5 Analyzing Pärt

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Introduction

The music of Arvo Pärt is challenging. It exhibits such simplicity on the surface that just beginning an analysis can be demanding. Consequently, in the music-theoretical literature, few scholars have attempted full-scale analyses. Nevertheless, Pärt and his music make regular appearances in both the scholarly and the popular presses. Both venues offer biographic profiles, reviews of recordings and performances, and reflections upon his cultural milieu or his representation in the media. This valuable commentary would only be strengthened by a complementary assortment of analyses that engage a number of existing theories and develop new methods.

What can explain the paucity of music-theoretical scholarship on Pärt's music? First, he is a living composer. Not only have his predecessors from bygone centuries had more time to become objects of interest, but also their temporal distance equates, for many, to the critical distance necessary for informed analysis to occur. The second problem facing Pärt's music is its inescapable label: 'minimalist.' As labels go, this one is not problematic, and its accepted definition applies reasonably to his music, but it is a deterrent to theorists and analysts who find minimalist music of little value, regardless of composer, regardless of technique. Finally, Pärt's enormous success and popularity, coupled with an austere and reclusive persona, arouses suspicion in some casual observers. Despite these impediments it is not axiomatic that music composed by a living, minimalist, unusually popular composer cannot reward rigorous analysis, but it remains to be seen what kind of analysis is the most rewarding in Pärt's case.

One engaging recent analysis of Pärt's music simply couldn't have been done in the same way just twenty years ago. John Roeder's analysis of *The Beatitudes* employs relatively new ideas about triadic transformation, and it unfolds in real time through computer animation.[1] Ideal for those who prize being 'present' in the music (a disposition that for some precludes any analysis at all), Roeder's analysis does not break the meditative focus; it enhances it. The triadic transformations are displayed and mapped as the

music progresses in real time. Of course, one can simulate this by simply reading any printed analysis while listening to a recording of the piece in question. Roeder's analysis, however, does this for the reader, which is significant. It doesn't just bridge the gap between the music and the analysis; it merges the two.[2] What is more, the analytical apparatus itself stands as a beautiful and moving complement to both music and text.

Describing the nature of musical analysis, theorist Ian Bent maintains that analysis "is the means of answering directly the question 'How does it work?'"[3] To analyze Pärt's music, then, is to determine how it works, and even people with only a passing familiarity know that Pärt has developed his own specific, idiosyncratic technique called tintinnabuli. While it is at one level merely a 'procedure' that allows its user to generate music *from* music, the tintinnabuli technique no more explains how Pärt's music works than the twelve-tone technique explains how Arnold Schoenberg's works. Because the tintinnabuli technique is so crystal clear, critics of Pärt's music might conclude that the 'how' is already answered and is presented forthrightly on the surface of the piece, leaving the analyst with nothing to do.

There is more to do, of course. Bent continues on the nature of analysis: "Its central activity is comparison. By comparison it determines the structural elements and discovers the functions of those elements. Comparison is common to all kinds of musical analysis … comparison of unit with unit, whether within a single work or between two works, or between the work and an abstract 'model'."[4] Bent concludes that comparison, the act of determining similarity and difference, is "the central analytical act." Therefore, when analyzing Pärt we might build upon a preliminary assessment of the tintinnabuli components – the 'how' – by comparing the results with other possibilities, or by comparing the procedures to other potential or hypothetical ones. In essence, we may investigate the process – the decisions leading to the results – as much as or more than we analyze the results themselves.

Pärt's tintinnabuli music is radical music in need of radical analytical methodologies or, more modestly, radical application of current theoretical tools. Tintinnabuli emerged in the 1970s as a new, original technique but only after Pärt's reacquaintance with and reevaluation of medieval and renaissance music. In the same way, successful analysis of his music might come only after a revisiting of existing methodologies, even those one might not expect to engage when analyzing 'minimalist' music. In order to hasten optimistically the arrival of this success, the first part of this chapter surveys several theoretical and analytical sub-disciplines considering 'how' and even 'how well' each might work when analyzing Pärt. The second part offers a set of deeper analyses, which extend some of these ideas further, investigating Pärt's *process* along the way.

Part 1: analytical approaches

Because the music Pärt composed prior to his invention of tintinnabuli broadly utilizes techniques for which there are currently analytical models (for example twelve-tone technique or collage) they are not under discussion in this chapter. Instead I will concentrate on tintinnabuli itself, which has been the hallmark of Pärt's style since 1976, and has matured into an unmistakable, unique language. It is important, however, to understand the technique as it stands in relation to his earlier music, which was largely serial or aleatoric. The final piece of this earlier period, *Credo* (1968), stands as a compendium of contemporary avant-garde techniques. Tintinnabuli, then, is not just an idiosyncratic dialect imbued with medieval coloring; it is a radical and deliberate turning away from the new and avant-garde as much as it is a reassessment of and reacquaintance with the old and established. To analyze Pärt's music, perhaps one must adopt a similar stance towards old and new analytical techniques. Analysts must devise brand new techniques and, in equal measure, engage existing theories in completely new ways.

What follows is a selection of five distinct analytical methods. Each is considered with an eye towards its possible application to Pärt's music. No complete analyses are provided, but calls for further study are made in each case. Throughout the discussion, 'analysts' are understood to be musicians interested in discovering how Pärt's music works, be they musicologists, theorists, or otherwise labeled. A distinction commonly gets made, particularly in the USA, between the disciplines of musicology and music theory, and most of the ideas represented here fall into the latter camp.[5] Broadly speaking, and despite the considerable overlap between the disciplines, music theory tends to examine the properties of and the relationships between musical components themselves, usually in an abstract, even speculative, manner without respect to any particular composition, while musicology tends towards historical and contextual studies. 'Analysis,' then, can engage both disciplines, using a wide variety of approaches. Those that follow below are just a few of many threads that could be picked up by future analysts of Pärt's music.

Style analysis

Sometimes the application of a single music-theoretical concept to a passage of music offers profound insight into a particular progression of harmonics, a series of intervals, or a complex hierarchy of rhythms. This profundity comes at a cost, however. An insightful theory tends to illuminate a narrow range of musical domains, leaving other elements of the music in the dark, to be investigated by other means. Jan LaRue's expansive

method, described in his landmark text *Guidelines for Style Analysis*, reverses this arrangement.[6] While it may not have the *explanatory* strength of an abstract general theory, style analysis is a most comprehensive *descriptive* technique, requiring the "observation of every nook and cranny of a piece."[7] As its name suggests, it can provide the framework for comparison of music from across genres and across eras. Additionally, it can serve as the background for further analysis, providing vital signs for someone performing a closer examination: "[A]s a point of departure, this style-analytical framework can serve musicologist, theorist, and performer alike."[8]

In LaRue's "nooks and crannies" lurk musical elements that can be sorted into his well-known domains – sound, harmony, melody, rhythm, and growth. While the meanings of the first four are self-evident, 'growth' is LaRue's dynamic replacement for the more static, but more widely understood, term 'form.' Each of these five domains is to be investigated in the 'large dimension' (the overall piece), the 'middle dimension' (the sections or movements), and the 'small dimension' (note-to-note events). There are, thus, fifteen areas of description in a typical style analysis.

In his book, LaRue systematically outlines what kinds of things one might expect to find in each of these fifteen subdomains, and he suggests how the findings might be organized and presented. Of his many recommendations, one seems particularly relevant when analyzing Pärt's music: "The proper test for observation is not 'Is it true?' but 'Is it significant?'"[9] This claim might seem to suggest that the truth-value of an observation is irrelevant in an analysis of style. On the contrary, it calls us not to avoid truth in favor of subjective critique, but to select from numerous possible true statements only those most significant, cautioning readers against drifting into an endless enumeration or listing of facts. The significant facets of a composition are those that are unusual for a composer of that time or place, those that are more or less distinctive to the composer or piece.

To perform a style analysis of one of Pärt's pieces is to compile as many of his distinctive musical elements as are meaningful and to present them in such a way that they can be compared efficiently to the corresponding elements of another's style. Table 5.1 does exactly this with his *Orient & Occident* for string orchestra (2000). On its own, the table ably describes Pärt's compositional style. Surely, anyone familiar with Pärt's music would recognize its description here, even if all references to the composer and his tintinnabuli technique were removed. Its real strength, though, derives not from the observations themselves, but from how those observations are situated in the contexts of Pärt's oeuvre, of minimalism as a genre, and of contemporary music.

A good style analysis invites the analyst to go further. LaRue suggests going beyond description into function: from the 'what' to the 'how.' It is

Table 5.1 *A simple style analysis of* Orient & Occident

	Large dimensions	Middle dimensions	Small dimensions
Sound	Consistent fabric throughout (string orch.)	Texture mostly 4+1, with varied assignments:	*n.v.* passages employ glissando (reflecting titular "Orient"?)
	Some interior sections use *divisi*.	The "4" = two T-voices & two M-voices.	
	Low textural contrast between sections	Crisp alternation between two main fabrics:	Frequently, the "1" in 4+1 = a drone
	Range consistent throughout	*n.v.* = no vibrato; monophonic.	
		espr. = espressivo; T- and M-voices.	
		Sharp dynamic contrast due only to the inter-sectional measures of rest. (G.P.)	
Harmony	(Mono-) coloristic; Static.	Sections distinguished by change in emphasis:	Dissonance is produced by the "passing" of the M-voice between the tones of the T-voice's triad.
	Neomodality (LaRue, 54):	Modal center may shift from D to G.	
	n.v.: D E♭ F♯G A B♭ C♯D.	T-voice triad shifts D–F–A to G–B♭–D.	
	espr.: D E♭ F♯ G A B♭ C/C♯ D.	Drone tone changes from section to section.	
	T-voice on D–F–A or G–B♭–D.	Harmony is consequence of the coincidence of T-voice and M-voice. *espr.* passages often conclude with a sustained harmony, which (coupled with G.P.) suggests a cadential effect.	
Melody	Nature of melody (in M-voice and in *n.v.* passages) consistent throughout.	Melodic fragments (*n.v.* and *espr.* passages) are of varied but short length (1–6 quarter notes).	Each fragment is stepwise and either ascends or descends exclusively.
			(Some descending *espr.* passages, however, have an anacrustic ascending leap.) Slurs in *espr.*; Glissandi in *n.v.*
Rhythm	Uniform tempo: quarter note = 120–132.	Most measures contain three quarter notes.	Within each lettered section, there is an irregular alternation between *n.v.* and *espr.* passages.
	Penultimate section: *più lento* to *lento*.	One could reduce each measure of 6 to two measures of 3, but each longer measure contains only a single sustained chord or tone, which suggests a pause in the hypermeter. (The following rests support this idea.)	
	No time signature, which:		Scotch snap used in *n.v.* passages on ascending or descending semitones.
	(1) is a result of the measures' varied lengths, 3, 6, and 9 quarter notes; and (2) suggests an absence of hierarchy of metrical accent.		

