JUST INTONATION AND THE REVITALIZATION OF NEOCLASSICISM:

THREE WORKS FOR BAROQUE INSTRUMENTS

Graham Elliot Figg, B.M.

Thesis Prepared for the Degree of

MASTER OF MUSIC

UNIVERSITY OF NORTH TEXAS

May 2008

APPROVED:

Joseph Klein, Major Professor
Lenora McCroskey, Minor Professor
Andrew May, Committee Member
Graham Phipps, Director of Graduate Studies in Music
James Scott, Dean of the College of Music
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies

Figg, Graham Elliot, Just Intonation and the Revitalization of Neoclassicism: Three Works for Baroque Instruments. Master of Music (Composition), May 2008, 106 pp., 20 musical examples, 4 figures, references, 31 titles.

For a composer of today, the relationship between new music and music from many centuries past remains problematic. In order to create something new, it is necessary to go beyond previous techniques of composition in some way. At the same time, new music that has no connection with music of the past runs the risk of irrelevance. Just tuning offers one possibility for reconciling this problem. By effectively warping music of the past through the lens of altered tuning and contemporary composition techniques, music of the past may be understood in previously unknown ways.

Part I, the critical essay, presents historical background and analysis of a cycle of three works in altered/just tuning. Part II presents scores of the works.

Copyright 2008

by

Graham Elliot Figg

TABLE OF CONTENTS

Page

LIST OF MUSICAL EXAMPLES

LIST OF FIGURES

PART I

ON THE WORKS AND BACKGROUND

Chapter 1

Possibilities for Pure Intonation Today

What if the timeline of musical style could be warped and turned back upon itself so as to meet at unexpected points? This question impelled many composers in the recent past (Stravinsky, Rochberg, Druckman) to create works in which musical styles many centuries removed from one another are presented together—juxtaposed. The deeper questions posed by such works are: "what does the music of the present have to do with the music that has been?" and, "what may the work of older composers teach us about compositional process today?" Further, one is led to wonder what may have been lost or forgotten in the course of time because of shifts in musical fashion. To adopt the premise that history hurtles forward, that one may only add on to what immediately precedes, ignores the possibility that techniques from previous centuries may not have been fully developed in their time. To travel back in musical time, then, is not simply to revisit old methods out of nostalgia; rather, in doing so, a composer may form new branches on the line of history. The tension involved in intertwining several such branches from points far removed may cause the line of history to become bowed or warped, effectively transforming it into a web, to stretch the metaphor. Among the "forgotten" devices of compositional practice are microtonality (the division of the octave using intervals smaller than the equal-tempered semi-tone) and the related techniques of tuning with pure intervals and unequal temperament. Conveniently, these techniques have a close analogy to the "time-warp" involved in reviving them in the first place; as musical time is effectively warped in revisiting old techniques of composition, so musical space (the frequency spectrum) is effectively warped in the careful selection of unequally spaced tones within the octave.

The practice of tuning the octave unequally using pure (or just) intervals dates from the time of Pythagoras (ca. 580-490 B.C.) or earlier and provides the basis of pitch organization in music from his time through the nineteenth century. As Harry Partch stated, "if ratios seem a new language, let it be said that it is in actual fact a language so old that its beginnings as an expression of the essential nature of musical sound can only be conjectured."[1] The adoption of this principle represents nothing more or less than the acceptance of a sonic reality; if one is allowed only seven or twelve tones per octave, nature forbids these tones to be spaced evenly if rational intervals are to be preserved. In fact, it does not matter how many tones by which the octave is split; no pure intervals will ever result from an even distribution of the tones in the octave.

Twelve-tone equal temperament (the standard for keyboard tuning only since the early twentieth century) results in just such an absence of pure intervals. It is no coincidence that the breakdown of the tonal system occurs at the very moment in musical history when equal temperament becomes prevalent. Equal temperament does not have tonality "hardwired" into it as previous historical temperaments do. A look at European temperaments of the second half of the eighteenth century (when functional tonality reached its greatest logical clarity) reveals a precise correspondence between temperament and tonal practice. The C or F Major chords are always the most consonant, i.e. their major thirds are the closest to pure of all twelve major chords. From there, moving by fifths either sharp or flat, each succeeding major chord has a major third which is by degrees less consonant than the preceding one. The most dissonant major chords, then, are those furthest from C on the circle of fifths: B, $F^{\#}$, and $C^{\#}$ major. One

[1] Harry Partch, *Genesis of a Music* (New York: Da Capo Press, 1974), 77.

may account for the general (though not complete) avoidance of these keys in the eighteenth century because of the principle of chord variability.[2]

The basic arrangement of the twelve major chords in gradations of consonance and dissonance in eighteenth-century temperaments is essentially the same (despite differences in particulars) in Werckmeister III, Vallotti, Kirnberger, and Young temperaments, to name a few.[3] This basic arrangement changes, however, when one moves back in time. In mean-tone, used through Renaissance and early Baroque music, there are eight major chords with pure thirds and four with completely unusable thirds. The harmonic practices of the time are again reflected in tuning practices in that these four major chords (A^{b}, $C^{\#}$, $F^{\#}$, and B) are never notated unless an unusual device is assumed.[4]

Going back further in time, Pythagorean tuning used in mediæval music uses only pure fifths to function as consonances. Major thirds, in fact, are the prevalent dissonant interval in music such as Guillaume de Machaut's *Mass*. The most common cadence in this work is (in modernized notation) a first inversion $C^{\#}$ minor chord moving to a D open fifths sonority.[5] In Pythagorean tuning, the interval between E and $G^{\#}$ is sixteen cents wide of pure. The harmonic effect of this highly impure interval may be heard in any recording in which the performers stress

---

[2] Chord variability is the source of tonal coloration, a topic that occupied the imaginations of many theorists of the time. Matheson takes pains to describe the character of each tonality in his *Das neu-eröffnete Orchestre* (1713). Compiled in Rita Steblin, *A History of Key Characteristics in the Eighteenth and Early Nineteenth Centuries*, UMI Studies in Musicology, no. 67 (Ann Arbor, Michigan: UMI Research Press, 1983), 222-308. The different characters or colors of the chords and tonalities are a result of the particular inequality of the arrangement of the twelve tones.

[3] These and several other eighteenth-century temperaments are detailed in Owen H. Jorgensen, *Tuning: Containing the Perfection of Eighteenth-Century Temperament, the Lost Art of Nineteenth-Century Temperament, and the Science of Equal Temperament* (East Lansing, Michigan: Michigan State University Press, 1991).

[4] This device may be a transposition of the tuning to favor sharp keys, for instance, or it may be some mechanism that allows for more than twelve tones per octave (such as the seventeenth-century Venetian harpsichord with split accidentals (*tasti spezzati*) allowing for A^{b} and $G^{\#}$ tones, or the *archicembalo* of Vicentino, which contained thirty-six tones per octave. Alan Curtis, preface to *L'incoronazione di Poppea*, by Claudio Monteverdi (London: Novello & Co. Ltd., 1989), xvi; Paul Robert Brink, "The *archicembalo* of Nicola Vicentino" (Ph.d. diss., Ohio State University, 1966), 4.

[5] Guillaume de Machaut, *Messe de Nostre Dame*, in *Machaut's Mass: an Introduction*, by Daniel Leech-Wilkinson (Oxford, England: Clarendon Press; New York: Oxford University Press, 1990), 181-212.

Pythagorean tuning.[6] In twelve tone equal temperament, incidentally, major thirds are fourteen cents wide of pure, only slightly more pure than in Pythagorean tuning. This fact indicates that our modern ears have reinterpreted as a consonance an interval that would have been heard as highly dissonant before the twentieth century.

How did it come about, then, that equal temperament was adopted as a standard? It was no earlier than 1917 that a scientifically accurate method of tuning the octave equally on the piano was in wide-spread use.[7] The kinds of restrictions that severely limited the use of keys distant from C major in the eighteenth century were no longer an issue by the time of Mahler. The adoption of equal temperament was thought to be necessary in view of the expansion of tonal usage through the nineteenth century. In the music of Mahler and other late Romantics, theorists observed a great freedom of modulation to distantly related keys. It was thought that the only way for keyboard tuning to adequately reflect the high chromaticism of late nineteenth-century repertoire was by making each of the twelve tonalities function alike. This does not explain, however, why chord variability and tonal coloration should not have been maintained. The adoption of equal temperament was ostensibly a response to tonal music, not atonal music, despite the important work of Arnold Schoenberg (1874-1951) at that time. Theorists unwittingly adopted a tuning standard that was and is really only suited for pure dodecaphonic music, which was developed soon after 1917.[8] The equal spacing of the twelve tones within the octave perfectly justifies the twelve-tone compositional principle of Schoenberg that no single note (or tonality) shall be more important than another. He took the stance that this principle was a logical outgrowth of the harmonic freedom of the late Romantics, but he had never heard a

[6] Hear, for instance, Marcel Peres' recording of Guillaume de Machaut, *Messe de Nostre Dame*, Harmonia Mundi France HMC 901590, 1996, CD.
[7] Jorgensen, 14.
[8] Jorgensen, 2.

truly equally tuned piano until after 1917. Schoenberg's first twelve tone works of the 1920's were, of course, experiments carried out on the piano. It is entirely possible that he would not have heard any sonic justification in the adoption of dodecaphonic procedures had piano tuning methods prior to 1917 been maintained.[9]

Out of Schoenberg's twelve-tone works grew the compact twelve-tone works of Anton Webern (1883-1945), which in turn provided the impetus for the serial works of Olivier Messiaen (1908-1992), Pierre Boulez (b. 1925), Karlheinz Stockhausen (b. 1928), and Milton Babbitt (b. 1916), to name the most well-known practitioners of serialism. One thing in common with all twelve-tone and serial works is an avoidance of the possible virtues of an unequally divided scale. The serial school of composition assumes that the tuning standard adopted by piano tuners in 1917 is perfect and unchangeable.

Further, much of the neo-tonal music that constitutes a reaction to serialism, such as the neo-romanticism of David Del Tredici (b. 1937) and the minimalism of Steve Reich (b.1936) and Phillip Glass (b. 1937) still maintains the standard of twelve-tone equal temperament.[10] Schoenberg himself stated that there was still much good music to be written in the key of C. Neo-tonal composers embraced this statement (consciously or otherwise) as a premise to discover new things about the ideal conception of tonality. Neo-tonal composers believed that a return to certain older harmonic practices was necessary in order to continue the investigation that was "rudely interrupted" by the appearance of atonality.[11]

I too believe that one must return to certain older procedures in order to discover something new about tonality. I further believe that the main flaw in the aforementioned returns

[9] Schoenberg later (1939) admitted "with a shrug" that "twelve-tone equal temperament is practical. There is no other popular medium available to the composer today." Noel Heath Taylor, "The Schoenberg Concept," *Music and Letters* 20, no. 2 (1939): 185.
[10] Though Terry Reilly and La Monte Young, incidentally, have made use of just tuning.
[11] George Rochberg, liner notes to *String Quartet No. 3*, The Concord String Quartet, Nonesuch H71283, 1973, LP.

to tonal procedures is the lack of a return to the tuning procedure that was thought necessary in all previous centuries of tonal practice—namely, that the intervals within the octave must be unequally spaced in order to make tonality aurally significant. This is not to say that mean-tone temperament may simply be imposed upon the works of Del Tredici, for example, to make them more powerful explorations of tonality. Neo-tonal music that is conceived in an equal-tempered context is simply anachronistic otherwise. Music conceived in an unequally tuned context is *a priori* different from the neo-tonal works under discussion. It is difficult to imagine that one may discover anything new about the tonal concept without adopting the tuning premise that allows for tonality in the first place, namely that an unequal spacing of the tones within the octave forces certain harmonies of the same type to be more dissonant than others. A return to this essentially forgotten practice, however, opens up a world of compositional possibilities. These possibilities are due first and foremost to the infinite variety of possible spacing between notes of the octave. Secondly, a composer today may be grateful to the rich history of compositional experimentation in the twentieth and twenty-first centuries. One may draw upon the resulting techniques and combine them with the premise of unequal tuning, and in this combination discover something new and unique.

The very fact that one may place the premise of tuning in the forefront of compositional thinking is essentially modern. While in previous centuries unequal tuning was assumed necessary as a background palette for tonal music, it remained in the background. The harpsichord or piano tuner was a servant to the composer. When the tuner and composer become one, however, wild fancies of intonation, which would have been thought useless in an age of functional tonality, present themselves readily in an age of compositional experimentation, an age to which we still belong

Chapter 2

Overview of the Cycle

It is upon the premise stated above that I have written a cycle of three separate works: 1) a work for solo harpsichord entitled *Prelude and Fugue in 21 Tones*; 2) a work for solo Baroque cello and harpsichord continuo entitled *Canzona per Basso solo*; and 3) a work for tenor and a small ensemble of Baroque instruments entitled *And Music Shall Untune the Sky*. Each work uses a different just tuning system. Each work is formed on a general model of some Baroque genre, but other styles (modern as well as other Baroque styles unrelated to the given genre) are consciously mixed together. The most prevalent harmonic element in these works is polytonality, used in a way not unlike that of composers from the early twentieth century, such as Charles Ives (1874-1954), Darius Milhaud (1892-1974), and Igor Stravinsky (1882-1971). However, with the added element of justly tuned triads pitted against one another, this technique takes on a freshness and clarity absent in an equally tempered context.

Further, the tuning systems used in the three works that comprise the cycle make possible the exploration of tonality on a very elemental level. The concept of consonance and dissonance becomes something clearly audible in the context of a fixed just tuning. The fact that some notes are tuned purely to others necessarily creates jarring, distantly rational intervals between those notes related obliquely within the scheme. These intervals (and triads built with them) create a heightened sense of dissonance, especially when compared with the more justly tuned chords. Harmonic motion from chords tuned in complex whole number ratios to chords tuned in simple whole number ratios demonstrates to the ear on an elemental level the dominant-tonic/tension-release paradigm, the exploration of which has been one of the essential driving forces behind any and all music that may be called "tonal."

While it is possible to thus arrive at a wholly new and complex approach to tonality divorced from common-practice techniques, I believe it a better starting point to begin with certain practices or clichés from various historical periods of tonal usage. To apply a modified way of thinking about tonality in well-known contexts is to present its newness in greater clarity. It is by just such a stylistic contrast that the uniqueness of the sound world created by just intonation is heard in higher relief. I have thus consciously borrowed from a wide variety of seventeenth- and eighteenth-century musical styles for the three works in my cycle. Of all centuries in musical history, those two represent the period of greatest exploration of tuning practice in Western music. It was this era that produced the tortured shift from mean-tone to the wide variety of well-tempered tunings, a shift akin to the break with tonality that occurred in the early twentieth century. As with the latter event, the shift in tuning practice across the seventeenth-/eighteenth-century boundary line redefined the acceptable musical vocabulary. The very structure of musical sound-space may be said to have warped through this passage of time.

In referring directly to much music from this earlier time of transition, then, my works do quite the opposite of simply presenting older styles in an anachronistic context. Rather, there is a great affinity with the aesthetic of the cycle and a certain historical event. It is not, then, the particular works or particular composers from whom I draw that are of particular importance, but rather the historical shift that encompassed them and of which they had only indirect control. My cycle as a whole thus represents a compression of this event. The warp of musical space, inspired by the one which occurred over the seventeenth and eighteenth centuries, is audible in my work in the very harmonies themselves.

In revisiting this era initially because of conceptual similarities with my approach to tuning, reference to other aspects of musical creation in practice through that time became

unavoidable. Thus the interplay of style is as important to my cycle as is the practice of altered tuning. In allowing an evolution in tuning taking place over a space of time as large as two centuries to provide the background for my own approach to tuning, it is only natural that the great evolution of musical style through that time should similarly be compressed in my cycle. In further extending the idea of warping musical time and space, styles from the early-seventeenth century through the late-eighteenth centuries are brought together in a twenty-five minute cycle of works, further warped by being channeled through such characteristically twentieth-century techniques as polytonality and polymeter. Further, the sources and stylistic references are intentionally cosmopolitan. A wide variety of national styles are placed together, often incongruously, and so the space of seventeenth- and eighteenth-century Europe is seen to be convolved upon itself. This is especially true of the final work in my cycle. Cosmopolitanism is certainly not a new phenomenon. In fact, every composer from whom I borrow was himself a borrower of, or wrote music that was in some way a result of, international materials and styles. My cosmopolitanism is adopted, however, with the express intention of conjuring up an image of spatial warping.

The intrusion of previous eras into my music is extended also to matters of a purely visual interest. I have utilized a fully handwritten notation of the scores in order that I may adopt certain affectations found in manuscripts and original editions of the music referenced. For example, the curved beam notation used throughout is consciously adopted from the manuscripts of Bach such as that seen in example 1.

Example 1, J. S. Bach, Invention in B^b Major, excerpt.[12]

An intentionally "authentic" look is combined with characteristically modern notational practices such as feathered beams and indeterminate spatial notation (see example 10).

The effect of such warping, juxtaposition, incongruity, etc., is undeniably humorous. The very notion of hearing familiar music seemingly going in and out of tune as though a tape were being sped up and slowed down is by its very nature funny. This effect is heard often in *Prelude and Fugue in 21 Tones* in passages such as Prelude, mm. 26-29, where the microtonal difference between $G^{\#}$ major and A^b major is so evident. The fact that one cannot help but laugh when confronted by such strangeness does not in any way diminish the musical-existential message of such sounds. Admittedly, such passages as the absurdly extended sequential pattern in *And Music Shall Untune the Sky* (mm. 152-160) and the extremely fast repetition of the word "double" in the high tenor range in the same work (mm. 70-72) are presented with a heavy dose of slapstick. It is slapstick, however, that grows naturally from the humor inherent in the general compositional approach adopted for the cycle, which does not fail to ask questions fundamental to the very nature of musical composition. Thus, while it would not be wrong to hear the entire

[12] J. S. Bach, *Two- and Three-part Inventions: Facsimile of the Autograph Manuscript* (New York: Dover, 1968), 29.

cycle as a parody of various historical styles, one may say that this is only the most surface level of listening to these works.

And yet it may be that the parodic level is in fact the highest level of understanding for these pieces. Post-Victorian artists, impelled by the philosophy of Friedrich Nietzsche (1844-1900), were again able to discover the profundity of humor seemingly lost with the eighteenth century. Nietzsche wrote with great foresight in 1886 describing "our age," a description which is amazingly close to the post-modern aesthetic still prevalent in contemporary art:

> …we are the first age that has truly studied "costumes"—I mean those of moralities, articles of faith, tastes in the arts, and religions—prepared like no previous age for a carnival in the grand style, for the laughter and high spirits of the most spiritual revelry, for the transcendental heights of the highest nonsense and Aristophanean derision of the world. Perhaps this is where we shall still discover the realm of our *invention*, that realm in which we, too, can still be original, say, as parodists of world history and God's buffoons—perhaps, even if nothing else today has any future, our *laughter* may yet have a future.[13]

I thus adopt for my cycle a premise found in the work of composers as diverse as György Ligeti (1923-2006), Igor Stravinsky (1882-1971), Eric Satie (1866-1925), Wolfgang Amadeus Mozart (1756-1791), and Heinrich Ignaz Franz von Biber (1644-1704); and writers such as Miguel de Cervantes (1547-1616), François Rabelais (1494-1553), Giovanni Boccaccio (1313-1375), and Aristophanes (456-386 B.C.), among countless others, who took seriously the notion that we may learn profound insights about ourselves through the comic.

[13] Friedrich Nietzsche, *Beyond Good and Evil*, in *Basic Writings of Nietzsche*, trans. Walter Kaufmann (New York: The Modern Library, 2000), 340.

Chapter 3

Prelude and Fugue in 21 Tones

Prelude and Fugue in 21 Tones, the first work in the cycle, is the one in which I explore most fully the possibilities of micro-tonality and enharmonic inequality. A double-manual harpsichord is used in this piece to allow for the possibility of up to twenty-four notes to the octave. For the purposes of this work, however, I have only tuned a twenty-one note chromatic scale; G, D, and A are tuned the same on both keyboards so that double-sharps may be avoided. Other than these three pitch classes, every enharmonic is tuned as an individual pitch class. In other words, $C^{\#}$ and D^{b} are two separate pitches, the first being lower than the second. The entire chromatic scale may be listed in ascending order as follows (figure 1):

Figure 1:

$C, C^{\#}, D^{b}, D, D^{\#}, E^{b}, E, F^{b}, E^{\#}, F, F^{\#}, G^{b}, G, G^{\#}, A^{b}, A, A^{\#}, B^{b}, B, C^{b}, B^{\#}$

The order of the twenty-one notes shown above is established purely by means of just interval relationships of pure perfect fifths and pure major thirds, which may be expressed in a grid (or tuning matrix) with perfect fifths shown vertically and major thirds shown horizontally as follows (figure 2):

Figure 2:

$$
\begin{array}{ccccccccc}
D^{b} & — & F & — & A & — & C^{\#} & — & E^{\#} \\
| & & | & & | & & | & & | \\
G^{b} & — & B^{b} & — & D & — & F^{\#} & — & A^{\#} \\
| & & | & & | & & | & & | \\
C^{b} & — & E^{b} & — & G & — & B & — & D^{\#} \\
| & & | & & | & & | & & | \\
F^{b} & — & A^{b} & — & C & — & E & — & G^{\#} — B^{\#}
\end{array}
$$

In theory, the tuning matrix extends *ad infinitum* in both dimensions. My tuning for this piece (as are the tunings for the two other works in the cycle) is merely a small subset of this theoretical universe.

The available pure major and minor triads may be deduced from the grid above by forming a right triangle with adjacent tones moving either down and then right (major), or right and then down (minor). None of the notes on the top row, then, may be named the root of a complete triad because the pitches that complete the spelling of that given triad are not adjacent in the tuning scheme. For example, D^b has F tuned in relation to it as a pure third, but D^b does not have A^b tuned in relation to it as a perfect fifth. This illustrates the fact that even with all enharmonics accounted for as separate pitches, the spelling system is still not perfect in accounting for all pure intervals. For example, to have a D^b major triad, another A^b would need to be added to the grid placed above the D^b. It is for this reason that Harry Partch adopted a notation of whole number ratios instead of letter names.[14] Thus, despite having twenty-one tones, there are only thirteen pure major triads and twelve pure minor triads.

For the distribution of the tones between the two manuals in *Prelude and Fugue in 21 Tones*, all sharp-named notes are placed on the upper manual and all flat named notes are placed on the lower. This arrangement was adopted despite the fact that the lower manual is pitched higher than the upper manual. C and F are available only on the lower manual as their enharmonic sharps are placed on the upper manual. Likewise, E and B are found only on the upper manual as F^b and C^b are placed on the lower one. Consequently, the only pure triad that requires both keyboards to be played simultaneously is, ironically, the one most basic to the circle of fifths: C Major.

[14] Partch, 76.

Because of the purposeful avoidance of enharmonic equivalence, the work is notated without need of the special symbols common in microtonal music, such as arrows attached to accidentals. Whether a given accidental is sharp or flat indicates to the performer on which manual to play. I have, however, employed the standard Roman numeral notation (I and II for lower and upper manuals, respectively) for the sake of clarity.

As may be gleaned from the title, *Prelude and Fugue in 21 Tones* is modeled on the genre explored encyclopedically by Johann Sebastian Bach (1685-1750) in his two books of *Das Wohltemperierte Klavier*. In Bach's work, too, the tuning employed on the harpsichord is of great importance. The preludes and fugues of Book I were compiled in 1722 partly as a demonstration of the newly devised tuning techniques that allowed all twelve major and minor keys, quite literally, to function.[15] At the same time, the unique character and color of each key is maintained by the principles of un-equal temperament detailed above (pp. 3-4).

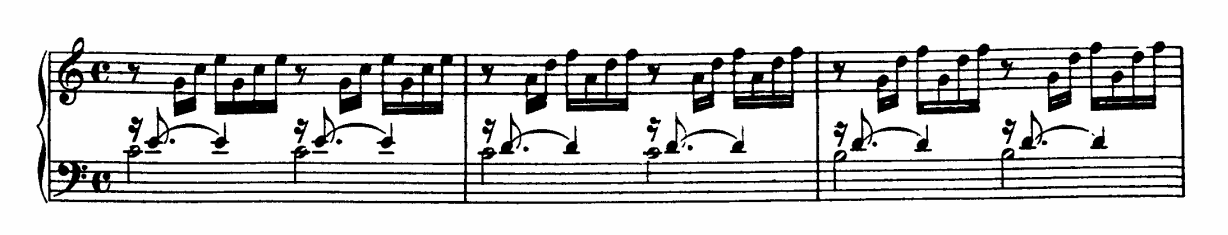
From Bach, I adopt the principle of expanding the available tonality spectrum through adjusted tuning, though in my case emphasizing the differences between enharmonics rather than enharmonic equivalence. Bach shows clearly by his notation of the Prelude and Fugue in $E^{b}/D^{\#}$ Minor from Book I that enharmonic equivalence is assumed in *Das Wohltemperierte Klavier*.[16] This is the only pair in either book that is notated in two different key signatures. It is only appropriate that I use the subject from this fugue as the subject for my own, in which the notation, upon merely looking, seems to indicate a string of meaningless enharmonic changes. Bach's juxtaposition demonstrates that E^{b} and $D^{\#}$ are the same thing. My *Prelude and Fugue* shows that they are not.

[15] Book II obviously assumes the same premise, but was compiled later (1744).
[16] J. S. Bach, *Das Wohltemperierte Klavier*, ed. Hans Bischoff, vol.1 (New York: E. F. Kalmus, 1942), 40-44.

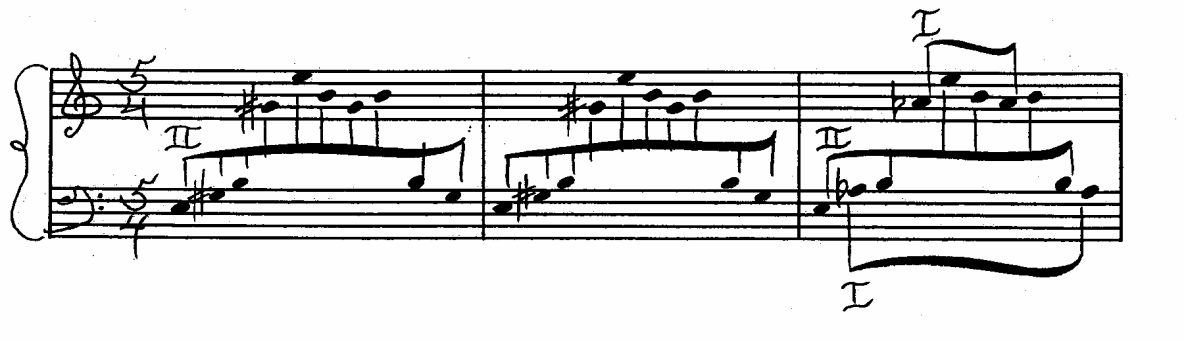
The Prelude

From Bach, I also adopt the formal principle that the prelude is more vertical in nature and that the fugue is naturally horizontal. The unusual tuning used in this work must be illustrated both vertically and horizontally to be fully appreciated. The opening material (Prelude, mm. 1-9) is meant as a parody of the Bach's C Major Prelude from Book I. The resemblance is evident in the shape of the arpeggiation. (See examples 2 and 3.)

Example 2, J. S. Bach, *Das Wohltemperierte Klavier I*, Prelude in C Major, m.1-3. [17]



Example 3, Elliot Figg, *Prelude and Fugue in 21 Tones*, Prelude, mm. 1-3.



Whereas Bach's prelude is a great example of composition by harmonic progression and modulation (to closely related keys), I illustrate the inherent qualities of the tuning employed in my piece by modulating in the first nine bars from E major to F^b major. The modulation is accomplished in a manner quite foreign to methods of traditional tonal procedure; each note within the E major triad is changed one at a time to its enharmonic non-equivalent. Each of the harmonies along the way is out of tune in a unique way; each has a color unto itself. Because the

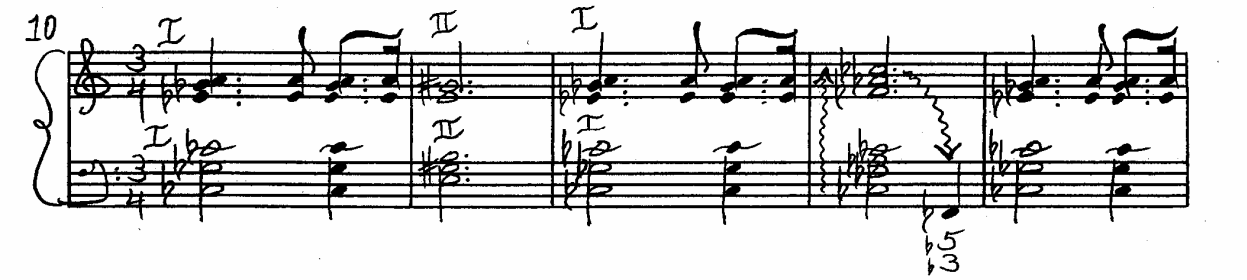
[17] Bach, *Das Wohltemperierte Klavier*, 8.

progression is accomplished, in effect, by voice leading (albeit microtonal voice leading), each of these harmonies may be said to have a "function." The function, however, resides in the color.

The slow arpeggiated texture returns throughout the prelude. It is interspersed with a dotted, heraldic motive (mm. 10-14), which is also a parody of a basic Baroque musical gesture. A similar motive may be heard in Bach's B^{b} Major Prelude from Book I of *Das Wohltemperierte Klavier* (in which it is also interspersed with contrasting material). (See examples 4 and 5.)

Example 4, J. S. Bach, *Das Wohltemperierte Klavier I*, Prelude in B^{b} Major, mm. 11-12.[18]

Example 5, Elliot Figg, *Prelude and Fugue in 21 Tones*, Prelude, mm. 10-14.

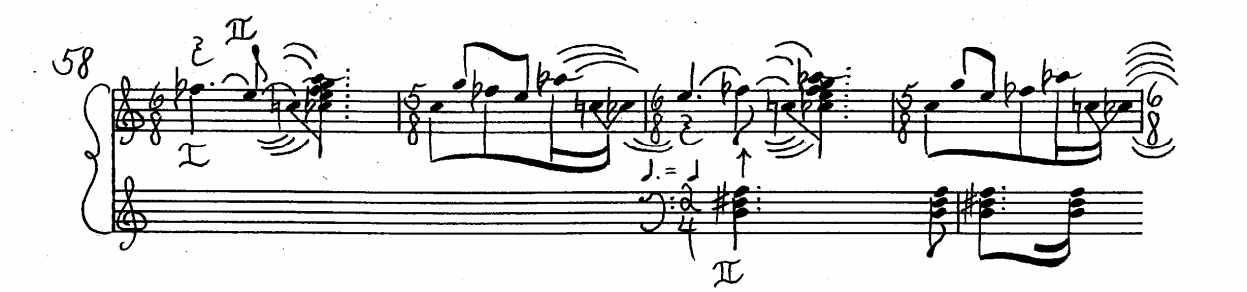


Formally, my prelude represents reconciliation between these two manners of expressing vertical sonorities: chords played in a block and chords arpeggiated. The difference between these two manners comprises an important part of the thinking behind traditional harpsichord performance technique, where the line between them is often blurred. By the end of my prelude, in a complex polymetric coda (mm. 57-79), the two manners occur simultaneously: the left hand plays dotted

[18] Bach, *Das Wohltemperierte Klavier*, 99.

rhythms and block chords in 2/4 time as the right hand plays broken chords in a 5/8 + 6/8 pattern (see example 6).

Example 6, Elliot Figg, *Prelude and Fugue in 21 Tones*, Prelude, mm. 58-61.

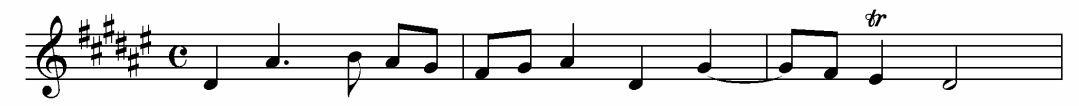


Harmonically, the coda is also the passage of greatest polytonal combination. The right hand, stretched between both manuals, articulates C major and F^{b} major triads simultaneously, while the left hand plays a string of pure major triads on the upper manual only. Leading up to this passage, two-chord polytonality is used almost constantly. The greatest effect is achieved when there is an enharmonic non-equivalent in common between simultaneous chords, as at m. 35 where D major and G^{b} major are combined. The jarring discrepancy between the tones G^{b} and $F^{\#}$, combined with the fact that both of these are surrounded by other tones tuned purely to them, heightens the idea that each chord inhabits its own sonic realm. Each chord resonates within the nature of the overtone series of its root. And yet, when they are expressed together, there is a collision between incompatible natures. This, I believe, is the concept behind polytonality as it was first conceived in works by Milhaud and Stravinsky, for example. As an extension of the concept mentioned above (pp. 3-4 and 7) that tonality as understood in the eighteenth and nineteenth centuries may be truly audible only with un-equal temperament, I would further propose that polytonality is not truly audible without an attention to enharmonic non-equivalence.

The Fugue

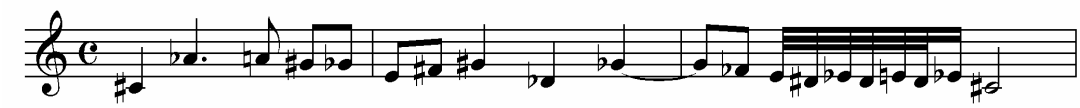
While this method of polytonal combination continues to play a large role in the harmony of the fugue (as well as in the other works in the cycle), the more essential element in the fugue is, naturally, linearity. To fully demonstrate the linear ramifications of the tuning used in *Prelude and Fugue in 21 Tones*, I have taken a theme otherwise heard as purely diatonic (the subject from Bach's Fugue in D$^{\#}$ Minor from Book I of *Das Wohltemperierte Klavier*) and warped it through the lens of enharmonic non-equivalence. The original is as follows (example 7):

Example 7, J. S. Bach, *Das Wohltemperierte Klavier I*, Fugue in D$^{\#}$ Minor, mm. 1-3.[19]



My version (transposed down a Major 2nd) takes on an odd appearance (example 8):

Example 8, Elliot Figg, *Prelude and Fugue in 21 Tones*, Fugue, mm. 1-3.



