.

Disjunction infects the construction of the larger form as well. The Scherzo section is followed by a new theme marked *piacevole*; this pastoral music forms itself into a rather regular ternary form anchored on the tonic (mm. 69–110). As such the section gives every indication of taking on the role of a Trio, whose placid regularity forms an apt contrast to the disjunction-ridden Scherzo.

However, Beethoven flouts this expectation as well. Example 5.30 sets out the three parts of the *piacevole* music. The reprise of its a section seems ready to conclude in an entirely appropriate manner, that is, by affixing an echo repetition of its final two bars. This is, I believe, how mm. 109–110 must be heard at the

moment one hears them. In retrospect, these two bars are pressed into making an oddly abrupt transition into a new theme in A major, which now seems to deftly usurp the role of Trio section.

This is effected through the unusual marking, *ritmo di quattro battute* ("rhythm of four bars"). Indications of measure grouping are occasionally used by Beethoven to prescribe a new hypermeter or a change in a prevailing one.¹⁵ However, its use here is a real puzzle, because there is apparently no reason for it. The piece has scanned in four-bar groups well before this marking; it seems superfluous to require it now.¹⁶ Example 5.30 shows the answer: the *ritmo di quattro battute* forces a retrospective reinterpretation on mm. 109–110; the theme is well underway before one realizes that what sounded as conclusion is now the launch of a new theme, a new key, and a new section.

The rehearing of these two bars is different from the more usual reinterpretation of a final bar of a phrase to become the first bar of the next one, a technique made possible because the final tonic can also serve as an initial tonic

¹⁵ The most celebrated example occurs in the Ninth Symphony, 2nd mvt., where Beethoven writes *ritmo di tre battute* at mm. 177 and m. 228; *ritmo di quattro battute* is used at m. 234 to restore the four-bar hypermeter. Rothstein (*Phrase Rhythm*, pp. 38–9 and 308, fn. 31) notes both this indication and also the higher level of hypermetric organization Beethoven penciled into the autograph. (The three-bar groups are themselves counted off as a large three-hyperbar group.) The marking *ritmo di tre battute* also occurs in Op. 131 in the final movement, m. 148. It should be noted that in both these movements the marking is used to prescribe a change from an assumed duple hypermeter to an explicit triple. The indication *ritmo di due battute* also used in Op. 131's final movement, m. 249; though the situation there is complex (involving a reversal of a motive's prior accent scheme), it at least involves a shift from the previous and very clear four-bar hypermeter. I am aware of no literature that explains the marking in the 5th movement of Op. 131.

¹⁶ If one takes m. 69 as the beginning of a new four-bar hypermeasure (as is shown in Example 5.29), then ten integral four-bar groups occur before the *ritmo di quattro battute* at m. 109.

of the next one. Here, on the other hand, there are three reinterpretations, which are illustrated in Example 5.31:

- 1) what sounds first as $\hat{2}-\hat{1}$ in E must be reheard as $\hat{6}-\hat{5}$ in A (which becomes a motivic motion in the phrase); this incompatible tonal change is made difficult by the pedal accompaniment in the violins, yet is demanded by the repetition of the phrase, which clearly implies a IV–I harmonization (in mm. 117–8);
- 2) a straightforward strong-weak accentuation pattern becomes reversed as the arrival on the tonic of A major in the second bar of the new theme suggests a weak-strong impulse; though set within a four-bar framework, an impulse toward stronger even bars continues throughout the this A-major section;¹⁷
- 3) the music first heard as the Trio must now be reconsidered as a coda to the Scherzo music as the A major section now asserts a more persuasive role as Trio.

These hearings are not reconcilable; the only way to entertain both is to retrospectively detach mm. 109–110 from the E-major music that precedes them so that they can take a place with the A-major music that follows. The effect is finally a unique sort of temporal disjunction between interpretations of the form, one whose inference after the fact is forced on the listener by a confluence of special events. This disjunction is nonetheless one among the many in this movement.

¹⁷ A weak-strong impulse is at least conceivable in mm. 3–4 also.

Example 5.30: Beethoven, Op. 131, 5th mv't., formal reinterpretation an disjunction, mm. 69–116

A ⁶⁹
⁷⁷ (= repeat)
p *piacevole*
 1 2 3 4 1 2 3 4

B ⁸⁵ *pp* Vcl. *Vla.* *VI. 1* *VI. 2* ⁹³
 1 2 3 4 1 2 3 4 *1 (overlaps with reprise of A)*

A (reprise) ⁹³
Vcl. + Vla. *cresc.* 1 2 3 4 *cresc.* 1 2 3 4 *p*

¹⁰¹ *cresc.* 1 2 3 4 *cresc.* 1 2 3 4 *p* ¹⁰⁹
echo of 3 ... and 4

Hypothetical conclusion to reprise of A

Actual conclusion: final two bars of echo are forced to become first two bars of new group.

A major "Trio": ¹⁰⁹ *Ritmo di quattro battute* *[tutti all' unisono]*
cresc. *p*
echo of 3 becomes 11 2 3 4 1 2 3 4

Example 5.31: Beethoven, Op. 131, 5th mvt., reinterpretations at mm. 109–110

end of Trio?...

...beginning of Trio!

Example 5.32: Beethoven, Op. 131, 5th mvt., retransition to Scherzo, mm. 153 ff.

The retransition to the Scherzo is accomplished through disjunction as well. The melody is left hanging and finds completion in the return of the main theme, as shown in Example 5.32.

The movement's coda is full of disruption. The metric reversal that was a part of the formal disjunction at mm. 109–110 is realized at m. 451, as the Trio theme seems truly confused as to when to enter (see Example 5.33); the music quickly gives up. The *sub rosa* disjunctiveness at the joins of the various phrases causes them simply to fall to pieces. Centrifugal force hold sway as themes seem to fly apart in several directions at once, barely containing the urge to reach the next movement, and the finale beyond.

Example 5.33: Beethoven, Op. 131, 5th mvt., metric confusion in coda, mm. 451–3



5.5: Temporal Planes in the Bagatelle, Op. 119 #3

This bagatelle folk dance pastes together patches of music that juxtapose the poised and the boisterous. It thus invites analysis into temporal planes, and yet even smaller segments, which I will label temporal facets. The complete score and segmentation into planes and facets is presented in Example 5.34. The initial plane, marked α , is composed of two temporal facets, α_1 and α_2 . Facet α_1 spins a sixteenth-note turn figure and octave in the highest available register; α_2 replies in lower-register eighth notes, augmenting the turn figure and octave in leisurely fashion. The two facets are fused into one plane by their consistent alternation, yet they maintain insistent autonomy. Facet α_2 has an almost independent voice-leading (see Example 5.35). Though the d^4 of facet α_1 intrudes into the second measure and overlaps with the first bass note, the first top note of α_2 is displaced to the end of the measure, neatly sidestepping the other facet (see Example 5.36; the first normalization without the displacement removes all distinction between the facets).

A contrasting temporal plane, marked β , begins with the sudden change of texture in m. 17. Whereas the sixteenth notes of facet α_1 had an ornamental effect, the sixteenths now in the bass energetically activate the eighth-note arpeggios. In m. 25, sixteenths once again return to a more ornamental role and alternate with eighths; thus, this plane, marked γ , mediates the return to the initial plane even while it serves as a consequent to the contrasting plane.

Example 5.34: Bagatelle, Op. 119 #3, complete plane analysis

Initial temporal plane α

Temporal facet $\alpha 1$ Temporal facet $\alpha 2$ Facet $\alpha 1$ Facet $\alpha 2$ Facet $\alpha 1$ Facet $\alpha 2$ Facet $\alpha 1$ Facet $\alpha 2$

à l'Allemande

1 or upbeat - 1 ?