	Large dimensions	Middle dimensions	Small dimensions
Growth	Sections A–L vary in length.	The harmony or pitch class that precedes the section-ending G.P. or rest varies, whether *n.v.* or *espr.* If this is construed as quasi-cadential, then the moment of "cadence" is frequently unpredictable due to the varied natures of both closing harmony and section length.	The tintinnabuli technique insures consistent change in the starting melodic pitches. While mode is consistent, the small ascending or descending fragments project different tones of reference tones in the mode.

the case with some of Pärt's more transparent demonstrations of tintinnabuli that the very descriptions produced by style analysis differ little from descriptions of tintinnabuli itself, so closely bound are the 'what' and 'how.' Once this is acknowledged, however, one can make useful comparisons of Pärt and tintinnabuli with other composers and their procedures. What is more, LaRue does not shy away from subjective evaluation. For him, style analysis "systematically furnishes much of the basis for objective evaluation," and he is as systematic in his evaluative process as in his analytical one.[10] While many analysts of Pärt's music might be reluctant to do any work that may be construed as subjective criticism, such efforts seem desired, even necessary, for at least two reasons: First, Pärt's music is difficult to classify, a fact noted by its supporters and its detractors. To the former the music is innovative, fresh, and rich; to the latter it is derivative, tedious, and empty. Style analysis might be a base-level classification, a starting point for reconciliation of these opposing views. Second, as Pärt routinely is the recipient of *negative* criticism, some well-reasoned *positive* criticism is entirely welcome.

Musical hermeneutics

Music analysis can employ a technical language with terms and concepts utterly foreign to the non-musician. This kind of discourse is essential to the furthering of the discipline, but other kinds of analysis seek to interpret the abstract structures and processes of music using words and ideas familiar to most anyone. While some analyses articulate the form and structure of a composition and, in support of their claims, adduce only the notes in the score or other compositional and theoretical conventions, other analyses look beyond the score to the composer, to nature, or even to the spiritual realm in search of a meaning that transcends the notes on the page. Unsurprisingly, proponents of both methods historically have been at odds with one another. At the turn of the twentieth century, a rising formalism, arguing that the essential core of music was its structure

and form, met some resistance in the minds of many for whom form was simply a means of projecting deeper things: emotion and meaning.[11] The formalists didn't deny the existence of emotion or meaning altogether but found such things to be either too nebulous or too subjective to be assessed in a critical, defensible way. Furthermore, if there were such things in music, they existed only in the individual mind of the listener, not as some kind of message from the composer. Insisting that composers *expressed* specific meaning in their music, the dissenters found a voice in musical hermeneutics.[12]

Intended not to explain but to interpret the music, hermeneutical analyses identified the usual elements of tonal structure (phrase and cadence, harmony and counterpoint), but did so in service of the meanings they carried. For instance, melodic ascent and descent might represent, respectively, eager striving and solemn withdrawal. Stability was mapped onto consonance, struggle onto dissonance. Shifts between parallel major and minor keys carried obvious emotional connotations as well. As a result, an analysis could tell a story; it could reveal a drama that unfolded in real time and was a direct expression of the composer. To some this was, moreover, the spiritual intent of the composer, not just the 'story' of the composition. Theorist Lee Rothfarb writes that, for hermeneutic pioneer Hermann Kretzschmar, "music was communicative, and form was merely the 'husk and shell' for communicating a spiritual content."[13] The object of analysis lies beyond the form itself and in the soul of the composer. To better understand Pärt's spirituality, then, one might tune out the unintentionally distracting extra-musical elements and listen to what the formal structure might have to say.

For musical hermeneutics to have any success it requires a reliable, and to some degree predictable, musical language. Major-minor tonality, with its well-regulated conventions of harmonic syntax, dissonance resolution, and metrical hierarchy, offers up an array of phenomena for emotional interpretation. Music from other repertoires could profit from similar analysis but by using hermeneutics of an entirely different sort. Pärt's tintinnabuli makes use of some tonal elements while eschewing others, making it an interesting subject for a hermeneutical approach.

Mein Weg hat Gipfel und Wellentäler (*My Path has its Peaks and Valleys*) for organ (1989) is a good example of Pärt's more advanced technique. Here, there are three M-voices (right hand, left hand, and pedals) each paired with a T-voice, all moving at different speeds. Notably, the T-voices articulate an E-minor triad: E, G, B; while the M-voices move through the fifth mode of A harmonic minor, sometimes known as the 'Phrygian dominant': E, F, $G_{\sharp}$, A, B, C, D, E. This creates not only the chromatic clash of G and $G_{\sharp}$, but also, as the multiple voices coincide, a broader selection

of secondary harmonies than would be found in the simple diatonic collection.

A hermeneutic reading of *Mein Weg* cannot ignore the ever-present tonic triad. Whether it is a moment of ultimate triumph or resolute defeat, the arrival of the final tonic in tonal music is, hermeneutically speaking, the end. To affect this outcome, any number of means have been used by the great composers, but departure and return, to and from the tonic, is at the core of the tonal dynamic. Pärt's piece, on the other hand, is a world without end. Its tonic triad never leaves the listener. Through the ringing of the tintinnabuli, Pärt has removed harmonic syntax from the drama. There is no harmonic progression. Rather, we are presented with an E-minor triad, and dynamism arises not from what happens to that triad, how it is transformed or elaborated, but how the melody, with its strident $G_{\sharp}^{\sharp}$, behaves in the unflinching face of E minor.

Like most M-voices in the tintinnabuli style, those in *Mein Weg* alternately rise and fall. They first appear in short segments, then in gradually longer swaths, and finally in shorter segments receding into the triad. As the segments rise and fall from note to note, so does the overall series of starting tones for each segment, thus creating ascending and descending fragments nested in other large-scale ascents and descents. How would a hermeneutics of Pärt's music interpret the inevitability of such a structure, whose playing out to completion is largely preordained after the first few measures are presented? Is the listener granted a kind of omniscience here that the listener of a typical tonal piece is not? What is to be made of the seeming indifference of the three voice pairs moving at different rates?

More than just compositional traits, the rising and falling in *Mein Weg* undoubtedly relate to the titular "peaks and valleys" of the poem on which the piece is based.[14] Further, the rhythmic and durational independence of the lines is suggested by the poem's final line: "My road. Yours." While each of us travels a different road, with different highs and lows, the roads are in many ways the same, and they all have the same destination. In tonal music, expectations can be delayed, confirmed, or denied, and the listener is often along for the ride, experiencing the drama first hand, but in tintinnabuli the listener is aware of the outcome. The drama lies in the playing out of a *fait accompli*.

Another twentieth-century hermeneutical methodology appraises the inherent properties of scale degrees in the major and minor modes. By examining how scale degrees tend to behave across a wide range of tonal music (including popular music) and hypothesizing what their patterns might express, Deryck Cooke ascribes an expressive meaning to all scale degrees in major and minor as well as to sixteen common melodic fragments. For example, "to rise from the tonic to the dominant through the

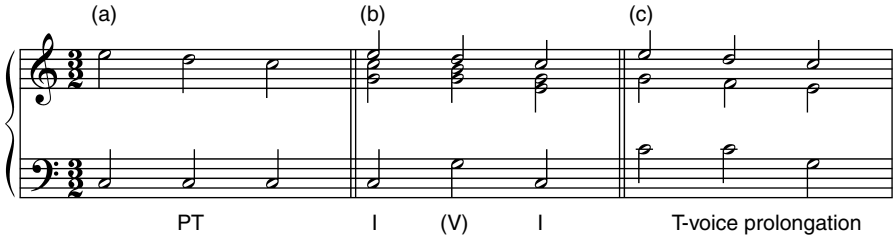
major third – or in other words to deploy the major triad as a melodic ascent 1–3–5 – is to express an outgoing, active, assertive emotion of joy."[15] (Rising = 'outgoing'; dominant = 'active'; and the major third is the 'note of joy.')

There is much more to Cooke's methodology; other components of music (pitch, time, and volume) are understood as 'tensions,' which interact with the expressive scale degrees to create 'musical energy.' Pärt's music might be explored with Cooke's method, but some interesting decisions would have to be made. Foremost among them would be how to assess those modes which are not the common major or minor modes. The expression embodied by the descent A–G–F–E in E Phrygian mode, for example, must be somewhat, but not entirely, similar to the one embodied by the same four-note descent in A minor. The intervals are the same, but assignments of tonic and scale degree are different. In mapping this kind of analysis to Pärt's music, which of Cooke's expressions should be simply transposed through modal rotation, and which would need to be reconfigured or redesigned altogether? Furthermore, would one need a large body of work comparable to the great tonal repertoire from which one can make general claims about expression and interpretation? These are difficult questions, but Pärt's music often is an investigation of the simple properties of mode and scale, so to ascribe meaning to such rudiments is a worthwhile endeavor.

Schenkerian analysis

The theories of Heinrich Schenker (1868–1935) are theories of tonal music. They offer insight into the structure of individual compositions (primarily works from the master composers of the common-practice era, loosely, from Bach to Brahms) as well as the nature of tonality itself. Schenkerian analysis is concerned primarily with the interrelation of harmony and counterpoint. By relating events on the surface of the music to their contrapuntal underpinnings, the analytical method reveals at least two important characteristics of tonal music: first, that various *hierarchical levels* of structure exist, from the note-to-note surface to a far simpler and deeper fundamental structure, and, second, that certain harmonic progressions at one level of this structure can serve to *prolong* a single harmony at a deeper level of structure (more on this below). We may consider then that composing tonal music is essentially a means of elaboration, and it is the analyst's, and even the listener's, task to deduce the underlying structure (the 'background') from the elaborate surface (the 'foreground'). Finding one's way among the levels in between (the 'middleground') can provide a much richer understanding of the piece and offer a more profound listening experience as well.

Example 5.1 Prolongation: (a) passing tone; (b) passing tone with consonant support (prolongation by intervening dominant chord); (c) passing tones through tonic (prolongation by T-voice)



As powerful as the method is, Schenkerian analysis is not appropriate for music that is not constructed in a suitably elaborative manner. Many attempts have been made, however, to apply the technique to medieval, renaissance, post-tonal, and even popular music, with mixed results. While it was never intended to be a universal methodology, some of its graphic tools are nevertheless useful when trying to display other hierarchical structures and therefore are freely adopted and adapted with some success. As for Pärt's music, these tools may be of use, for although his method of prolongation is decidedly non-tonal, his compositions contain extended passages that reasonably can be represented by single, governing tones that together can be graphed in a quasi-Schenkerian manner.

In tonal music, or at least in a view of tonality even modestly informed by Schenkerian thought, a passing tone, when given consonant support by a change of bass tone, is said to give rise to a new consonant harmony, one that *prolongs* the harmony previously embellished only by a passing dissonance. Example 5.1a–b shows exactly this transformation. The dissonant passing tone in Example 5.1a gets supported by the dominant chord in Example 5.1b, a separate, consonant chord, which remains entirely subordinate to the surrounding tonic. Wholly consonant, it can, itself, be prolonged even to the point of its representing a tonal region in the key of the dominant, but it will remain subordinate to the opening and closing tonics, thus preserving the initial hierarchy.