I have derived also from Bach the very practice of using another composer's theme as a subject for one's own fugue. For example, the theme that serves as the genesis for *Das Musikalische Opfer* (1747) was composed by Frederick the Great. The theme I have chosen from Bach is in itself somewhat backward looking. The asymmetric, though precisely proportioned melodic shape, and the fact that it does not leave the diatonic minor hexachord,

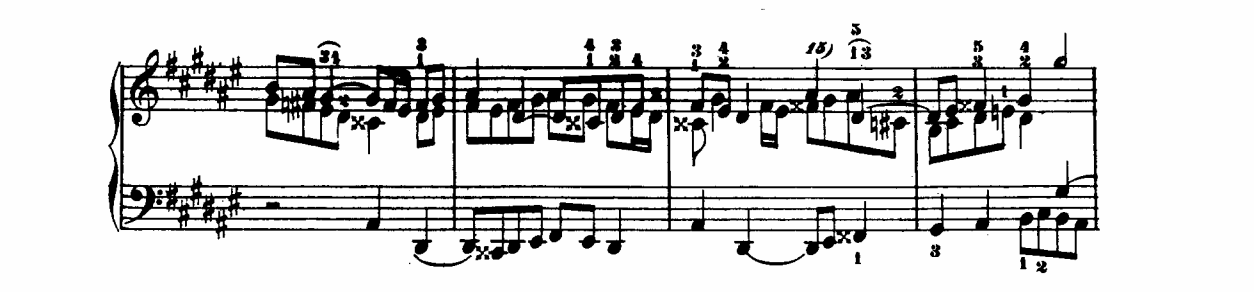
[19] Bach, *Das Wohltemperierte Klavier*, 42.

give this melody a late mediæval or Renaissance quality. Bach's fugue as a whole belongs to the type of abstract fugue found in *Die Kunst der Fuge* (1750): without frills of any kind, a pure expression of the techniques of contrapuntal writing passed down through the centuries. The very work I look to, then, is itself a backward looking work.

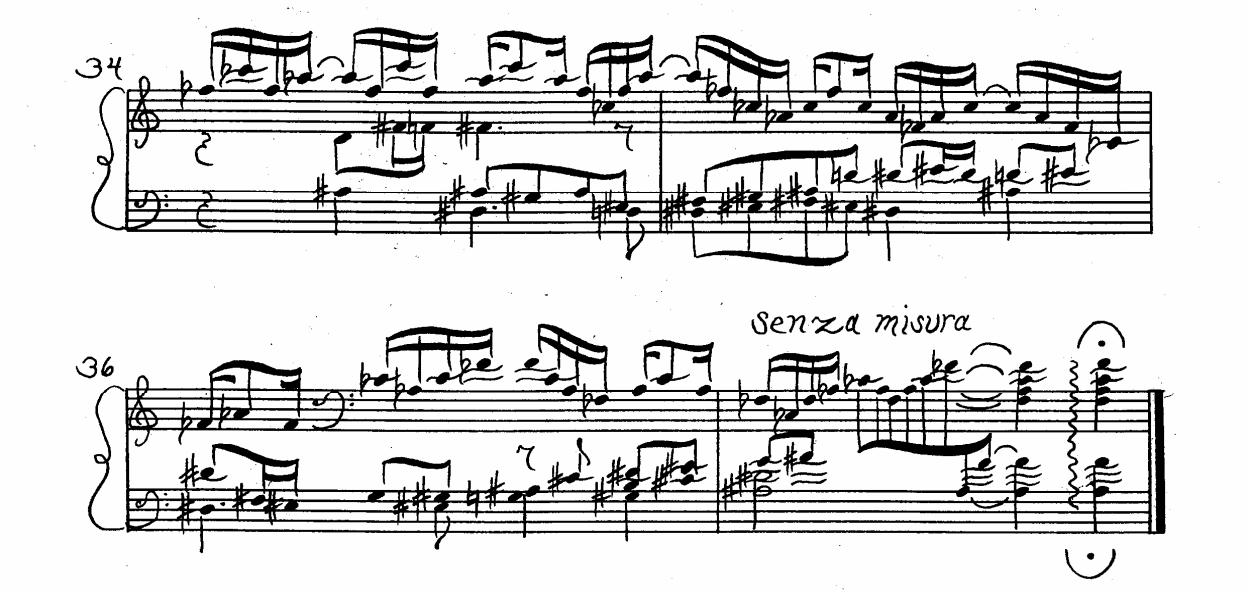
The first twenty-five bars of my fugue present only music derived directly from the germinal material. Fugal development is presented in a fairly traditional fashion. There are imitations, inversions, countersubjects, episodes, and even a stretto beginning at m. 19. Notwithstanding the use of traditional development techniques, the intervallic content of the subject is slightly transformed every time it is stated. This is possible because of the great variety of enharmonic choices. Modifying the subject in this manner is my version of the traditional technique of modifying subject statements, as when (in Bach's work) the opening interval of the first answer is a rising 4^{th} rather than a 5^{th}. It is through my technique that the work takes on its particular "warping" character. The shifts in enharmonic linearity provide the crux of the musical meaning in the first twenty-five bars.

After this point, however, the vertical ramifications of the tuning again become evident. From mm. 26-33, the three independent voices gradually move upward and coalesce into a vertical construct (an F^{b} major chord), which is repeated, as in the prelude, in such a way as to create an irregular polymeter with the left hand material. The material played by the left hand at this point (mm. 34-37) is a precise quotation from the fugue of Bach (mm. 44-47), condensed so as to be playable with one hand (see examples 9 and 10).

Example 9, J. S. Bach, *Das Wohltemperierte Klavier I*, Fugue in D# Minor, mm. 44-47.[20]



Example 10, Elliot Figg, *Prelude and Fugue in 21 Tones*, Fugue, mm. 34-37.



I chose to quote this moment in Bach's fugue because it occupies a significant place in its construction — specifically, the precise center of the form. It also represents the first strong statement of the subject in inversion. The striking harmonic clashes that result in my fugue as a result of combining these materials (D# minor tonal motion on the upper manual with the Fb major harmony of the lower manual) are intensified by the slow voice crossing that takes place through these four bars; the right hand moves down as the left moves up. The final sonority (an

[20] Bach, *Das Wohltemperierte Klavier*, 43.

F^{b} major chord with an added $A^{\#}$) actually has a peculiar consonant quality; the $A^{\#}$ sits right in between the A^{b} and C^{b}. The curious intervals involved in splitting a minor third in this way (more than a minor 2^{nd} but less than a major 2^{nd}) provide the ear with an unexpected perception of consonance.

Chapter 4

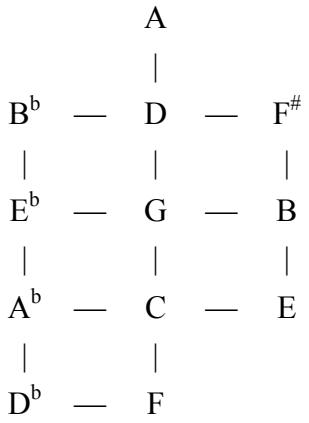
Canzona per Basso solo

For the second work in the cycle, *Canzona per Basso solo*, I have moved to a simpler model. The title is taken verbatim from Girolamo Frescobaldi (1583-1643), who wrote seven such *Canzoni* for Baroque cello and basso continuo. The formal principal in all of these works is simple: a C*anzona* is a string of episodes, each not more than a few seconds long, alternating between *Adagio* and *Allegro*. There is no evident thematic unity between or among episodes. Nonetheless, it cannot be said that the *Canzoni* of Frescobaldi sound random or formless. The strongest unifying factor in each *Canzona* is modal unity. Near the middle of each *Canzona*, the harmony shifts to some closely related key center and then back to the original key center by the end. Further, there is great unity in the harmonic language, a unity which is actually imposed by the assumed tuning system (meantone). None of the four standard "forbidden" meantone chords are found throughout the *Canzoni*. The limitations imposed by the nature of this tuning give these works an artistic advantage in lieu of thematic unity. As Stravinsky said, "art is not a realm of liberty, but of necessity."[21]

The tuning adopted for the *Canzona* is built in a similar fashion to that used in *Prelude and Fugue in 21 Tones*, though it represents a different chunk of the tuning matrix, and so allows for certain pure harmonies that were not available in the latter. The tuning is as follows (figure 3):

[21] Alexis Kall, "Stravinsky in the Chair of Poetry," *The Musical Quarterly* 26, no. 3 (1940): 289.

Figure 3:



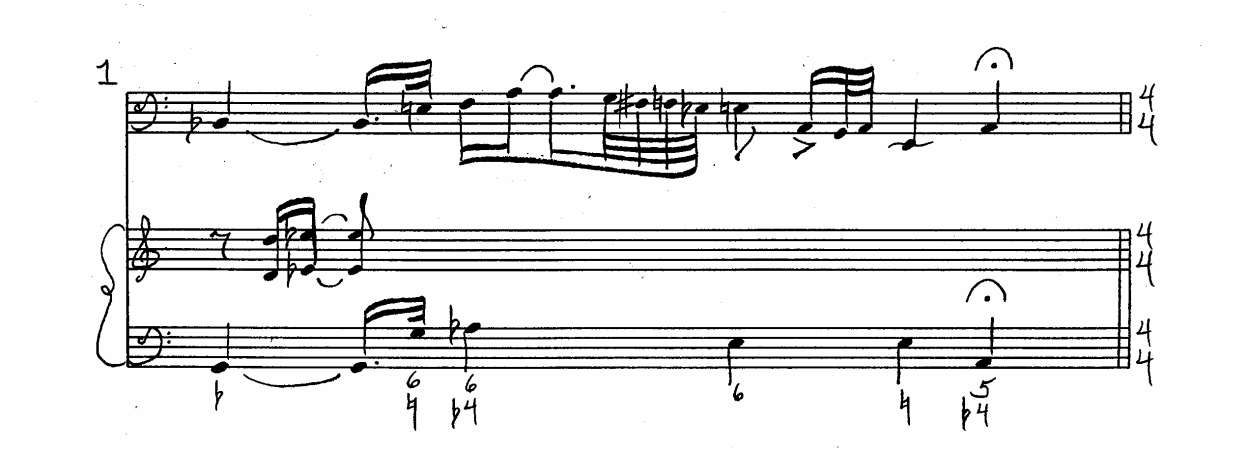
As is evident, there are only twelve tones to the octave in this tuning as opposed to twenty-one, and so a double-manual harpsichord is not necessary for this piece. In fact, a single-manual Italian model is the most preferable option. Good copies of seventeenth-century instruments are loud and brassy. They have an exceptionally strong bass and middle register, which makes them ideal for the performance of continuo accompaniments.

In the *Canzona*, the harpsichord is limited to just such a style of playing. There is very little demanded of the harpsichord that demonstrates a linear character. In contrast, the Baroque cello performs material that is consummately linear. Pizzicato is never used, and only with the double-stops at the end of the fourth episode does the cello have gestures that are more rhythmic than melodic. The contrast between the textures expressed by the harpsichord and cello, respectively, is drawn directly from the common performance practice of Frescobaldi's *Canzoni*. The original notation of Frescobaldi's *Canzoni* includes only two parts: the solo melody and the bass-line. The bass-line was expected to have chords improvised over it by the harpsichordist or organist (the choice of continuo instrument was left to the performers). Therefore the continuo part automatically took on a vertical character in performance, though not necessarily in Frescobaldi's notation.

While there are a number of exceptions in this piece where I have notated specific melodic material for the right hand, the majority of the harpsichord part is notated by means of figured bass alone. The specific tuning and the lack of enharmonic equivalence result in some unusual figures, such as a $^{b}6/^{\#}3$ built over an $F^{\#}$ (episode 2, m. 4). The result is what looks like an $F^{\#}$ major chord on the keyboard, but which really has a D^{b} on top instead of a $C^{\#}$. It may be generalized that the appearance of an idiosyncratic figure indicates a chord with a strong obliquely rational interval content.

In terms of harmony alone, it is the interplay and alternation between such obliquely rational chords and purely tuned chords that provide the particular exploration of tonality in this work. Considering voice leading along with harmonic progression, it becomes evident that the tension/release concept manifests itself in other ways as well. For instance, the figured bass of the opening episode consists entirely of justly tuned triads in various inversions, except for the final harmony (A-D^{b}-E). The cello's melody, however, scarcely allows any of these harmonies to be heard in their fully resonant purity. There is a constant overlapping of appoggiaturas and other non-harmonic tones from one harmony to another. The essential approach to harmonic dissonance in this episode, then, is through voice leading. This approach is typical of Baroque music: a dissonant note in a particular voice becomes consonant with the next harmony through anticipation, suspension, appoggiatura, etc. By adopting this conceptually traditional harmonic approach at the outset, I establish the expectation that all vocal dissonance will come to rest with a cadential motion of some kind. The only moment where one expects the possibility of fully resonant pure triads occurs with the final cadence. Here, in parody of a perfect authentic cadence, a pure E minor chord resolves to an out of tune A major chord (see example 11).

Example 11, Elliot Figg, *Canzona per Basso solo*, episode 1, end.



The precise location of dissonance/consonance, tension/release becomes obscure. Further, there is what might be called a dissonance of expectation. It is by such a deliberately ironic approach that tonality still holds the possibility for new listening experiences. The example given is perhaps one of the more obvious that may have been presented, but it points the way toward manifold expressive possibilities that remain to be explored in the realm of tonality.

As with *Prelude and Fugue in 21 Tones*, I have not only borrowed a formal concept but also specific pitch and rhythmic material from another composer. Of the five episodes in *Canzona per Basso solo*, all but the central one are built from material found in Frescobaldi's *Canzoni*. Episode 1 shares the same bass-line as episode 6 of Frescobaldi's *Canzona VI* (both *Adagio*).[22] The theme in episode 2 has the same shape and rhythm of the final theme (*Allegro*) in Frescobaldi's *Canzona I* (episode 6),[23] which was used again by Frescobaldi (slightly modified) in the final episode of his *Canzona V* (episode 9).[24] Episode 3 is my own invention, but composed in a similar vein to episode 1. Episode 4, similarly to episode 2, is derived from the

[22] Girolamo Frescobaldi, *Canzoni per Basso solo*, ed. Friedrich Cerha, vol. 2 (Vienna: Verlag Doblinger, 1966), 9.
[23] Frescobaldi, vol. 1, 5.
[24] Frescobaldi, vol. 2, 6.

final theme (*Allegro*) of Frescobaldi's *Canzona II* (episode 9).[25] The latter was again reworked by Frescobaldi in his *Canzona VI* (episode 9).[26]

The aim in relying so heavily on the work of another composer is twofold and paradoxical. First, the debt is acknowledged. With the *Canzona* I ask the question, "how can one create a unified work without motivic unity?" Many composers have asked this question throughout centuries of musical composition. The instrumental music of Frescobaldi represents an early landmark and a very particular approach in the exploration of this question. In using quotations throughout, I acknowledge that my work is a mere contribution to an age-old problem. Secondly, and paradoxically, the heavy use of quotation actually heightens the sense of distance from the music of Frescobaldi. While the first episode contains a bass-line complete from an episode in Frescobaldi, the progression of harmonies has a closer affinity with the late music of Richard Strauss than with any music of the seventeenth century. Above and beyond this, of course, the tuning manipulates gestures from previous times in such a way that we feel their distance more. The warping lens is always between us and the past. We cannot physically reach through the lens, but can only see the image projected and modified through it.

[25] Frescobaldi, vol.1, 8-9.
[26] Frescobaldi, vol. 2, 10-11.

Chapter 5

And Music Shall Untune the Sky

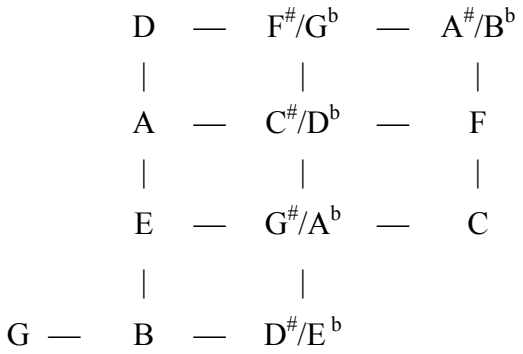
The model for *And Music Shall Untune the Sky*, scored for tenor vocalist, Baroque trumpet, Baroque cello, Baroque tympani, organ and harpsichord, is, initially, the broad genre of works for solo voice and Baroque trumpet found from the early Baroque through the late Classical eras. Some examples include Purcell's (1659-1695) "Hark, the Echoing Air" from *The Fairy Queen* (1692) and "Come If You Dare" from *King Arthur* (1691), Handel's (1685-1759) "The Trumpet's Loud Clangour" from *Ode for St. Cecilia's Day* (1739), Rameau's (1683-1764) "*Régnez plaisirs et jeux!*" from *Les Indes Galantes* (1735), and Haydn's (1732-1809) "*Vittoria, vittoria!*" from *Orlando Paladino* (1782).

All of these arias share a similarity of melodic style due to the limitations of the Baroque trumpet, which essentially can only play the diatonic notes of the key in which it is tuned. The limitation of pitches available is due to the fact that the Baroque trumpet is valveless and generates its pitches from the harmonic series alone, thus resulting in the sonic advantage of tones arranged in intervals according to the harmonic series (just intervals). From middle C, its pitches are C, E, G, B^{b}, C, D, E, F, $F^{\#}$, G, A, B, C. Other pitches are possible with use of the finger holes and manipulation of embouchure, but they must be used in passing.

In *And Music Shall Untune the Sky* the harpsichord and organ are tuned to match the D major triad of the trumpet (a D trumpet is used in the work), and the other pitches of the chromatic scale are tuned justly from the pitches of that triad as seen in figure 4. The tuning employed here presents certain problems in the notation of enharmonic spellings because of the specific portion of the tuning matrix used in this work. Consistency would demand that all accidentals be spelled as sharps, but for ease of notation I have frequently respelled them in the

score as if enharmonic equivalence is assumed. Thus all notes written as F and C are in fact $E^{\#}$ and $B^{\#}$, respectively.

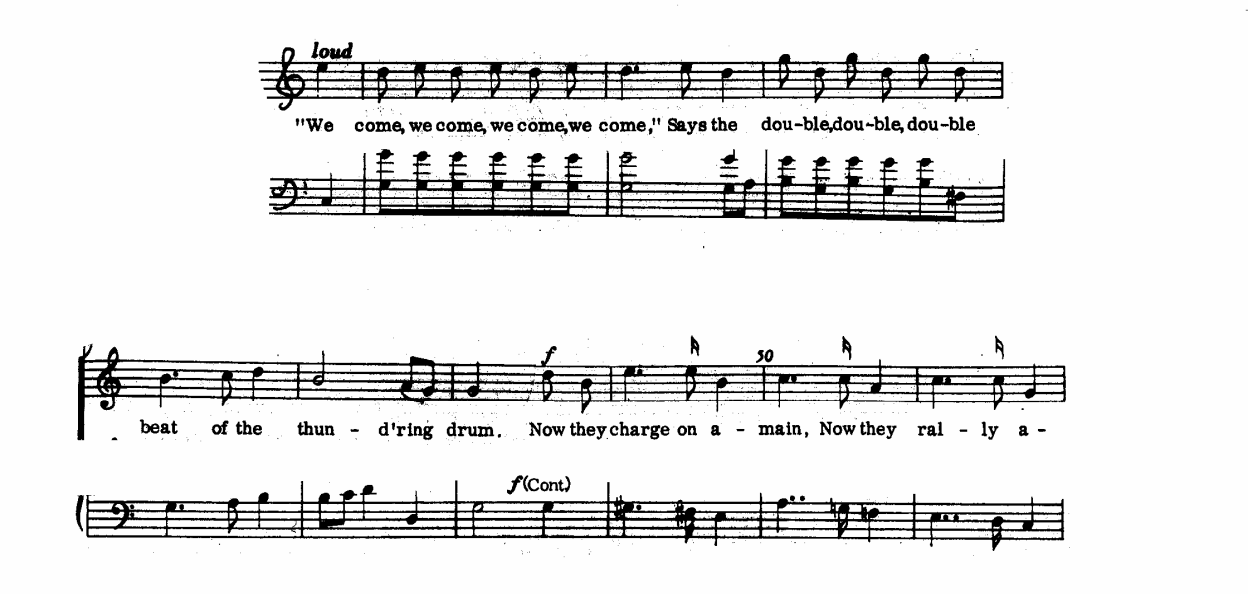
Figure 4:



The text for *And Music Shall Untune the Sky* is from John Dryden's (1631-1700) *Song for Saint Cecilia's Day, 1687*. The entirety of this poem is used by Handel in *Ode for St. Cecilia's Day* in which each stanza serves as a different aria or choral number. In my piece, however, only two of the stanzas are used (the fourth and the last), and the work is written as a single extended aria for tenor and small ensemble. The music for this piece, more so than the other two, represents a lampoon of music from the Baroque and Classical eras. In this piece there is a greater variety of historical styles represented than in the other two works. These include: Handel trumpet *da capo* and strophic arias; French Baroque recitative, *a la* Rameau; Purcell trumpet strophic arias; early Mozart opera, i.e. *Mitridate* (1770); and Christoph Willibald von Gluck's (1714-1787) *L'Orphée et Euridice* (1774). Some of these stylistic references amount to extended quotations rather than imitation of the given style. There is an extended quote from the trumpet aria, "Come If You Dare" from Purcell's *King Arthur* at mm. 108-133, and portions of Gluck's aria "*Amour, viens rendre á mon âme*" from *L'Orphée et Euridice* are pasted together to form the cadenza at the end of the work (mm. 175-189).

The long quotation from Purcell (example 12) represents the longest portion of my work that is taken verbatim from another composer. The only difference is that I have transposed it to D^b major and set different words after the first phrase.

Example 12, Henry Purcell, *King Arthur*, "Come If You Dare," mm. 42-51.[27]

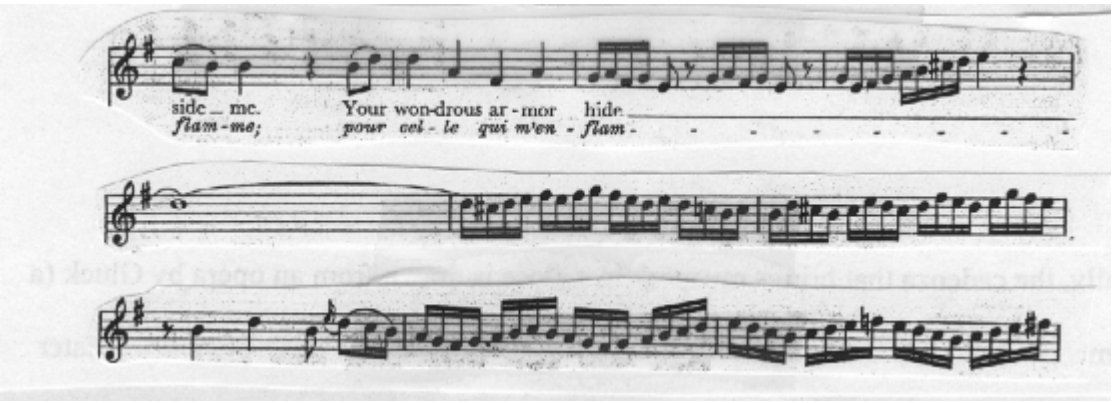


There are two important coincidences between this portion of *King Arthur* and my own work. First, Purcell's belongs to the basic genre that serves as the model for *And Music Shall Untune the Sky* (aria with trumpet obligato). Second, the words "the double beat of the thund'ring drum" occur in both the libretto for *King Arthur* and in *Song for Saint Cecilia's Day, 1687*. Both texts are by John Dryden, with whom Purcell collaborated on the former work. The two texts have nothing else in common aside from this striking poetic phrase. In order to make the joke more obvious, I have included the opening words "we come," repeated thrice, followed by "says…" as it stands in *King Arthur*, despite the fact that those words are not found in the essential text for my piece. It is as if there is a sudden intrusion not only of someone else's music into my piece, but also a foreign text into the text of the aria.

[27] Henry Purcell, *King Arthur* (Kent: Novello, 1972), 32-33.

The portions of Gluck's "*Amour, viens rendre á mon âme*" used for the cadenza at the end of *And Music Shall Untune the Sky* may be gleaned from example 13. Comparison with mm. 175-189 of my work will reveal the piecemeal, cut-and-paste method used in forming this cadenza. Isolated fragments were chosen primarily because of heavy sixteenth-note content. Before this point in a given performance of the piece, the tenor's coloratura technique will have been exploited numerous times. The cadenza gives his coloratura one last hurrah by ridiculously presenting only the sixteenth-note portions (the hard parts) of Gluck's aria, as if those were the most significant parts.

Example 13, Christoph Willibald von Gluck, "*Amour, viens rendre á mon âme*," mm. 27-30, 51-53, 86-88.[28]

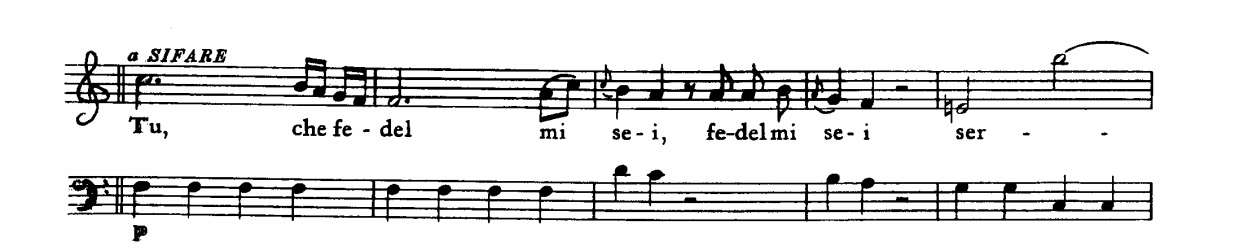


The work as a whole may be heard as a commentary on the fine line between national styles and cosmopolitanism in music of the Enlightenment. Texts of Dryden were used previously in works by both Purcell (a distinctively English composer strongly influenced by the French music of his day) and Handel (a German composer who came to represent English music by the end of his life). For the sections of my work in imitation of Rameau (a distinctively French composer) (mm. 52-64 and 137-146), I have translated the Dryden text into French (my

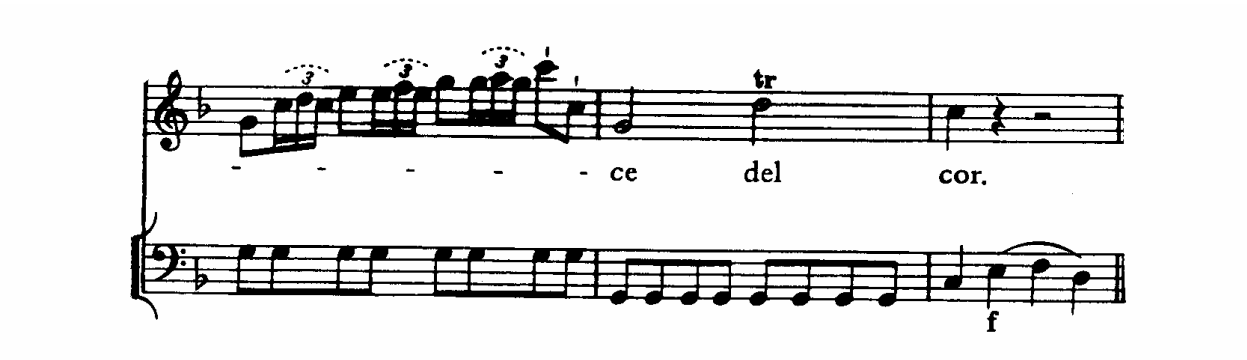
[28] Christoph Willibald von Gluck, *Orpheus and Euridice* (New York: G. Schirmer, 1959), 33-37.

own conceit of cosmopolitanism). For the setting of the words "Music shall untune the sky," (mm. 161-174) the music is composed in a rough imitation of portions of the arias "*Tu, che fedel mi sei*" and "*Nel grave tormento*" from Mozart's early opera, *Mitridate*, written when the fourteen year old Austrian composer was making a tour of Italy (see examples 14 and 15).

Example 14, Mozart, *Mitridate*, "*Tu, che fedel mi sei*," mm. 47-51. [29]



Example 15, Mozart, *Mitridate*, "*Nel grave tormento*," mm. 20-22.[30]



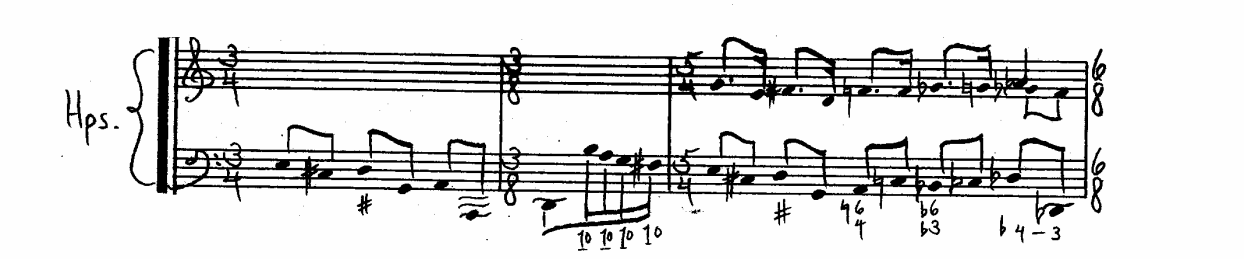
Finally, the cadenza that brings my work to a close is drawn from an opera by Gluck (a German) which was originally set in Italian as *Orfeo ed Euridice* (1762), and was later reset in French (1774). I justify, then, the coalescence of such diverse and incongruous musical styles in my work by drawing from previous works that are in themselves coalescences of diverse materials.

As with all of the music referenced in my work, however, I do not appropriate the sources without the intention of creating something new in the process. As is the case with the other works in my cycle, it is again the specific tuning used in *And Music Shall Untune the Sky* that

[29] Wolfgang Mozart, *Mitridate* (Basel: Bärenreiter, 1966), 127.
[30] Mozart, *Mitridate*, 153

provides the springboard for both similarity with earlier tonal music and an irresolvable difference with it. As may be seen above (fig. 4), the tuning allows for pure D, A, and E major triads as well as pure G^b, D^b, and A^b major triads. The first three are closely related to each other, as are the last three, but each triad in either group is distantly related to each of the other group. The opposition between these two groups of triads provides the crux to the harmonic structure of the aria. At the beginning of the work, for instance, the introductory trumpet solo is all solidly in D major (with a few odd chromatic tones). The continuo group, however, rounds off the introduction and paves the way for the entrance of the vocalist with a parody of a cadential hemiola in 5/4 instead of 3/4, which modulates from D major to G^b major (see example 16).

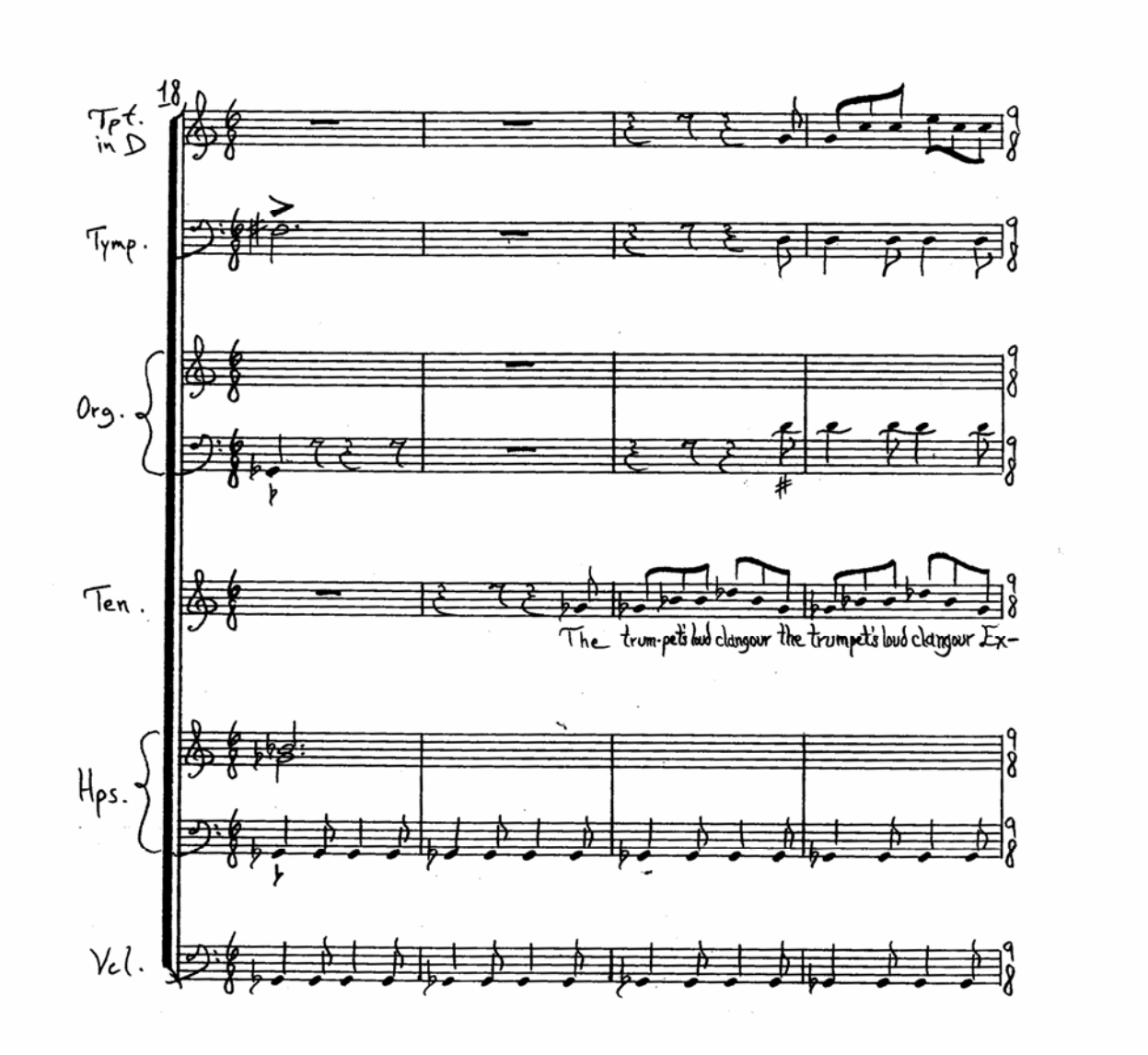
Example 16: Elliot Figg, *And Music Shall Untune the Sky*, mm. 15-17.