Contrasting temporal plane β Mediating temporal plane γ

(β β β)

γ cont. Plane β

Coda.

Da capo fin al segno ed allora la Coda.

Plane β

Plane β Facet $\alpha 1$!

Example 5.35: Bagatelle, Op. 119 #3, voice-leading sketch of mm. 1–8

Example 5.36: Bagatelle, Op. 119 #3, plasticity analysis of mm. 1–4

After the repeat of mm. 1–16 (plane α), the coda begins as if repeating mm. 17–24 (plane β). Instead it is greatly extended into an overblown final cadence that is suddenly deflated by a nonchalant restatement of facet $\alpha 1$, detached from its original plane. This surprise ending refers back to a problem

posed by the initial plane: does the bar grouping begin in measure one or two? Example 5.34 suggests that the twenty-four bars of the coda result from an expansion of two eight-bar groups, the first leading to the dominant (and rhyming with mm. 17–24), the second expanding the final tonic. Eight bars of expansion occur from repetitions of the seventh and eighth bars (the $V_4^6 = \frac{3}{2}$) of the first group. To intensify the repetitions, the figure ♪♪♪ is introduced, which, as it spills over the tonic cadence, recreates the ascending octave motive of facet $\alpha 1$. In literal sequence, it would continue as in the lower staff of Example 5.37; instead, the sixth bar is suppressed and facet $\alpha 1$ now appears, at once surprising and logical, on the seventh and eighth bars, which would place these in the positions strong and weak). This ending does not resolve all ambiguity in the opening, as much as it offers an ironic final opinion.

Example 5.37: Bagatelle, Op. 119 #3, plasticity analysis of coda

a)

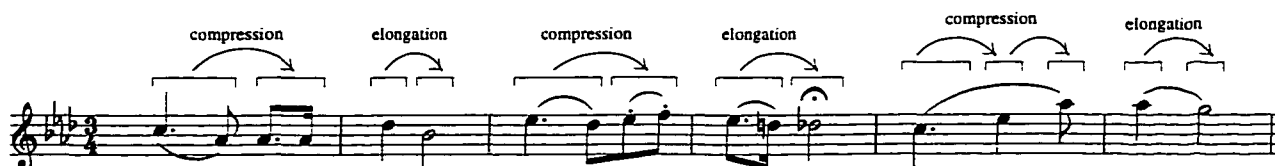
b)

This light but skillful bagatelle provides an example of how temporal planes and facets can interact while maintaining their own independence.

5.6: Temporal Planes in the Sonata Op. 110, 1st mvt.

This introspective movement opens with a motto-like four-bar statement that remains poignantly open-ended here and in every subsequent appearance. In a hesitant *empfindlicher* style, it is marked by a high degree of plasticity. The sense of ebb and flow can be understood as a free compression and elongation of Uninterpreted Durations; a gentle undulation that is shown in Example 5.38. This pattern of alternation spills over into the *cantabile* phrase that follows.

Example 5.38: Sonata Op. 110, 1st mvt., durational plasticity in mm. 1–6



This surface juxtaposition suggests two planes of contrasting temporal activity, which are significantly associated with the ubiquitous motive of the descending third. The suggestion of differing planes is also embedded more deeply in the fabric of this opening. This can be revealed by hypothesizing about the form this phrase would take if it completed its tonal motion within a four-bar unit. Example 5.39a places the essential melodic outline into a rhythm that matches the palindromic pattern underlying the original.¹⁸ The descending thirds of the first two bars are followed by an elongation of the next third across two

¹⁸ The similarity of this melodic outline to the fugue subject of the final movement (and their close proximity in Beethoven's sketches) is noted by David Beach in, "Motivic Repetition in Beethoven's Piano Sonata Op. 110; Part I: The First Movement," *Intégral I* (1987) pp. 2–3.

in Example 5.40 shows this in the context of a near motivic saturation. It is important to note that the first ornamental third, $c^2-d^2-e^b^2$ suggests a return of tonic harmony even while it serves the contradictory aim of elaborating the dominant seventh.²¹

Example 5.40: Sonata Op. 110, 1st mvt., voice-leading sketch, mm. 1–5

That this recapitulation takes place under the umbrella of a cessation of metric pulse creates briefly a slower temporal plane nested within the main plane. There is something introspective about this effect: A series of events associated with one temporal context is relived in another contrasting plane suspended within its flow. The subtle overlap of planes directly models the experience of reminiscence, of the qualitative difference between tangible presence and mental recall. This is characteristic of the discourse of this sonata, which seems drawn from an inner mental life more than from public rhetoric. The planes relate less like a predictable grammatical succession and more like the

²¹ Though based on Schenker's analysis in "Noch Einmal zu Beethovens Op. 110," in *Das Meisterwerk in der Musik*, Vol. I, (Munich: Drei Masken Verlag, 1925) p.184, this reading clarifies both Schenker's and Jonas's analysis (cited in fn. 2) by giving greater weight to the d^b^2 emphasized by the fermata. Even if the e^b^2 of m. 4 is taken as the main tone, the harmonic contradiction with the following third still holds true.

wanderings of loosely connected thoughts. The special overlap of planes adumbrated in the first four bars forms a structural model for the interaction of planes in this movement and in the sonata as a whole. As in the opening, this sonata repeatedly pauses in its course to relive its train of thought in some other form. I will discuss several instances that recreate the mental process of its opening.

The first example concerns the transition to the second theme and the question of where the modulation to V is really accomplished.²² The crux of this analysis concerns the abrupt way in one temporal plane is interrupted by another. The first plane (labeled α) spans mm. 1–19; gradual changes in texture and rhythm divide it into three temporal facets, corresponding to what is usually labeled the first theme (mm. 1–4 and 5–12) and the bridge (mm. 12–19). Despite the division, the three phrases are unified by a single improvisatory impulse: as Kamien and Beach have recognized, there is a loose theme-and-variation technique relating the three; it is especially evident in the recurrence of the bass line in varied form.²³ In keeping with this, there is an increase in rhythmic activity, from a mixture of slower durations, to continuous sixteenths, then thirty-seconds. In addition, the gradual outward expansion in register, crested by a crescendo, confers on plane α a singleness of purpose that seems to drive it toward a climactic arrival.

²² The movement is clearly in sonata form, but the precise demarcation of the component themes has not met universal agreement. Without attempting to supplant conventional formal designations, I would submit that the plane analysis offered here is a more pertinent to this piece.

²³ See Roger Kamien, "Aspects of the Recapitulation in Beethoven Piano Sonatas," *The Music Forum* IV, ed. by Felix Salzer and Carl Schachter (New York: Columbia University Press, 1976) pp. 209–14, and the Beach article already cited.

The arrival, however, is not quite what was expected. Three factors especially condition the sense of deflection from a goal. First, m. 20, the presumed arrival, brings an abrupt and unexpected change of rhythm, texture, articulation and dynamics. This marks a rather disjunct plane boundary that is all the more acute since m. 19 does not include a cadence. Second, the dominant of V that would be the expected goal of a bridge does not appear. The augmented-sixth chord in m. 19 is the characteristic modulatory device towards which this bridge seems to be driving; it does lead to an implied 6/4 above B \flat , but because this 6/4 does not resolve, it is not clear that it represents dominant harmony.²⁴ A last minute veering off suggests that this dominant was not really intended after all. Third, given that the key of E \flat is at best only weakly established, the status of m. 20 is ambiguous at least. The A \flat harmony here is usually interpreted as a neighboring IV (within E \flat), but the point at which the structural A \flat tonic gives way to E \flat seems blurred.²⁵ It is also unusual for Beethoven to begin a second theme on IV chord.²⁶ All these factors confer more than just functional significance to this bridge.

²⁴ Nor does it have the stability that would suggest a consonant 6/4 representing V harmony.