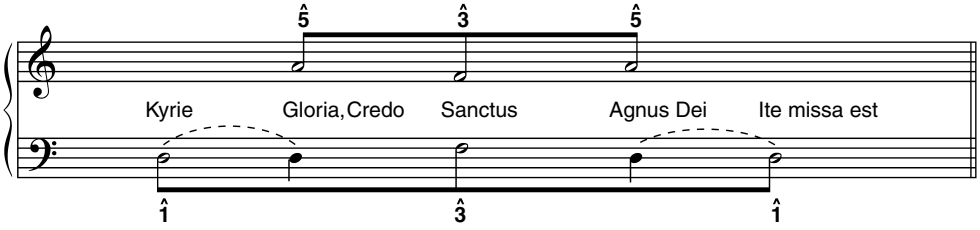
In Pärt's tintinnabuli, prolongation of the tonic is far more literal. Example 5.1c shows another passing motion in the soprano voice. This M-voice is coupled with a second M-voice a sixth below. The passing tones, D and F, however, are not given consonant support. Rather, the T-voice, here in the bass, consistently reiterates tones of the tonic triad. The prolongation of tonic in Example 5.1b exists despite the absence of C or E in the dominant chord. With minimal effort, students of tonal music can learn to understand this, and even hear this, as prolongation of tonic, but it is not always immediately apparent. The prolongation in Example 5.1c,

on the other hand, is inescapable. The T-voice's very job is to prolong, literally, the sounding of the tonic triad. The unfolding of the tonic triad is always upfront, at the surface of the music, preventing the passing tones' expansion into a new stable harmony. There are moments, of course, when the T-voice is sounding only one member of the tonic triad. At times like these, when other members of the triad are absent, the non-tonic tones in the M-voice might suggest non-tonic harmonies, even new key areas, but the T-voice always returns soon to the remaining tonic tones.

Because the register of a T-voice is predetermined by its relationship to the M-voice, multiple T-voices might at different points in the piece imply different inversions of the tonic triad, so common is the tendency to view the lowest note in a chord as important in tonal analysis. Apparently, though, the particular inversions matter very little to Pärt; the ringing of the tonic triad's tones is enough. At times the T-voice configuration will suggest a $^{6}_{4}$ chord.[16] This certainly should not be considered dissonant, as it might in tonal music, and furthermore should not be considered any less stable than $^{5}_{3}$ or $^{6}_{3}$ chords. In tonal music, the bass plays an integral role in defining consonance and dissonance, but Pärt's tonic triad is always consonant, regardless of 'inversion.' It is as if the triad's tones are constantly present in all registers, but at any given time we hear only those ringing in the wake of the travelling M-voices. So, while register plays an important role in the drama of Pärt's music, the structure is formed not in a directional pitch space, but truly in a pitch-*class* space, with no ceiling and no floor.[17] While the tonic triad is composed of the first, third, and fifth tones of the mode, there is no evidence, in the T-voice anyway, that the root is somehow more fundamental than the third or fifth pitches. Pärt's triad thus permeates all corners of the environment. This is, of course, quite different from the tonic triad in tonal music.

Schenkerian notation uses notes of various durational values (half notes, quarter notes, stemless note heads) to indicate relative level in the hierarchical structure and beams them together to show large-scale connections. There are, however, two important aspects of tonal music that the notation cannot reveal in Pärt's music. First, while we may uncover a certain hierarchy in the music, there are no *Stufen*. In tonal music, a *Stufe* is a scale step that, when standing in for a prolonged harmony (even tonal areas) at that scale degree, also participates in a harmonic progression governed by tonal syntax. There is no such progression in Pärt's music, but there tend to be distinct large-scale successions of a different sort. Tintinnabuli's M-voice usually moves stepwise to or from (and up or down) a single tone, which may or may not be the tonic tone of the prevailing mode. Throughout a composition in a single mode, the melodic activity may center on various tones such as this. Although melodic elaboration of these tones cannot be

Example 5.2 Background structure of *Missa syllabica*



said to be a prolongation proper, the tones themselves do play a governing role in the melodic activity of a particular section of music. The notation, then, can purport to display only these changing centers of melodic motion. Second, because upward and downward melodic motion is treated equally, and because a root-position triad is no more fundamental than an inverted one, stem direction should not be understood to represent participation in either a 'soprano' or 'bass' line. Counterpoint is at the heart of Schenkerian analysis, so without a clear soprano and bass, the analytical graph in Example 5.2 cannot properly be called Schenkerian. Nonetheless it represents a reasonable simplification of the structure of the music at hand.

In Pärt's *Missa syllabica* for SATB choir and organ, each of the sections is distinguished by a specific pitch class or pair of pitch classes on which the M-voices are based. Depending on the particular voice (soprano, alto, tenor, or bass) and section (Kyrie, Gloria, Credo, Sanctus, Agnus Dei, Ite missa est), the M-voices move by step up or down, to or from, these pitch classes. Example 5.2 displays, united in a single background structure, the pitch classes that represent the various sections of the piece. Stem direction differentiates the two active voices (when there are two), and dotted slurs indicate further prolongation of the D.

As argued above, these pitches do not represent harmonies, *Stufen*, or key areas, but they do represent their respective sections in an important way. Each is the melodic, and thereby textual, focus of its section. Furthermore, together they articulate the large-scale tonic triad of the piece's mode, A-Aeolian. The two voices do not play the functional roles of bass and soprano. They simply, in symmetrical alternation, spell out the ever-present triad. The tonic triad is an important part of a Schenkerian background structure, where the passing, goal-oriented motion of the soprano (see Example 5.1b) spurs harmonic progression and prolongation of key areas. In *Missa syllabica* such deep-level motion is absent. All motion in the M-voices is subordinated in some way to the tones of the triad. It is the pervasiveness of the triad, in fact, that exposes a weakness of the quasi-Schenkerian approach. All melodic motion is in the foreground, and the

triad forms the background, leaving no middleground to speak of. One of the strengths of Schenkerian analysis is how it allows the user to understand the sometimes complex, sometimes conflicting interaction of several different levels of hierarchical structure which is the middleground, but it is often difficult to find such a middleground in Pärt's music. What can be found, and what is part of its appeal, is the stark combination of foregrounded melodies and looming backgrounds, clear as a bell.

Set theory

In the analysis of many post-tonal works, theorists find pitch-class set theory helpful when handling a great deal of (1) collections of tones and (2) transformation of these collections (e.g., transposition, inversion). Its strength lies partly in its one-to-one assignment of integer to pitch-class[18] which enables systematic enumeration both of possible 'chords' and of the relations (whether transpositional or otherwise) between them. Pitch-class sets (pcsets) are quite useful in analysis of the free atonal works of the early twentieth century and can be incorporated fruitfully into certain aspects of twelve-tone analysis as well. On the other hand, music like Pärt's, often limited to a few chords, would normally be an unusual candidate for pitch-class set analysis. After all, if a composition were limited to a single, reiterated sonority, there would be only one pitch-class set to analyze. If one takes into consideration, however, the specific number of times the various pitch classes (pcs) reappear or are reiterated at different points, the details of the set's transformation over time are revealed.

Pärt's *Psalom* for string quartet (1985/1991) features a heterophonic, yet homorhythmic, pair of voices.[19] The voices express the same rhythm simultaneously, but when the lower voice sounds the pitches E, F, G♯, A, or B, the upper in turn sounds E, F, B, C, or D, respectively. The E 'Phrygian dominant' scale is thus divided between the two voices, which share the first two scale steps, E and F. Each voice, however, is limited to its own five-note collection. When labeled with pc integers, the lower voice's collection is notated not as the pitches {E, F, G♯, A, and B} but as the integers {4, 5, 8, 9, 11}. This collection, or set, persists throughout the piece with no transposition or inversion. The melodic segments, however, sometimes include all five pcs, sometimes just a few of them, and frequently reiterations of one or more of them. So while a label such as {4, 5, 8, 9, 11}, if applied throughout, seems to report little activity, the same label, enhanced to show the specific number of iterations of each pc in a given section, would reveal many shifts in emphasis from tone to tone *within the chord*.

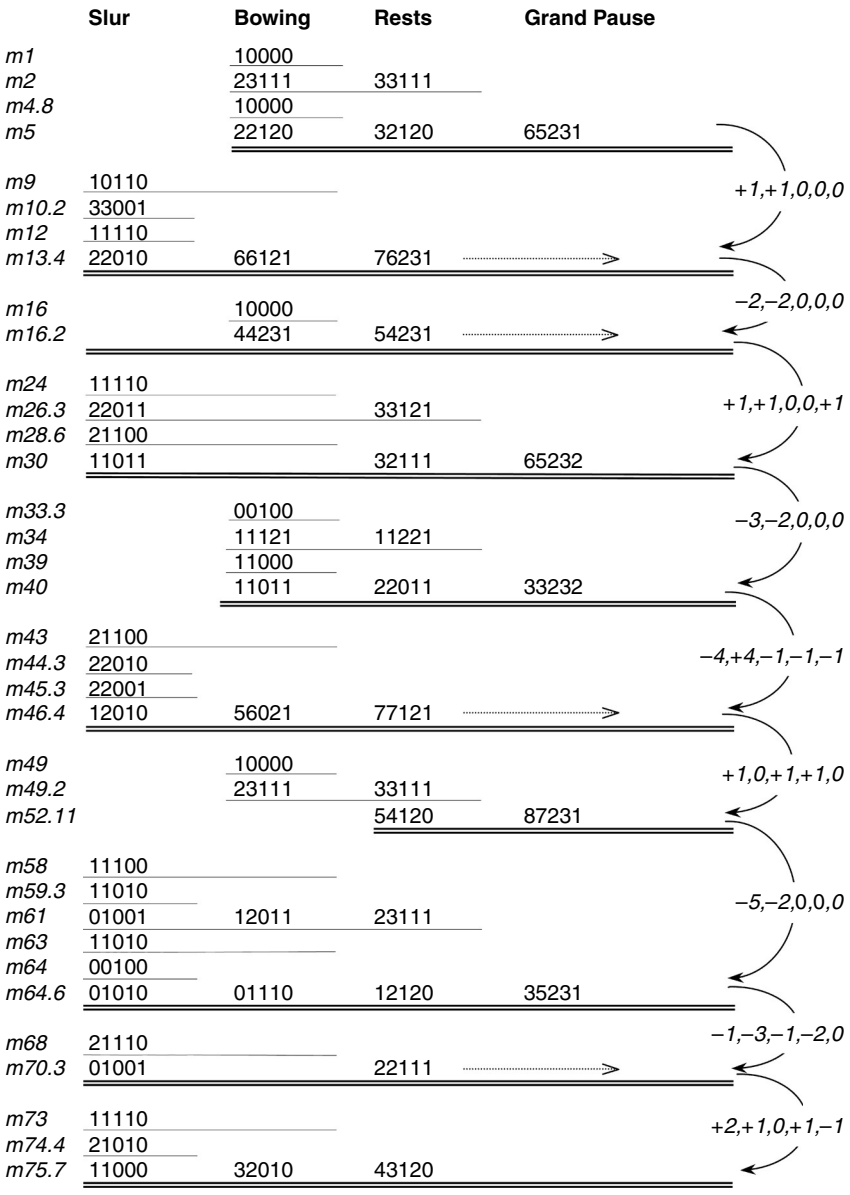
Borrowing from mathematical set theory, the pitch-class *multi*set exhibits this multiplicity through a power notation like so: {4^2, 5^3, 8^1,

9^2, 11^0}, where the exponents (superscript numbers) indicate the number of appearances of each pc.[20] Because the five pcs are constant throughout the piece, one may simply detach the exponents from the pcs themselves. Once the pcs are taken for granted, only the multiplicity of each pc is recorded: 23120. This becomes a kind of topographical survey of the chord at a certain point in time. This *multiplicity function* monitors the intensity or presence of each pc. Where 24200 indicates that pcs 9 and 11 are omitted and pc 5 appears four times, 00333 shows an even distribution of pcs 8, 9, and 11, yet no pcs 4 or 5. Throughout *Psalom*, these contours show great variety, from moment to moment or section to section.