These two tonalities would never have been set in opposition to one another in a trumpet aria by Handel, of which this introduction is an imitation, but the tuning adopted in my piece presents this opposition by nature. Whereas the just tuning used represents a skewing of the harmony available to Handel, the 5/4 hemiola represents a temporal skewing of the metrical practices available to him. This is a clear example of how time and pitch may be used analogously in the aesthetic of "warping" mentioned above (p. 2). In this case, time is viewed in the more immediate sense of meter.

The opposition between distantly related triads is manifested throughout the piece in bitonal simultaneities as well as in linear presentation. Immediately with the entrance of the vocalist (singing in G^{b} major), the opposition set up linearly in the introduction is presented as a bitonal blast from the trumpet (playing in its natural key of D major), which serves as a musical painting of the evocative opening words (see example 17).

Example 17: Elliot Figg, *And Music Shall Untune the Sky*, mm.18-22.



In fact, D major and G^b major are combined throughout the work more frequently than any other pair of triads, and so may be considered the two basic tonalities of the piece. The other strategic moments where they appear together are mm. 67-73, 104-109, and 146-149. There are, however, other important pairings of tonalities which appear throughout. These include: D major/E major (mm. 76-87), and D major/D^b major (mm. 136-140 and 192-196). D major is always included since it is essentially the only key in which the trumpet can play.

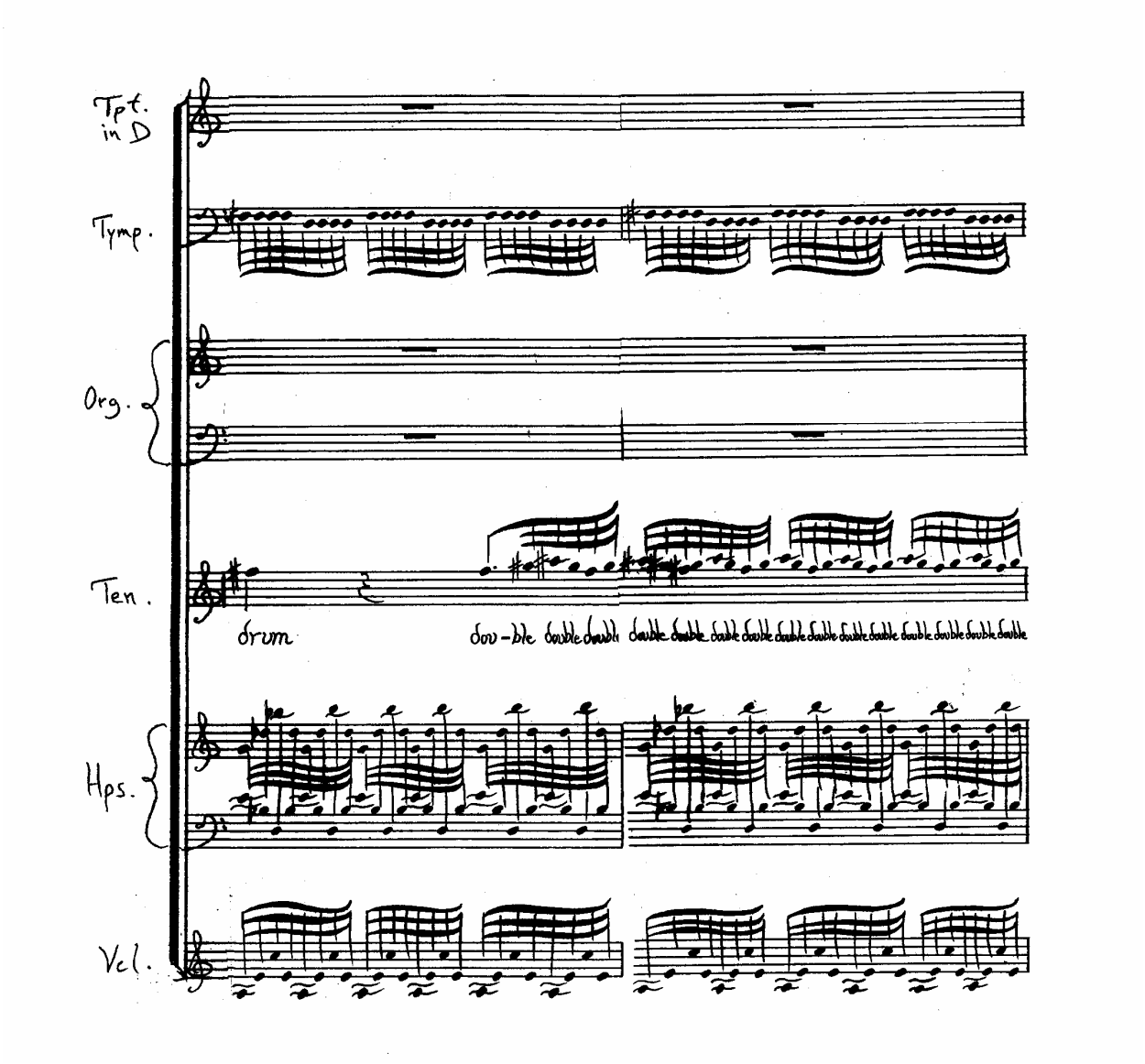
Performance Practice as Composition

An important element in the compositional approach I have adopted for the cycle as a whole is the idea that the manner in which the music is performed stands alongside the written notes as an expression of musical form. Precise control over intonation is one way in which this is manifested. If the wrong chords are played in or out of tune, the listener essentially hears a different piece than I intend. It is not typically thought, however, that one hears something other than *Das Wohltemperierte Klavier* when it is played in equal temperament, although one could argue that that is the case.[31] Similarly, control of other related details is necessary for audible comprehension of the three pieces that comprise my cycle. In *Canzona per basso solo* as well as *And Music Shall Untune the Sky*, careful control of vibrato is necessary to make audible the characteristic qualities of the given tuning. The use of vibrato, is not strictly forbidden, however, for there are moments in all of the pieces where the specific tuning ceases to be as structurally important as other moments. This is particularly true in passages of high chromatic content. The harmony at mm. 72-73 in *And Music Shall Untune the Sky* consists of eight separate pitch classes. Tuning is almost not an issue in such a case, since the effect has more to do with texture

[31] Cf. Jerrold Levinson, *Music, Art, and Metaphysics: Essays in Philosophical Aesthetics* (Ithica, NY: Cornell University Press, 1990), 384, where Levinson posits that Glenn Gould's piano performances of Bach's *Partitas* "flirt with not being performances of them at all."

than pitch. The tenor here sings the word "drum" on a high $F^{\#}$ at a very loud dynamic, and so vibrato is not detrimental to the musical expression (see example 18).

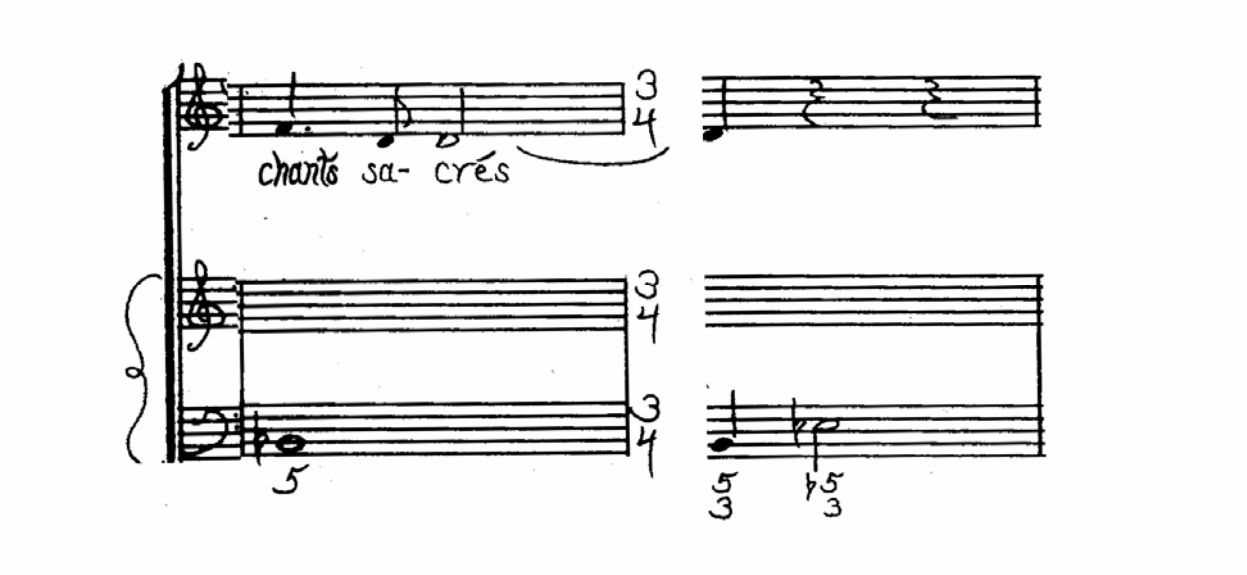
Example 18, *And Music Shall Untune the Sky*, mm. 72-73.



In fact, most sustained high notes are placed in such a context that vibrato is appropriate to the musical expression.

On the other hand, it is especially important that there be no vibrato in quiet passages in the middle and low registers of the voice. Mm. 56-57 demonstrates one such important moment. Here, on the last syllable of the phrase "*chants sacrée*" the tenor sings a D in perfect tune with the B^{b}-F($A^{\#}$-$E^{\#}$) harmony played by the harpsichord and cello. A variable-pitch instrument such as the voice is able to sing a pure third in relation to the B^{b}($A^{\#}$) of the harpsichord. However, as a consideration of the tuning matrix for this piece reveals (p. 29 above), B^{b} major is not allowed as a pure harmony. Thus, when the harpsichord fills in the pure fifth with its own D at m. 57, the "sacred lays" become defiled by a gross diminished fourth ($A^{\#}$-D) interval (see example 19).

Example 19, *And Music Shall Untune the Sky*, mm. 56-57.

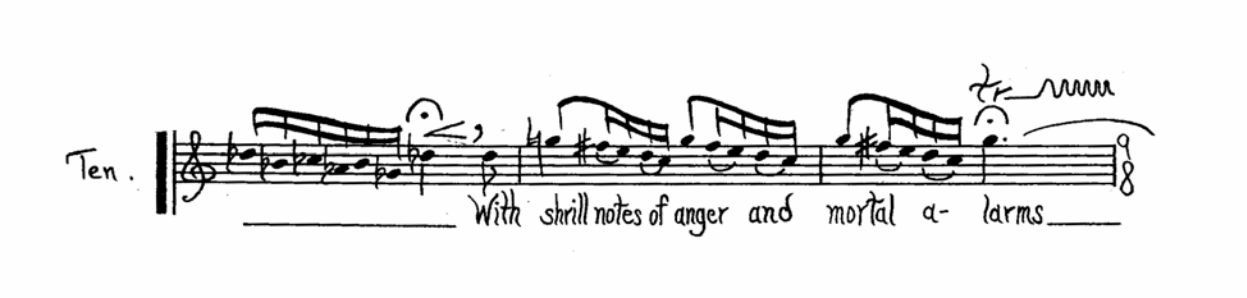


The shift from the pure major harmony of m. 56 to the jarring dissonance of m. 57 will only be heard as such if the tenor sings the D without vibrato. Incidentally, non-vibrato is also appropriate here as a reference to the typical style used in sacred chant singing.

While these two principles define my essential approach to the application of vibrato or non-vibrato, I have not hesitated to require both in completely opposite contexts to those detailed above. These exceptions occur typically for dramatic reasons. The high G on the downbeat of

m. 26 should be sung straight-tone as a painting of the word "shrill," even though the precise tuning of this note is not especially important in the musical context. At the end of the same passage, the sustained G is sung alternating straight-tone/trill/straight-tone to approximate the sound of an "alarm" (see example 20).

Example 20, *And MusicShall Untune the Sky*, mm. 25-27.



In general, I have approached the use of vibrato under the assumption that there may be a true art in the placement of vibrated and non-vibrated tones. At times this has to do with tuning, and at other times it does not. The use of vibrato is an extension of the particular approach to the consonance/dissonance paradigm adopted in the cycle. As with the approach to harmony (see above, p. 25-26), it cannot be concretely stated which represents consonance and which dissonance. At times non-vibrato represents the strengthening of a dissonance, and at times it allows a consonance to reverberate in all its purity. At times vibrato is used to give a sound of finality to a cadential harmony, and at times it is allowed in the context of high chromatic content.

This approach to vibrato has much in common with performance practice techniques associated with music of the seventeenth and eighteenth centuries as manifested in modern-day "historically informed performance." It is debatable whether such an approach accurately reflects the manner in which vibrato was employed during that time, but it is clear that many modern performers since the 1960s, with the resurrection of early music performance practice,

have made an art of vibrato quite at odds to the essential manner of "modern" performance practice. At this stage in history, both exist alongside one another uncomfortably. A performance of the Bach violin concerto in E major by Anne-Sophie Mutter and Herbert von Karajan, for example, may be compared to one by Andrew Manze.[32] The former represents the consummate "modern" performance of such a work. The vibrato on long notes in the solo violin playing (and orchestral playing, for that matter) is continuous and at a constant speed. Phrases are formed as large arches without particular accentuation on dissonances. In the performance by Andrew Manze, on the other hand, non-vibrato is the rule rather than the exception, both in the solo and ensemble playing. Vibrato is added as an ornament for a blooming effect. Phrase shapes are much more detail-oriented. Dissonances are played more intensely and straighter than consonances. Vibrato in general is applied with a great variability of speeds and widths, and in the process becomes a companion to variety of tonal color.

The most recent musical trends that may be located in my cycle as a whole, then, are not compositional trends *per se*, but performance-practice trends. I do not, however, consider the two to be separate. The manner of performance needed for the cycle is so important, especially as regards vibrato, that performance practice must be considered a compositional element. I have developed my particular mode of thinking about vibrato from listening to recordings of early music performers, not from studying scores. The stylistic reference to early music performance practice as developed since the 1960s, then, is the only one that may be considered a reference to any "contemporary" musical practice. It is the most topical reference in a cycle that is essentially built on references to musical practices found throughout many centuries of

[32] For a video excerpt of a 1985 performance and commentary by Mutter, see *The Salzburg Festival*, dir. Tony Palmer, Digital Classics DC10016, 2006, DVD. For Manze's performance, hear J. S. Bach, *Solo and Double Violin Concertos*, Harmonia Mundi France HMU 907155, 1997, CD.

musical history, albeit a reference to a practice that is in itself an attempt to rediscover things about music of the past.

The "Tailor-made" Aria

The approach to performance practice demanded for *And Music Shall Untune the Sky*, not to mention the extensive coloratura passagework, is not suited to all tenors. Many singers simply refuse to sing without vibrato because it is "unnatural" or "unhealthy." In so asserting, such a singer will even perform a Handel coloratura aria with a single speed of vibrato (usually around 5 vibrations per second) regardless of tempo or speed of passagework. Thus, sixteenth-note passages at a tempo of quarter-note=120 necessarily lose clarity because of what is essentially a 5:8 poly-rhythm imposed on the music by the singer. While such modernist compositional techniques may be one way of bringing Handel into our time, the only effect on the listener in such a case is that the singer drags the tempo for no apparent musical reason. Thus, in order for coloratura to be heard as such, vibrato must be suspended in the course of passages that employ it. The best analogy in instrumental playing is again found in string-instrument technique. The consistent vibrato of Anne-Sophie Mutter or Itzhak Perlman is meant as an imitation of the natural vibrato of the human voice. Yet even in the playing of both of those performers, the back-and-forth motion of the wrist ceases during fast scalar passagework. One can imagine the strange effect (aurally and visually) of the wrist shaking asynchronously to the motion of the fingers.

In contrast, aperiodicity of vibrato in relation to tempo may be very pleasing on sustained tones. Vibrato that corresponds too exactly to a regular subdivision of a given tempo sounds contrived. On this topic, Mozart wrote in the letter to his father of 12 June 1778 the following illuminating comments on a particular singer of his acquaintance:

> Meissner has, as you know, the bad habit of giving his voice an extra tremolo— entire quarter notes—even eighth note quavers when the music is marked for sustained singing—and that's something I could never stand in his singing. It's dreadful. It is a style of singing entirely contrary to nature. The human voice vibrates naturally—but in such a way—to such a degree that it all sounds beautiful—it is the nature of the voice. We imitate such effects not only on wind instruments, but also with violins—even on the clavier…. [Meissner's habit] reminds me a little of the organ when the bellows are quaking.[33]

Mozart contrasts Joseph Nikolaus Meissner's affected vibrato to the natural vibrato of Anton Raaff, who also, incidentally, had "totally mastered the bravura aria, Passages and Roulades."[34]

Mozart describes two of the three basic demands required of a singer for the performance of *And Music Shall Untune the Sky*, which may be distilled as follows: 1) natural, aperiodic vibrato to be used on sustained tones; 2) mastery of coloratura technique; and 3) the ability to eliminate all vibrato when necessary, whether in loud or soft passages. I am willing to acknowledge the "unnatural" act in performing the final demand, but the aesthetic context of my aria is not exactly natural in the way that Mozart would have it. Robert P. Morgan described the tendency for widespread use of quotation by such composers as Luciano Berio, Lukas Foss, Peter Maxwell Davies, and George Rochberg as a trend that had reached "epidemic proportions." By fragmenting portions of tonal music from the past and putting them into a synthetic context, the very idea of a "natural" context is abandoned.[35] While the aesthetic I have adopted for the cycle has something in common with the music of the composers listed by Morgan, I would add that the greater goal inherent in my premises is to rediscover the possibility of an organic, natural context so that tonality may still exist as a living (rather than resurrected) idea. This possibility resides in the structural approach to tuning.

---

[33] W. A. Mozart, *Mozart's Letters, Mozart's Life; Selected Letters*, ed. and trans. Robert Spaethling (New York: W. W. Norton, 2000), 157.
[34] Mozart, *Mozart's Letters*, 157.
[35] Robert P. Morgan, "Tradition, Anxiety, and the Musical Scene," in *Authenticity and Early Music: a Symposium*, ed. Nicholas Kenyon (Oxford: Oxford University Press, 1988), 72.

It would not be inappropriate to describe the non-vibrato, straight tone as possessing a certain "synthetic" quality in certain singers. The vocal experimentation of the French soprano Patricia Petibon, found throughout her recorded *œuvre*, may be cited as a case in point. In repertoire as diverse as French Baroque opera, operas by Mozart and Haydn, and nineteenth-century French operetta, one may find numerous examples in her recorded performances of intentionally bizarre and out-of-context tone-colors. Petibon's performance of the aria, "*Torno pure al caro bene*" from Haydn's opera *Armida* (1783) provides one striking example.[36] The aria is begun with natural vibrato on sustained notes, sung in what may be considered a "traditional" manner. As the aria progresses, tones begin to take on strange colors. The *messa di voce* technique is applied to non-vibrato tones in such a way that the voice appears and disappears within the accompanying instrumental texture. The four sustained descending chromatic tones at mm. 127-128 may be considered the moment in the aria that is performed in the most non-traditional manner.[37] Each of the three tones is sung absolutely straight as the color of the tone is allowed to metamorphose kaleidoscopically. At times the tone takes on a metallic edge and pierces the ear. The tone is allowed to be "ugly" for expressive purposes. A "traditional" or even a typical "historically informed" performance of this passage, and indeed the entire aria, would aim at a consistent vibrato and as beautiful a tone as possible throughout. The approach to vibrato and tone color adopted by Petibon here is still what might be considered a maverick approach for late eighteenth-century opera.

It is through such moments that Petibon's performances take on a modernist aesthetic sensibility of de-contextualization. It is evident how such a mode of performance practice may have a particular affinity with the mode of composition I have adopted for my cycle of three

[36] Joseph Haydn, *Armida*, cond. Nikolas Harnoncourt, Teldec 8573-81108-2, 2000, CD.
[37] *Joseph Haydn Werke*, ed. Georg Feder, ser. 25 vol. 12, *Armida* (Munich: G. Henle Verlag, 1965), 271.

works, and also how performance practice may be a mode of composition in itself.[38] Thus, before even beginning to compose the work, I sought out a particular singer for *And Music Shall Untune the Sky* who would share certain vocal traits in common with Patricia Petibon. One such singer is the American tenor Richard Croft (b. 1954), who similarly places vibrato- and non-vibrato-singing on an essentially equal footing. Drawn first by this premise, as well as the notion expressed by Mozart in his letter of 28 February 1778, I have collaborated with Mr. Croft on the composition of *And Music Shall Untune the Sky* in such a fashion as to craft an aria that "fits like a well-tailored dress."[39] To achieve this, I was able not only to work with him directly in the way that Mozart or Rossini often worked with singers, but I was also able to consult several audio and video recordings of his performances, which served as a kind of magnifying glass on the idiosyncrasies of his voice. Through recordings a listener may isolate fragments of a performance, listen repeatedly to the quality of the voice in a particular register, study the peculiarities of pronunciation in different languages, etc. In other words, a modern performer may be studied with a kind of scrutiny unavailable to Mozart or Rossini.

Indeed, the kind of scrutiny available through such modern technology has profound implications for the music that results from it. The fragmented nature of *And Music Shall Untune the Sky* comes in large part from the fragmented nature of the listening I exercised in studying Croft's singing. The portions of Gluck that coalesce to form the cadenza were chosen more because of having listened closely to Croft's recording of a 2002 performance of *L'Orphée et Euridice*, where his mastery of coloratura technique is evident, than from studying the score.[40] By giving this material, though fragmented, to the very same performer to be performed as a

[38] On the "composerly" attitude to performance as the *modus operandi* of Glenn Gould, see Kevin Bazzana, *Glenn Gould: The Performer in the Work*, (Oxford: Clarendon Press, 1997), *in toto*.
[39] Mozart, *Mozart's Letters*, 135.
[40] C. W. Gluck, *L'Orphée et Euridice*, cond. Marc Minkowski, Archiv Produktion 471 582-2, 2004, CD.

portion of my own work, the quotation at this juncture in the aria amounts to a quotation of a recording of a work *per se*, rather than simply a quotation of a work. Thus, many of the musical references were chosen specifically because of recordings made by Croft of the given work or genre. This is true with the references to *Mitridate*[41] and French Baroque opera.[42] Other recordings I consulted that had a less direct impact on the composition, but provided some specific notions of how Croft's singing has changed over the course of time include Handel's *Theodora* performed in 1996[43] and Debussy's *Pelléas et Mélisande* from 1999.[44] In a way, then, the history of Croft's singing over the span of an eleven year period came to be an element of the composition itself. Some comments of Stendhal are appropriate on this issue:

> …the scores of Rossini's Neapolitan operas are a biography of voices—not only giving us the vocal history of Signorina Colbran herself, but also Nozzari, Davide, Signorina Pisaroni and others. The scores make it quite clear that all the embellishments, which singers had hitherto claimed the right to distribute *ad libitum*, had now been transformed into an integral, necessary, *indispensible* constituent part of Rossini's music; but that does not solve the problem, how any singer is to perform this music when his voice does not happen to possess exactly the same characteristics as that of Nozzari or Davide.[45]

Indeed, the color characteristics and specific approach to vocal technique of Croft are such an integral part of *And Music Shall Untune the Sky* that successful performances must necessarily be rare.

[41] W. A. Mozart, *Mitridate*, cond. Marc Minkowski, Decca Music Group Limited 074 3168, 2006, DVD.
[42] Jean-Philippe Rameau, *Les Indes Galantes*, cond. William Christie, Opus Arte B0009S4EQO, 2005, DVD.
[43] George Frideric Handel, *Theodora*, cond. William Christie, Kultur International Films D2099, 2004, DVD.
[44] Claude Debussy, *Pelléas et Mélisande*, cond. Andrew Davis, Kultur D3117, 2005, DVD.
[45] Stendhal, *Life of Rossini*, trans. Richard N. Coe, (New York: The Orion Press, 1970), 364.

Chapter 6

Possibilities for Pure Intonation Tomorrow

I foresee a time when just intonation systems may be used to discover new principals of tonality without the aid of historical reference. In my cycle, I have seen fit to maintain an air of ironic historical reference as a first step toward the acceptance of a greater array of tones and interval relationships in musical organization. The canonical familiarity of the music referenced provides a clear vantage point to gain an inkling of a new way of thinking about tonality that is still very far away. The importance of tuning in the tonal mindset of the past is still not fully understood today. My cycle presents exaggerations of some of the tuning principles at play in tonal music of previous centuries, and in so doing, points the way to wholly new relationships between tuning and tonal thinking.

Just intonation remains a boundless frontier that presents a fundamentally important type of possibility for composers and listeners of today: the possibility of audibility. As opposed to the more aesthetic/philosophical shifts found in many innovations in the compositional art of the twentieth century, just tuning offers the possibility of a true shift in the sensuous act of hearing music. Harmony again becomes a vital issue in modern music with an attention to pure and impure intervals. The dissonance/resolution concept need not be a relic of a dead way of thinking, which is just as dead in the broad variety of neo-tonal works in vogue today. When dissonances may be heard with the kind of warped clarity and variety allowed by the infinite array of impure intervals, and consonances may resound with the enveloping aura of purity bestowed on us by nature through the harmonic series, the fundamental questions of tonality remain open to us as a vast sea. Schoenberg's path of musical thinking led him to a theoretical break with tonality, a break that has really not been vanquished in the minds of "serious"

composers after him. Further, the temperament required for the true expression of atonality in sound was adopted, as if out of their control, even by composers who reacted against the atonal *Zeitgeist* in an attempt to revive tonality. In the twentieth-century tonal procedures of composers such as Copland and Hindemith or Debussy and Ravel, one may find tonal sonorities but not functionality *per se*. Twelve-tone equal temperament, aside from being the right temperament for dodecaphonic music, is also the best temperament for music using quintal harmony or whole-tone harmony. The only interval that is almost pure in equal temperament is the perfect fifth (or fourth), and the whole tone scale is only possible under the assumption of equally spaced whole tones. Thus, these two approaches to harmony became the most important advances in tonality of the twentieth century. They were advances that had much in common with pure atonality in that a true hierarchy of sonorities (functionality) became impossible with an equally spaced chromatic scale. If one assumes more than the twelve-tone equal-tempered scale, however, the possibility remains open that one may conceive of new methods of truly functional harmony completely divorced from what is known as functional harmony in music of common practice tonality, as well as the coloristic approach to tonality of twentieth-century composers. This possibility resides in the infinite universe of musical tone, like life yet to be discovered on the planets of distant stars.

Further, it is in the revaluation of the tonal problem that may be found a solution to the social problem of new music. It has been more than a century since the significant rift when the most important, innovative music ceased to be the most popular music. The beginning of this break may be found with Beethoven and the rise of the idea of the artist as individual. With the rise of the artist/ego notion through the nineteenth century (a notion that still represents the most widely held view of the artist today), the degree to which the serious artist attempted to create

works in order to please a hypothetical audience necessarily lessened. In the twentieth century it lessened to the point of vanishing in the work of such composers as Boulez and Babbitt.[46] The unfortunate circumstance was that the groundbreaking procedures developed by these composers were no longer structures of sound that could be heard and understood as such in an immediate, aural sense. To understand the form of a serial work requires intensive study of the score. In contrast, the significance of Beethoven's rethinking of sonata form (probably the most important development in the compositional art at the time) is something that may be comprehended with the ear alone.

The re-fusion of popular music and artistically meaningful new music (a goal which eludes us more and more with the passage of time) is only possible with an approach to musical form that presents new ways of thinking about music as an auditory experience. I believe that music is only worthwhile as an art if it remains an art of listening. Music has become a sickly art since Schoenberg in the sense that the most popular "serious" music is old music, and the "most important" new music is incomprehensible to the un-initiated. The convalescence of the sickly art of contemporary music will require both something new and something meaningful. This possibility remains as a treasure to be mined from a revaluation of the relationships between musical tones.

[46] Milton Babbitt, "Who Cares If You Listen (The Composer as Specialist)," reprinted in *Composers on Modern Musical Culture*, ed. Bryan R. Simms (New York: Schirmer Books, 1999), 153-159.

Works Cited

Babbitt, Milton. "Who Cares If You Listen (The Composer as Specialist)." Reprinted in *Composers on Modern Musical Culture*, ed. Bryan R. Simms, 153-159. New York: Schirmer Books, 1999.

Bach, J. S. *Das Wohltemperierte Klavier*. Edited by Hans Bischoff. Vol. 1. New York: E. F. Kalmus, 1942.

_____. *Solo and Double Violin Concertos*. Performed by Andrew Manze. Harmonia Mundi France HMU 907155, 1997. CD.

_____. *Two- and Three-part Inventions: Facsimile of the Autograph Manuscript*. New York: Dover, 1968.

Bazzana, Kevin. *Glenn Gould: The Performer in the Work.* Oxford: Clarendon Press, 1997.

Brink, Paul Robert. "The *Archicembalo* of Nicola Vicentino." Ph.d. diss., Ohio State University, 1966.

Curtis, Alan. Preface to *L'incoronazione di Poppea*, by Claudio Monteverdi. London: Novello & Co. Ltd., 1989.

Debussy, Claude. *Pelléas et Mélisande*. Conducted by Andrew Davis. Kultur D3117, 2005. DVD.

Frescobaldi, Girolamo. *Canzoni per Basso solo.* Edited by Friedrich Cerha. Two Volumes. Vienna: Verlag Doblinger, 1966.

Gluck, Christoph Willibald von. *Orpheus and Euridice.* New York: G. Schirmer, 1959.

_____. *L'Orphée et Euridice*. Conducted by Marc Minkowski. Archiv Produktion 471 582-2, 2004. CD.

Guillaume de Machaut. *Messe de Nostre Dame*. Directed by Marcel Peres. Harmonia Mundi France HMC 901590, 1996. CD.

_____. *Messe de Nostre Dame*. In *Machaut's Mass: an Introduction*, by Daniel Leech-Wilkinson, 181-212. Oxford, England: Clarendon Press; New York: Oxford University Press, 1990.

Haydn, Joseph. *Armida*. Conducted by Nikolas Harnoncourt. Teldec 8573-81108-2, 2000. CD.

_____. *Joseph Haydn Werke*. Edited by Georg Feder. Ser. 25 vol. 12, *Armida*. Munich: G. Henle Verlag, 1965.

Handel, George Frideric. *Theodora*. Conducted by William Christie. Kultur International Films D2099, 2004. DVD.

Jorgensen, Owen H. *Tuning: Containing the Perfection of Eighteenth-Century Temperament, the Lost Art of Nineteenth-Century Temperament, and the Science Of Equal Temperament*. East Lansing, Michigan: Michigan State University Press, 1991.

Kall, Alexis. "Stravinsky in the Chair of Poetry." *The Musical Quarterly* 26, no. 3 (1940): 283-296.

Levinson, Jerrold. *Music, Art, and Metaphysics: Essays in Philosophical Aesthetics*. Ithica, NY: Cornell University Press, 1990.

Morgan, Robert P. "Tradition, Anxiety, and the Musical Scene." In *Authenticity and Early Music: a Symposium*, edited by Nicholas Kenyon, 57-82. Oxford: Oxford University Press, 1988.

Mozart, W. A. *Mitridate*. Conducted by Marc Minkowski. Decca Music Group Limited 074 3168, 2006. DVD.

_____. *Mozart's Letters, Mozart's Life; Selected Letters*. Edited and translated by Robert Spaethling. New York: W. W. Norton, 2000.

Nietzsche, Friedrich. *Beyond Good and Evil*. In *Basic Writings of Nietzsche*, translated by Walter Kaufmann. New York: The Modern Library, 2000.

Palmer, Tony, dir. *The Salzburg Festival.* Digital Classics DC10016, 2006. DVD.

Purcell, Henry. *King Arthur*. Kent: Novello, 1972.

Partch, Harry. *Genesis of a Music.* New York: Da Capo Press, 1974.

Rameau, Jean-Philippe. *Les Indes Galantes*. Conducted by William Christie. Opus Arte B0009S4EQO, 2005. DVD.

Rochberg, George. Liner notes to *String Quartet No. 3*. The Concord String Quartet. Nonesuch H71283, 1973. LP.

Steblin, Rita. *A History of Key Characteristics in the Eighteenth and Early Nineteenth Centuries*. UMI Studies in Musicology, no. 67. Ann Arbor, Michigan: UMI Research Press, 1983.

Stendhal [Marie-Henri Beyle]. *Life of Rossini*. Translated by Richard N. Coe. New York: The Orion Press, 1970.