²⁵ Kamien reads tonic harmony prolonged through m. 20, becoming IV at that point as an implied 6/4 over E \flat .

²⁶ Or any theme for that matter, though the rondo theme of Op. 58, 3rd mvt. is an exception; Op. 31 #3, 1st mvt. begins on a II \flat 6/5 chord.

The unusual turn taken by the transition confers a special quality on the following plane. Labeled β and covering only mm. 20–27, this plane takes on some sense of a parenthetical enclosure. This can be made clear by excising mm. 20–27: the strong arrival in m. 28 seems exactly the sought-for goal that had been avoided before. Minor alteration to m. 19 removes the deflection and demonstrates how easily it can be linked to m. 28. The high $B\flat$ that would have been the expected resolution of the augmented sixth chord is attained in precisely the required register. In addition it continues the pattern of anticipatory rhythmic impulses with which the bridge culminates. Example 5.41 suggests a possible realization of this direct continuation.

Example 5.41: Sonata Op. 110, 1st mvt., hypothetical continuation without parenthesis

The image shows a musical score for a piano piece. It consists of two staves: a treble clef staff (right hand) and a bass clef staff (left hand). The time signature is 3/4. The key signature has three flats (B-flat, E-flat, A-flat). The score is divided into two main sections. The first section, from measure 20 to 27, is marked with a dynamic of *sf* (sforzando) and features a melodic line with eighth-note patterns and a bass line with chords. A dashed line above the treble staff is labeled "anticipatory impulses" with arrows pointing to specific notes. The second section, starting at measure 28, continues the melodic and rhythmic patterns. The bass line in the second section is marked with a dynamic of *f* (forte). The score ends with a final chord in the bass line.

Example 5.42 details the plasticity structure of the bridge and shows how compression of a hypothetical simpler structure allows a last minute change of direction in m. 19. Level a removes most plasticity from the bridge and brings it to its implied conclusion. Level b compresses the latter two hypermeasures to

produce a typical acceleration to the goal. Level c compresses still further, creating time to go past the arrival at a cadential 6/4; the music finds itself, rather surprisingly, back on an $A\flat$ major chord. The compression has the effect of lost time, of experience slipping through one's fingers.

However, parenthesis not a sufficient characterization for the intervening measures that are the actual outcome of this bridge. The $A\flat$ harmony prolonged by a descending third is reminiscent of the opening tonic; this is eventually followed by dominant chords that firmly establish V as a key. There is thus a sense in which the β plane retraces the motion from a tonic $A\flat$ through its own more emphatic modulation to V. This seems less a surface gesture and more a fundamental part of the voice leading. Example 5.43 synthesizes these ambiguities of the voice-leading structure with the subtle relationship between the two main temporal planes. In the first system, the implied continuation is sketched as if real, giving justifiable weight to the implication that plane α really does seem to attain the key of the dominant through the agency of an augmented sixth chord. The second system suggests that the actual modulation occurs later, reaching back to a tonic chord to effect a clearer modulation through VI^7-II^7 to V. However, this "tonic" chord subsists in an environment where $D\sharp$ s are omnipresent, giving it the character of a IV of $E\flat$. The music of mm. 20–24 seems poised between two tonalities, not yet solidly in $E\flat$, but not yet willing to relinquish $A\flat$ as a prolonged harmony.

Example 5.42: Sonata Op. 110, 1st mvt., plasticity analysis of bridge. mm. 12ff.

a)

12

Hypothetical continuation
with plasticity removed

Compression creates
acceleration

b)

(as above)

Further compression creates space
to veer away from expected goal

c)

(as above)

reveals itself to be a thorough retracing of the upper voice of the first, less successful bridge passage, albeit with a free reworking of the structural significance of these tones. Example 5.44 shows this recomposition of the modulatory path.

Example 5.44: Sonata Op. 110, 1st mv't., the recomposition of the modulation

First attempt

Second attempt

Essential to the voice-leading analyses in Example 5.43 is the double reading of m. 19 where the implied continuation shows a prolongation incompatible with the actual. Nonetheless, neither of these analyses is completely sufficient on its own: the first is not how the music actually goes; the second ignores the sense that E_b , the goal of the modulation, is already present as a key. Both are present, but in a special temporal relationship. This is exactly analogous to the special relationship between the primary and parenthetical planes in

mm. 1–4: the second plane retraces the melodic material of the first, even to the point of hinting at its harmonic underpinnings. The bridge modulation is much more interdependent: neither plane could quite exist on its own.

Even once this subtle relationship of planes has achieved some measure of resolution, remembrances of the pivotal turn from mm. 19 to 20 reappear in harmonically clearer form. The vigorous sixteenth-note motion of mm. 28–30 is abruptly interrupted by a moment of stillness in m. 31, where the surface values seem like an elongation of the prior motion. The tonal content of the outer voices suggests a recollection of plane β , as shown in Example 5.45.

Example 5.45: Sonata Op. 110, 1st mvt., recreation of the disjunction between planes α and β

Example 5.45 consists of two musical excerpts from the first movement of Sonata Op. 110. The first excerpt, starting at measure 19, shows a piano texture. The treble clef staff features a sixteenth-note melody that begins with a *cresc.* marking and ends with a *p molto legato* marking. The bass clef staff provides harmonic support with chords. A circled '19' and an '8va' marking with a dashed line are positioned above the staff. An 'N.B.' (Nota Bene) bracket is placed under the bass clef staff. The second excerpt, starting at measure 30, shows a similar piano texture. The treble clef staff features a sixteenth-note melody that begins with a *sf* marking and ends with a *p* marking. The bass clef staff provides harmonic support with chords. A circled '30' and an '8va' marking with a dashed line are positioned above the staff.

Before moving on to other plane interactions, some details of plasticity in the second theme need to be detailed. Example 5.46 presents a rhythmic analysis of mm. 20–25. The two-note motives shown at level a and reflected in diminution at level b suggest a tendency toward duple meter.²⁷ Example 5.46b shows that duple groups begin to form from the reinterpretation of third beats as first beats. (The sudden motion and *crescendo* on the third beat of m. 23 sets this effect in motion.) On the second beat of m. 25 a full-fledged metrical displacement takes place and a non-notated duple meter takes over.

Example 5.46: Sonata Op. 110, 1st mvt., rhythmic analysis of mm. 20–25

a)

b)

²⁷ Schenker draws a connection between the appoggiaturas in mm. 22–23 (not shown in the example) and the two-note chordal figures that follow; in *Beethoven, die letzten Sonaten: Sonate As-dur Op. 110*. 2nd rev. ed. by Oswald Jonas (Vienna: Universal Edition, 1972) p. 24.

Example 5.47 shows how the basic model is distorted by skew. This becomes increasingly severe as a kind of pressure builds up to burst out of plane β and reemerge into the prior active landscape. The insertion of the passing tone a^3 , recalling m. 19, is a kind of cue to regain the former plane.

Example 5.47: Sonata Op. 110, 1st mvt., plasticity analysis, mm. 25–28

a) 25

b) slight skew (etc.)

c) skew backward * skew forward

d)

Finally, Example 5.48 shows the plasticity structure of mm. 28–36, the first complete harmonic statement (i.e., beginning and ending on I) in the new key. Example 5.48a proposes a model for this phrase with lesser plasticity, based on harmonic and motivic content. The yawning registral gap in the upper voice m. 28 generates the expansion shown in Example 5.48b, as the agitated figuration seeks to regain the climactic goal tone $b\flat^3$. The wedge-shaped registral expansion of mm. 28–30 not only recalls the immediate past of mm. 25–26, which passage served the function of a transition back to plane α , but also suggests the more gradual registral expansion that constituted the main thrust of the first nineteen measures of this movement. The special manner in which this initial thrust is interrupted by plane β at m. 20 is specifically recreated by the sudden stillness of elongated surface values at m. 31. Example 5.45 had already shown that this particular disjunction between planes is even linked by specific outer-voice content. Finally, the concluding bars of Example 5.48b show the third from $b\flat$ to g spilling over the skewed closing tonic, a recomposition of the similar gesture at the opening of the example (m. 28).