Let us consider the broader implications for Pärt's music. To Paul Hillier, tintinnabuli is "music in which the sound materials are in constant flux, though the overall image is one of stasis, of constant recognition."[21] Throughout Pärt's work *stasis* is evoked by the unchanging triad or the repeated scale steps. *Flux*, on the other hand, is a product of the twisting and turning of the triad or the shifting emphases of different scale degrees. To track this shimmering or even undulating quality, one need only keep track of the rise and fall of multiplicity for each pitch class. For example, if the multiplicity functions report a shift from 24200 in one measure to 00333 in another, there will have been the following change in multiplicity: -2, -4, +1, +3, +3. Each entry in this *multiplicity difference function* reports the change in multiplicity of a different pc. Now, even in the absence of transposition, inversion, or similar operations, there is still a meaningful transformation revealed through set-theoretical tools.

In Example 5.3, *Psalom* is broken into its constituent sections, subsections, and sub-subsections, each delineated by a different type of articulation. The slur markings are the smallest segmentations in the analysis, and the first column lists the multiplicity functions for each. The preponderance of zeros indicates that at this structural level at least one of the five pcs is always omitted from the collection. Changes in bowing indications mark off the next level of structure, and the example records the multiplicities within, which essentially add all the multiplicities at the slur level. The third column lists the multiplicities of pcs between rests. The regularity and depth of these rests not only mark another level of segmentation, but also seem to breathe life into the material between them. Had these segments run together, without the intervening point of repose, the shift in multiplicity might be more difficult to perceive. Finally, the largest subdivisions are those marked by grand pauses (points of repose notated 'G.P.') with multiplicity difference vectors running down the right-hand side. Example 5.3 tracks the varying multiplicities of pitch class in these large sections. Take, for example, the last two multisets at the grand-pause level in the lower right. The penultimate multiset is represented by multiplicity function

Example 5.3 *Psalom*. Pc set {4, 5, 8, 9, 11} is listed only by its various five-position multiplicity functions. Multiplicity difference functions appear at right



22111. When subjected to the multiplicity difference function <+2, +1, 0, +1, -1>, each entry simply adds to (or subtracts from) its respective multiplicity. This produces the final multiset's multiplicity function: 43120.

The richly varying multiplicity a single pcset can exhibit in a single piece is impressive. Far from a monotonous rumble, the piece shimmers in a non-repetitive manner throughout. The interest lies not just in the

pcs themselves but also in their changing numbers. This, perhaps, is the strength of both pitch-class multisets and tintinnabuli. If we aim to dig into the set itself, exploring its multiplicities and shading, we take the pitch classes for granted to a certain degree. Pärt's music often does exactly that; a limited collection of tones exists as a known, finite universe, and the infinite reveals itself in the bustling, vibrant interactions within.

Triadic transformation

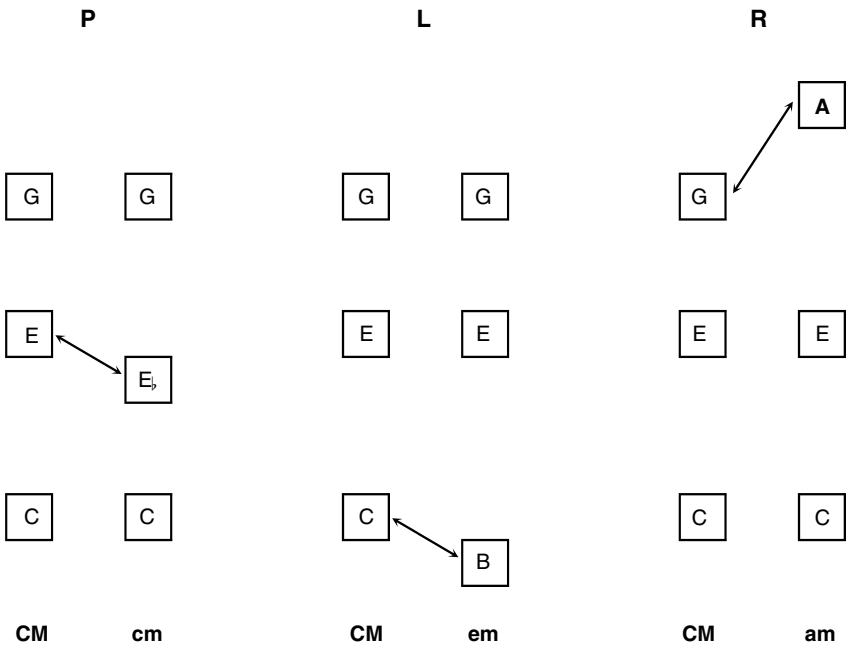
Inspired by the work of nineteenth-century music theorist Hugo Riemann (1849–1919), some theorists in the late twentieth century developed tools for analyzing certain transformations of triads and, in some cases, seventh chords. The emphasis is on 'transformation' and not 'harmonic progression' because the variety of possible successions of triads using the only three basic neo-Riemannian voice-leadings exceeds that which is governed by the traditional harmonic syntax of tonal music. The strength of this theory is twofold. First is its comprehensiveness. One may link any two major or minor triads through one or more of these transformations. Second, there is a disregard for the realized inversion of a particular triad, allowing the transformations to occur in a more general pitch-*class* space. Using simple voice-leading one is thus able to account for chord successions outside the bounds of traditional tonal syntax. Pärt's music certainly contains harmonic successions that are unaccountable through tonal analysis. The prevalence of consonant 6–4 chords, for example, suggests operations in pitch-class space without respect to a specific bass line.

Each of the three neo-Riemannian transformations involves the moving of one of a major triad's tones either by a half step or by a whole step, resulting in a minor triad. The operations are reversible, transforming minor triads into major triads. The transformations, which can be seen in Example 5.4, are labeled P (parallel), L (leading-tone, or *Leittonwechsel*), and R (relative).

In his analysis of Pärt's *Beatitudes*, John Roeder takes this one step further, demonstrating how only three triadic transformations undergird the entire structure of the piece. His animated analysis shows these transformations occurring in real time. The transformations are what theorist Julian Hook calls "uniform triadic transformations" (UTTs). Designed to remedy some of the shortcomings of the neo-Riemannian operations and to be more broadly applicable, the UTT simply indicates (1) change (or no change) in mode with a minus or plus; (2) transposition if from major triad; and (3) transposition if from minor triad.

In Roeder's analysis, the prevalent UTT < -, 9, 8 > transforms B♭ minor into G major. (There is a mode change [-] and a transposition of nine semitones [9].) It also transforms G major into E minor. (There is a mode

Example 5.4 The basic neo-Riemannian transformations P, L, and R



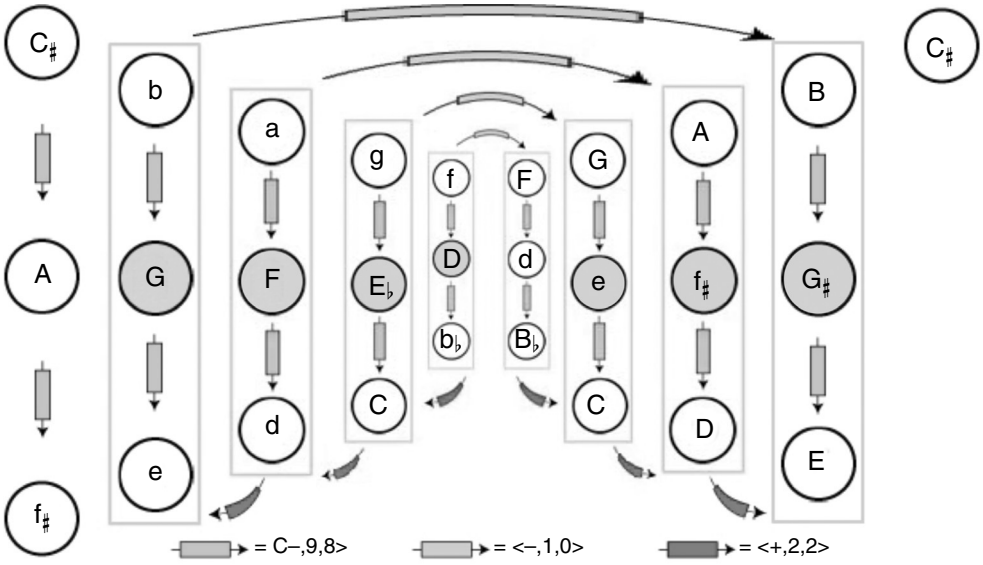
change [-] and a transposition of eight semitones [8].) As Roeder's figure (reprinted as my Example 5.5) beautifully displays, only three UTTs are used throughout *The Beatitudes*, and each lies in a specific position in the visual structure. As the piece unfolds, from the center of the diagram to the edges, one hears the < -, 9, 8 > transformations in the pillars, while the < -, 1, 0 > transformations create new pillars left and right. The < +, 2, 2 > transformations carry us forward as the previous pillars recede into the distance. It is a wonderful example of how a good analysis can visually represent the structure of a piece and also reveal details of its inner workings.

While *The Beatitudes* is well suited for discussion of unorthodox triadic transformations, not all of Pärt's music benefits from this type of analysis. The T-voice so often clearly articulates just a single triad that there may not be any evident triadic transformations at all. In some of the pieces with multiple M-voices however, new non-tonic triads emerge from the texture in spite of the T-voices' prevalence. Sometimes, too, the T-voices will not articulate the entire tonic triad, allowing other distinct triads to emerge clearly. Triadic transformations may then be applied at least to small-scale harmonic successions.

Other approaches

The preceding five approaches are not offered here with definitive or even complete analyses. They stand, however, as five examples of how one

Example 5.5 From John Roeder's analysis of *The Beatitudes*



might begin analyzing Pärt using mainstream music-theoretical tools. Advancements in the study of perception and cognition of musical structures; theories of embodiment, semiotics, and gesture; and even study of rhythm all might be brought to bear on the tintinnabuli technique. Finally, in light of Pärt's extended study of medieval and renaissance music, it is not unreasonable to ask to what degree certain analytical techniques employed in the analysis of early music might be profitable in the analysis of Pärt's music. Specifically, an examination of Pärt's methods of text setting might be particularly fruitful.[22]

Following some of the threads set forth above and starting new ones, the analyses below examine the analytical ramifications of the tintinnabuli technique: the multiplicity concealed beneath a uniform surface, the interaction of text and music, and Pärt's personal expression of tonality.