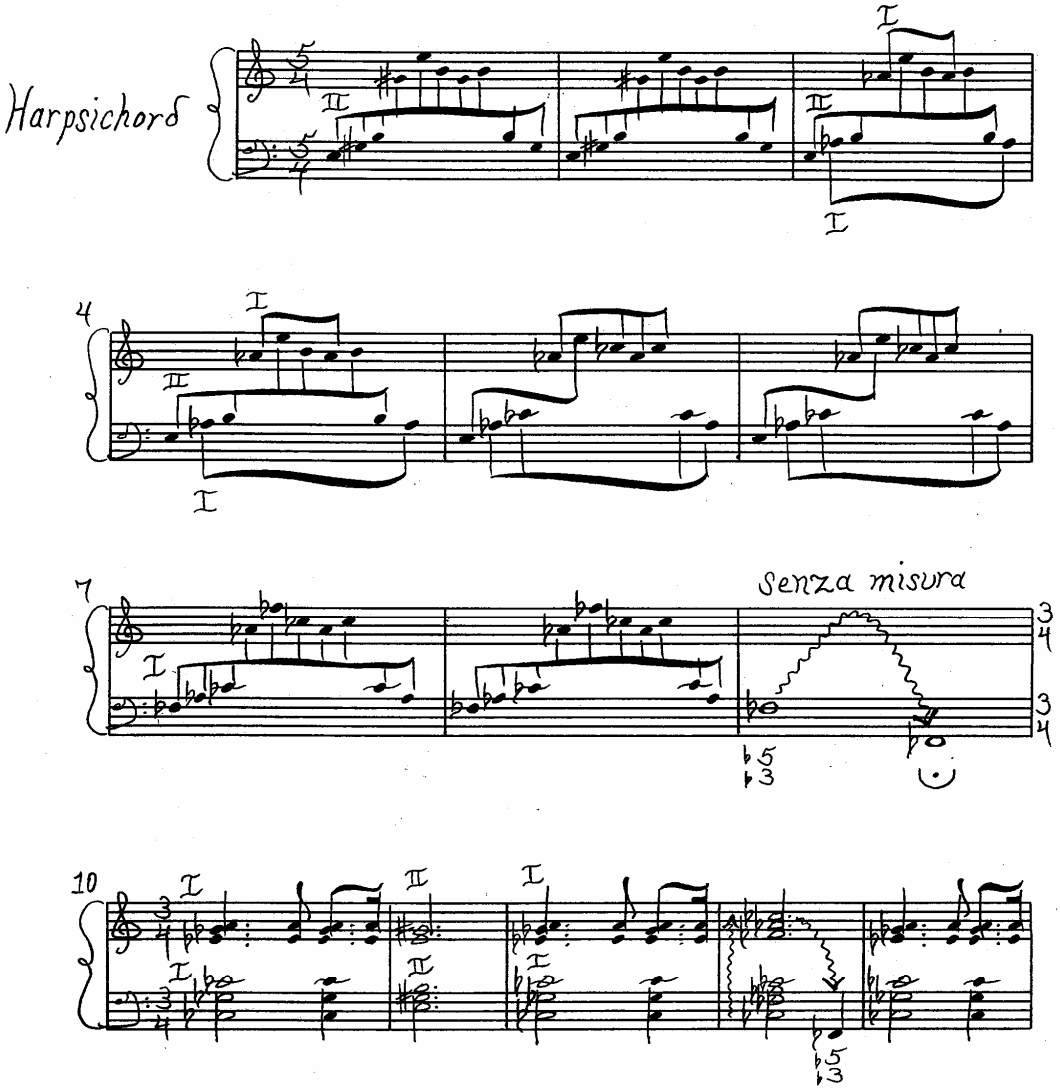
Taylor, Noel Heath. "The Schoenberg Concept." *Music and Letters* 20, no. 2 (1939): 183-188.