Example 5.48: Sonata Op. 110, 1st mvt., plasticity analysis, mm. 28–36

a)

1 2 3 4 1 2 3 4 1 2 3 4

b)

skew with internal expansion

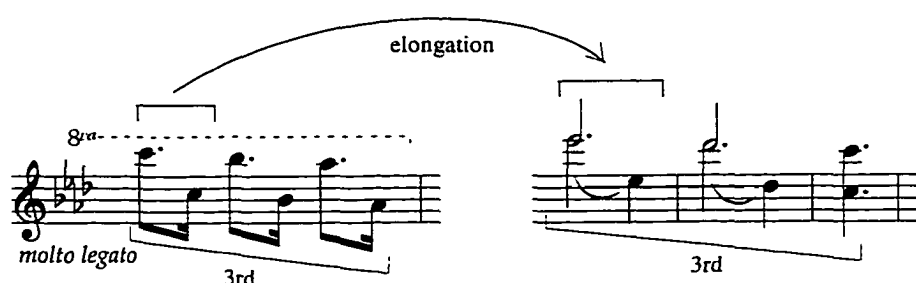
compression with metrical displacement and surface elongation

Bass skewed backwards

1 - - - expansion 2 3 () 4 1 / 2 3 4

The development begins with a contrast of planes. The relatively stable temporal characteristics of mm. 34–37 belong more to plane α , but the abrupt cessation of motion in m. 38 and change to a *unisono* texture in m. 39 is reminiscent of plane β . That this is more than an unmarked cadential arrival is confirmed by the elongation of the figure from m. 21, as shown in Example 5.49.²⁸

Example 5.49: Sonata Op. 110, 1st mvt., elongation of third motive in mm. 38–40



The inserted reference to plane β sets the beginning of the development (m. 40) in an odd light, seemingly removed from the previous scene. The six-four chord of m. 40 is somehow surprising: the empty $D\flat$ s of the previous bar suggest a seventh added to the dominant that rings before it.²⁹ The fact that this dominant seventh with $D\flat$ as a prominent upper voice is the harmonic goal of the development (in m. 55) further lends a parenthetical quality to the major portion of the development. It is as if the opening motto on the tonic should have

²⁸ The hidden repetition of the third motive is also noted by Kamien, "Aspects of the Recapitulation," pp. 215–6, but without the temporal recollection I am suggesting.

²⁹ In retrospect, we could hear the implied harmony of m. 39 as IV^6 or VI of F minor. But compare the similarly "ungrammatical" progression at the juncture of recapitulation and coda in the *Eroica* Symphony, 1st mvt.

arrived immediately following mm. 38-9.³⁰ It is supplanted instead by a version of the opening that is constantly truncated, denied fruition until the proper harmonic setting is achieved in m. 56. This process is shown in Example 5.50.

Example 5.50: Sonata Op. 110, 1st mvt., truncation of motto

The image shows two musical staves in G major. The first staff begins at measure 40, marked with a circled '40'. An arrow points from the circled number to the text 'upward impulse denied'. The melody consists of quarter notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4, C4. The second staff begins at measure 56, marked with a circled '56'. An arrow points from the circled number to the text 'upward impulse allowed'. The melody consists of quarter notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4, C4. The word 'etc.' is written to the right of the first staff.

Thus the development returns to plane α in motivic material and texture, but at the same time refuses to settle fully into it. Example 5.51, a voice-leading sketch of the development, applies the label α' to indicate the variant status of this plane. The unusual harmony of m. 43 (a consonant six-four chord that anticipates the following root-position tonic) suggests a reluctance to accept that VI, not I, has become the momentary goal. A steadily measured descent in

³⁰ This would, moreover, be an appropriate place for a repeat of the exposition to have occurred. Beethoven does sometimes begin a development with a nearly exact repetition of the movement's opening on the tonic, as in Op. 59 #1, 1st mvt.

parallel tenths eventually reconnects with the movement's initial tenth and thus with the recapitulation.

Example 5.51: Sonata Op. 110, 1st mvt., voice-leading sketch, mm. 38–56

a)

planes: β' α' Recapitulation α

38 44 52

ant.

cons. 6 - 5 6 10 - 10 - 10 - 10 - 10 b5 10
4 - 4 4

V 8-7 VI II 6 5 I

b)

Instead of:

V 8-7 I

The development plane α' is also colored in another way by the inserted plane β' . In an example of *Knupftechnik*, the descending step hidden in the figuration of mm. 36–7 is suddenly elongated in mm. 38–9. (See Example 5.52.)

This elongation, a characteristic of plane β , is then taken up by the development, which continues a progressive elongation of the descending step, culminating in a recreation of the elongated db^2 of m.4. The reduction in Example 5.52 also shows that the original dotted rhythm descending step is maintained at the four-bar level in the development.

Example 5.52: Sonata Op. 110, 1st mvt., motivic elongation in development

The image displays two systems of musical notation for piano accompaniment. The first system, starting at measure 36, shows a treble clef staff with a series of eighth notes and a dotted quarter note, marked with 'app.'. The bass clef staff has a similar rhythmic pattern. The second system, starting at measure 40, is annotated with 'progressive elongation of descending step' and 'cf. elongation of D♭ in m. 4'. It features notes with stems and beams, and includes annotations such as 'NN', 'ant.', and 'NN' above the notes. The bass clef staff continues the rhythmic pattern from the first system.

As expected, the recapitulation begins with plane α , though it expresses characteristics of this plane in a recomposed manner. Because thirty-second notes already flood the accompaniment in m. 56, spilling over from the restless sixteenths of the development, the three stages of durational diminution present in the exposition cannot be duplicated here. Their place is taken instead by three

stages of tonicization, from I to IV to bVI , that are exactly coordinated with the three diminutional ideas.³¹ This of course necessitates that the recapitulation cannot be a literal transposition of the exposition.³²

As a consequence, the particular relationship between planes that obtained in the exposition cannot be simply replayed in the same way. Nor would the changed tonal context permit a replay to have the same rhetorical power.³³ However, Beethoven's reworking does preserve the essential roles of the two planes, where the first is deflected off course from its expected goal, and the second backtracks to regain an earlier prolongation and effect a securer arrival. In the recapitulation, the expected goal is a reaffirmation of the tonic. As already noted, a tonicization of IV would allow this to happen. The first deflection occurs with the modal mixture of m. 67, a particularly affective moment that suggests a deliberate change of mind.³⁴ The following bars linger on the $V6/5$ of bVI , as the diminutions of the upper voice recall m. 4 (whose

³¹ The E major is understood as an notational enharmonic for Fb major.

³² A literal transposition is of course possible starting from the IV chord. Schenker notes (*Sonate As-dur Op. 110*, p. 38) and Kamien shows that this would result in an unacceptably high register (see "Aspects of the Recapitulation," Ex. 23, p. 220) and both argue this as the reason for the recomposition. I would argue that Beethoven could reasonably have jumped to a lower register at an appropriate place, in a manner such as occurs in m. 75.

³³ That is, the change of key would not be an issue. The dramatization of the first modulation that is typical of the later Classical style often necessitates an elaborate recomposition of the corresponding passages in the recapitulation to achieve the same effect in the absence of an actual modulation.