Part 2: multiplicity and process

Multiplicity

In minimalist music there are, to varying degrees, at least two types of process at work. One type, referred to here as the 'rules of the game,' can establish both independent and dependent variables. For example: 'If X happens in one voice, then Y must happen in another.' In such cases, the

Example 5.6 Tintinnabuli technique and built-in diversity. Three-note segments in the M-voice produce unique three-term compositions of three in the T-voice

M-voice:	1	2	3	4	5	6	7	1	2	
T-voice:	Fifth		Root		Third			Fifth		
										R + T + F
Segments:	F	F	R							1 + 0 + 2
		F	R	R						2 + 0 + 1
			R	R	T					2 + 1 + 0
				R	T	T				1 + 2 + 0
					T	T	T			0 + 3 + 0
						T	T	F		0 + 2 + 1
							T	F	F	0 + 1 + 2

composer uses other means (outside the process itself) for determining what X is. The other process, referred to here as the 'machine set in motion,' is the result of more comprehensive pre-compositional planning. This process is the unfolding in time of a multiplicity of events, all resulting from a pre-established formula, algorithm, or pattern. One might make the case that the two types differ only in degree not in kind and that it simply is a matter of the structural level at which the composer elects to begin the process. Nevertheless, it can be a useful distinction. Pärt's tintinnabuli compositions, in particular, distinctly exhibit one or both of these types. The process of composing tintinnabuli voices (T-voices) to an existing melodic voice (M-voice) clearly follows 'rules of the game.' Once the rules are established, the T-voice is entirely dependent on the M-voice. As for the M-voice, it might be freely composed or based on pre-existing material. If it is, itself, produced by another systematic process altogether, the M-voice works together with the T-voice as a 'machine set in motion', as multiple subprocesses of a larger scheme. Either type of process can be misconstrued sometimes as a relinquishing of control on the composer's part, but with Pärt we always must consider exactly how closely he controls the process even when it appears entirely automatic.

First let us consider the multiplicity of events that can result from the simplest of processes. The tintinnabuli process, even at its most basic, has an inherent diversity. This is due, in part, to the arrangement of the tonic triad's three tones among the seven diatonic scale steps. Example 5.6 shows one possible pairing of M-voice and T-voice.

Here, the tonic's fifth is coupled with scale degrees one and two, the root with three and four, and so forth. Underneath are the seven possible three-note segments of the scale with a different configuration of root, third, and triad for each. As it turns out, the T-voice, often understood as a static, droning backdrop, represents another instance of permutational diversity.

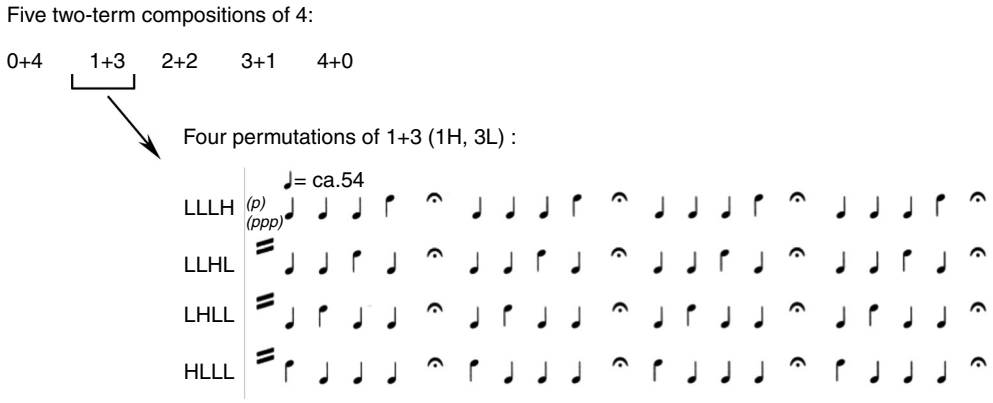
The small table on the right side of the figure shows the seven resulting combinations of triad members from the segments. There are ten different ways to combine three triad members, and the tintinnabuli scheme provides seven. The three missing ways are three roots, three fifths, and one of each. The disutility of the first two probably needs no comment, but it is interesting that the third one, a simple statement of root, third, and fifth, is impossible in a three-note segment of this scheme. As a result the T-voice is always imperfect, unstable as it floats through and around (but never directly sounds) the core of a piece's tonality – the triad. *Für Alina*, often cited as the piece that introduces tintinnabuli, exemplifies this variety as it breezes through these combinations in only a few minutes.

Most process music is, in essence, an invitation.[23] The listener's initial decision whether to accept or decline is based on the appeal of the proposition itself, even when the details of the musical outcome are unknown. When finally the process is carried out, regardless of whether the listener is rewarded or let down, the results of the original proposition are revealed. Some processes yield a great diversity of results, others a more modest production.

Suppose one were to combine systematically the twenty-six letters of the English with each other: aa, ab, ac, … zx, zy, zz. This simple proposal yields 26 x 26 = 676 results, each one unique. Some would be familiar words, others would be impossible to pronounce, but the invitation to explore each and every one remains. Because the sequence of formulations is predictable – one can anticipate 'ox' while contemplating 'om,' 'on,' and 'oo' – each 'word' can be studied without trepidation or concern for what might be yet to come.

Now suppose we had four quarter-notes and two pitches, high and low. In how many ways may we assign the four durations to two different pitches? The top of Example 5.7 displays, in the language of combinatorics, the five *compositions* of four (rhythms) into two distinct *terms* (in this case, 'high' and 'low' pitch).[24] Each term in the composition represents the number of high ('H') or low ('L') notes in the composition. Below one such composition (1+3) are its possible permutations. Pärt's *Sarah Was Ninety Years Old* for three singers, percussion, and organ (1977) was composed on the cusp of tintinnabulation's debut, yet it displays very few hallmarks of that technique. It does, however, work out in permutational detail one of the results of our simple proposal above, foreshadowing the more sophisticated ways in which his more mature style can produce great variety with simple means. In the first movement, the four permutations of one composition are slowly revealed (see the bottom of Example 5.7). By choosing a composition of four that has exactly four permutations, Pärt establishes four as a governing number for the movement. Each permutation of high

Example 5.7 *Sarah Was Ninety Years Old*, movement 1. Four permutations of a single two-term composition of four. Each term in the composition represents the number of high (H) or low (L) notes in a rhythmic cell.



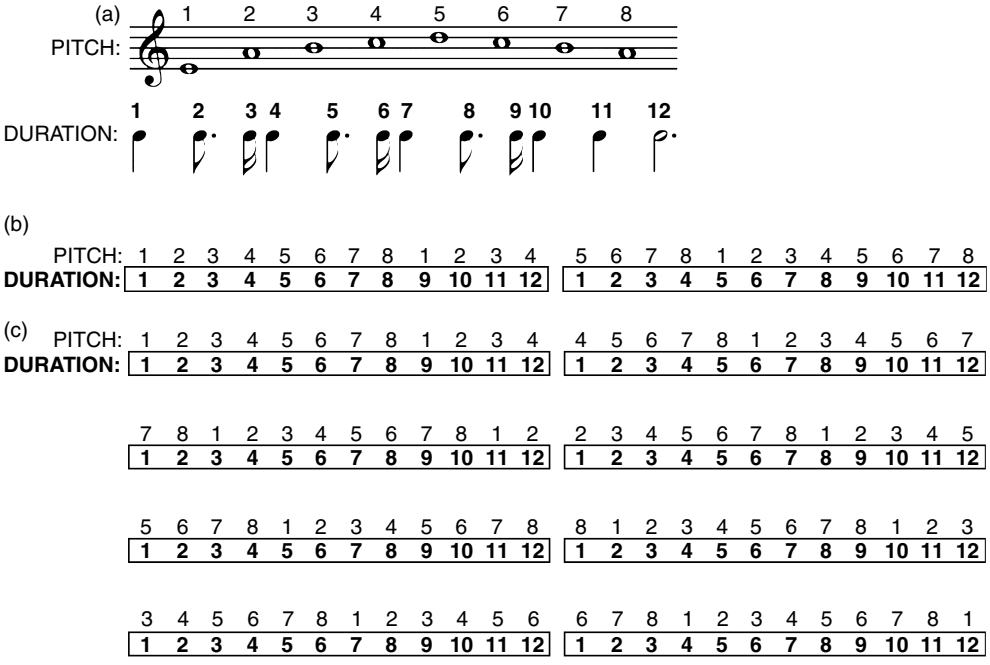
drum and low is repeated four times, separated by rests, before moving to the next permutation. Each is then repeated three times, then twice, then once. Here, one process (the permutations) proceeds matter-of-factly, while another process (diminishing repetition) superimposes a dramatic shape, forcing anticipation of an impending conclusion.

The second movement of *Sarah Was Ninety* achieves maximal multiplicity through similarly simple means. Pärt merges a twelve-note durational pattern with an eight-note pitch pattern, forming a tenor melody.[25] Example 5.8a shows the eight-note melody (a simple ascent and descent: E, A, B, C, D, C, B, A) as well as the twelve-note durational pattern (a variety of note lengths). As seen in Example 5.8b, if one were to assign the first duration to the first pitch, the second to the second, and so forth, the music would repeat itself after only three statements of melody (3 × 8) and two statements of rhythm (2 ×12).

This short cycle does not allow each of the eight melodic tones to pair up with each of the twelve rhythmic durations, but Pärt's clever solution does just this. A quick scan of Example 5.8c reveals how, by repeating the last pitch of one twelve-note rhythmic statement at the beginning of the next, Pärt is able to give each of the eight pitches exactly one turn at each of the twelve rhythmic positions. As a bonus, pitch no. 1 bookends the movement appearing in the first position of the first statement and the last of the last. With minimal materials, Pärt forges maximal variety.

The third and fifth movements are quite similar to the first, and the fourth explores similar permutations, but applied to pitch. In the sixth movement, we find something slightly different. Here there is a series of five harmonic intervals played on the organ. Example 5.9 shows the intervals as scale degrees (in A-Aeolian). In each subsequent system in the score

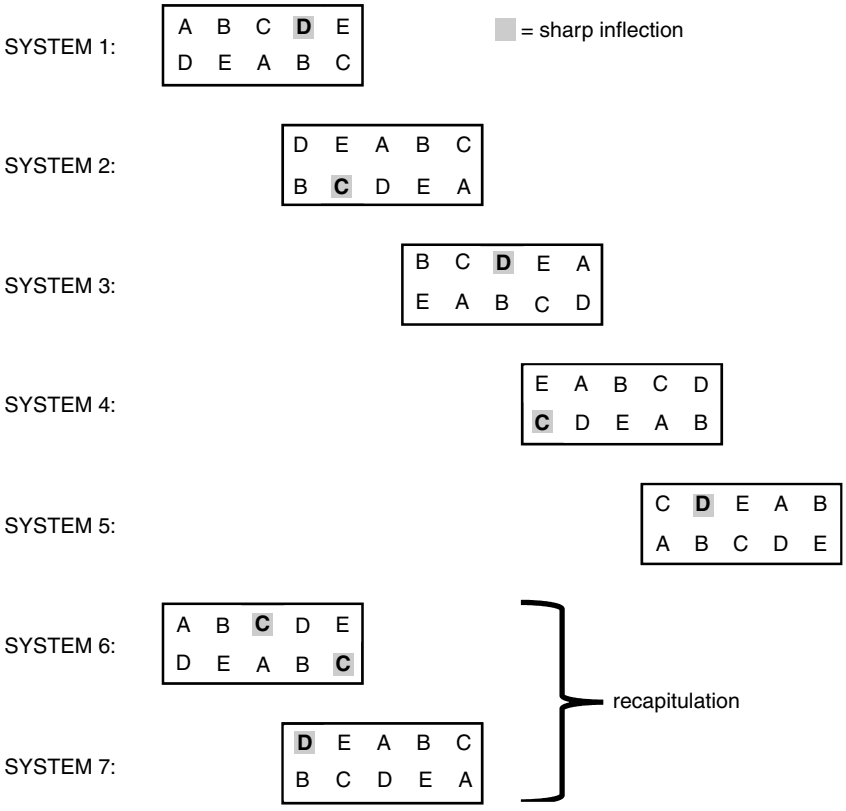
Example 5.8 *Sarah Was Ninety Years Old*, movement 2: (a) eight-note melody and twelve-note durational pattern; (b) a simple (hypothetical) one-to-one mapping of melody to rhythm; (c) Pärt's repeated-note solution



there is a rotation (by two positions to the left or three to the right) of this five-interval series. By system five, the A–B–C–D–E, which started in the upper voice, now appears in the lower. Because the upper and lower voices are out of sync with one another the organ part lacks any suggestion of a cadence; it is cyclical, without beginning or end. Even the recapitulation is not conclusive, because the five-system cycle of interval rotations is out of sync with the two-system cycle of chromatic inflections. Example 5.9 highlights in gray the tones that are inflected sharp by a simple accidental; in one system it is C, in the next it is D, and so on. In system six, the original interval rotation is back, but the inflection is different. This could go on through ten systems, each rotation getting the inflection it didn't receive the first time around. Pärt, however, stops after the seventh system. Perhaps this is to secure an ending on the first and third of the mode (A, C) and to allow systems 1–2 and 6–7 to act as bookending 'A' sections and systems 3–5, a 'B' section complete with a final 'dominant': (E, B).