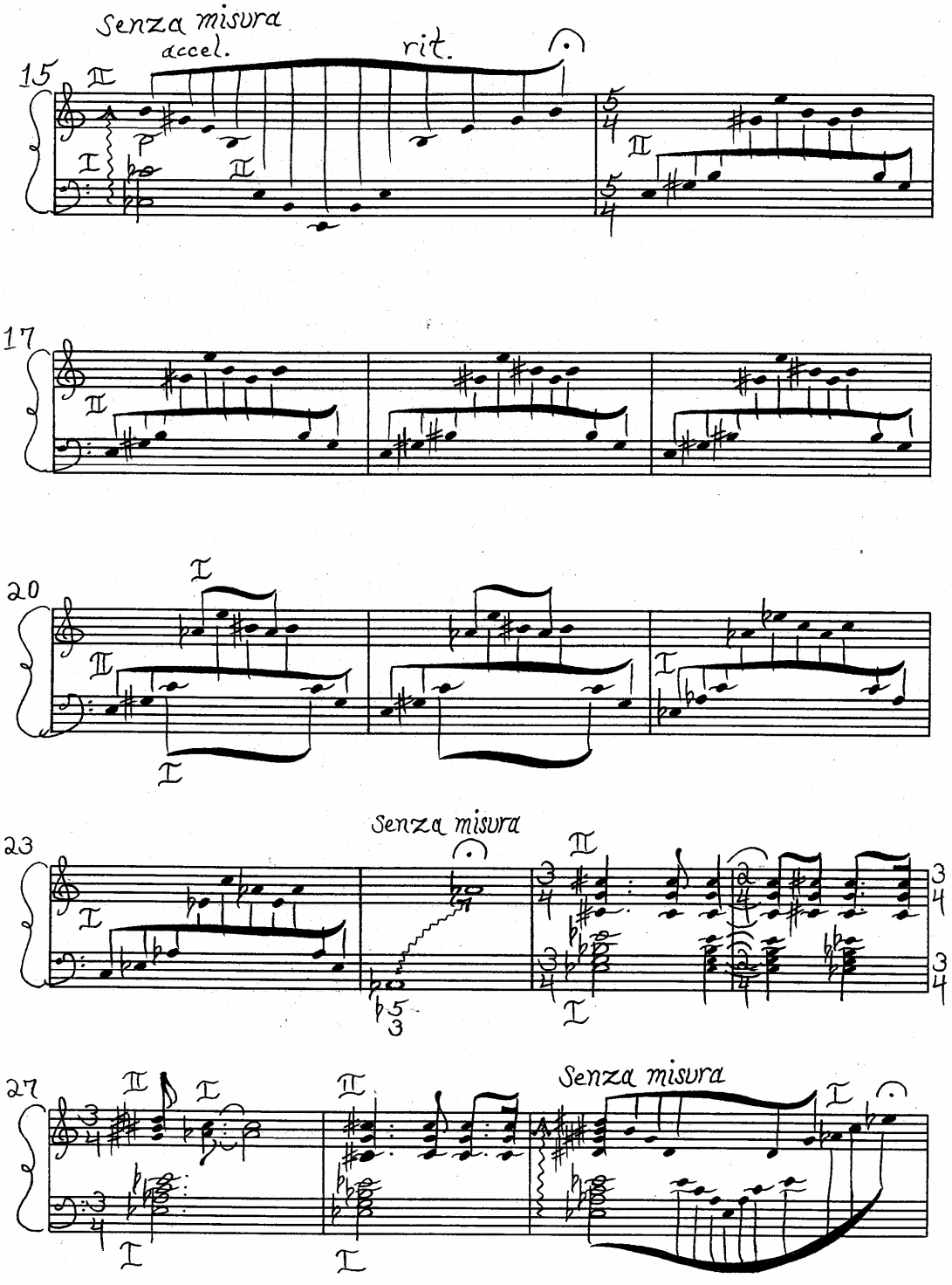
PART II

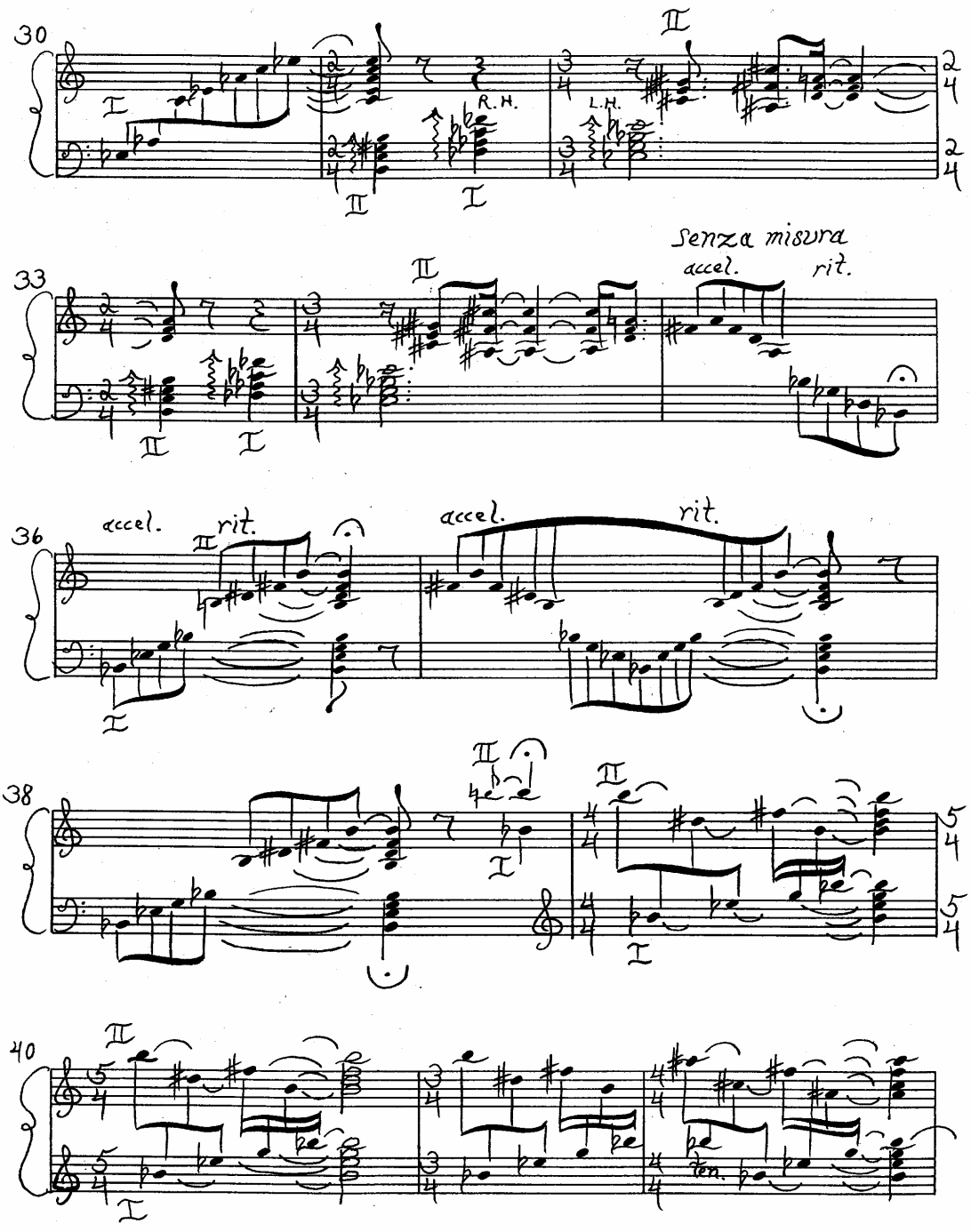
THREE WORKS FOR BAROQUE INSTRUMENTS

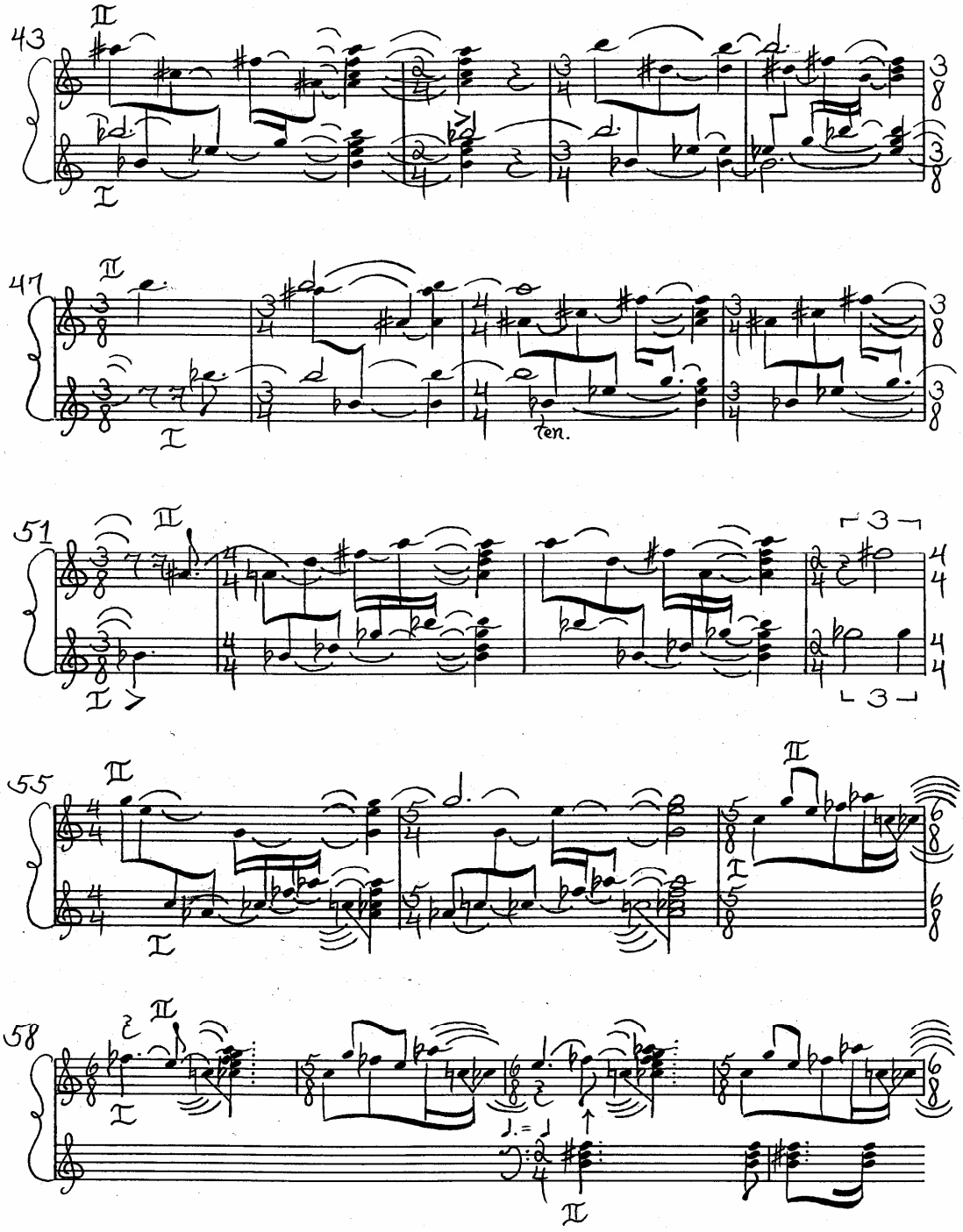
Prelude and Fugue in 21 Tones

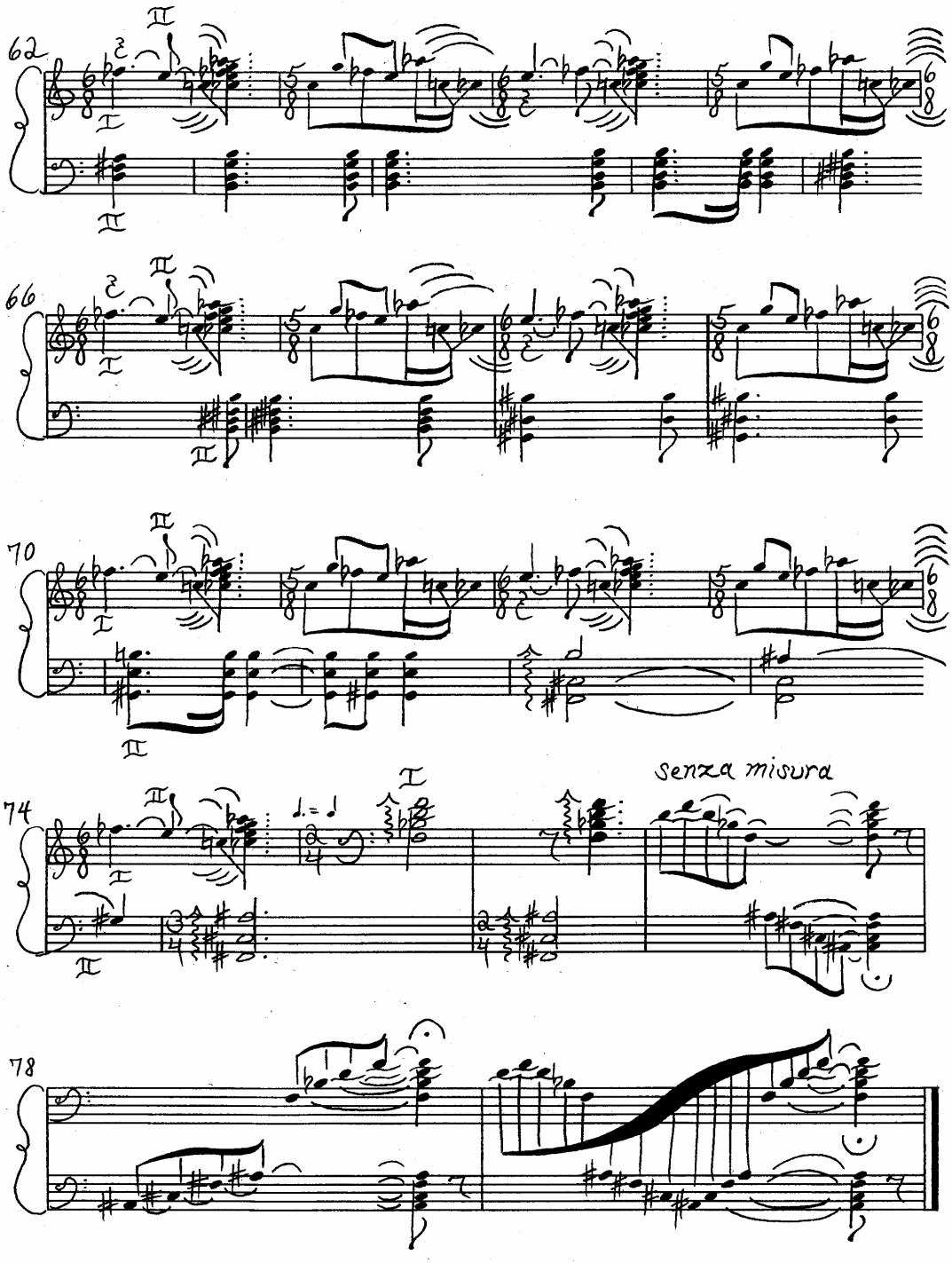
I. Prelude



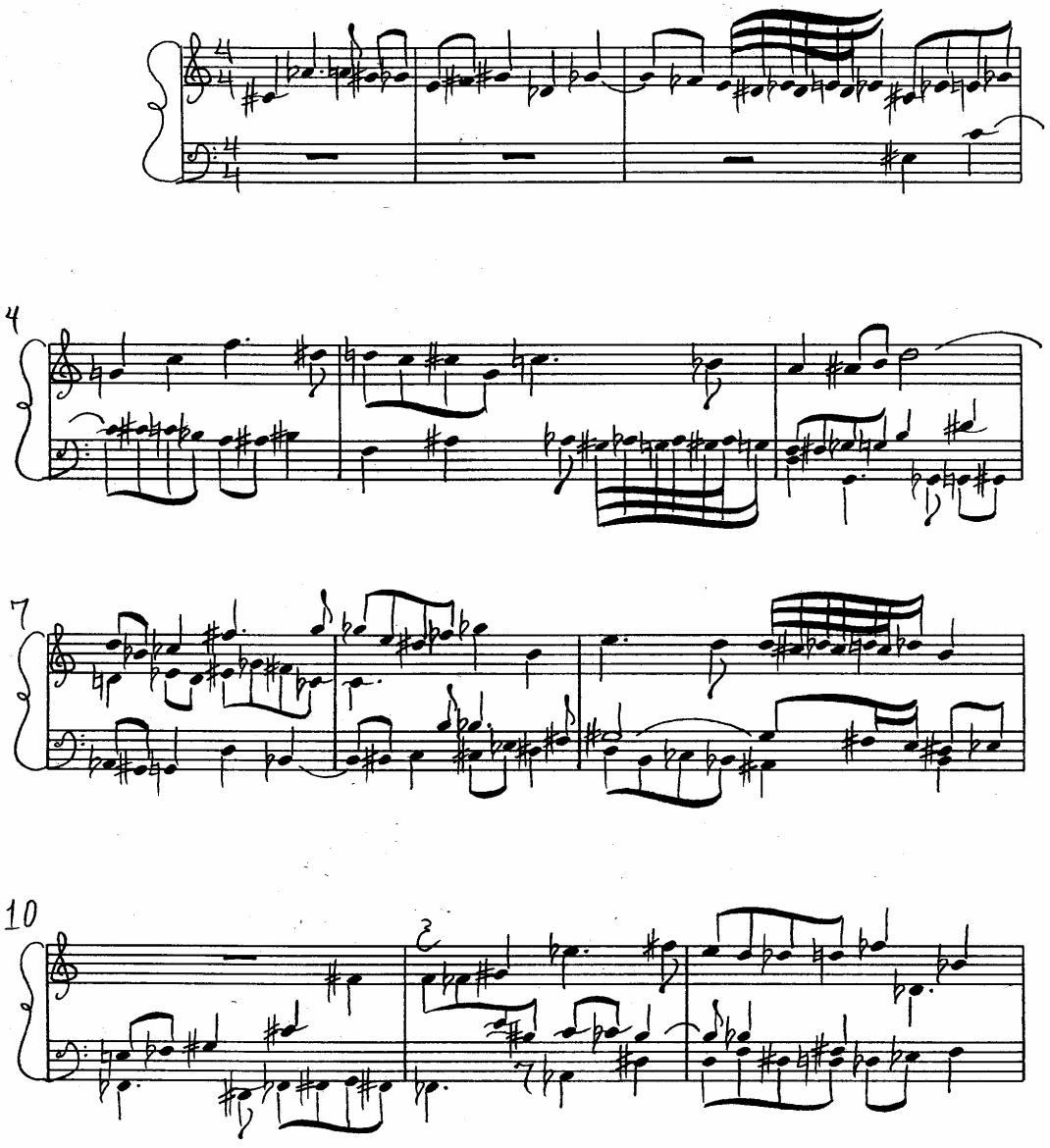

Senza misura
accel.
rit.
15
17
20
23
Senza misura
27
Senza misura

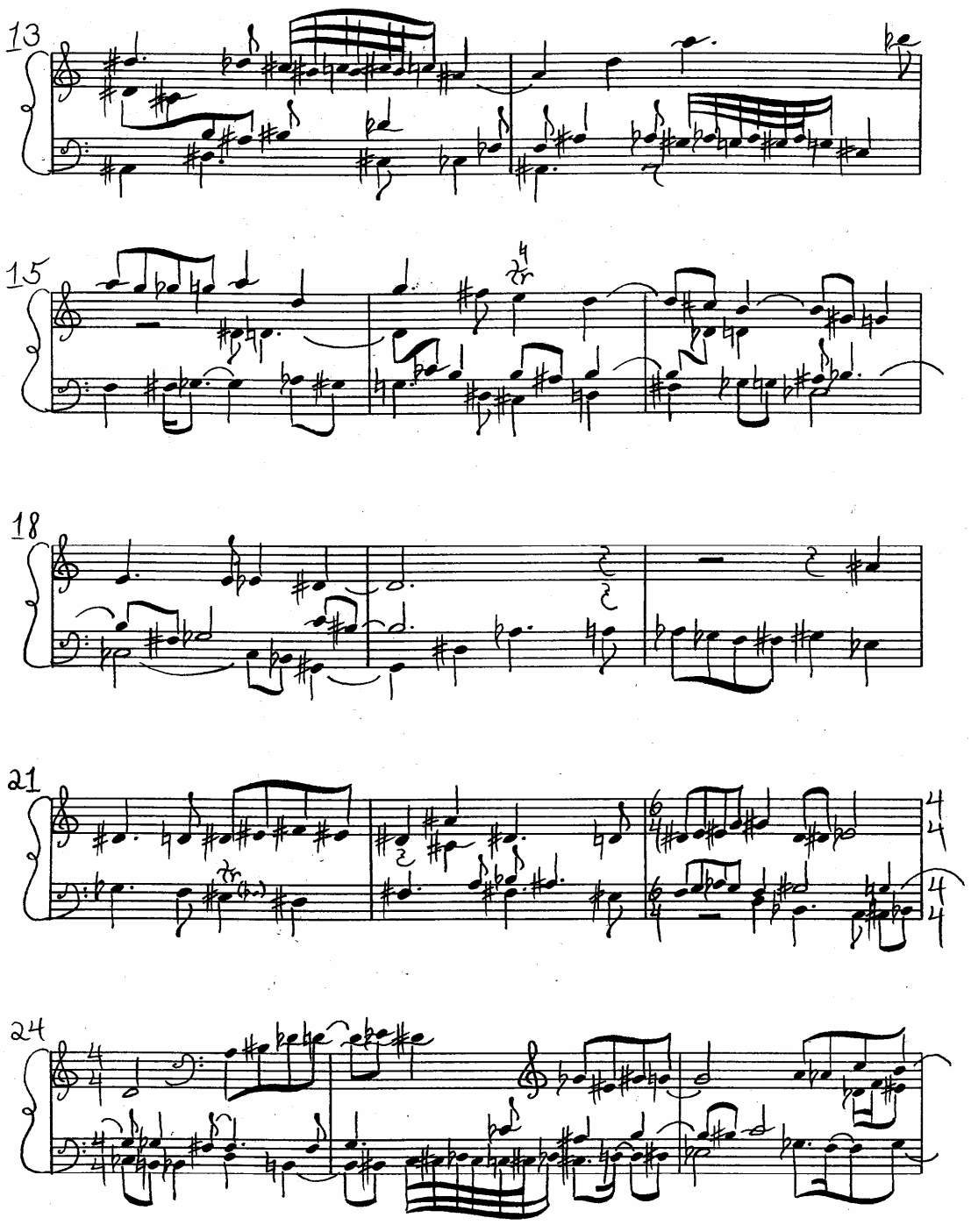

30
R.H.
L.H.
33
Senza misura
accel.
rit.
36
accel.
rit.
accel.
rit.
38
40
ten.

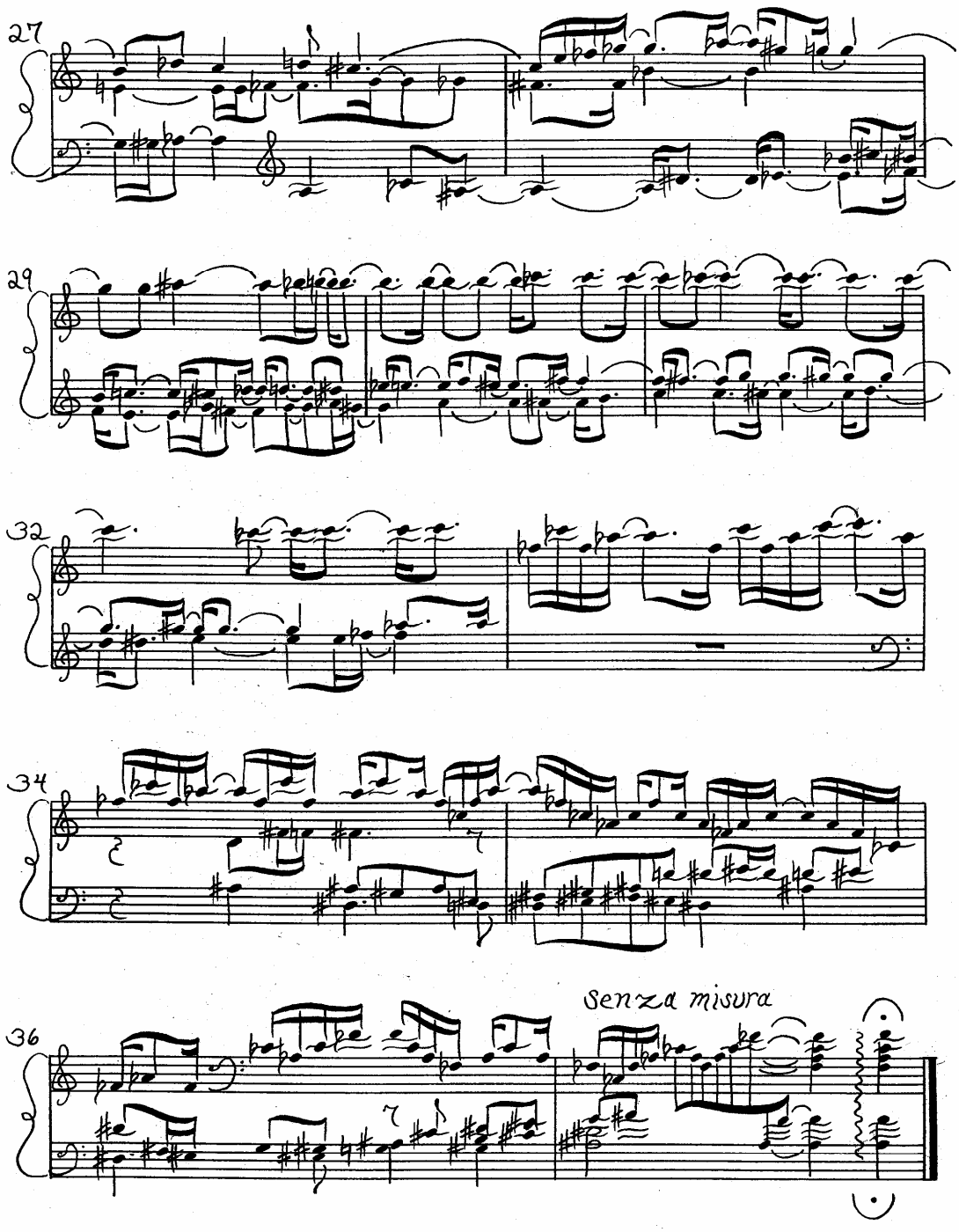

43
47
ten.
51
55
58

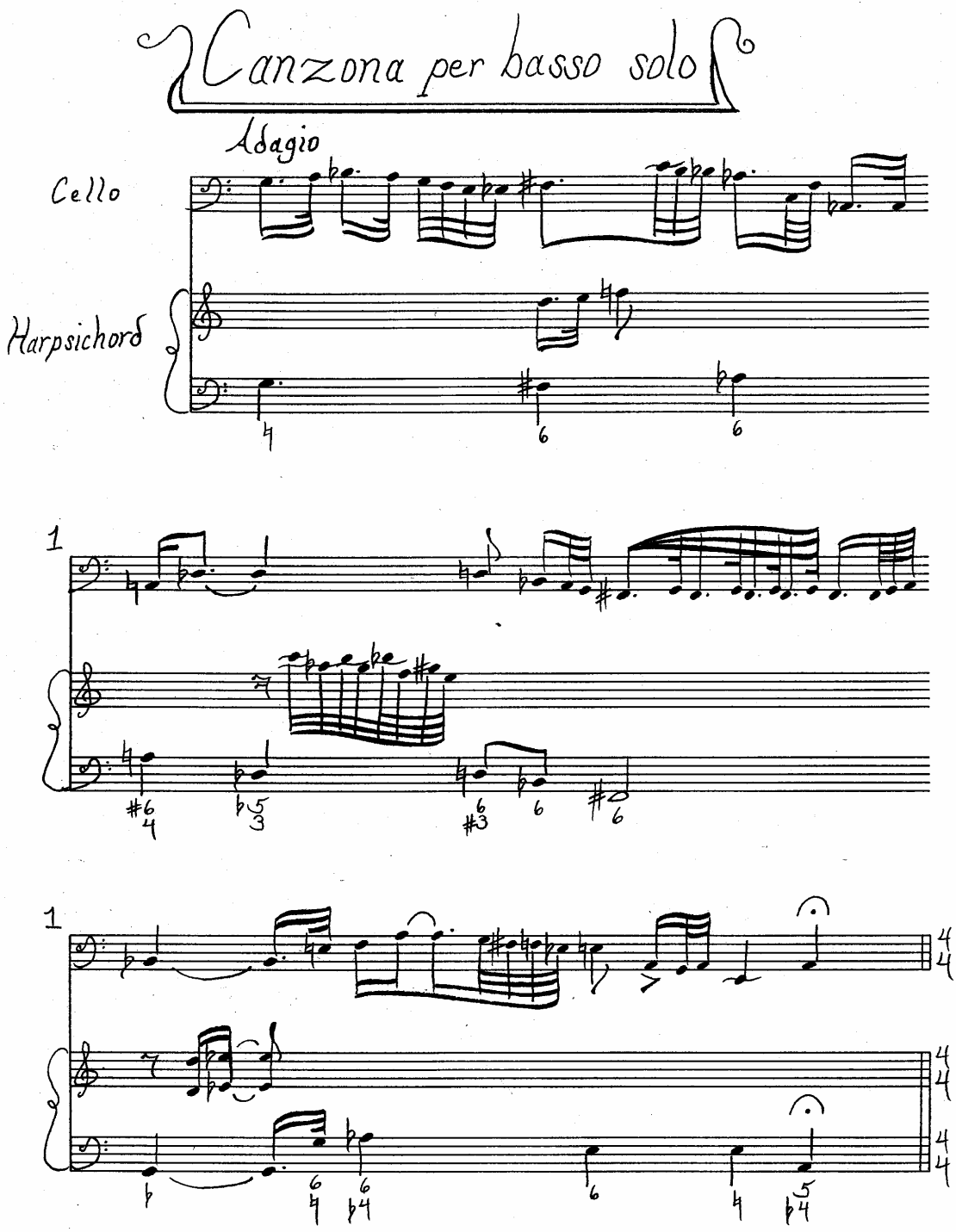

62
66
70
74
senza misura
78

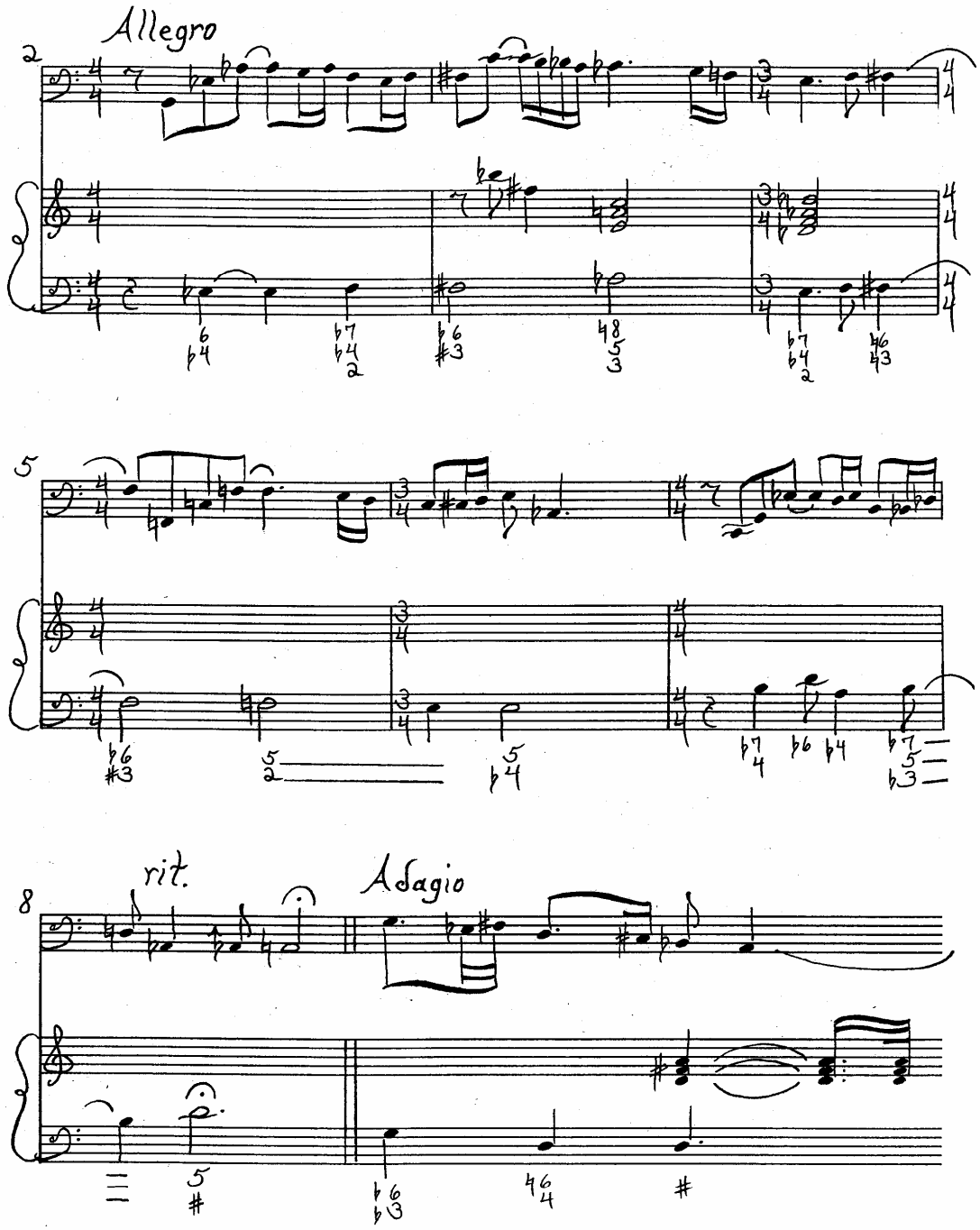
II. Fugue

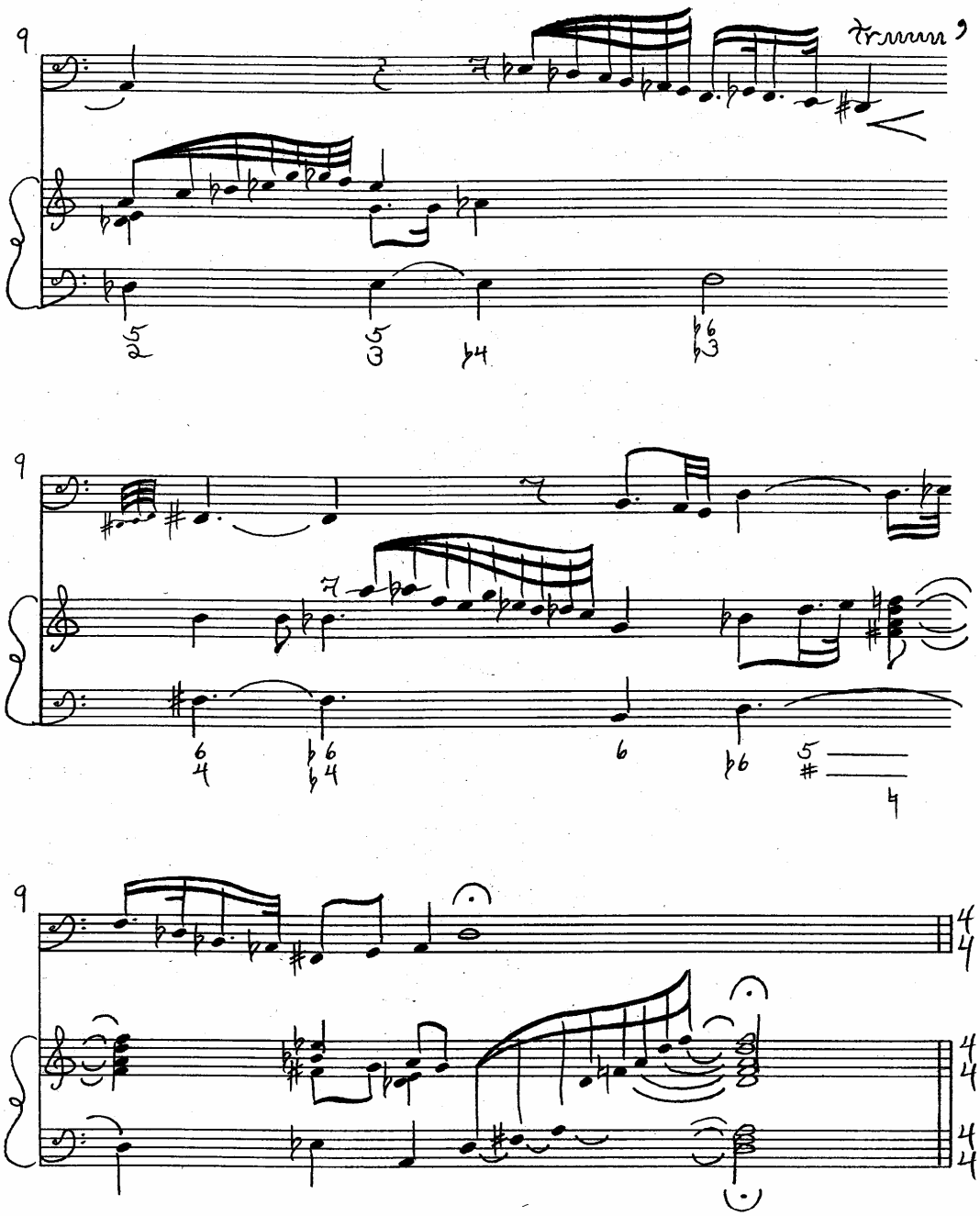


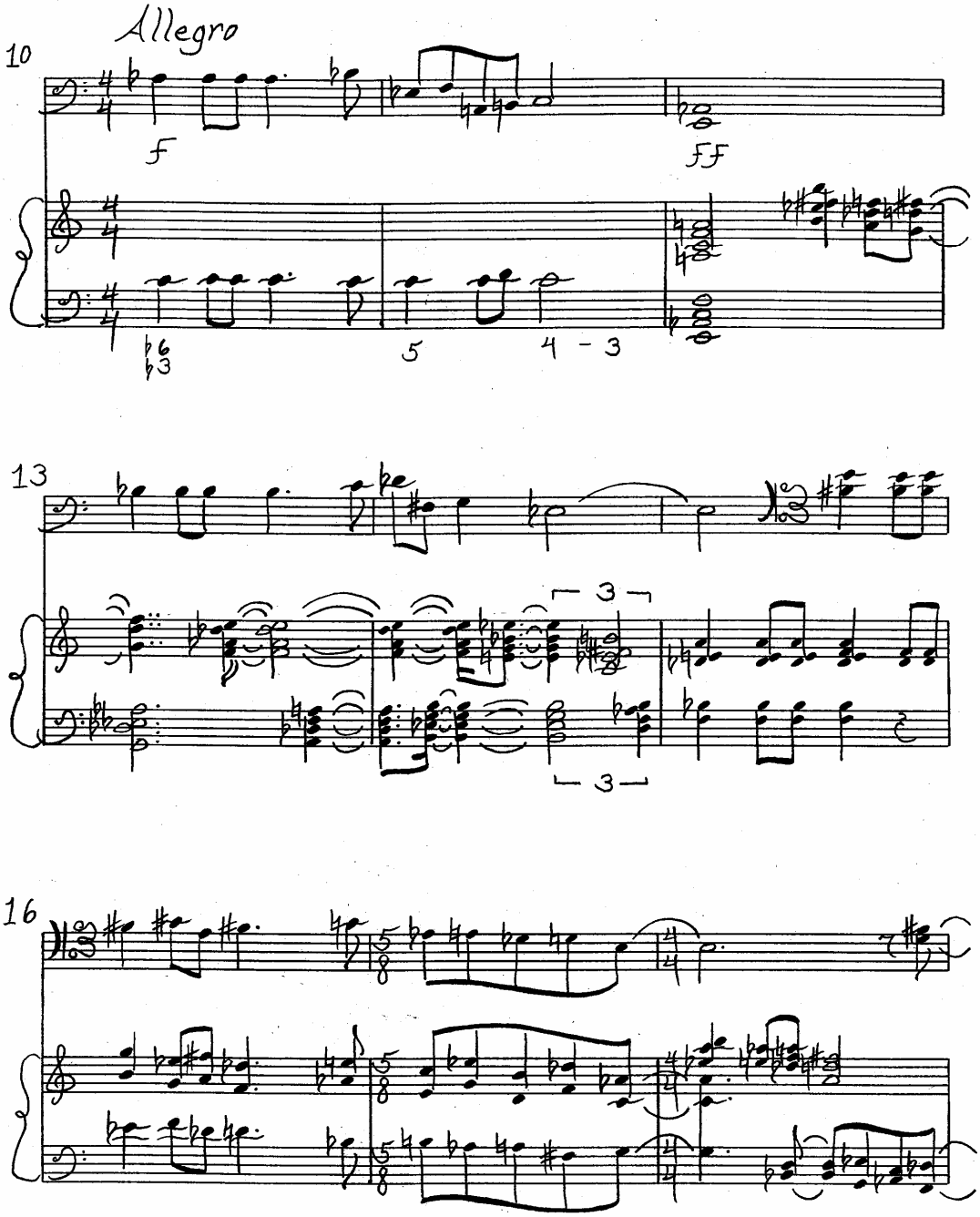

13
15
18
21
24

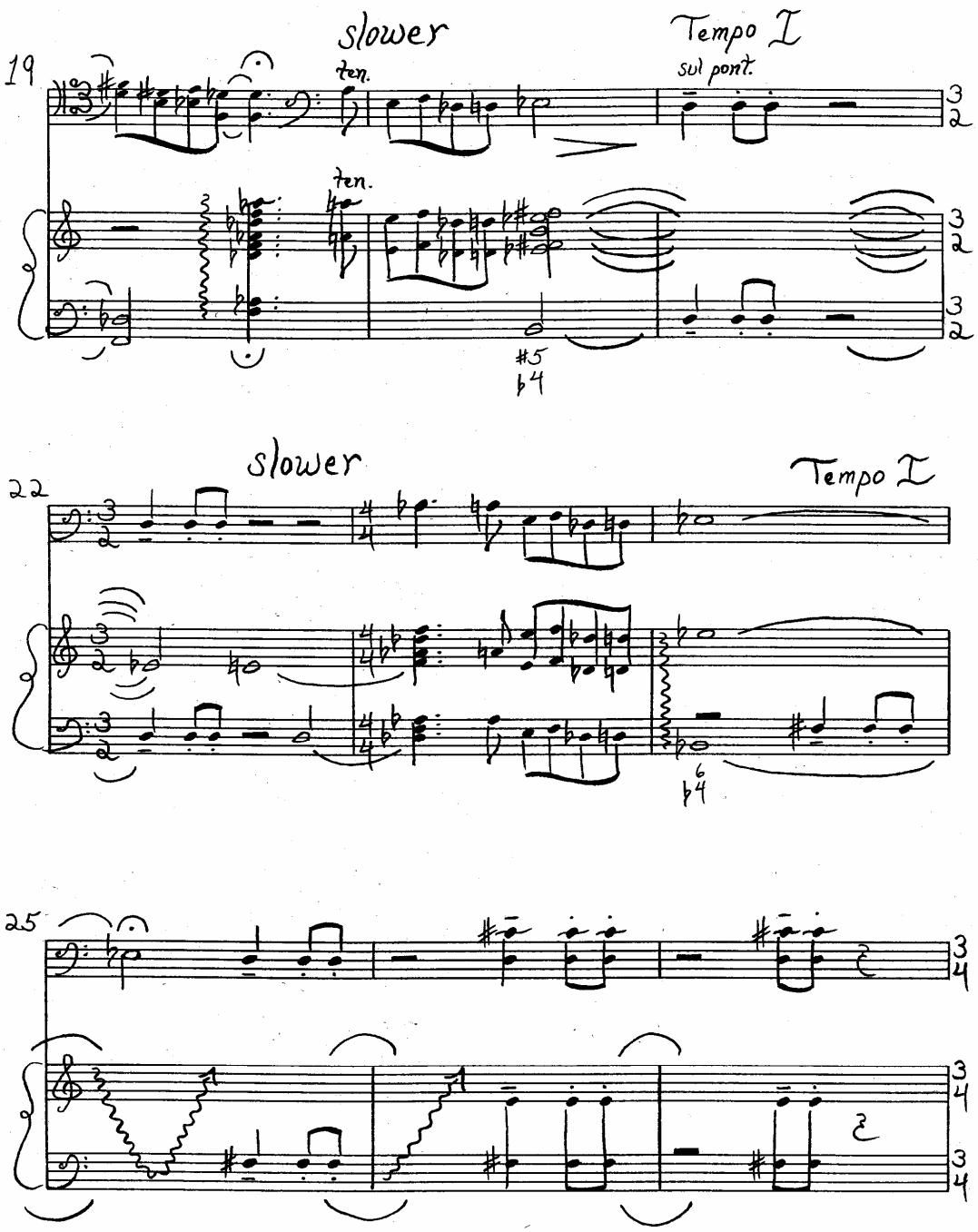

27
29
32
34
36
Senza misura

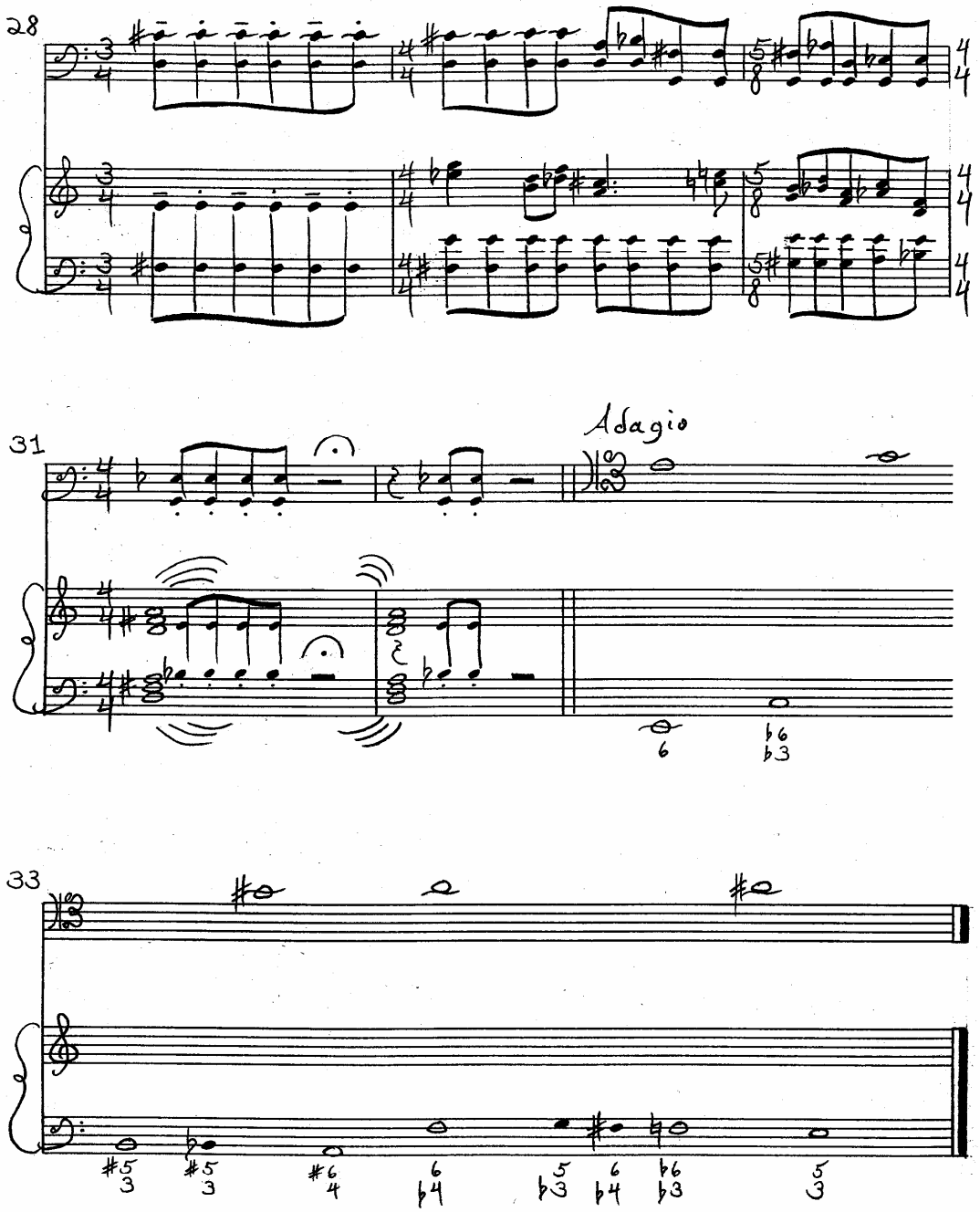

Canzona per basso solo
Adagio
Cello
Harpsichord

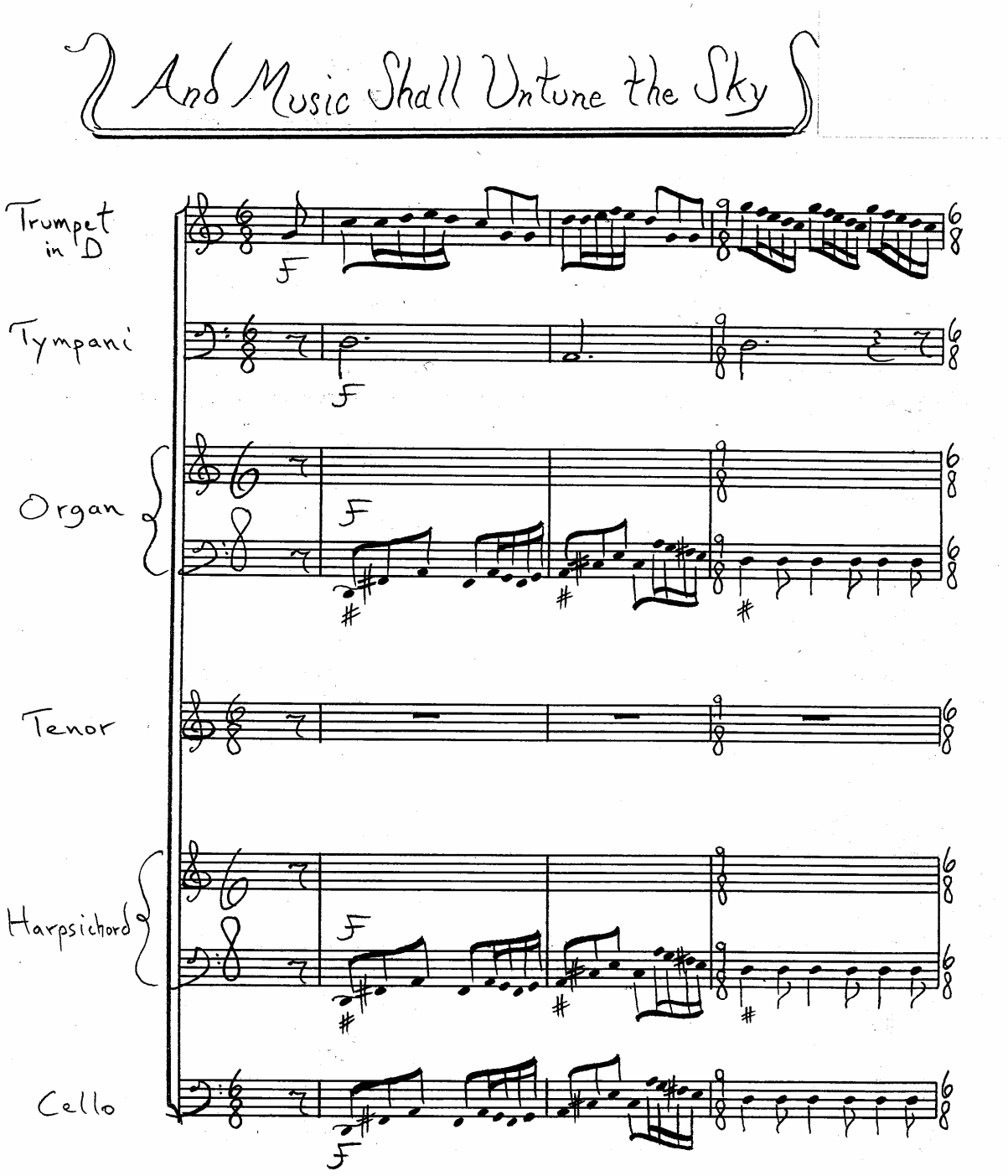

Allegro
rit.
Adagio

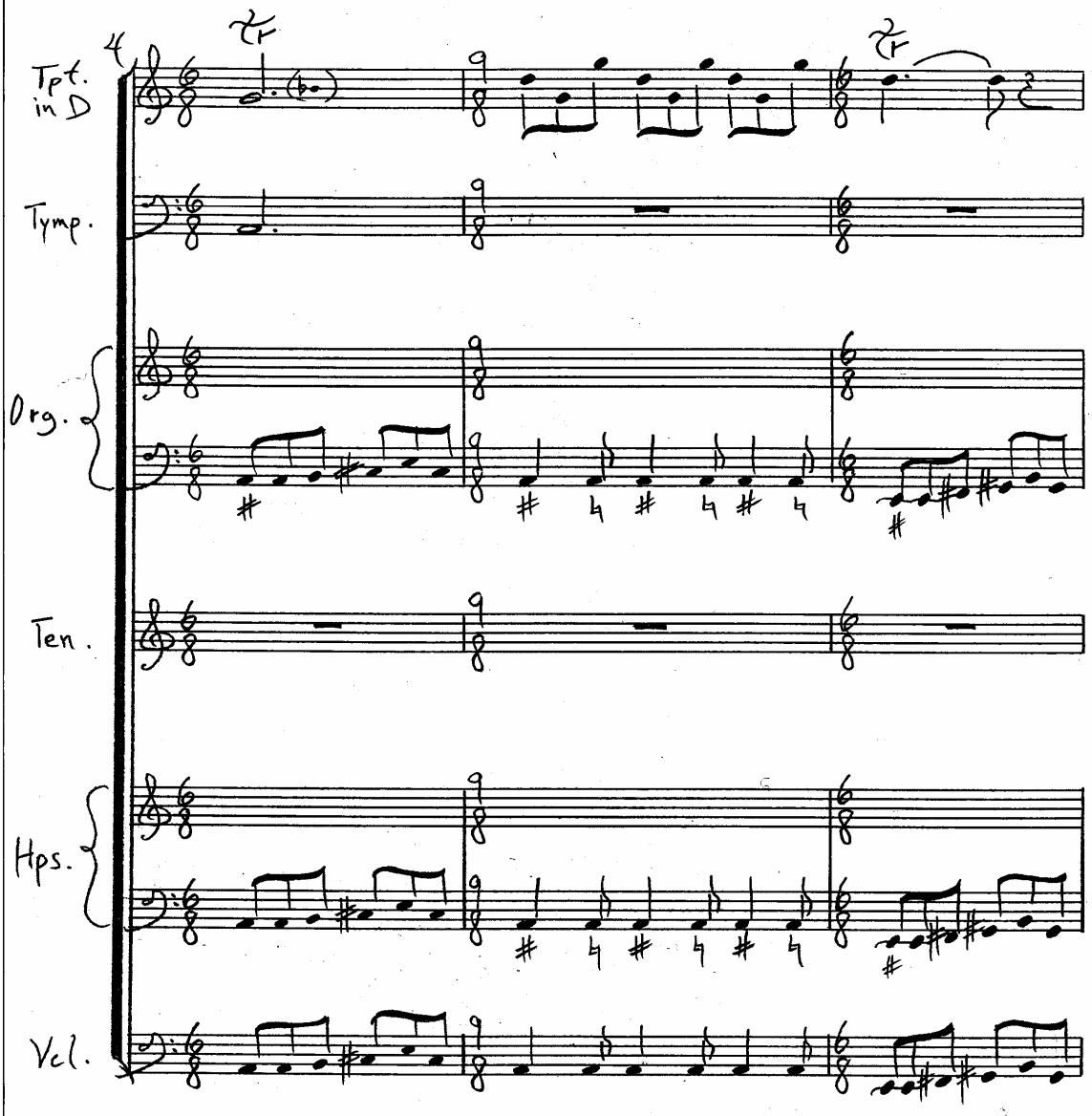


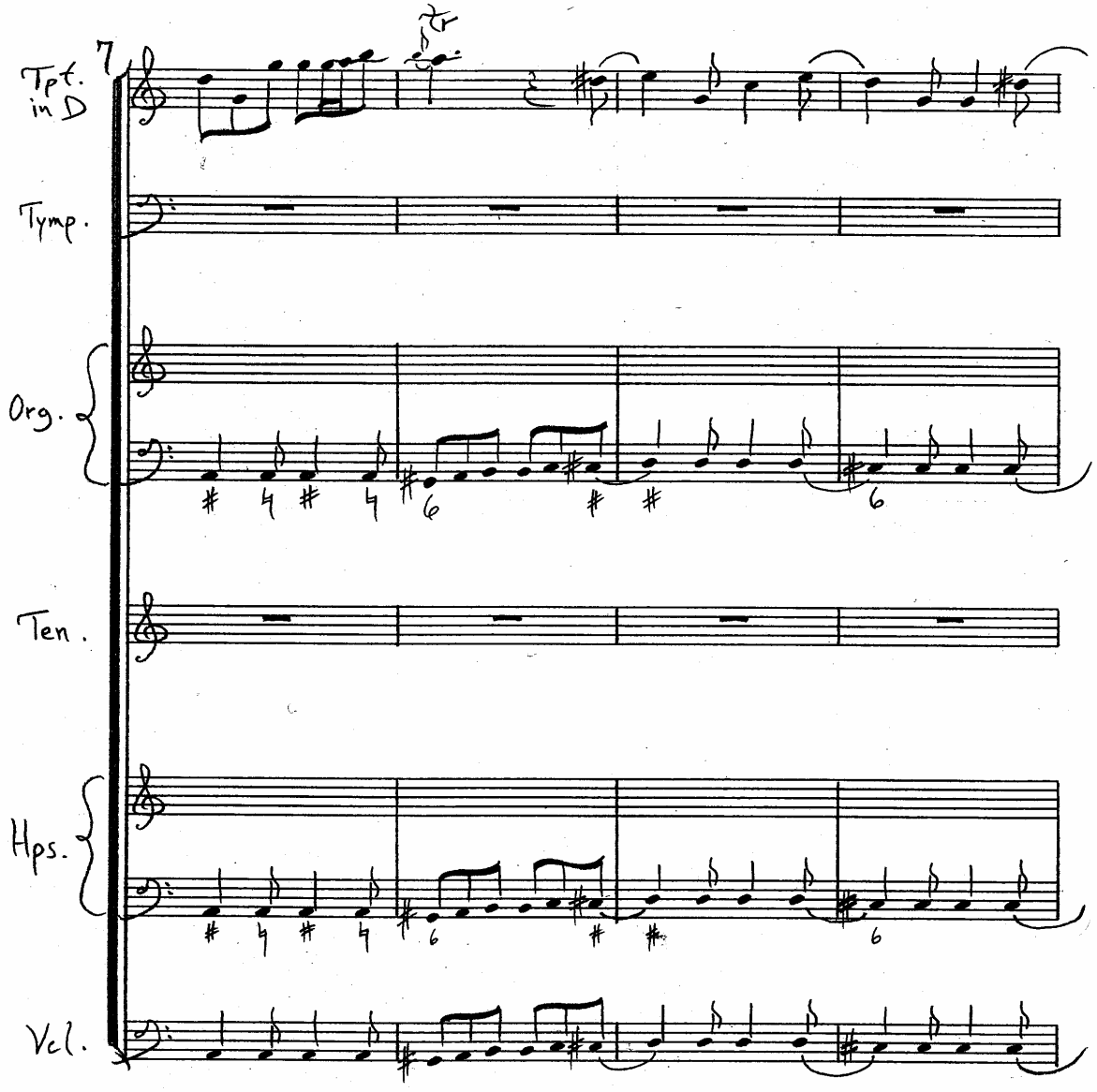

Allegro
10
f
ff