³⁴ This effect is heightened by the *crescendo* that immediately gives way to a *diminuendo* on the downbeat of m. 67; in the exposition, the *crescendo* does not occur until m. 9, which is the precisely the passage the recapitulation "decides" to omit.

elaborated fermata is otherwise omitted from the recapitulation); the $c^{\sharp 3}-b^3-a^3$ tag similarly summarizes the descent of the previous bars.

A move to bVI opens an easy path to the dominant, perhaps through an augmented sixth; furthermore, this would make up for the frustrated augmented sixth of the exposition. The bVI area transposes the bridge passage of the exposition, but a truncation of it leads neither to continuation of bVI nor to a confirmation of I. The transposition of plane β (originally m. 20) that emerges in m. 76 begins by retracing the upper voice of the first deflection, mm. 66–70, that led to bVI . Example 5.53 shows that the continuation made possible by a turn toward bVI is realized in mm. 76–8, albeit in a gesture that abjectly gives up on continuing its present course.

Example 5.53: Sonata Op. 110, 1st mvt., two attempts at modulation in the recapitulation

First attempt

a)

Second attempt

b)

However, the V chord at m. 78 seems oddly neutral and without force: the tenths that precede it are ambiguously uncommitted to any definite harmony; the return to the signature of A \flat major is more notational than audible. It is as if the music realizes that this was not a satisfactory way to achieve the dominant. At this moment, as if lost in thoughts to which we are not privy, the course of plane β drifts back to where plane α began its deflection, that is, to the IV chord.³⁵ From here it is free to recreate its own modulation in a manner parallel to the exposition.

As with the complex and conflicting voice-leading models shown in Example 5.43, the wandering thought of the recapitulation cannot be adequately represented by a unilinear structural logic. Example 5.54 attempts to represent this. The upper system shows a progression that in principle could have led straightforwardly to the tonic shown as implied at the end of the system. The sense of plane β as belonging to another discourse will not permit this. In the exposition it regained the A \flat sonority in order to trace its own separate modulation. Here in the recapitulation, plane β begins by attempting to forge a link between the distant harmony \flat II and the home dominant, but instead backtracks to regain the IV already asserted and bring to V in its own manner.³⁶ The restoration of plane α resolves the upper-voice f^2 to eb^2 (in the register of the sketch); the immediately following plane β' brings this motion to completion

³⁵ It is not important that this IV be heard as strongly functional in the key of A \flat major, nor do I think it is; if anything the effect of m. 79 as an uninterpreted sonority is even more cogent because of the harmonic impasse that precedes it.

³⁶ Note that the second attempt at plane β in m. 79 (on IV) is given a new marking, *espressivo*.

through $eb^2-f^2-eb^2-db^2-c^2$. These tones are a vivid recollection of the opening motto, especially of mm. 3–5; the restoration of $\hat{3}$ in m. 94 seems a circular return to the opening tonic, which at last finds some measure of structural resolution.

Example 5.54: Sonata Op. 110, 1st mvt., voice-leading sketch and plane analysis of mm. 56–91

Plane α β

56 63 66 70 74 76 78 implied

$\hat{3}$ NN NN NN NN NN NN

10 10 6 - 6 10 6 - C# 10 10 - 10 10

I IV bVI bII V⁽⁷⁾ I

backtrack β α β' actual α

79 84 87 90 94

10 -10 -10 Second theme

IV II^7 V I I V⁷ I

$\hat{3}$ $\hat{2}$ $\hat{1}$

The connection between the upper-voice $F-Eb-Db-C$ and the similar planes that contain them is reinforced by their initiating gestures, as shown in Example 5.55.

Example 5.55: Sonata Op. 110, 1st mvt., motivic gestures in the recapitulation



Preceding a consideration of the coda, one passage from earlier in the recapitulation merits examination. Example 5.56 shows a model of plasticity in the transposed bridge passage (originally mm. 12–19 of the exposition). A hypothetical continuation at 5.55a is fitted into a regular hypermetric framework that removes most of its plasticity. Compression results in 5.55b and renders an immediate resolution to an Fb tonic less plausible. An anticipatory rhythmic impulse and further compression makes turn of mm. 75–6 all the more abrupt and unexpected, creating the disjunction shown in 5.55c. That a prolongation of bII is actually the goal of the passage is perhaps only realized after the sudden turn into plane β at m. 76. (Compare the voice-leading sketch in Example 5.54.)

The coda begins by proceeding to spin out figuration that served as codetta to the exposition. (Compare Example 5.52.) As in that previous codetta, the descending step motive is abruptly elongated by surface durations that clearly suggest plane β . The alliance with that plane is reinforced by the outer-voice tenth $D\flat-f^3$ that recalls the most recent manifestations of plane β in mm. 79 and 90. (Compare Examples 5.54 and 5.55.) The elongated duration heard as a subtle implication in the first bar of the example prepares the sudden cessation of motion at the second beat of m. 100.

Example 5.57: Sonata Op. 110, 1st mvt., motivic elongation in coda

Plane α

95

octave coupling

(elongation - - -)

Plane α β α

99

(elongation - - -)

105

The final phase of the coda engages in another recreation, recomposing the initial confrontation of planes that so problematized the motion from bridge into second theme area. The sudden stillness of plane β gives way to a return of the bridge music, the faster phase of plane α , which, after some interruption, concludes on a tonic sonority almost identical to the movement's opening. Example 5.58a lays out this passage in a hypothetical configuration showing minimal plasticity. In Example 5.58b, two levels of compression yield the actual rhythmic disposition of the passage. The slower rate of compression, along with an abrupt turn to longer durations, creates a sharp disjunction at the turn of mm. 110–11. As shown in Example 5.58c, plane β makes a sudden reappearance on the D^b sonority associated with plane β most recently, during the recapitulation. In interrupting the bridge music's inexorable build, plane β once again confronts plane α opening the way to a subtle dialogue between them: rather than proceeding through a straightforward realization of the the upper-voice motive $F-E^b-D^b-C$ shown at the end of Example 5.58b, plane β encloses its own parenthetical reference to plane α , a quotation of the opening motto. A backtrack leads to a second attempt, a bifurcated third hyperbeat. A second upper-voice digression holds back the final D^b-C for yet one more bar. Plane β concludes the movement, but it has been brought into close contact with the tonality and thematic material of plane α . Distinctions between the two main planes seem greatly diminished. If this is not a complete resolution of tensions between them, it is at least a kind of rapprochement.

Example 5.58: Sonata Op. 110, 1st mvt., plasticity in mm. 105–116

a) 103 Hypothetical continuation with plasticity removed

b) (as above)

c) (as above)

The first movement of Op. 110 could easily be taken for a fairly conventional example of sonata form, whose rhythmic characteristics are by no means remarkable. And yet there is an ineffable poetry to this work that seems to transcend the normal temporal narrative of the genre. The foregoing analysis has attempted to capture some of that transcendence as crystallized in an almost unique relation between planes. What is remarkable about this relationship is that these planes are not simply juxtaposed as oppositions or contrasts, nor are they straightforwardly coordinated with the conventional first and second theme groups. Instead, planes α and β retrace similar compositional paths while seemingly belonging to different worlds. The separate worlds of these planes can and I believe should be understood as engendering a deep and subtle separation in the fabric of the voice leading. Though challenging to accepted norms of tonal analysis, the models presented here embrace a holistic concept of temporality, one in which pitch and rhythm are equally participatory in musical experience and in our analysis of it.

Chapter 6: Conclusion

In the art of music, as in life, motion toward the goal encounters obstacles, reverses, disappointments, and involves great distances, detours, expansions, interpolations, and, in short, retardations of all kinds. Therein lies the source of all artistic delaying, from which the creative mind can derive content that is ever new.

Heinrich Schenker¹

Human life is a composition on several planes.