Sarah Was Ninety undergoes a systematic exhaustion of combinational and permutational possibilities – it employs the 'machine-in-motion.' Pärt's tintinnabuli procedures, debuting shortly after *Sarah*, however, define 'rules of the game' – they suggest a similar wealth of possibilities, never to be exhausted by a single piece. People continue to play new games of backgammon, baseball, and bridge, even though the rules change very little over

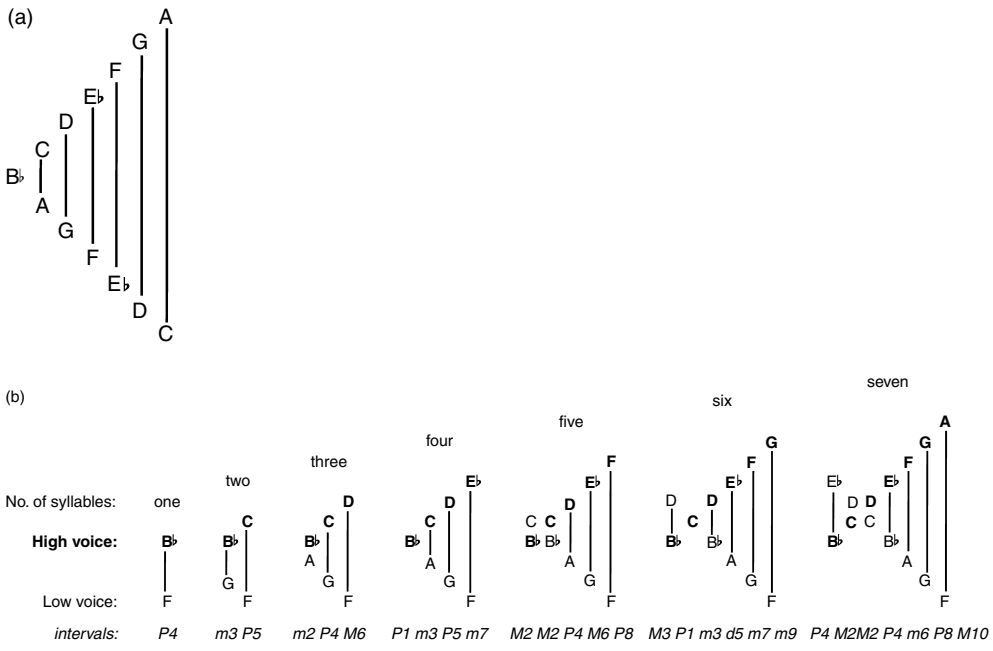
Example 5.9 *Sarah Was Ninety Years Old*, movement 6, organ part. Systematic rotation of five dyadic pairs with alternating chromatic inflection



time. In the same way, the tintinnabuli technique allows for a great many compositional possibilities by combining one process with another (e.g., incrementally expanding M-voices, texts governing M-voices, or imitative processes), but many of Pärt's works succeed thanks only to his artful and strategic play within the rules.

Some of Pärt's designs are simple structures in which his strategic choice of elements makes possible the maximization of possibility in some domain. In *Cantate Domino canticum novum*, for four soloists (or choir) and organ (1977, rev. 1996), Pärt sets up a pair of M-voices, the length of their segments determined by the number of syllables in each word of text. When one voice ascends, the other descends. Were both voices to have started or ended on a consistent pitch, there would be only one set of intervallic pairs, as seen in Example 5.10a. After only a few words, the piece's intervallic inventory would be exhausted. What Pärt does, however, is to assign a consistent *starting* pitch to one voice and a consistent *ending* pitch to the other. As a result, every different word length creates different pitch

Example 5.10 *Cantate Domino*: pitch/syllable assignment scheme: (a) hypothetical one-to-one correspondence of upper- to lower-voice pitches. Both lines begin on B♭, offering a limited number of harmonic intervals; (b) correspondence of upper- to lower-voice pitches when first and last, respectively, are held constant



pairings and a different set of intervals. Example 5.10b shows the wedge formations of the crossing lines and lists the multiplicity of intervals below. By coincidence or by design, the largest word of text in *Cantate Domino* contains seven syllables. This allows each of the seven diatonic ones to be combined with each other under exactly one circumstance.

Because intervallic variety in the process established in *Cantate Domino* is dependent on variety of word length, the thirteen verses of Psalm 95 in Latin are a particularly productive choice of text. As Example 5.11 shows, the number of letters in each word and the number of words in each verse both are quite varied. The first half culminates with maximal diversity in verse six, the only verse with six- or seven-syllable words. Verse seven, immediately following, retreats to word lengths of no more than three syllables, much like the first line. With its high concentration of three-syllable words, this verse reasserts the principal tonality: B♭–C–D in the upper voice, A–G–F in the lower.

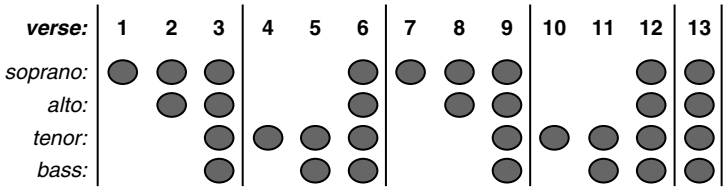
Individual words govern the inter-voice intervallic content, but the thirteen verses govern the overall form. The verses are arranged in four groups of three. In each group, the first verse is sung by a single voice, the second by a pair, and the third by all four voice parts. Example 5.12 displays their arrangement, as well as the bipartite division between verses

Example 5.11 *Cantate Domino*: tally of word lengths in each phrase

Word length in number of syllables

Verse number	1	2	3	4	5	6	7	Total:
1		///	𝍸					8
2	///	////	///	/	//			13
3	/	////	///		//			10
4	//	𝍸	//	//				11
5		𝍸	///	/				9
6	////	//	/	//	/	/	/	12
7	/	/	𝍸𝍸//					14
8	///	///	𝍸	//				13
9	//	///	𝍸	/	/			12
10	///	//	///	//	/			11
11	𝍸/	𝍸/	////	/	/			18
12	//	𝍸	𝍸	//				14
13	///	///	/	///				10
Total:	30	46	52	17	8	1	1	

Example 5.12 *Cantate Domino*: active vocal parts in each phrase



six and seven where the pattern of vocal parts repeats anew. The piece concludes emphatically in the thirteenth verse, where all four voices continue together. As the example shows, *Cantate Domino* patiently and evenly distributes its verses among the men's and women's voices, even as the flurry of irregularly repeating melodic fragments continues throughout.

In all of the foregoing musical examples we see two distinct dimensions at work. One, the *static* dimension, usually is inhabited by elements such as pitch class or mode. The other, the *dynamic* dimension, is where permutational abundance, or even maximization, resides. While the static dimension of Pärt's music is immediately apparent to most listeners, accustomed as they are to ascribing primacy to pitch-class relationships, it is the dynamic dimension that is often hidden, revealed only by careful study or focused listening. In *Sarah Was Ninety*, for example, the minimal materials are clear from the start but, as Example 5.8 shows, there is a systematic effort to combine these minimal materials in maximal ways. In *Cantate*

Domino, too, the most was made out of the fewest of pitch-class elements. The two dimensions, dependent on one another, are necessary for Pärt's music to work, but critics often see only the static dimension. Just as a third dimension is needed to turn a simple line into a vast plane, so must we turn the static dimension 'on its side,' so to speak, and start looking for the dynamism within.

Text setting as process

The setting of sacred texts is foundational to Pärt's compositional style. Even some instrumental works are set to texts that are not sung yet serve as a structural and formal influence. Pärt's vocal music engages the text in at least two distinct, even contrasting, ways, but it turns out that each dramatically foregrounds the words of the text in its own manner. In some pieces the word length and the number of words direct the melodic and formal material, and in others the pitch-melodic machinations are set in motion, acquiring one syllable or one word of text at a time. What follows is an analysis of each approach.

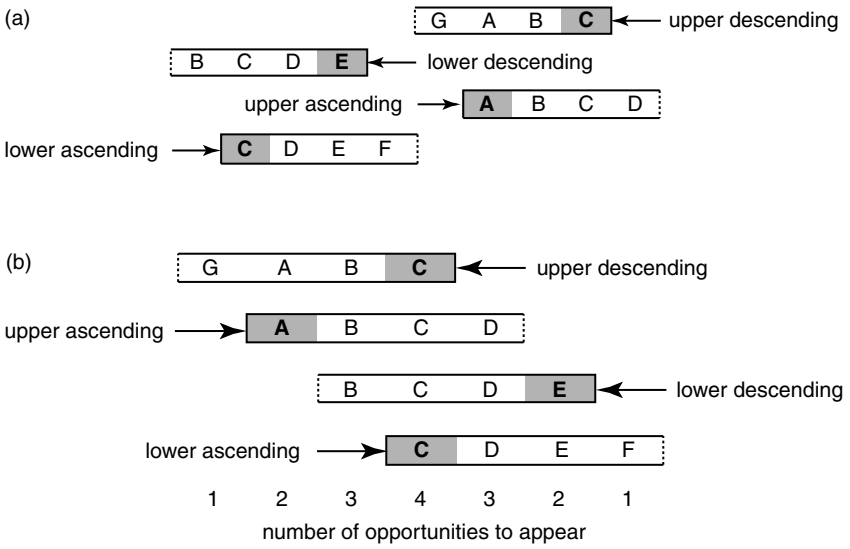
1. When text leads music

In many of Pärt's pieces, one finds both the 'machine in motion,' and various 'rules of the game.' *Cantate Domino* featured both, but the composer carefully insured that each worked according to his intentions. Composed in much the same way, *Zwei slawische Psalmen* (Two Slavonic Psalms) uses a predetermined mode in addition to ascending and descending fragments whose durations are determined by word lengths. It is evident, however, that in the domain in which Pärt had a degree of liberty – the starting pitches of the fragments – he made ideal choices.