5
4 - 3
13
3
3
16

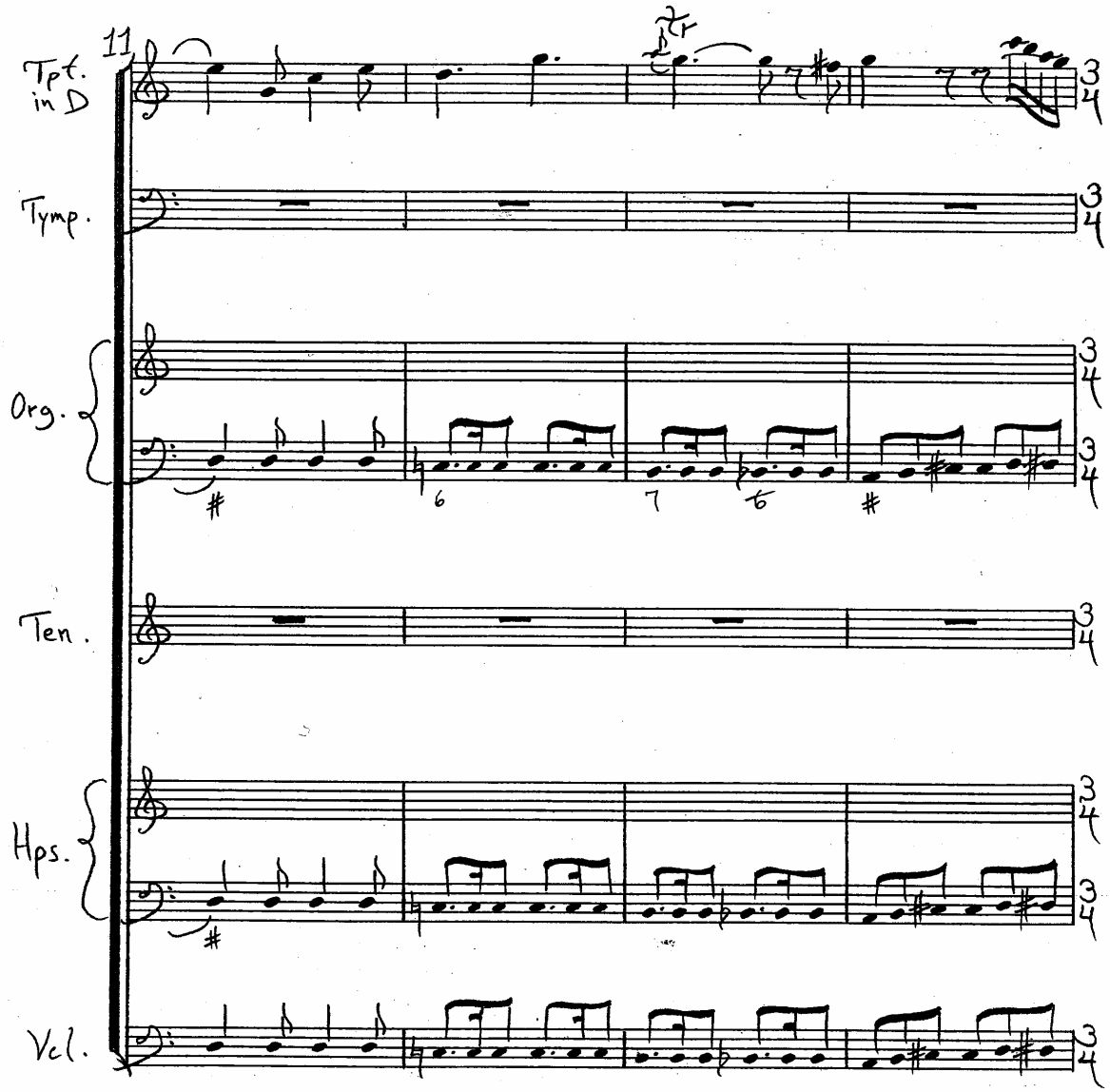

19
slower
ten.
Tempo I
sul pont.
ten.
#5
♭4
22
slower
Tempo I
6
♭4
25

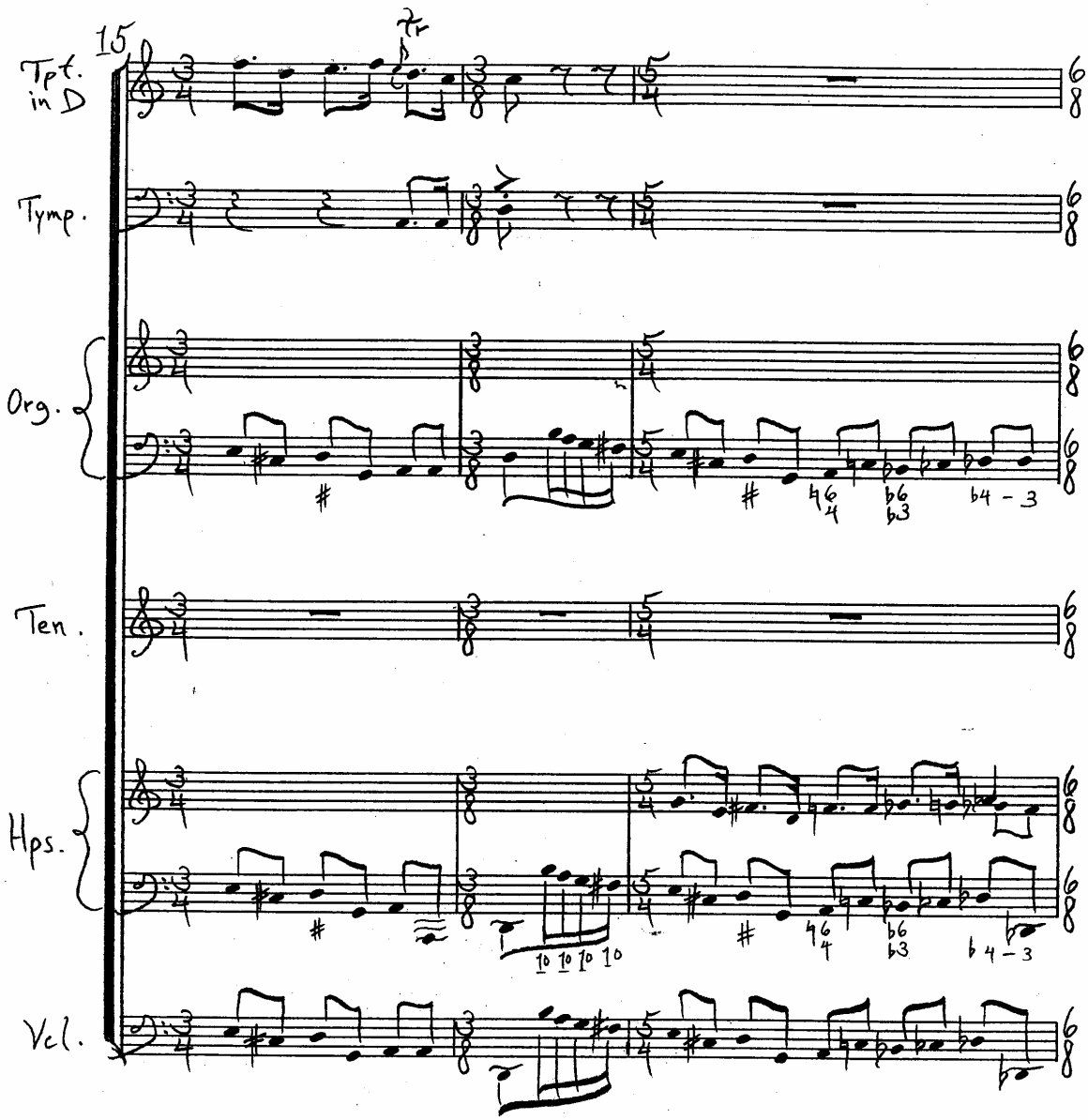

28
31
Adagio
33

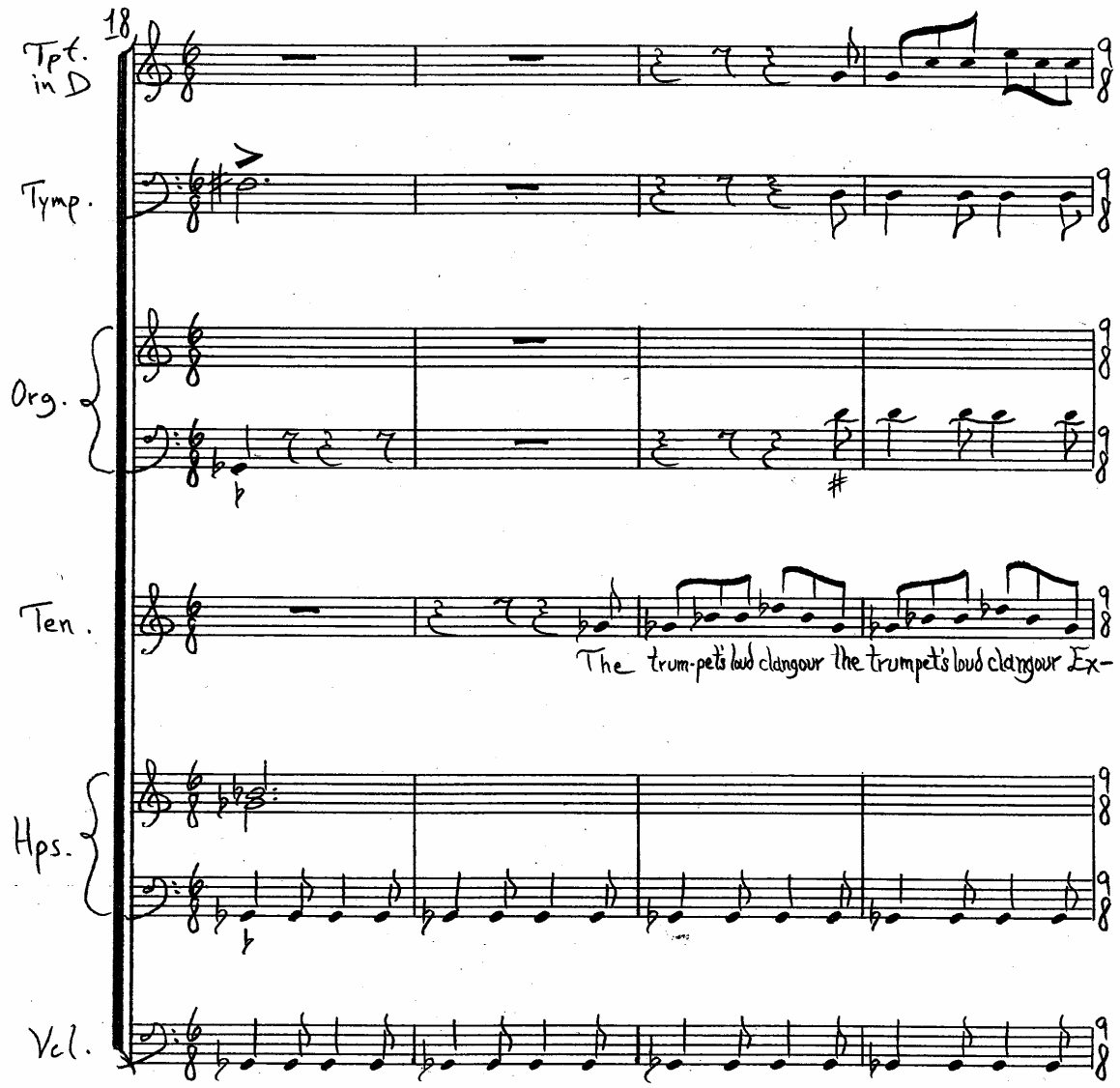

And Music Shall Untune the Sky
Trumpet in D
Tympani
Organ
Tenor
Harpsichord
Cello
F

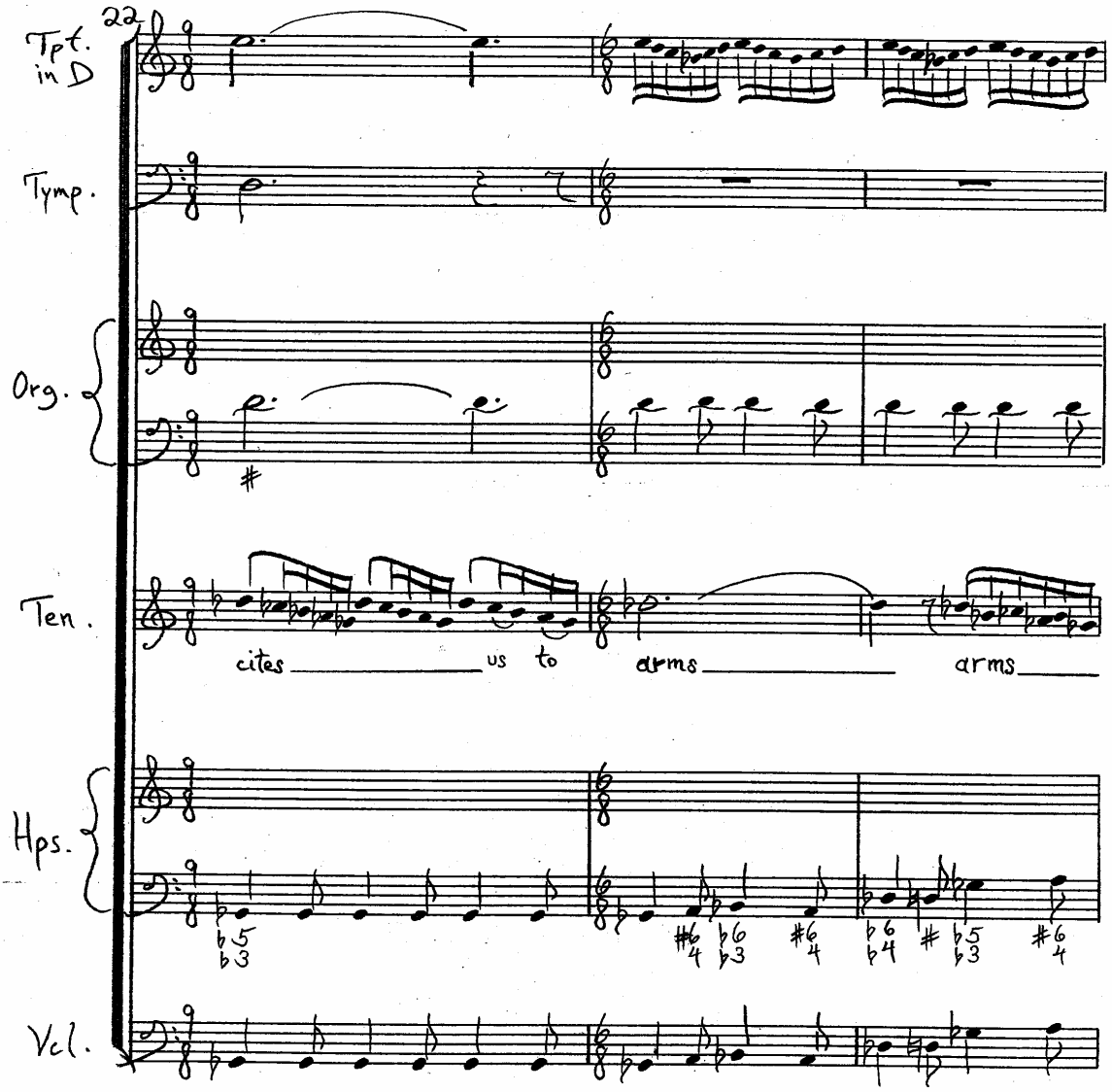

Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.

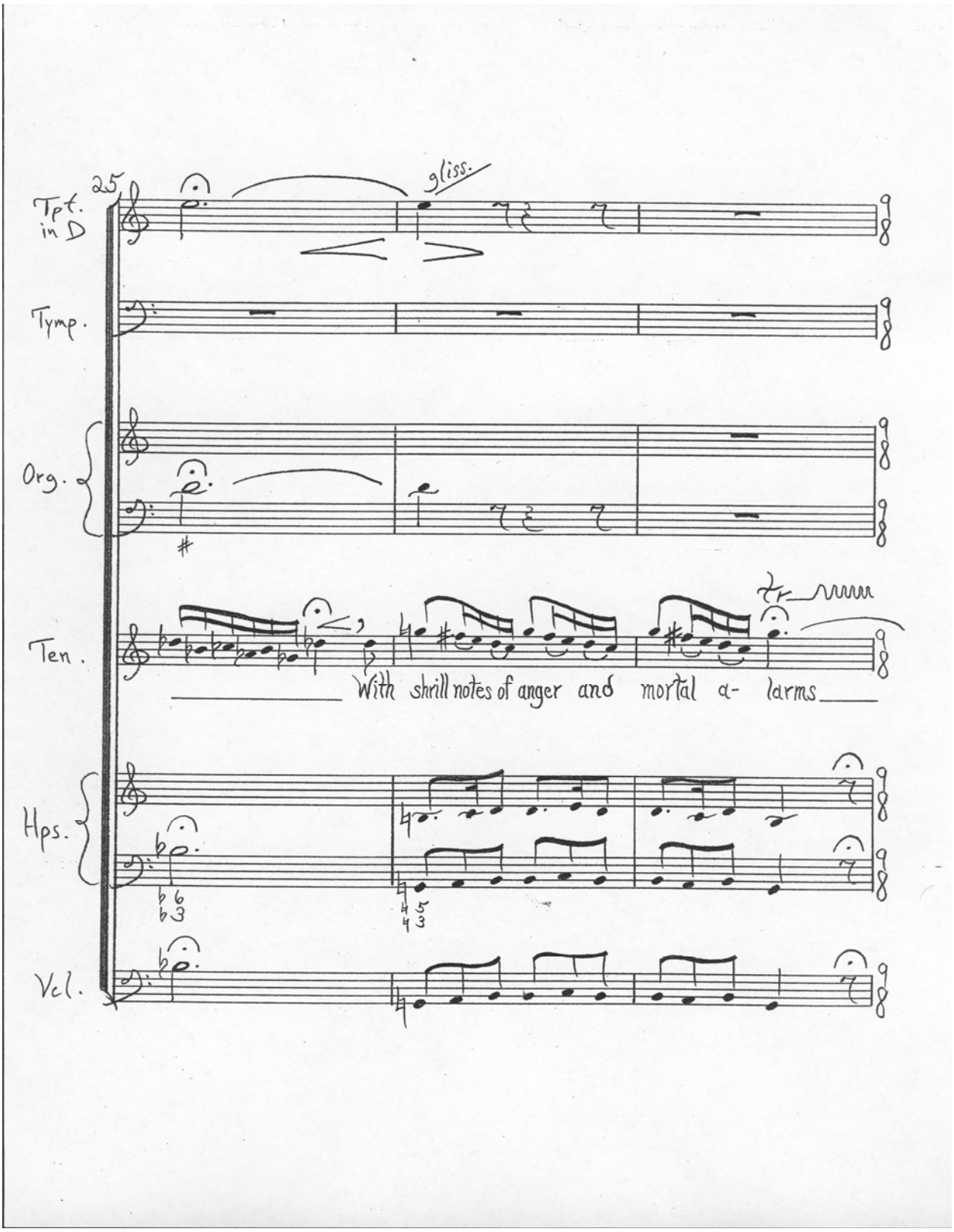

7
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.

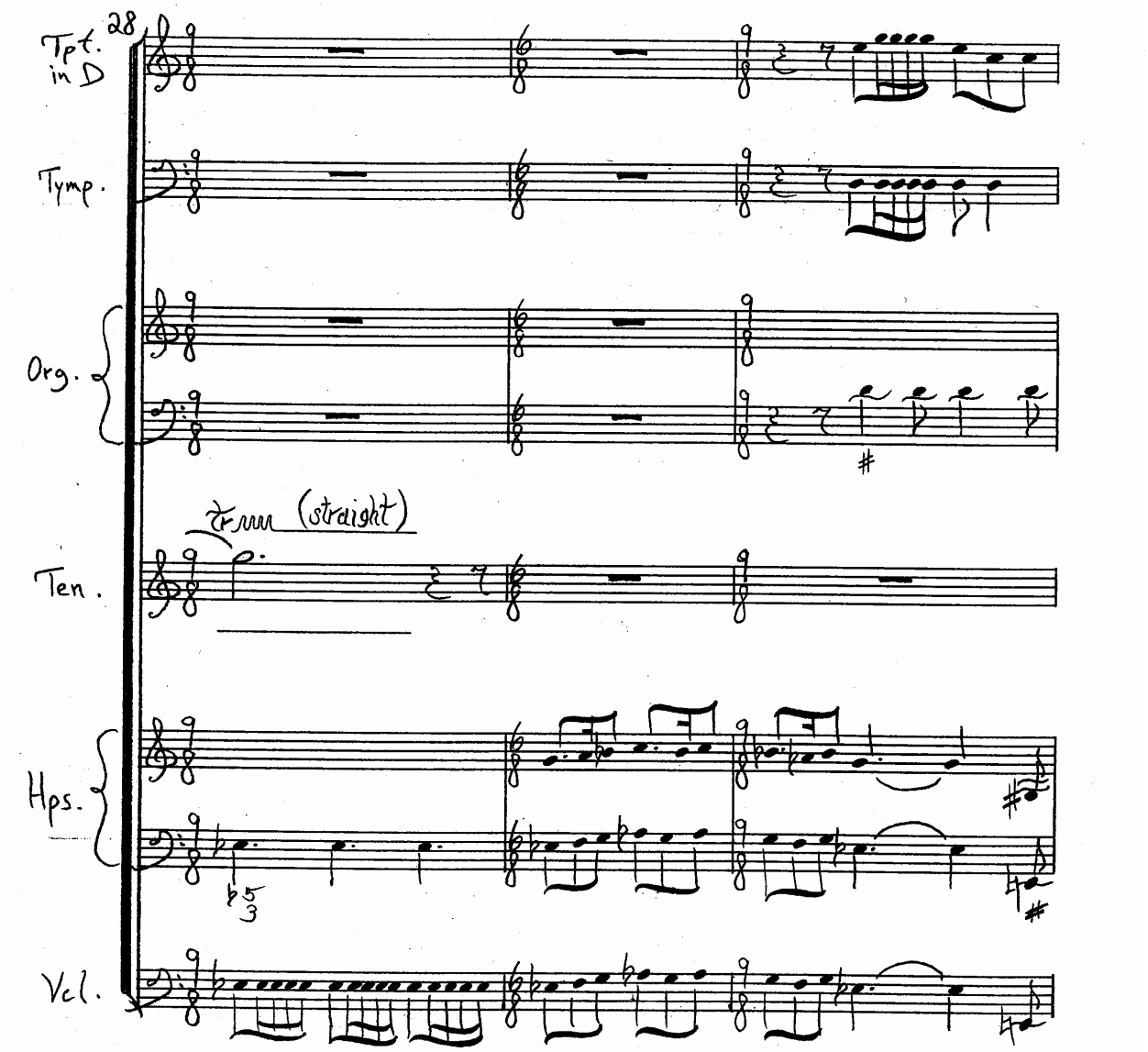

11
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.

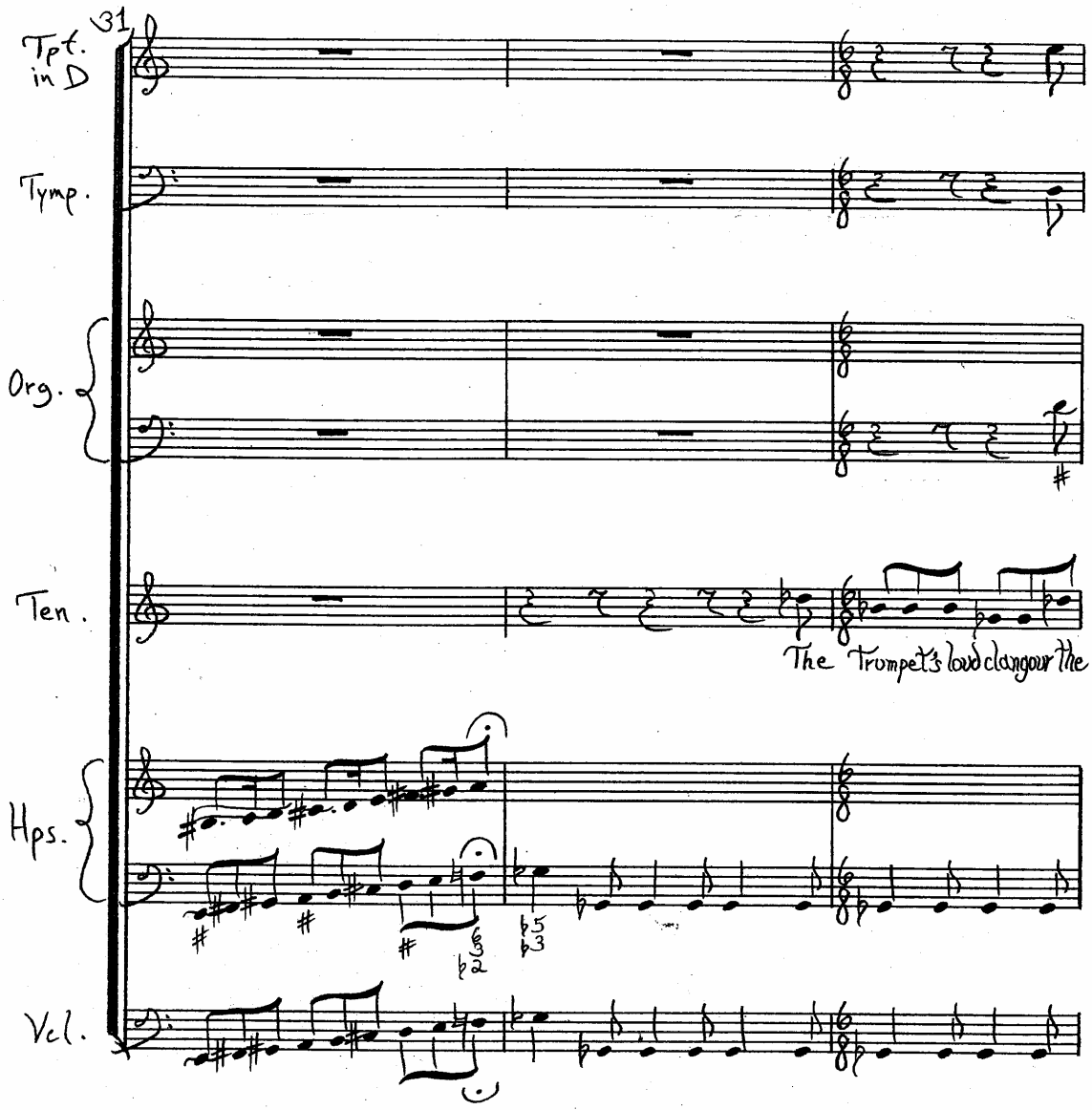

15
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.

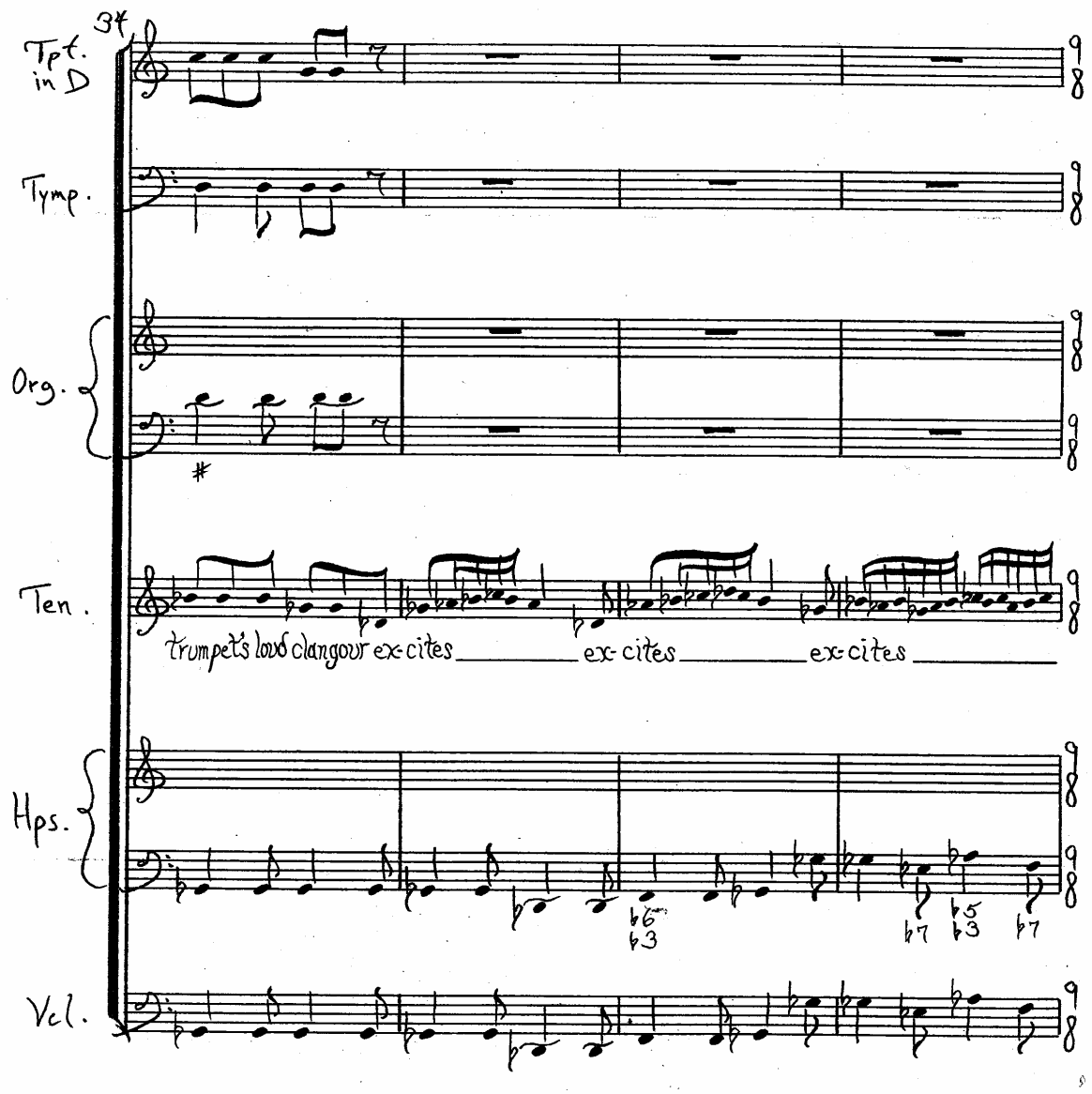

18
Tpt. in D
Tymp.
Org.
Ten.
The trum-pet's loud clangour the trumpet's loud clangour Ex-
Hps.
Vcl.

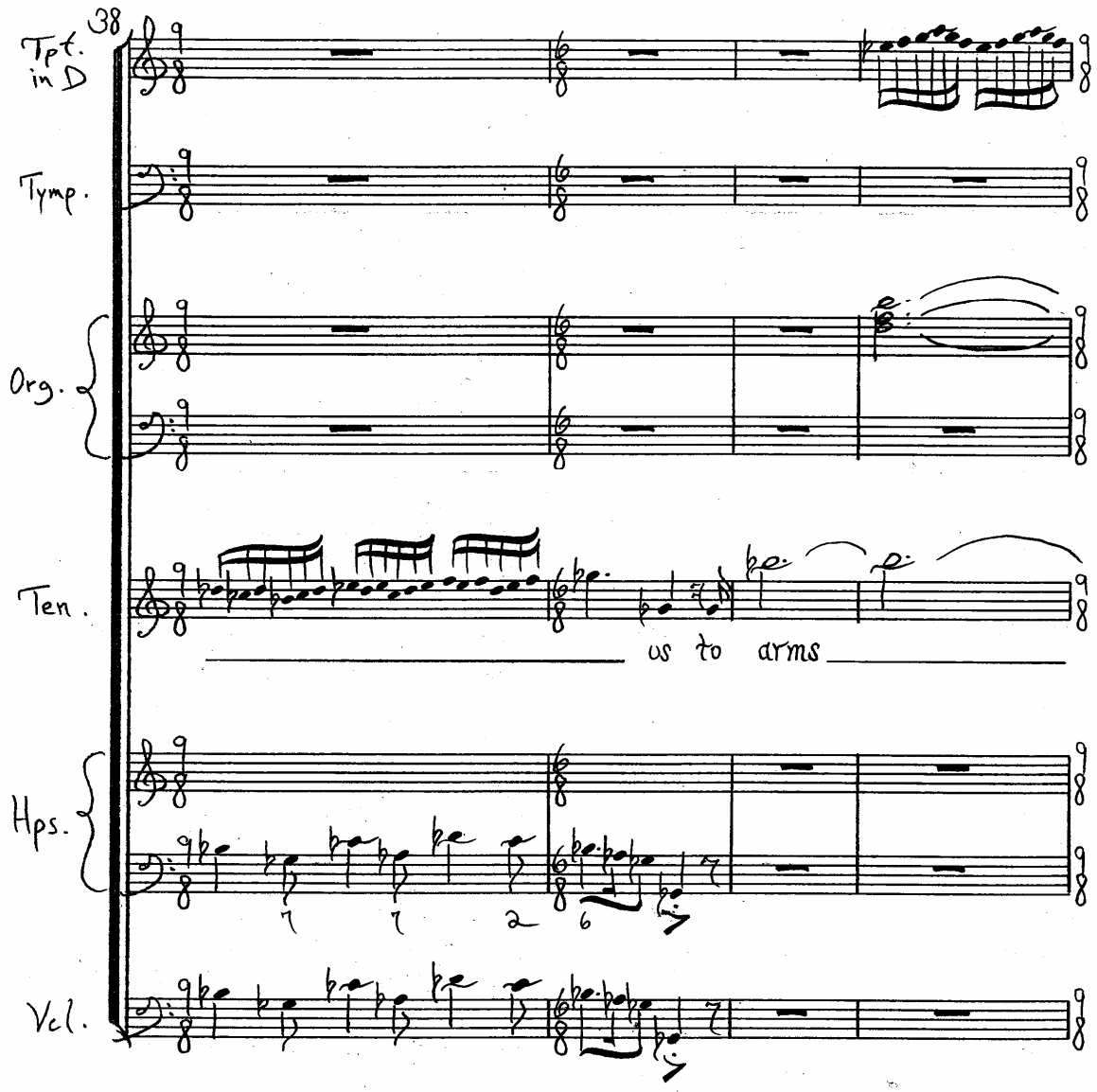

22
Tpt. in D
Tymp.
Org.
Ten.
cites us to arms arms
Hps.
Vcl.

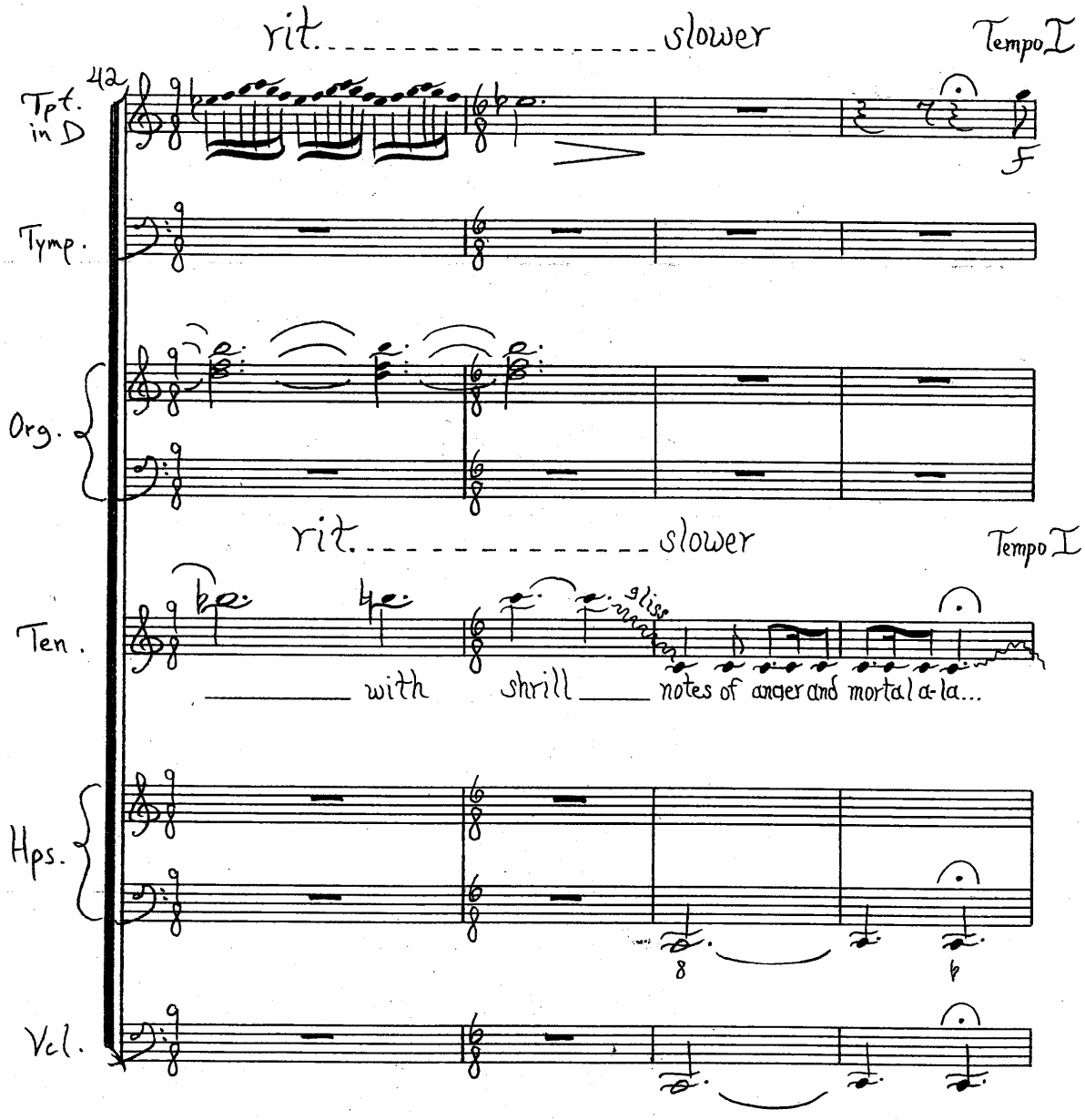

25
gliss.
Tpt. in D
Tymp.
Org.
Ten.
With shrill notes of anger and mortal a- larms
Hps.
Vcl.