Simone Weil²

As suggested in the introduction, this dissertation has developed a primarily spatial approach to musical time. Like space in the material world, the metaphorical space of music is the product of energetic forces acting with and against each other. When these forces are in approximate balance, they remain below the surface, woven into the whole fabric of music. When balance is overwhelmed, one or more of these forces may surface and impress itself on our consciousness as a significant aesthetic element.

The Temporal Plasticity Framework was developed to help disentangle the elements whose conflict generates the temporal manipulation I have called plasticity. A unique feature of this model is its alignment of tonal and temporal elements along a spectrum of interpretedness. The aim is to reunite parameters

¹ *FC*, p. 5.

² *The Notebooks of Simone Weil*, vol. I, trans. by Arthur Wills (G.P. Putnam's Sons: New York, 1956) p. 28.

that usually kept separate in order to recover the wholeness of musical experience and open temporal analysis to sensitive attention to salient details.

One result of this perspective is that the experience of fragmentation and disunity become central to the theory, as recognized by the concepts of temporal disjunction and temporal planes. In a sense, tonal coherence and temporal diversity play antagonistic roles, acting in tension with each other. Coordinating intense disjunctions and unexpected changes of temporal planes with voice-leading sketches allows a full and complex of this sort of musical experience to emerge. I believe that such a broader perspective is absolutely essential to a comprehension of Beethoven's later music. I also believe that it has and will continue to prove illuminating to most 18th- and 19th-century music, perhaps even shedding new light on the continuity of temporal tradition with the 20th-century.

As a recapitulation of the details of this theoretical framework, I will present one final analytical example from the repertoire that motivated the development of that framework.

6.1: A Summary Example: the String Quartet, Op. 135, 2nd mvt.

Example 6.1 presents the opening of the second movement of the String Quartet in F major, Op. 135, very nearly Beethoven's final work. The opening phrase of this scherzo roils with internal conflicts. Described in the terms of the Temporal Plasticity Framework, there are two strings of Uninterpreted Durations, one in each of the violins, that are not only in conflict with the notated Metric Hierarchy, but also with each other. The second violin's anacrusis is a gentle, yet persistent, pre-umbra, a quarter ahead of the bar line. The first

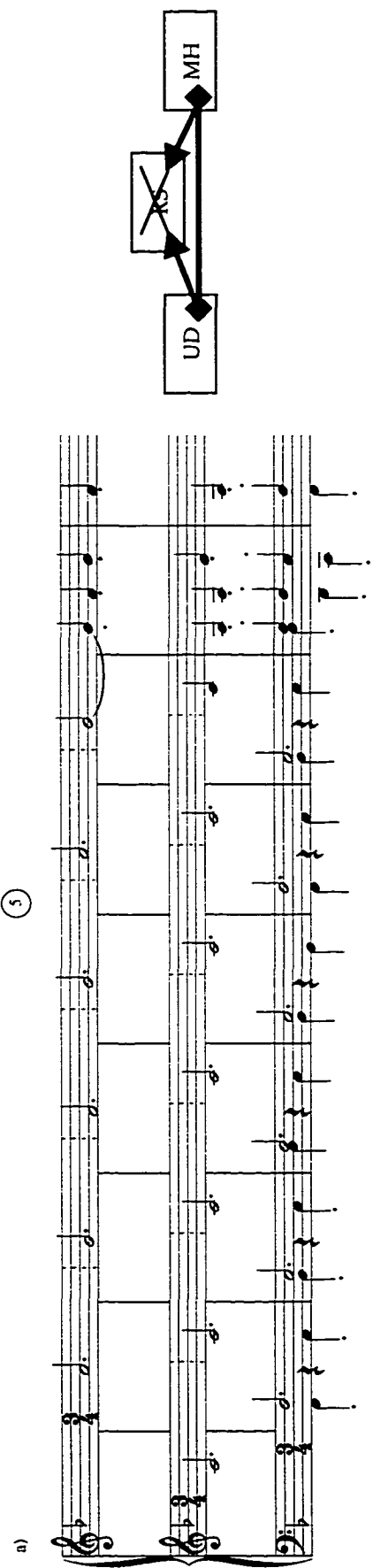
violin's dotted halves form a consistently displaced shadow meter. (The independence of this shadow meter will reveal itself shortly.) Example 6.2a depicts this conflict as three metric schemes that are out of phase with each other; Example 6.2b (not aligned) shows a normalized version of this phrase that removes this aspect of its plasticity. Adjacent TPF diagrams depict the differences in conflict and coincidence among elements.

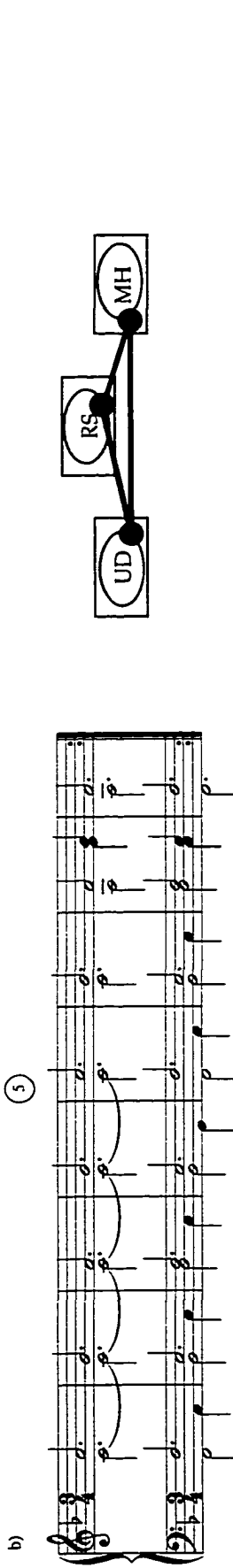
Example 6.1: String Quartet, Op. 135, 2nd mvt., mm. 1–32, score

The musical score for Example 6.1 consists of three systems of four staves each, representing the Violin I, Violin II, Viola, and Cello/Double Bass parts. The tempo is marked 'Vivace.' and the time signature is 3/4. The score is divided into measures 1 through 32. Key features include:

- Measure 1:** Starts with a *p* dynamic. The Violin I part has a dotted half note, while other parts have eighth notes.
- Measures 5-10:** The music continues with complex rhythmic patterns. The Violin I part features a prominent dotted half note pattern.
- Measures 15-20:** Dynamics shift to *pp* and *dim.* (diminuendo). The music becomes more delicate.
- Measures 25-30:** Dynamics shift to *f* (forte). The music becomes more powerful and rhythmic.
- Measure 32:** Ends with a *f* dynamic.

Example 6.2: String Quartet, Op. 135, 2nd mvt., metrical plasticity in the first phrase and its normalization

a) 

b) 

The interpretation shown in this example is not meant to suggest that there are truly three separate metric schemes going on simultaneously in this music, or that Beethoven's notation is somehow misleading; I do believe that the notated meter is quite audible. The point of the analysis is to draw attention to a kind of internal conflict among the parts, a friction that is inextricable from our experience of the meter and rhythm as a whole.

This is a fundamental premise of temporal plasticity, whose outlook asserts that internal conflict is an inevitable condition of music. This conflict may be so minute as to attract no notice; I term this unmarked plasticity. From that one extreme, there is a complex spectrum of degrees of conflict among elements, much of which belongs in the category of marked plasticity. (Markedness is highly dependent on stylistic and contextual expectations.) Marked plasticity is often an essential part of the music's expressive potential, and may well play a role in the larger compositional design.