The *Slawische Psalmen* use a five-part choir or five soloists, and Psalm 117 is set consistently in the A-Aeolian mode. At any given time there are two M-voices and two T-voices. The M-voices are usually soprano and tenor or alto and tenor, but there is one section where they are bass and countertenor. We do not hear all five voices simultaneously anywhere in the psalm. Like the M-voices in *Cantate Domino*, the M-voices here ascend and descend alternately from word to word, but whereas *Cantate Domino*'s M-voices move in contrary motion, the M-voices in *Zwei slawische Psalmen* are consistently in parallel sixths.

The ascending fragments begin on A in the upper voice and C in the lower, and the descending fragments begin on C in the upper voice and E in the lower. The interjecting "alleluias" diverge from this plan, consistently ascending or descending between E and A in the upper voice and G to C in the lower. This, along with the corresponding T-voice tones, draws attention to the C-major triad, a fitting diversion from the A-minor triad used

Example 5.13 *Zwei slawische Psalmen*, Psalm 117: (a) ascending and descending fragments of the upper and lower voices (arranged in pitch space); (b) ascending and descending fragments of the upper and lower voices (arranged in pitch-class space)



for the alleluias. Furthermore, when bass and countertenor are M-voices the starting tones are swapped. The lower, bass voice ascends from A and the countertenor from C. This is perhaps an acknowledgment of the tonic triad's greater stability in root position in this register. To start the fragments this way was no haphazard choice. First, and most obviously, this configuration insures that starting tones will always be members of the tonic triad, A minor. Second, because no word contains more than four syllables, the fragments, as shown in Example 5.13a, never overlap in the same word. Finally, when the possible pitch classes of each fragment are aligned atop one another, as in Example 5.13b, one can easily see the symmetrical arrangement of the number of opportunities for each pitch class to appear. Pitch class C appears in all four fragments, followed by B and D with three possible appearances each, followed by A and E, then G and F. A maximum word length of five would destroy this elegant pattern. If each fragment extended by one more pc to the right or to the left, the regular 1–2–3–4–3–2–1 pattern of pitch class occurrence would become 2–3–3–4–3–3–2, leaving no pitch class to appear in only one fragment and allowing four pitch classes to appear in three fragments. The inclusion of six-syllable words would even the distribution further, allowing every pc to appear in three different fragments, except C, which would be found in all four.

The arrangement of melodic fragments in Example 5.13b certainly produces diversity in the number of appearances of pitch classes, but it does much more. In the absence of a functional tonality, which utilizes

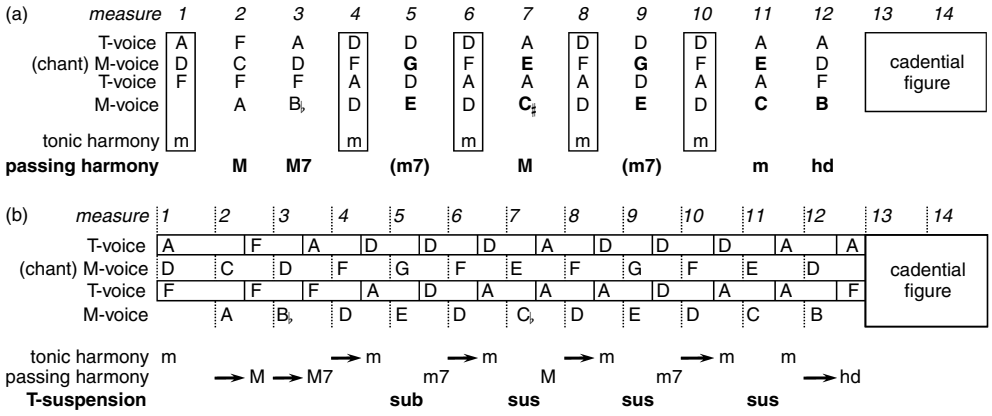
leading tones and tonic/dominant relationships, the varied multiplicity of the pitch classes' appearance serves as a substitute hierarchy. The prevalent pitch C sits atop the hierarchy, and its appearance as both highest and lowest starting tone (see Example 5.13a) further strengthens this role. The F and the G, a fourth above and a fourth below the C, are the most subordinate in the hierarchy. The A and E, while seemingly subordinate in this way to B and D, form a sort of second tier by virtue of their membership in the tonic triad and their ubiquity as starting pitches; even one-syllable words use them. In tonal music, of course, the mere abundance of a pitch, pitch class, or chord has little or no bearing on its position in the hierarchy. In music such as this, however, whose motion is not goal-oriented towards a final 'tonic,' but inwardly directed, the centrality of a tone depends upon its frequent reiteration. Every word of the text, regardless of length, brings the listener back to the central tones. As the words extend in length, so the fragments extend from the triad. It is the absence of a harmonic goal and the reiteration of tones that direct attention to each word of text.[26]

2. When music leads text

In some of Pärt's compositions, the tintinnabuli technique is readily apparent, made plain by the metrically regular succession of M- and T-voices. When text leads the music, lengths of melodic fragments may vary. When music leads the text, however, syllables fall in line according to the compositional design. In a piece such as *Da pacem Domine* (2004), where M-voices and T-voices progress at the regular rate of one note per measure, every syllable of text receives equal emphasis. Although the inherent rhythm of the text is gone, the regularity of the melodic motion might easily inspire meditation upon the meaning of the text. For its part, *Da pacem* does this and more. The piece's polyphonic pattern builds in suspension-like figures that establish a hierarchy of harmonies, and it is the regular succession of tones that makes the interaction of these harmonies straightforward and apprehensible.

Da pacem Domine is based on the Gregorian chant of the same name, which can be found in the upper of the two M-voices. Example 5.14a makes clear the interval of a third between the M-voices as well as the following of the two T-voices. When F is found in the chant (a frequent occurrence), the other M-voice is on D, which makes a tonic D-minor triad with the T-voices. These 'tonic harmonies' are enclosed in boxes in the example. The 'passing harmonies' are found in between, resulting from the combination of non-tonic M-voices with the T-voices. In this passage such passing harmonies may be major or minor triads, even major-seventh or half-diminished chords. Their stature as passing chords has nothing to do with their empirical consonance or dissonance. They are labeled 'passing' simply

Example 5.14 *Da pacem Domine*, mm. 1–14: (a) the underlying movement of T- and M-voices; (b) the ('T-suspensions') suspensions that result from displacement of the T-voice. Where the overlapping tones are part of the underlying chord, there is no suspension, and a simple arrow is given



because they are not tonic; they include tones the T-voice is incapable of producing. As a result, this passage produces a mostly regular alternation of tonic harmony and passing harmony, dictated entirely by the original chant and the choice of a third as the interval between M-voices.

The texture of *Da pacem* complicates matters somewhat. After the first measure the arrival of each T-voice tone is delayed by one half of a measure. The chiming of the T-voice consistently lags behind its corresponding M-voice tone, and the two become syncopes, a pair of voices whose regular coincidence of tones has been displaced or made out-of-phase. As a result, each tone in the T-voice extends its reach into the downbeat of the following measure, perhaps even sounding against an M-voice with which it never would have been paired under a simpler tintinnabuli scheme. The downbeat of each measure is now a potential site for a new harmony not derived through standard tintinnabuli procedure. I refer to these moments of displacement as 'T-suspensions.'[27]

The underlying structure in the opening passage of *Da pacem* is largely an alternation of tonic harmony and passing harmony. The use of T-suspensions surely blurs the boundaries between these chords, but it also intensifies the motion from one to the next, heightening the expectation of the subsequent chords in the same way that suspensions in tonal music do. They also give rise to third-order harmonies, resulting from the interaction of tonic harmonies (first-order) and passing harmonies (second-order). Example 5.14b shows the staggering of T-voice against M-voice, and the various orders of harmony are shown below. The tonic and passing harmonies remain, but they are found exclusively on the second, weaker halves of measures. The T-voice is suspended into the strong half of each measure,

but in many cases the tones held over are tones included in the ensuing chord. This lessens their suspension-like effect because there is no change in harmony on the weak beat when the underlying chord is in place. Such cases are indicated in the figure with arrows. The true T-suspensions occur on the downbeats of measures 5, 7, 9, and 11. The most striking of these is the C♯/D in measure 7, a combination of tones that wouldn't have formed under the original scheme without displacement. From measure 5 through measure 10 there is a regular, repeating succession of T-suspensions, passing harmonies, and tonic harmonies, intensifying while subtly blurring the constant return to the tonic triad.

Pärt's tonality

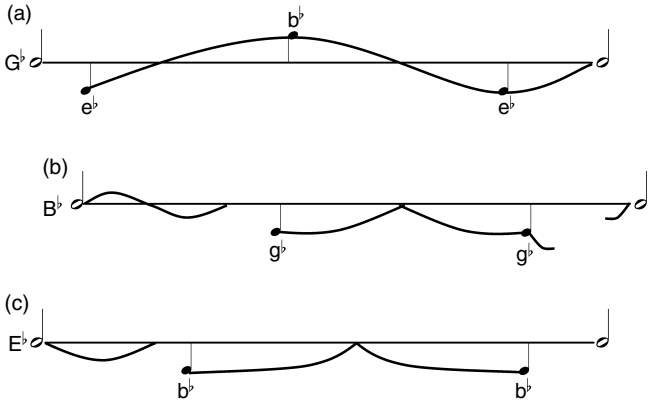
As with the pitch classes in *Zwei slawische Psalmen*, a hierarchy arises among the types of harmonic events in *Da pacem Domine*. Neither hierarchy is based on the functions of scale degrees or the functions of harmonies, but they are hierarchies nonetheless, and in each the tonic triad plays a central role. For this reason, Pärt's music is neither strictly tonal nor wholly non-tonal. It is a reworking of tonality.

In *Pari intervallo*, a piece originally for organ, there is, as may be expected, the overarching tonic of the T-voice, but there are other, more local prolongations of a different sort. The piece is divided into six twelve-bar sections, each of which features the M-voices circling near (or hovering around) a particular member of the tonic triad. Each of the triad's tones becomes a kind of reciting tone on which the M-voices concentrate. As seen in Example 5.15, the first three reciting tones in the primary M-voice are G♭, B♭, and E♭. In each section the M-voice begins and ends on the reciting tone, never straying far and moving chiefly stepwise.

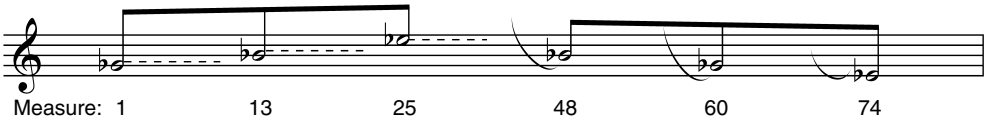
The impulse in analysis to reduce complex structures to simple ones leads, in tonal music, to the reduction of a prolonged harmony to a single instance of the harmony by removing the elements that prolong it. The reciting tones in *Pari intervallo* can be simplified in a similar fashion. Example 5.16 shows how reduction of the twelve-measure sections down to their principal reciting tones reveals an underlying tonic triad ascending through the first half of the piece.

In the second half of the piece there is another simplification down to three tones, one per section. I refer to these tones not as reciting tones but *goal tones*. In each of these sections the M-voice traverses a fifth or an octave but culminates in a single tone of the tonic triad: first fifth, then third, and finally root. Central to most conceptions of tonality is goal-oriented motion. A perfect authentic cadence, for example, is not just a harmonic event (dominant to tonic), but one in which the melodic motion reaches its conclusion at scale-degree one. It is clear in *Cantate Domino* and *Zwei*

Example 5.15 *Pari intervallo*: reciting tones. Continuous slur indicates stepwise motion: (a) mm. 1–12; (b) mm. 13–24; (c) mm. 25–36.