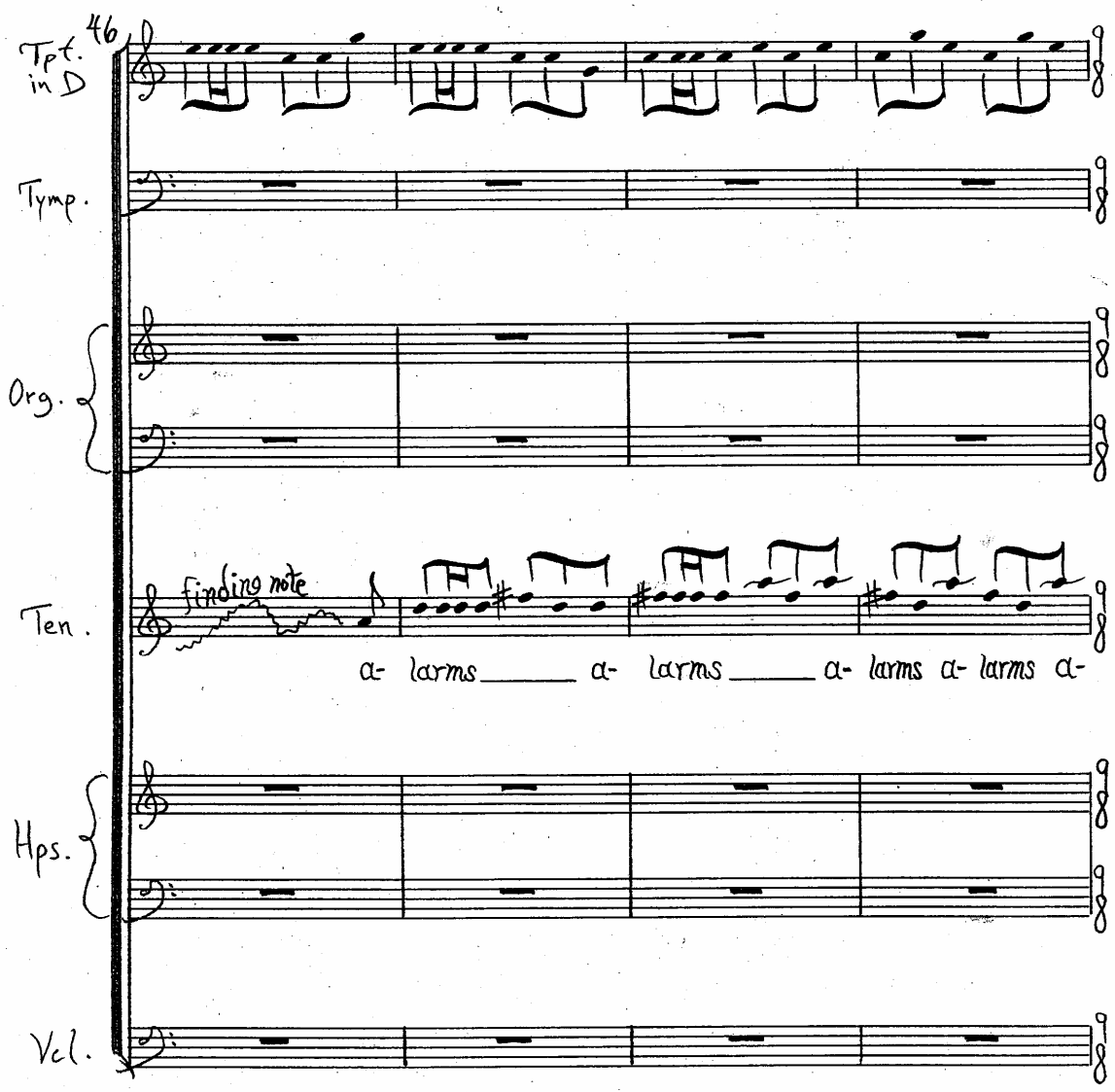

28
Tpt. in D
Tymp.
Org.
Ten.
Trm (straight)
Hps.
Vcl.

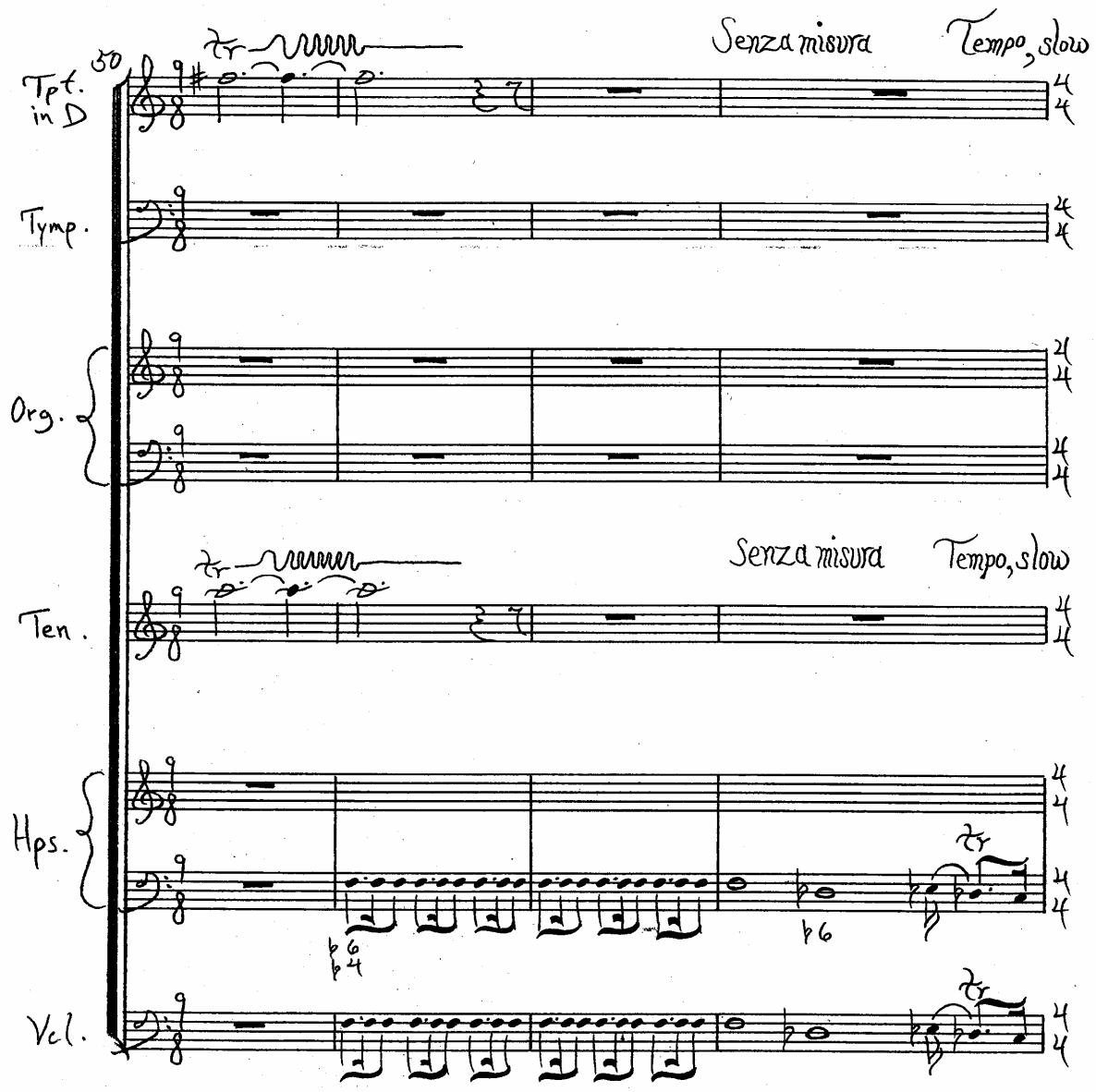

31
Tpt. in D
Tymp.
Org.
Ten.
The Trumpet's loud clangour the
Hps.
Vcl.

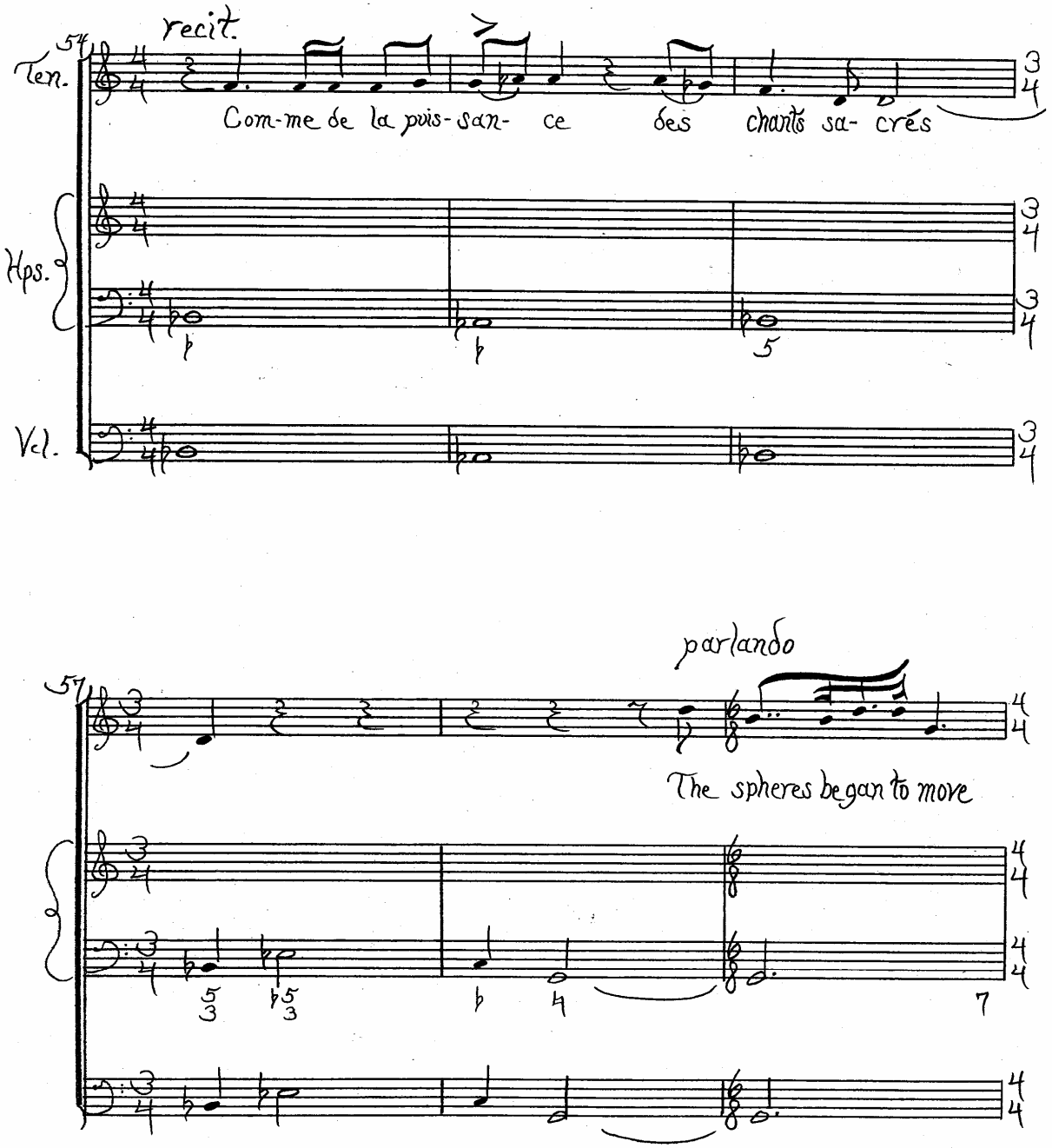

3♯
Tpt. in D
Tymp.
Org.
Ten.
Trumpets loud clangour ex-cites ex-cites ex-cites
Hps.
Vcl.

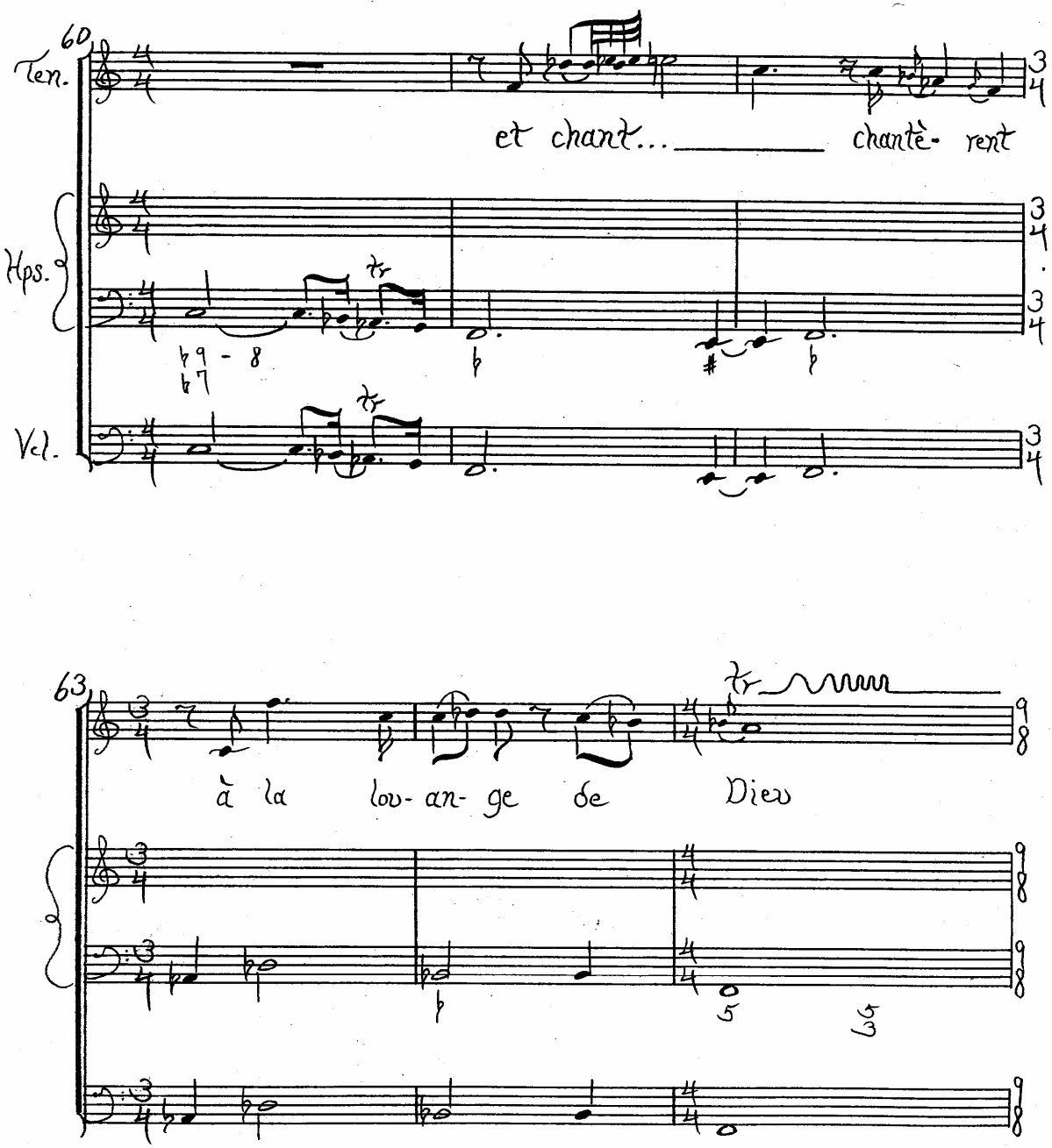

38
Tpt. in D
Tymp.
Org.
Ten.
us to arms
Hps.
Vcl.

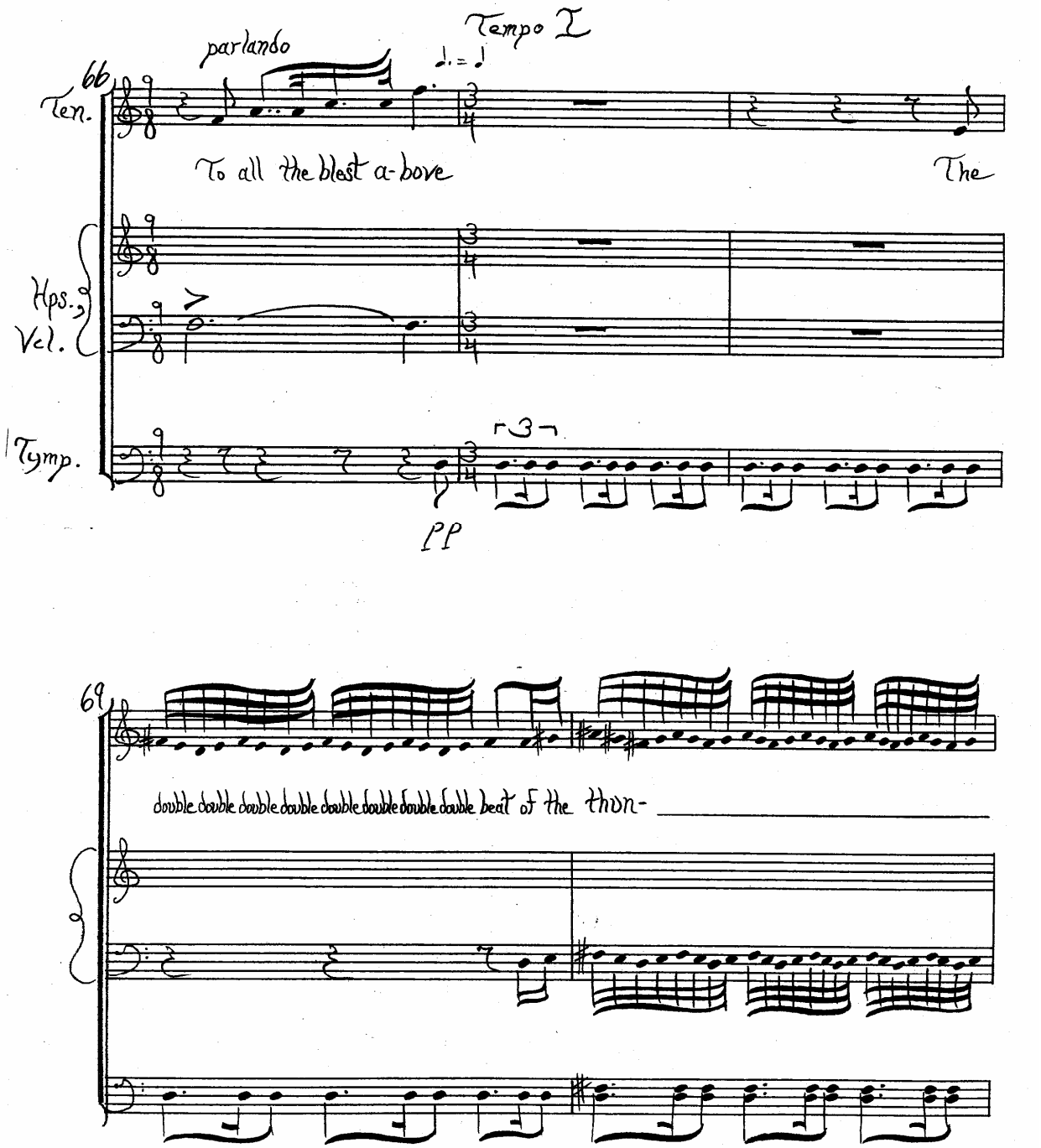

rit. slower
Tempo I
42
Tpt. in D
F
Tymp.
Org.
rit. slower
Tempo I
Ten.
gliss.
with shrill notes of anger and mortal a-la...
Hps.
8
Vcl.

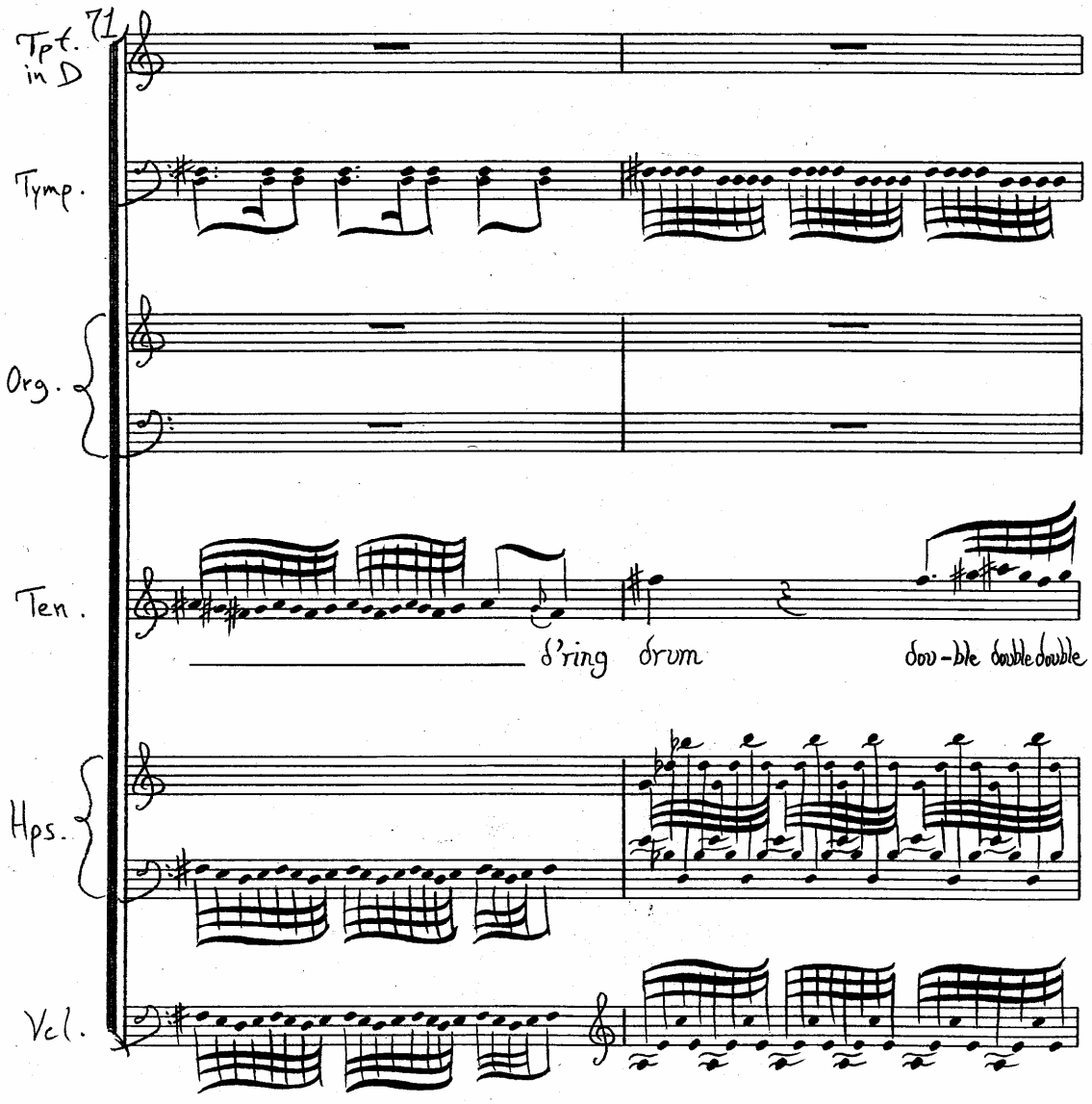

46
Tpt. in D
Tymp.
Org.
finding note
Ten.
a- larms a- larms a- larms a- larms a-
Hps.
Vcl.

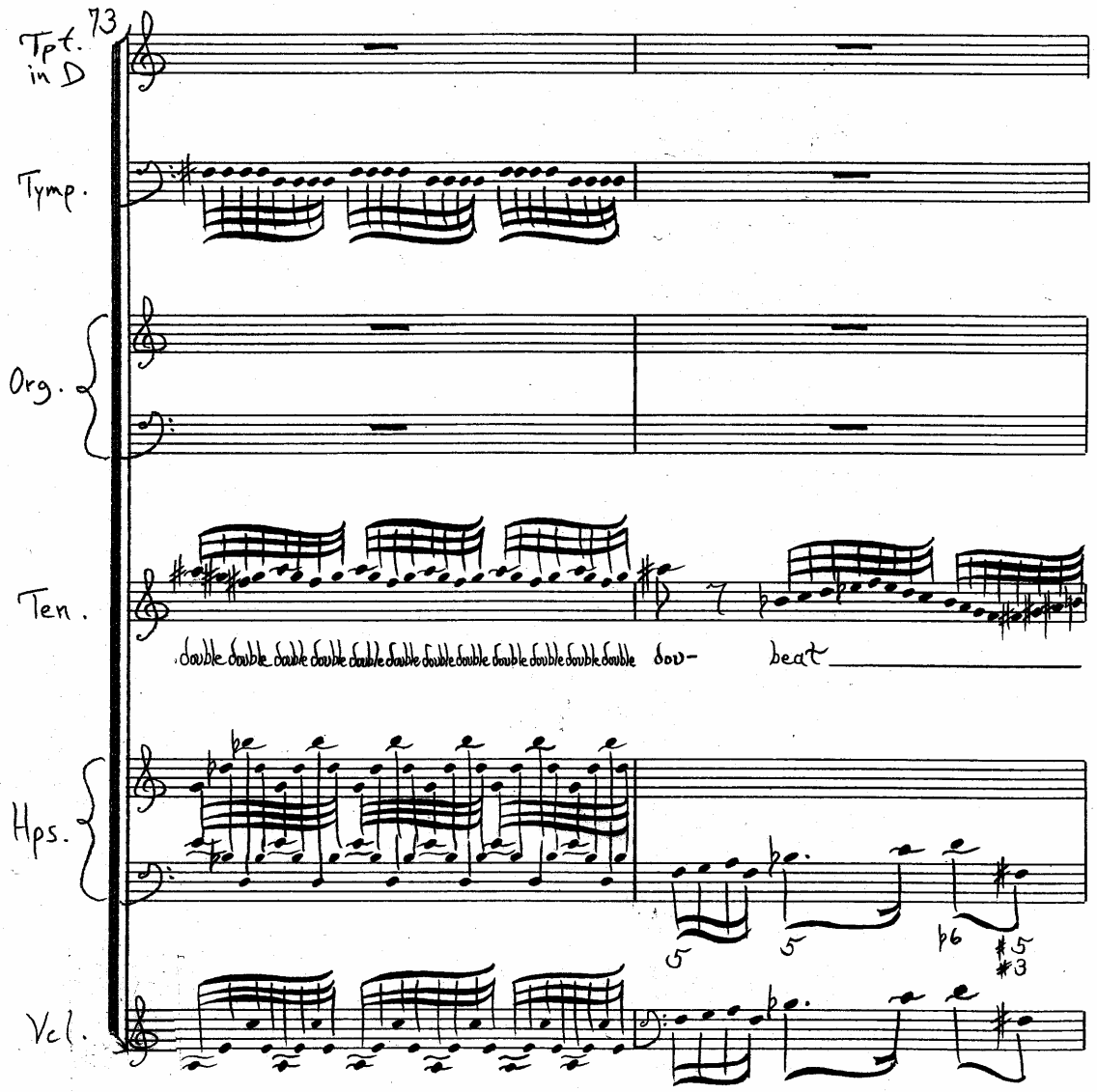

50
Tpt. in D
Senza misura
Tempo, slow
Tymp.
Org.
Ten.
Senza misura
Tempo, slow
Hps.
Vcl.

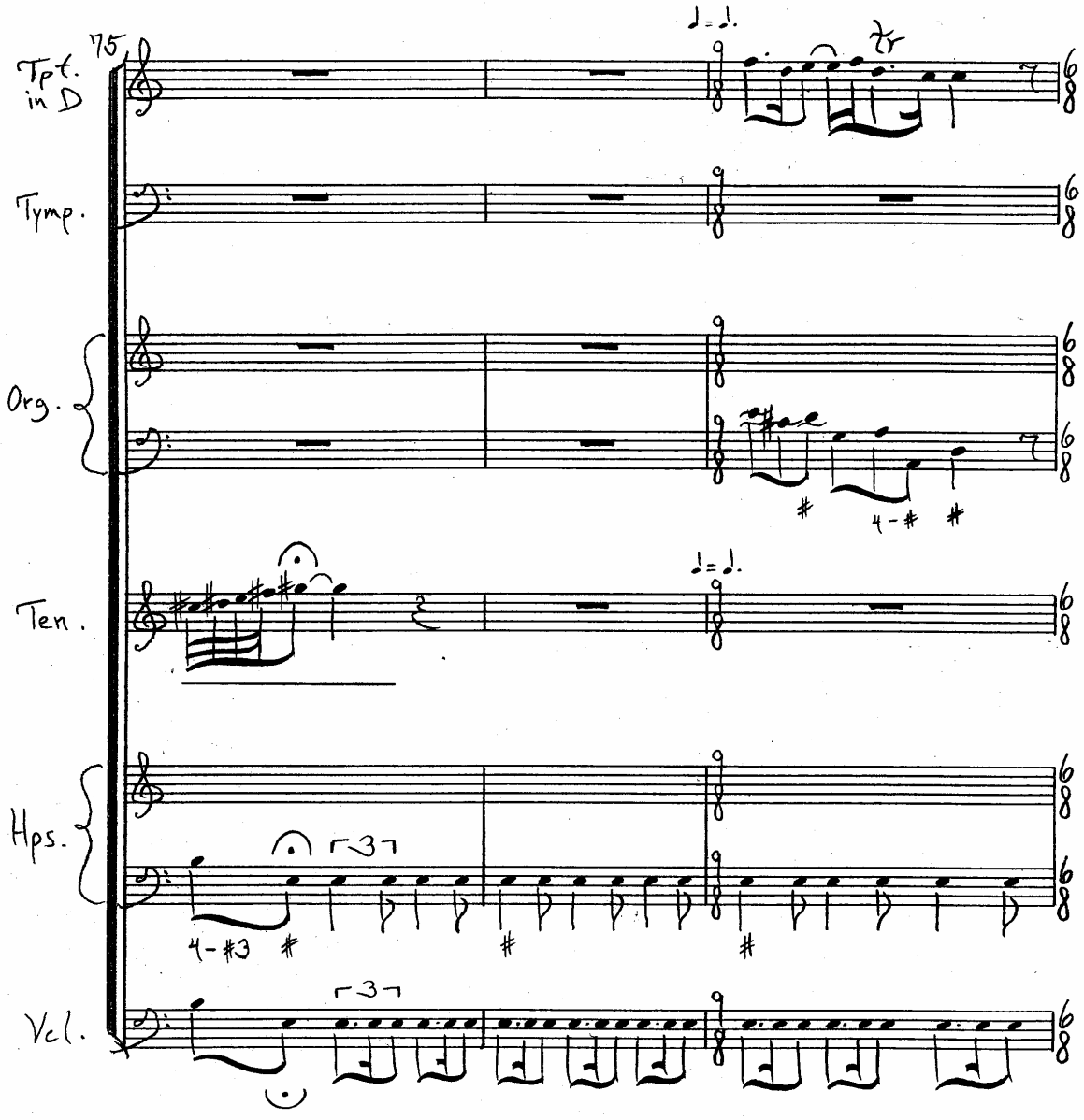

recit.
Ten.
Com-me de la puis-san- ce des chants sa- crés
Hps.
Vcl.
parlando
The spheres began to move

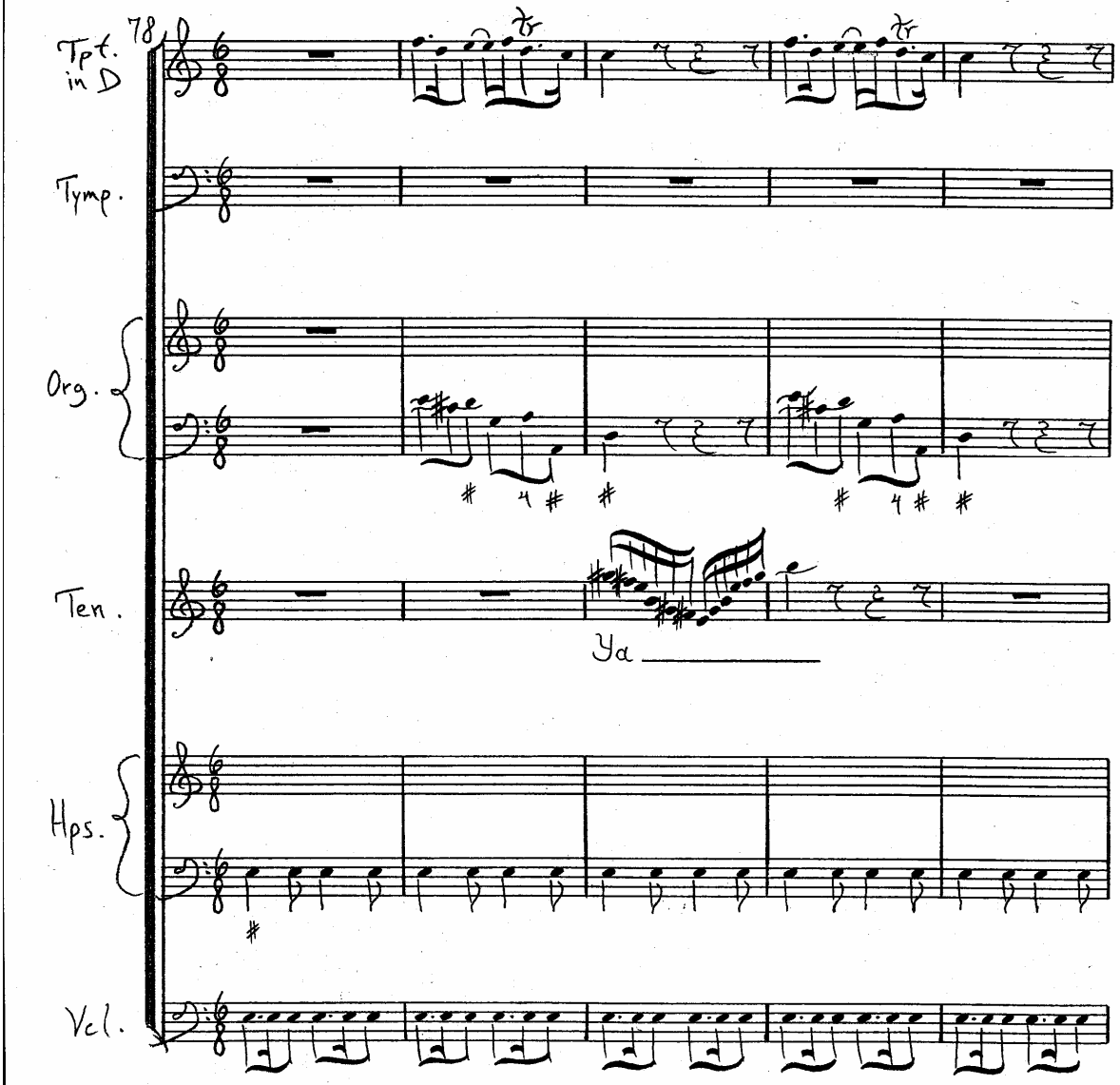

60
Ten.
et chant... chanté- rent
Hps.
Vcl.
63
à la lou- an- ge de Dieu

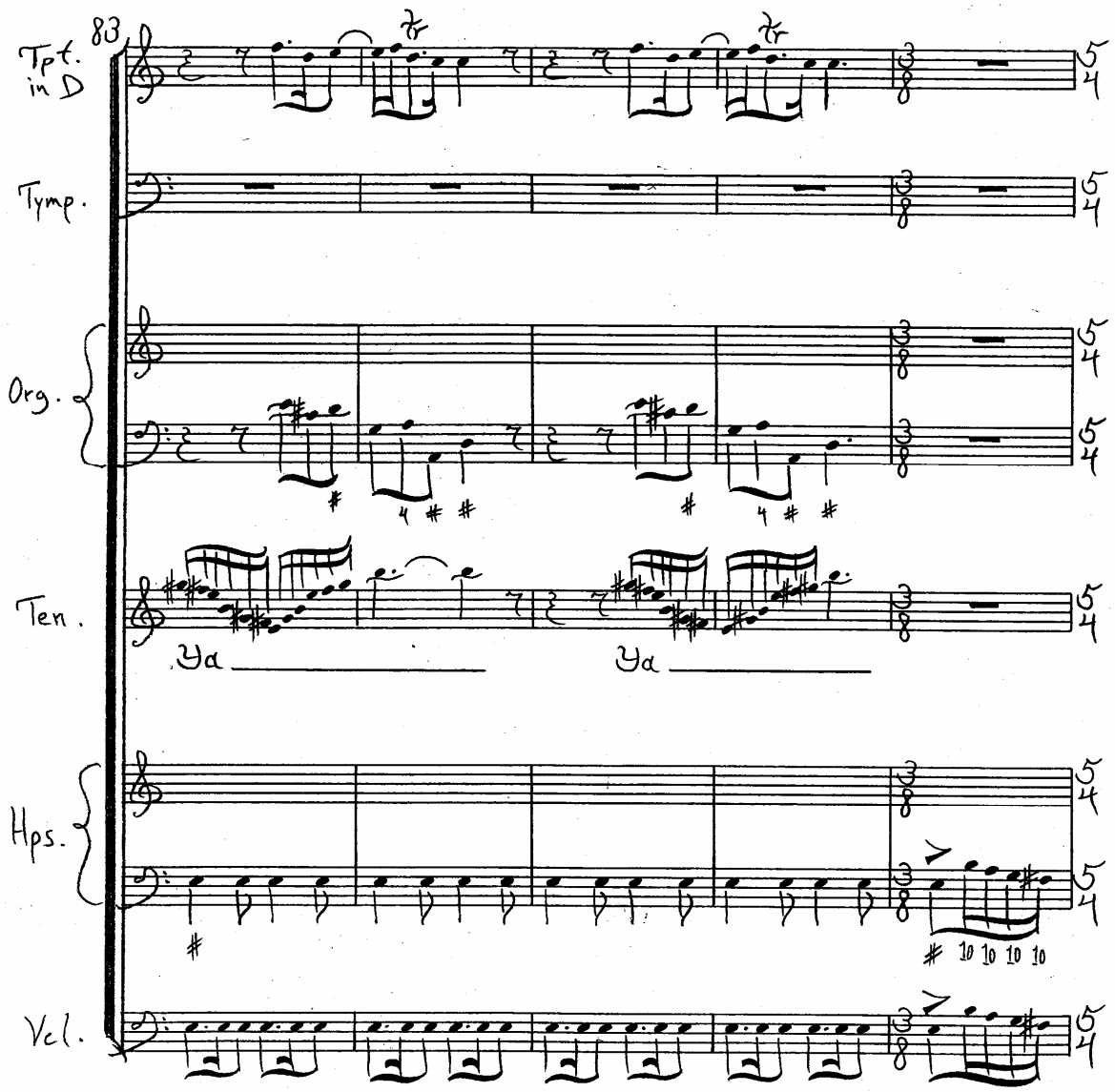

Tempo I
parlando
66
Ten.
To all the blest a-bove
The
Hps.
Vel.
Tymp.
PP
69
double double double double double double double double beat of the thun-