Of course, as has already been described, plasticity inherently involves the interaction of temporal and tonal elements. A simple, almost unmarked example can also be found in the preceding phrase. While the lower parts mark the meter clearly, they are not without plastic conflict. The cello's persistent half-quarter rhythm is metrically clear, but skews the voice-leading alignments somewhat. Example 6.3a shows the origin of the voice leading in parallel tenths; in Example 6.3b, perfect intervals substitute for the passing tenths; Example 6.3c adds the

recurring durational pattern that creates a mildly plastic misalignment. The cello's exuberant melody seems to dance around the basic voice leading.³

Example 6.3: String Quartet, Op. 135, 2nd mvt., tonal plasticity in the first phrase

The persistence of durational patterns is the hallmark of this scherzo's maniacal humor. The most striking and disruptive instance comes in m. 16, right on the heels of a varied repeat of the phrase just examined. (See Example 6.1.) The first violin's second-beat shadow meter suddenly bursts forth to take over the entire texture, in the form of enigmatic E^b octaves. The first of these invades the space of the previous phrase ending just as the shadow meter had been relinquished, as if angrily insisting that this pattern must continue. But only the first, accented octaves maintain the full duration of a dotted half note (including the rest). Straightaway this intrusive agent seems to back down: reduced to a half note and gradually quieting, the following octaves are grouped into hemiolas. Still displaced by a quarter note from the notated meter, this passage approximates a slower tempo in which half notes are the primary pulse. By

³ The cello line is a persistent character in the movement, migrating to the first violin in m. 33. Its rhythm is clearly the basis of the manic dance that takes over the middle part of the scherzo at m. 143 and rings its changes until m. 188.

m. 21, single half notes tentatively adjust the E^b to E^{\sharp} ; the addition of C in the bass suggest that maybe this half note is just an upbeat that has lost its way, an upbeat that is a fantastic expansion of the single C that opens the movement. Example 6.4 attempts to depict the events just described; the TPF diagram shows an acutely plastic conflict.

The listener who struggles to maintain a sense of the notated meter may be subliminally aware that eight bars have ensued since the disruption (mm. 17–24). Still, regularity at the hypermetric level does little to organize the quirky disruptiveness of the surface. The abrupt intrusion of the E^b s marks a drastic change of plasticity conditions. The notated meter is virtually overwhelmed by the force of Uninterpreted Durations forming their own Rhythmic Structure (the displaced hemiolas) and fleeting Metric Hierarchies (the implied slow $3/2$). The sudden change creates a temporal disjunction, a boundary between this passage and the preceding phrase. There is more that effects this disjunction.

Example 6.4: String Quartet, Op. 135, 2nd mvt., metrical disruption changes plasticity conditions

16 21 25

7 8 (1 2 3 4 5 6 7 8) 1 2

pp *dim.* *p* *cresc.*

UD RS ~~MIX~~

The status of the E^b octaves is uncertain at best. In this context, E^b is at close to an Uninterpreted Pitch as one could expect to find within a firmly established tonality. The likeliest function for this pitch, as a seventh passing to the third of IV, is undermined by its doubling in octaves; nor does this E^b ever pass to D. (It comes as a something of a relief when this tone does appear in exactly this role in m. 40, just after a repetition of the opening phrase originally disrupted by the E^b s.) Only in retrospect does the interpretation shown in Example 6.5 become manifest.⁴ The implied $bVII$ chord in mm. 16–22 unfolds into the V harmony, the E^b revealing itself as an inflected displacement of the third of that chord. Yet its harmonic explanation almost comes as an afterthought: E^b creates a kind of pressure that is somehow released when it gives way to E^{\natural} , which then allows the bass C to enter and reveal the underlying *Stufe*. The E^b is a sort of indentation in diatonic space, exploiting its elasticity.

⁴ This reading is based on the cursory sketch in *FC*, Fig. 111, 1, which, however, does not show the special status of the apparent tonic in the restatement of the opening phrase.

Example 6.5: String Quartet, Op. 135, 2nd mvt., voice-leading sketch, mm. 1–32

The image shows a voice-leading sketch for the first two staves of a string quartet. The top staff is in treble clef and the bottom staff is in bass clef. The key signature is one flat (F major). The sketch includes circled measure numbers 5, 16, and 25. Above the first staff, there are annotations for intervals: a triplet of eighth notes with a '3' above it, followed by three '3rd' labels. Above the second staff, there are Roman numerals: VI, V, I, bVII, and V (with a 5/4 ratio). A comparison between measures 9-16 and 1-8 is noted. The bottom staff also has some interval annotations: 8-7 and 6-5/4-3.

There is a kind of elasticity in time space as well, all the more reinforced by the bizarre disruption already described. Tonal Hierarchy suggests that an simple neighboring inflection to $\hat{7}$ should not be allotted so much time; it would be more normative as an appoggiatura $D\sharp$. This interpretation is depicted in Example 6.6a, which is rendered in a durational reduction where each original bar becomes a quarter note of the analysis. The halting and uncertain way that mm. 17–24 are filled out suggest that they are not a typical middle section prolonging the dominant. Rather, the E_b interrupts the form, which struggles to restart the opening phrase.⁵ The V that finally appears is an *ad hoc* version of the single quarter-note upbeat that began the movement (shown as a grace note in all

⁵ It is not uncommon for Beethoven to compose a sectional unit that is somehow at odds with its formal function, e.g., an apparent first theme that is simultaneously an unstable transition, as in Op. 31, #2, 1st mvt. exposition.

levels of Example 6.6). At a deep level the V and the Eb that precedes it are metrically indeterminate, standing outside the metric scheme as would an upbeat.

Example 6.6: String Quartet, Op. 135, 2nd mvt., plasticity analysis through durational reduction, mm. 1–32

♩. = ♩

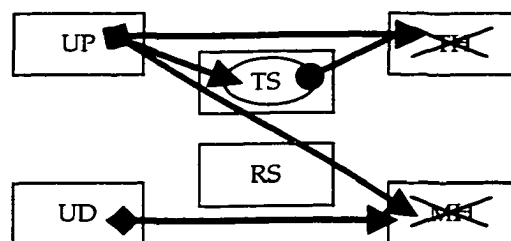
a)

b)

c)

1 2 (V) 3 4

For the Eb:



The elongation of both components leads to Example 6.6b, so that their duration is identical to that of the opening phrase. (Though the durational reduction does not show the incursion of E \flat into the cadential bar, m. 16, of the previous phrase.) Example 6.6c show the further elongation of the bass C into the time span of the reprise of the opening phrase, so that its tonic harmony is now subsidiary to the prolonged V. (See again the voice-leading sketch in Example 6.5.)

As in the TPF diagram for Example 6.4, the topography of the above diagram is skewed in one direction: uninterpreted elements (the left side) overwhelm the fixed (the right side). Thus, both Uninterpreted Durations and Uninterpreted Pitches work together to create an intensely plastic formal disruption that is crystallized around the tone E \flat . If we think of Tonal Hierarchy and Metric Hierarchy as a single underlying framework, then we can think of this E \flat passage as a kind of indentation in fabric of musical space-time. The pressure that creates the indentation comes equally from the unexpected tonal turn as from the rhythmic *imbroglio*.

This unified approach is another fundamental premise of the Temporal Plasticity Framework. Although tonal and temporal elements can be separated as abstractions, concrete musical experience presents them to us as a unity. While the analyst must surely begin work by considering them independently, a reasonably complete picture of a piece must consider tonal structure as residing in a temporal landscape, and rhythmic structure as giving life to an organic tonality. Plasticity gives no greater weight to either.

This passage from Op. 135 also clearly illustrates the interdependency of the three analytical concepts introduced in this dissertation. The Temporal Plasticity Framework describes particular conditions within a selected segment of a piece. An abrupt change in those conditions creates a boundary, a temporal disjunction, that demarcates a change of temporal plane. Here that disjunction occurs with E_b in m. 16 (see the disjunction marked in Example 6.4), an echo of the shadow meter that insistently grated against the main, notated meter (see again Example 6.2). The elongation of the E_b and the metrical uncertainty are sufficiently unlike the opening phrase to mark a new plane, as is depicted in Example 6.7.