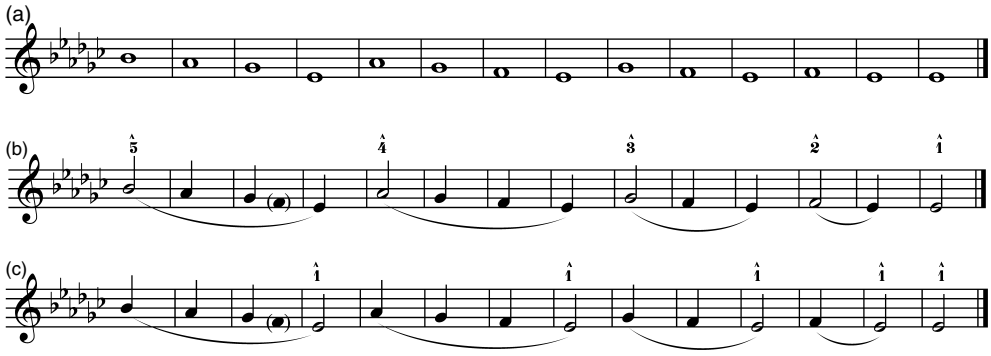
Example 5.16 *Pari intervallo*: reciting tones and goal tones as underlying structure



slawische Psalmen that goal tones and initiating tones are essential to the structure of a composition. They form the anchors that stabilize the activity of the M-voices. In *Pari intervallo*, the twelve-measure grouping is established by the first three ascending reciting tones but is reinforced by the final three descending goal tones.

The final section of *Pari intervallo*, two measures longer than the others, contains a largely descending M-voice, which raises important questions about underlying structure and simplification. The fourteen melodic tones can be seen in Example 5.17a. Immediately apparent is its series of shorter and shorter descending fragments. A common analysis might look like the one found in Example 5.17b: a descent from scale-degree 5, with each tone of the descent bearing its own nested progression. In this reading, the stepwise descent becomes primary, and in a simplification only the five tones of the descent would remain. Example 5.17c is an alternate reading, incompatible with the previous one. Here it is the *end* of each descending fragment that is primary. With relentless emphasis on the final tone, E♭, the diminishing of the fragments is slightly more emphasized. One hears the final tone again and again, echoing faster and faster until the final measure is complete. In the earlier Example 5.12b the goal-oriented motion is large scale, but in 5.17c it is small scale. A simplification would reduce the entire passage to scale-degree 1, which serves as goal tone not only at the end, but also throughout.

Example 5.17 *Pari intervallo*, mm. 61–74. Opposing analyses of the M-voice in the conclusion: (a) the final fourteen notes in the M-voice; (b) reading a descent from scale-degree 5; (c) reading diminishing fragments, all descending to scale-degree 1



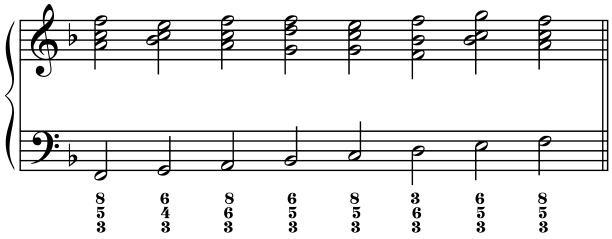
Pärt's 'rules of the game'

In 1716, François Campion published a convenient method for the realization of an unfigured bass.[28] Once memorized, the method allowed keyboardists, guitarists, lutenists, and theorbists to play a proper accompaniment from a continuo part that contains no figures.[29] The method simply outlined, in both major and minor keys, the appropriate intervals from each bass tone to its accompanying chord tones. One such realization of an ascending bass line in F major is shown in Example 5.18. In practice, continuo players had to learn many subtle unwritten variations, but Campion's method was a practical place to start.

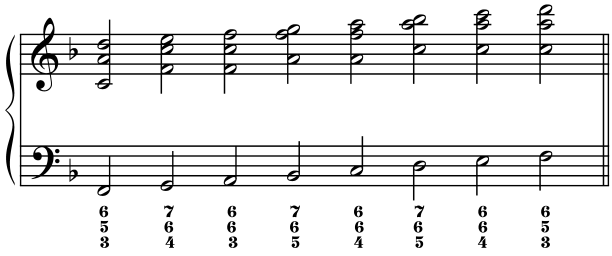
In much the same way, Pärt's precompositional plans dictate what tones will accompany any given M-voice tone. For example, Pärt might propose the mode of F major (Ionian) with an M-voice centered on C. Its second M-voice might move with the first in parallel sixths and its T-voices at first and second inferior (transposed above the M-voice). That simple proposition predetermines a four-note chord for any given M-voice tone. Therefore one can produce, as Campion did, a set of chord voicings for each of the seven distinct M-voice (bass) tones. Example 5.19 shows the result. While Campion's is pedagogical and practical, Pärt's is purely my theoretical abstraction. Nevertheless, each figure systematically conveys the internal relationship of chord to generating tone to governing scale.

The chords outlined in Example 5.19 are not entirely hypothetical. They form the basis for Pärt's *Spiegel im Spiegel* (1978), originally composed for violin and piano but later arranged for many different instrumental combinations. This 'tonal plan' is merely a foundation, however, and in no way insures the overall success of the piece. It no more predicts the piece than the twenty-four major and minor keys predetermine the notes of Bach's *The Well-Tempered Klavier*. Further decisions need to be made: which instruments

Example 5.18 François Campion's *Règle des octaves*



Example 5.19 Possible M- and T-voices in the manner of Campion's *Règle*



will accommodate which voices? And in which register? Is the central tone an initiating or a goal tone? Ascending, descending, alternating? What about the overall form and repeated sections or fragments? Some defined parameters qualify as 'rules of the game,' while others describe the 'machine in motion.' Finding, at the very least, the 'rules' for a given piece would be a convenient shortcut to its analysis since it would provide the mode, the M- and T-voices and their relationships, and the initial and goal tones.

Conclusion

'Process music' does not entail, as some believe, a relinquishing of control by the composer. The control simply resides far from the immediate surface of the music. "The distinctive thing about musical processes," writes Steve Reich, "is that they determine all the note-to-note (sound-to-sound) details and the overall form simultaneously."[30] The composer controls the process, which in turn controls various musical elements. The musical process, more generally, is all about possibility. What seems to attract Reich and others is the possibility of new and even unexpected music. It is not improvisation, nor is it music of chance. After all, the composer has exclusive and complete control over the *design* of the process and, by extension, responsibility for the *results* as well. The difference is that at some point the composer, the listener, and the analyst all share the same role, somewhere

between creator and listener. All are called to investigate a surprising and sometimes complex musical world in a single piece.

The tintinnabuli music of Arvo Pärt can be considered process music, but only to a degree. Pärt's process governs (in Reich's terms) the "note-to-note details" more frequently and more specifically than it does the "overall form." In fact, each piece strikes a unique balance of process and invention. The most obvious instance of process in this music is the tintinnabuli technique itself. How the T-voice follows the M-voice is prescribed from the start, and the resulting process is automatic. Sometimes, the words of a chosen text will dictate the entire melodic components of a composition, or even its large-scale form. In fact, quite a few decisions must be made before the process is set in motion: mode is chosen, starting pitches are selected, relationship between T-voice and M-voice is determined, and intervals of imitation are set. But because so many of its elements – instrumentation, small-scale form, freely composed passages – are not generated by an apparent procedure from start to finish, Pärt's music cannot be said to be process music to the extent that, say, Reich's early phase music can.[31] Nevertheless, one thing it shares with pure process music is its ability to produce astonishingly rich 'output' from comparably little 'input.' In this way, to listen to Pärt's music is not simply to await a foregone conclusion. It is to witness the consequences and ramifications of a single idea and patiently to explore the details of the results that emerge.

The foregoing stands in contrast to most structuralist or formalist critiques, which tend to find in minimalism and process music nothing more than simplicity and monotony. Some critiques suggest the low ratio of 'input' to 'output' in the musical process is a sign of intellectual weakness in the composer. Others simply measure the apparently low 'output' with tools completely inappropriate for the job. Suggesting that such critiques are at best misguided, theorist Ian Quinn argues that process music requires an altogether different kind of analysis:

> As long as the practitioner of formalist analysis tries to behave like an Enigma machine, translating the encoded genius of the composer into testimonials in favor of canonization, process music will remain a source of frustration. Minimalism got its start, in fact, when composers decided to cut themselves out of that particular interpretive loop. Rather than writing music with low redundancy and high information content, they began writing music with high redundancy and low information content. Formalist analysis of process music must respond to this challenge by turning the normal function of analysis on its head. Traditionally, analysis aims to reduce the information content of a piece – productively, and however provisionally, temporarily, and contingently – by parsing it relative to some well-understood system of formal conceptual categories.

> Process music comes to the table already digested; its challenge to the analyst-as-interpreter is precisely the minimal challenge it presents to the analyst-as-parser.[32]

In response to this challenge, our task is to go beyond the surface and to examine closely the process itself, whether our ends are hermeneutical or structural, and not to write it off as a cheap trick. Further, we must determine what 'output' a process would produce with different 'inputs,' for the genius of the composer lies not only in the discretion with which a process is used, but also simply in what is chosen as 'input' in the first place.

Even with the best of intentions, one can produce only marginal results when attempting to analyze Part's tintinnabuli pieces by drawing exclusively from either of the two principal music theories of the twentieth century. As powerful as they are, neither twelve-tone/set theory nor Schenkerian theory will break down the structure of Pärt's music, which in many ways is, as Quinn suggests, "already digested." One should not, however, disregard them entirely. Pärt's pre-tintinnabuli works display an engagement with serial techniques, and this inclination toward systematic permutation and combination remains in evidence throughout his later works. Although his work is not truly a return to tonality as some might claim, his use of diatonic modes and triads is more than allusion. It is an elegant rendering of tonality that stands only to benefit from judicious application of a modified tonal theory. To analyze Pärt's music, then, one may use elements of tonal and atonal theory where appropriate and must also take care to examine the specific relationship between process and results.

As it rapidly splinters into subdisciplines and profitably intersects with others, the discipline of music theory is thriving, and it ought to be receiving with open arms the music of Arvo Pärt. This is music that displays an astonishing originality and a deep connection with the practices of Western music. Its surface is elegant with broadly appealing beauty, but below that surface fascinating structures lie hidden and ingenious processes are at work. For this reason Pärt's music is, like the music of any other master composer, complex. It rewards the kind of deep study that goes beyond simple listening and consuming. This chapter is a hopeful call for more analytical responses that can rise to meet the imaginative challenges of the music.

Further reading

Allen Cadwallader and David Gagné, *Analysis of Tonal Music*, 3rd edn. (Oxford University Press, 2010).

Timothy Johnson, *Foundations of Diatonic Theory: A Mathematically Based Approach to Music Fundamentals* (Plymouth: The Scarecrow Press, 2008).

Joseph N. Straus, *An Introduction to Post-Tonal Analysis*, 3rd edn. (Upper Saddle River, NJ: Prentice Hall, 2004).