Example 6.7: String Quartet, Op. 135, 2nd mvt., plane analysis through durational reduction, mm. 1–32

The initial boundary of plane β is quite clear, but its cutoff is more subtle. One hears a disjunction as the characteristics of plane α resume, but its abruptness is mitigated by the persistence of the bass tone C into its time span, creating a kind of overlap between the planes. The effect is that one hears a kind of after effect of the disruption in the repetition of the opening phrase.

This recapitulation of concepts will not proceed through an analysis of the complete scherzo. However, some sense of the aesthetic import of the disruption is suggested by the final bars of the movement, shown in Example 6.8. Plane β achieves tonal resolution, and even a rhythmic one, with a final *forte* downbeat.

Example 6.8: String Quartet, Op. 135, 2nd mvt., the final bars, mm. 262–72

The musical score shows four staves for the string quartet. The first ending (1.) and second ending (2.) are marked above the staves starting at measure 265. The dynamics are indicated by *pp*, *f*, *p*, and *dim.*. The piece concludes with a final *forte* downbeat in measure 272.

6.2: Some Implications of the Theory

The conflict model presented by the Temporal Plasticity Framework has some interesting theoretical implications. One issues from the fact that the TPF provides a description of the decision-making process of Schenkerian analysis. That is, every decision to take one pitch as structural and another as prolongational can be described as a balancing of tonal and rhythmic elements made explicit in the TPF. Thus, a tonic pitch on a strong beat might be clearly structural, but that same pitch on a weaker metric placement, or given a brief duration, or in a particular rhythmic context, may assume a subsidiary role.⁶ However, the degrees to which individual elements exert their effects cannot be measured precisely. For one thing, at least four of the elements of the TPF, Uninterpreted Pitches, Uninterpreted Durations, Tonal Structure, and Rhythmic Structure, are not by their nature part of a digital scale. For another thing, the TPF is highly listener-dependent, so that the effect of all elements may be weighed differently by different interpreters. Even given that Tonal Hierarchy and Metric Hierarchy can be described precisely, the strength of their effect may be revalued by listeners in various contexts. A shift in the force accorded to any element could result in a different reading.

Understanding Schenkerian analysis as the result of a balance of elements has a possibly startling implication: no one factor can be cited that will determine

⁶ Maury Yeston, in the context of his rhythmic theory, framed this question as a distinction between “rhythm-to-pitch” and “pitch-to-rhythm” influences. (*Stratification*, p. 4ff.) John Rothgeb uses these terms to discuss the analytical decision-making process in “Salient Features,” in *Music Theory in Concept and Practice*, ed. by James M. Baker, David W. Beach, and Jonathan W. Bernard (Rochester: University of Rochester Press, 1997) p. 181–2.

the correctness of one reading over another. This is clearly why Schenkerian readings are so easily subject to a dispute between individual interpretations. The most infamous of these is surely the battle over the 1st mvt. theme of Mozart's Sonata, K. 331. The question of whether $\hat{3}$ or $\hat{5}$ should be taken as the *Kopfton* could be construed as a TPF conflict: Metric Hierarchy favors $\hat{3}$; Uninterpreted Pitches (i.e., the higher pitch) argues for $\hat{5}$. By its very nature, a conflict model means that absolute answers are not available, only degrees of compromise among available elements. That this sort of circular reasoning is basic to Schenkerian thinking is suggested by Schachter's statement that, "...if one needs to understand the background to make sense of the foreground, one also needs to understand the foreground to make sense of the background...."⁷

A corollary implication concerns rhythmic analysis in general. As suggested above, elements in the TPF tend not to be valued precisely within a digital scale. Still, pitch structure is the most clearly ordered along a closed digital system. Theoretical parameters other than pitch tend toward an analog scale, even when notation gives appearances to the contrary, as in the notation of durations and of meter. (Of course, the same is true of elements not found in the TPF, such as dynamics and timbre.) In reality, durations are always flexible and meter exerts its force to varying degrees depending on the content that activates it in a listener's hearing. This points to a conclusion that may well represent a fundamental difference between tonal and temporal structures: The digital nature of pitch lends itself easily to organization as a closed system, constantly

⁷ "A Commentary on Schenker's *Free Composition*," *Journal of Music Theory* 25/1 (1981) p. 132; reprinted in *Unfoldings*, ed. by Joseph N. Straus (New York: Oxford University Press, 1999) p. 198.

permuting a limited number of tones; temporal structure may be better construed as an open system, playing out the infinite possibilities made available by time's arrow. In principle, an analog system could also be closed, at least partially. Clearly meter embodies both these qualities. Still, I would argue that a downbeat is not equivalent in meaning to a tonic pitch, which can represent a true return to one's starting place. A piece can never return to its first downbeat, as it can to its opening tonic.

Thus one could add to the right-to-left spectrum of the TPF (uninterpretedness vs. interpretedness) an additional top-to-bottom spectrum of closure vs. openness. Doing this may help create a place for music theory to recognize the open, unbounded aspects of tonal music that do not easily submit to closed systems. At least one could describe more systematically the tension between the tonal and the temporal that is the aesthetic source of so much of music's beauty.

6.3: Some Implications of the Analyses

It has ultimately been the purpose of this theoretical framework to address the subtlety and complexity of Beethoven's music, to show it as a paragon of dynamic conflict. Models lacking this component must inevitably fail; to simply demonstrate unity is ultimately to miss the point. To be sure, unity is there: complete disorder would after all contain no conflict at all. Analysis must strive to synthesize these opposites.

Schenker's model of voice-leading analysis has proven itself to be an extraordinarily intuitive model of tonal coherence, and it has been repeatedly

applied to Beethoven's music with great success. It is precisely the power of this approach that allows conflict to be set in relief. Voice-leading models can be utilized as elements of continuity that are one part of an analysis, an essential part.

Conflict and discontinuity are another essential part and can be represented by the analytical tools presented in this dissertation. Thus a single temporal plane can embody an unconflicted voice-leading statement. However, the subtle interplay of planes in works such as Opp. 109 and 110 can be shown to exhibit a more complex, even contradictory picture of tonal coherence.⁸ In these works, the interruption of one plane by another is not just an interesting surface feature, but the essential feature, one that undermines our sense of the music as an uninterrupted fabric. A tonal structure that disregards this seems somehow irrelevant.

So much has Beethoven's music been identified with perfect musical unity that some might find the analytical model presented here messy and inconsistent. Yet few would disagree with the sort of low-level tensions described by the Temporal Plasticity Framework; indeed, one can hardly hear Beethoven's music without encountering marked plasticity at every turn. Feeling this plasticity deeply leads to a recognition of disjunction, of the separation of music into planes. There is a kind of wholeness to the fractured view of music.

As suggested at the close of Chapter 3, musical organicism need not be a simple-minded notion. The centrifugal balances the centripetal, like the growth

⁸ See Chapter 5.

and containment of an organism. This kind of tension only more deeply animates the coherence shown through a Schenkerian hearing.

However, conflict and tension in an analytical model do not always signify strife. Nor is organicism simply a representation of a literal organism. The metaphors of music translate into a world of possible meanings. Beethoven's mastery of musical time is a rich tool for expressive significance. It is not so much a representation of the physical organism as of our mental life, not of the world as of what it is like to experience the world in thought and emotion. (It is perhaps this internal perspective that weakened Beethoven's effectiveness as a stage composer; his dramas are within the mind.) I believe Beethoven transmuted inner thought into music more fully than any composer before him. The time of the mind is infinite in its possible structures. The temporal sculptures Beethoven has left us are both strange and familiar, and as such they are infinitely compelling of our attention.

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