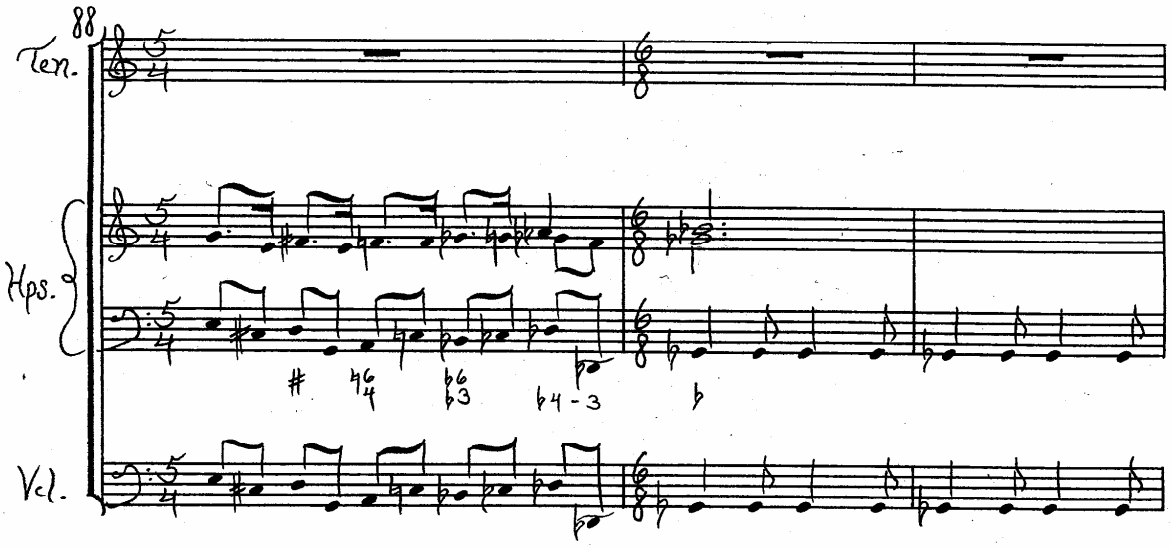

71
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.
b'ring
drum
dou-ble double double

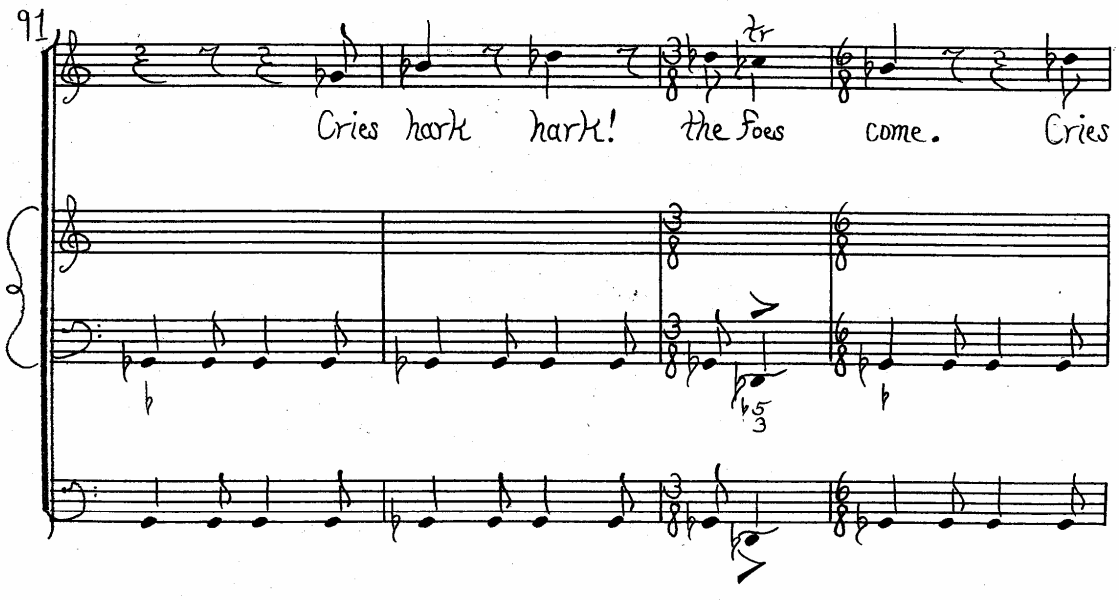

73
Tpt. in D
Tymp.
Org.
Ten.
double double double double double double double double double double double double
dou-
beat
Hps.
Vcl.

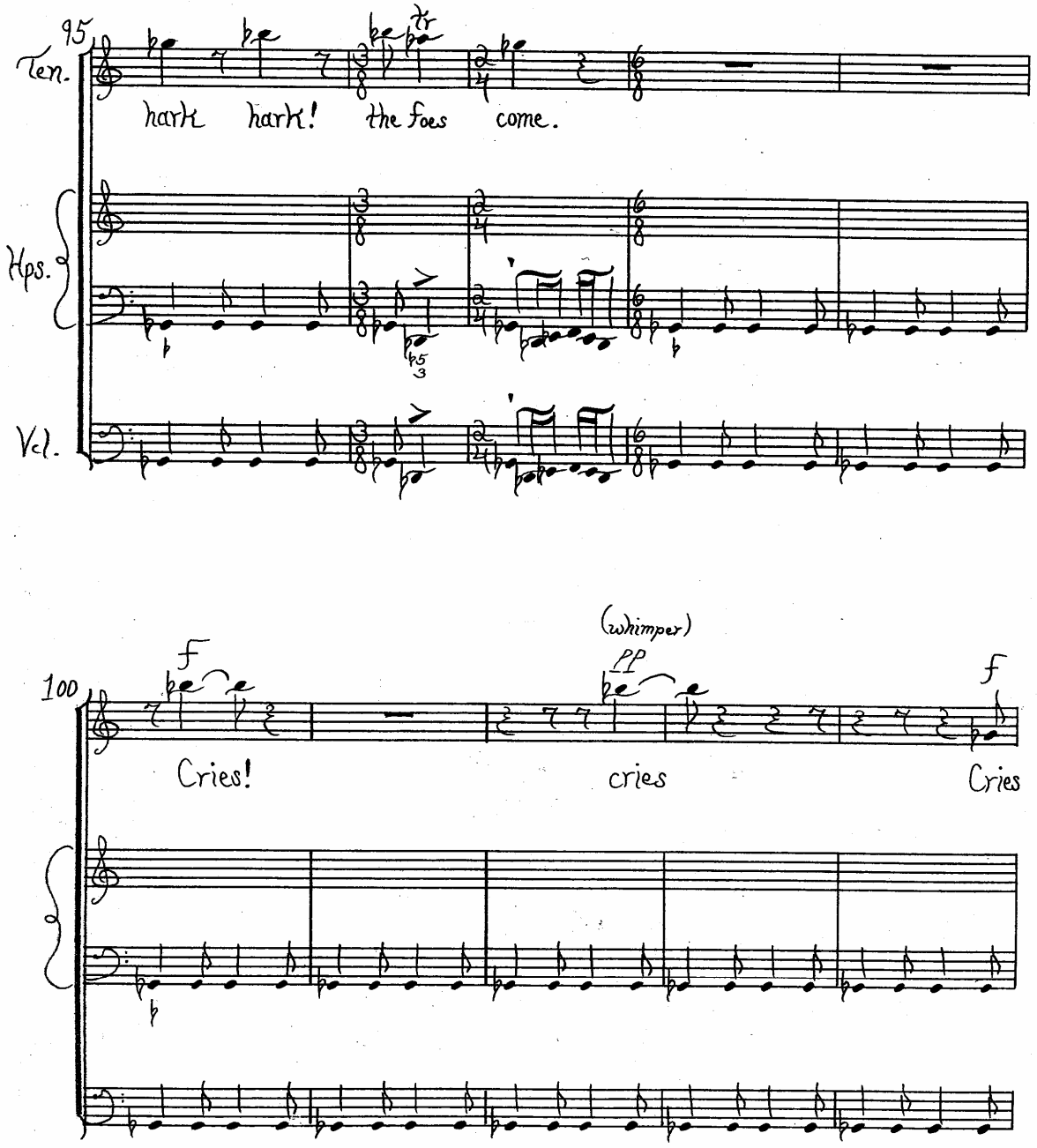

75
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.
4-#3
4-#

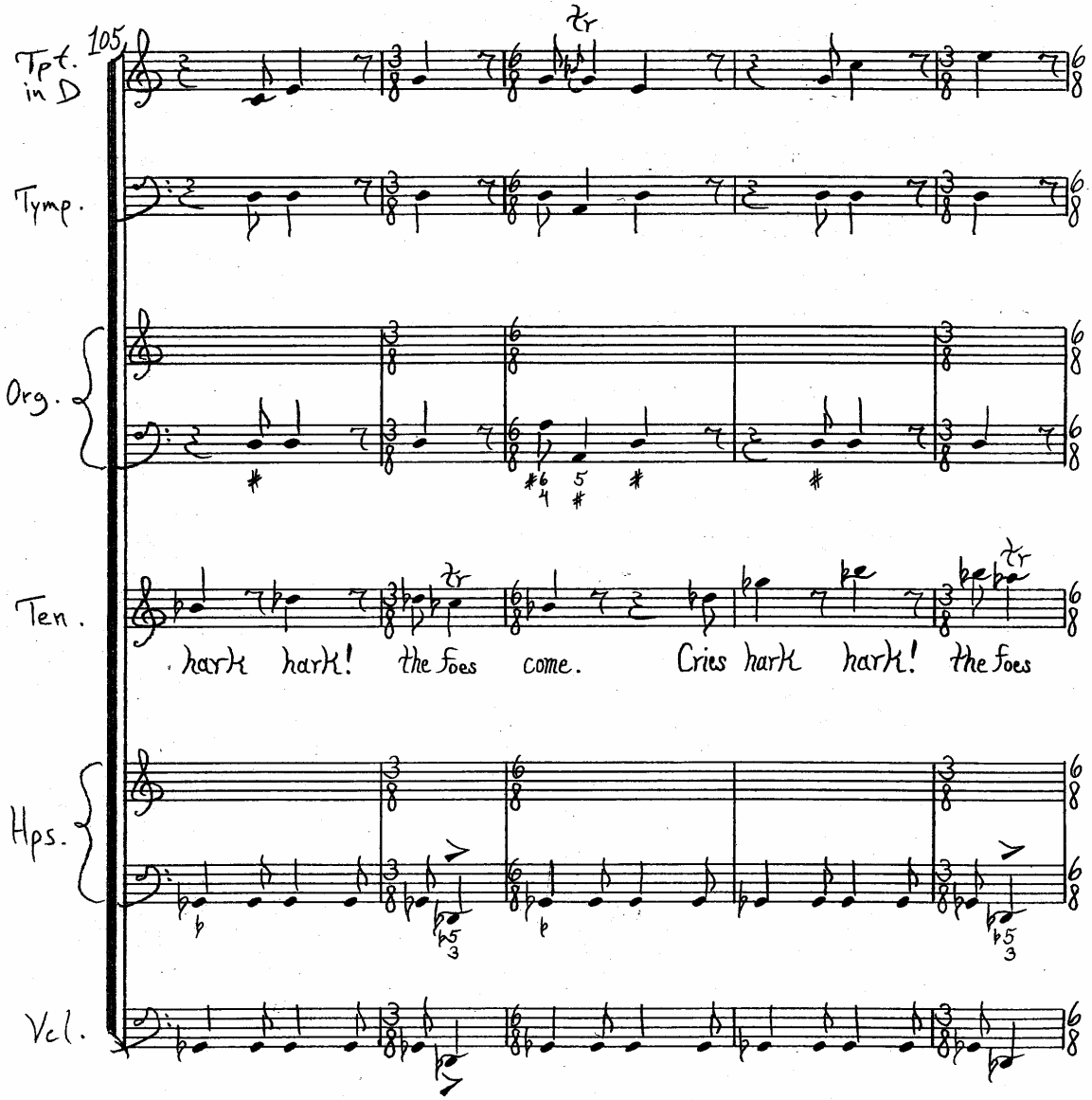

78
Tpt. in D
Tymp.
Org.
Ten.
Ya
Hps.
Vcl.

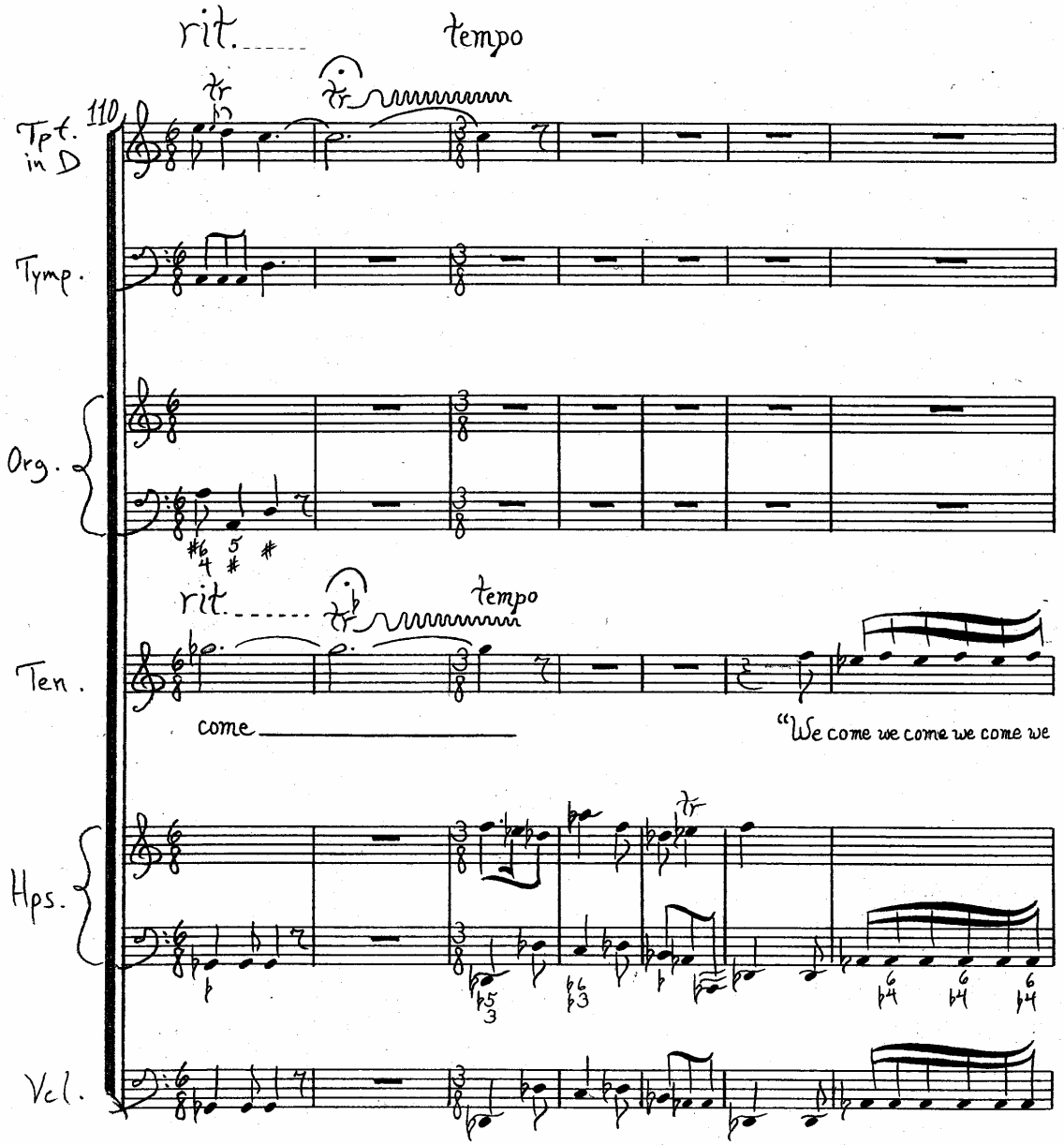

83
Tpt. in D
Tymp.
Org.
Ten.
Ya
Ya
Hps.
Vcl.

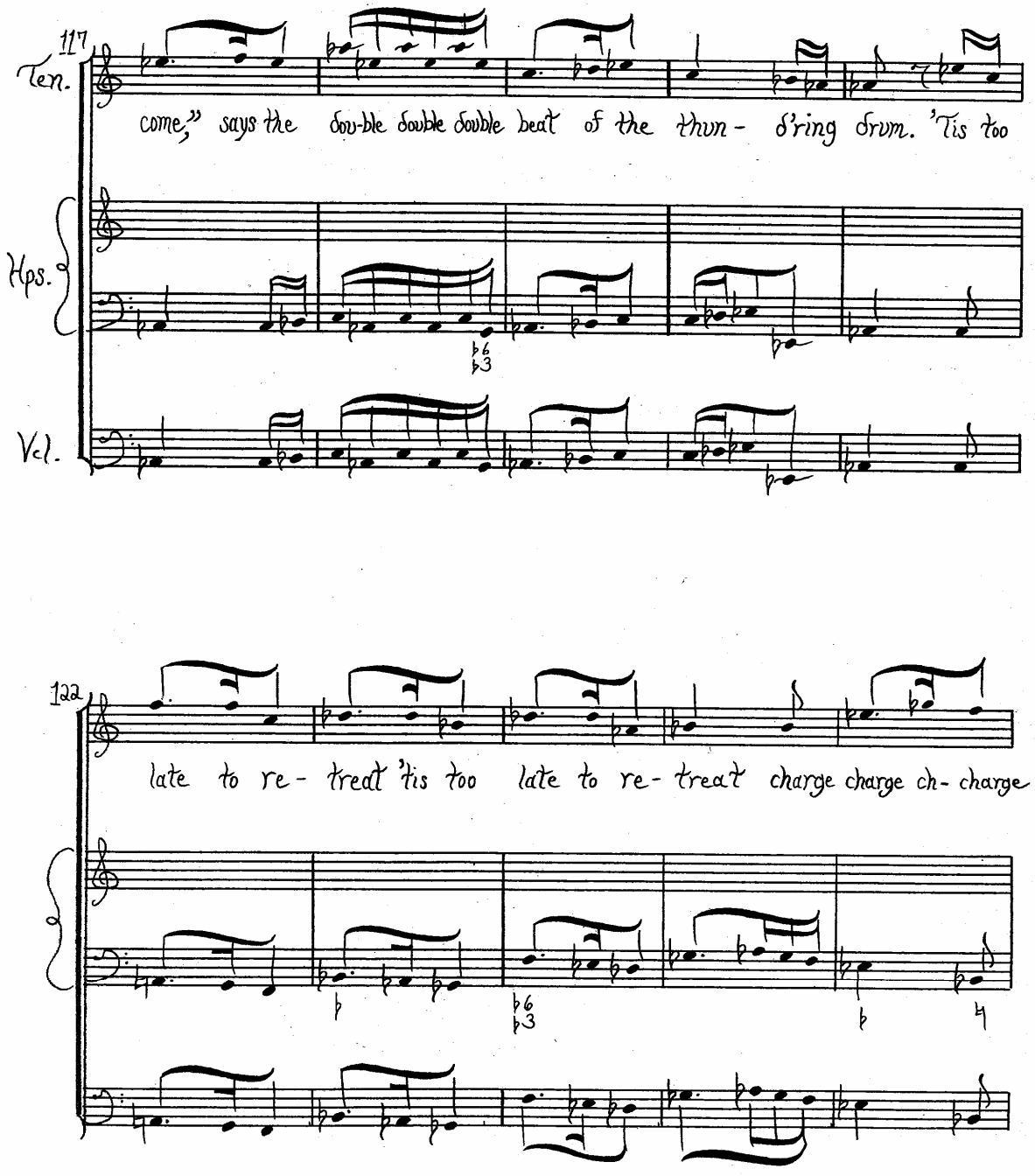

88
Ten.
Hps.
Vcl.

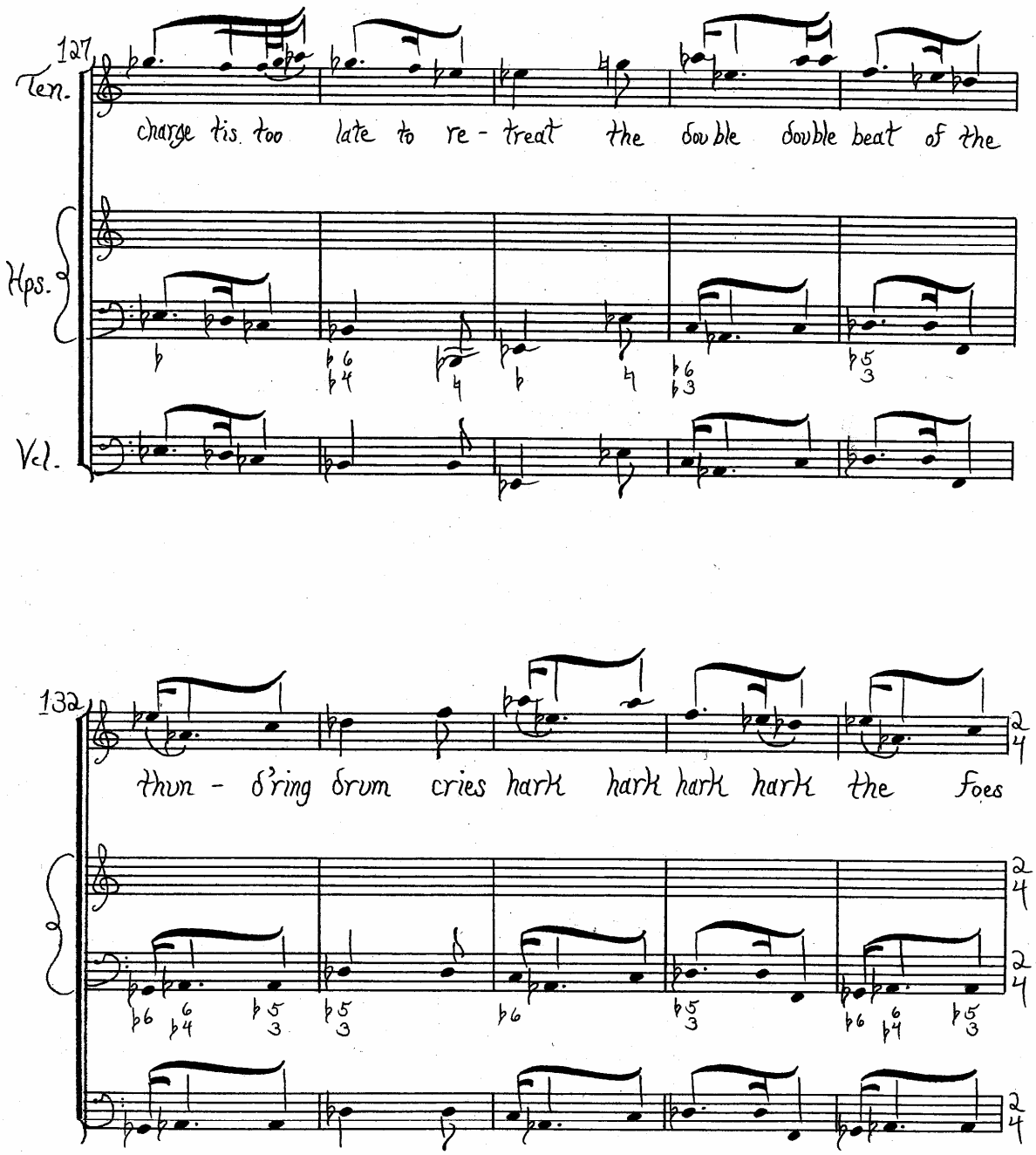

91
Cries hark hark! the foes come. Cries

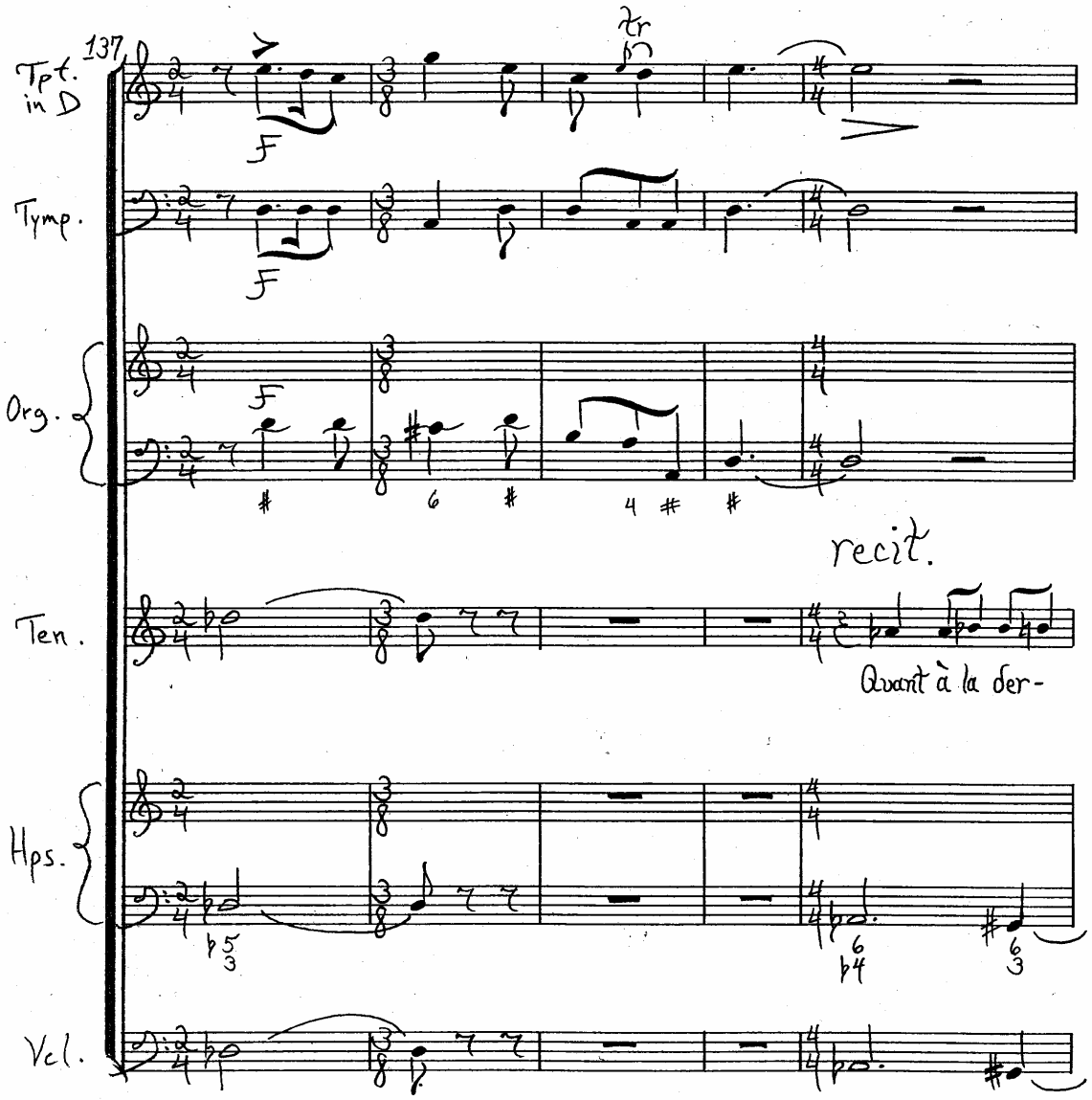

95
Ten.
hark hark! the foes come.
Hps.
Vcl.
100
f
Cries!
(whimper)
pp
cries
f
Cries

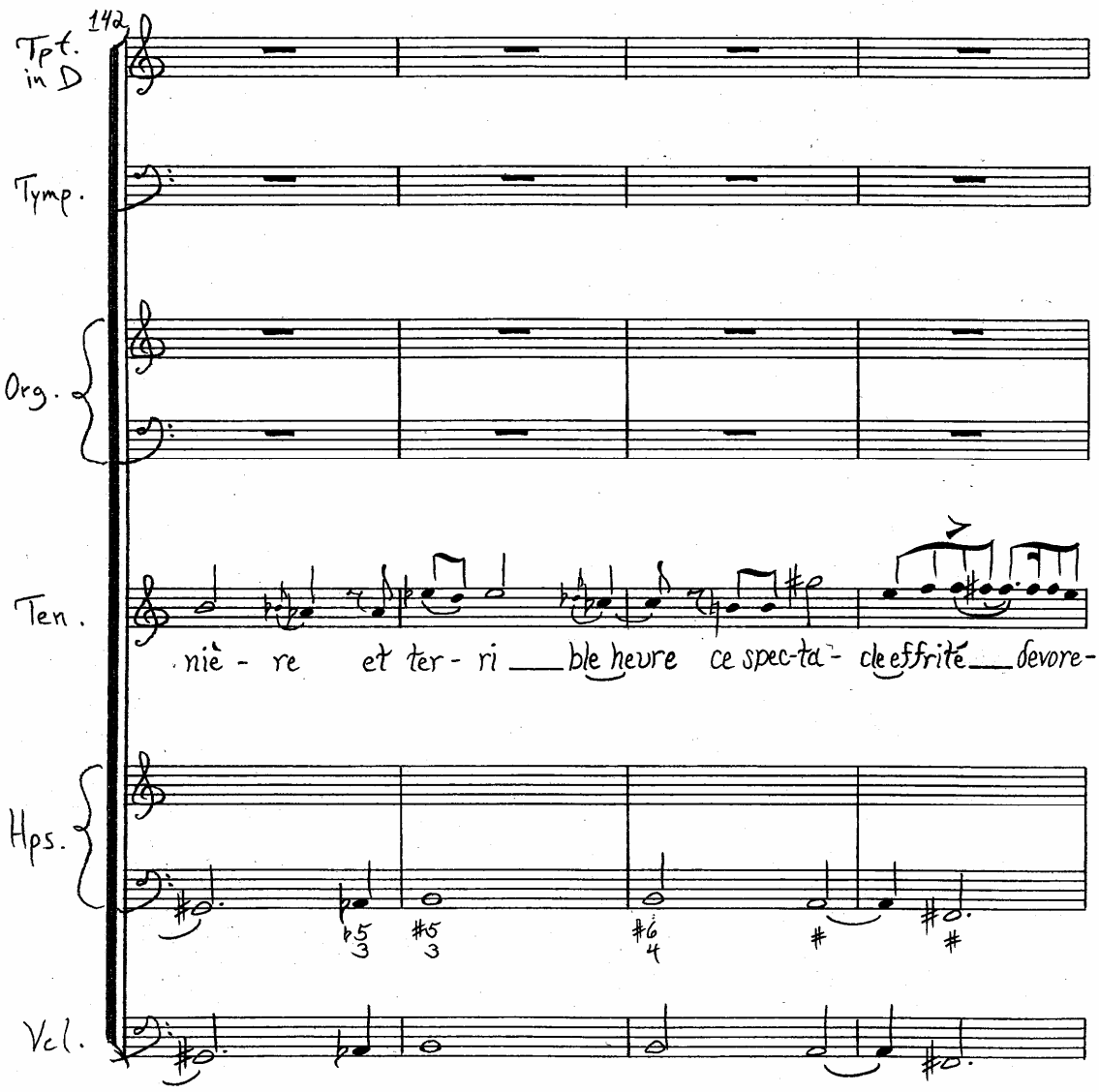

105
Tpt. in D
Tymp.
Org.
Ten.
hark hark! the foes come. Cries hark hark! the foes
Hps.
Vcl.

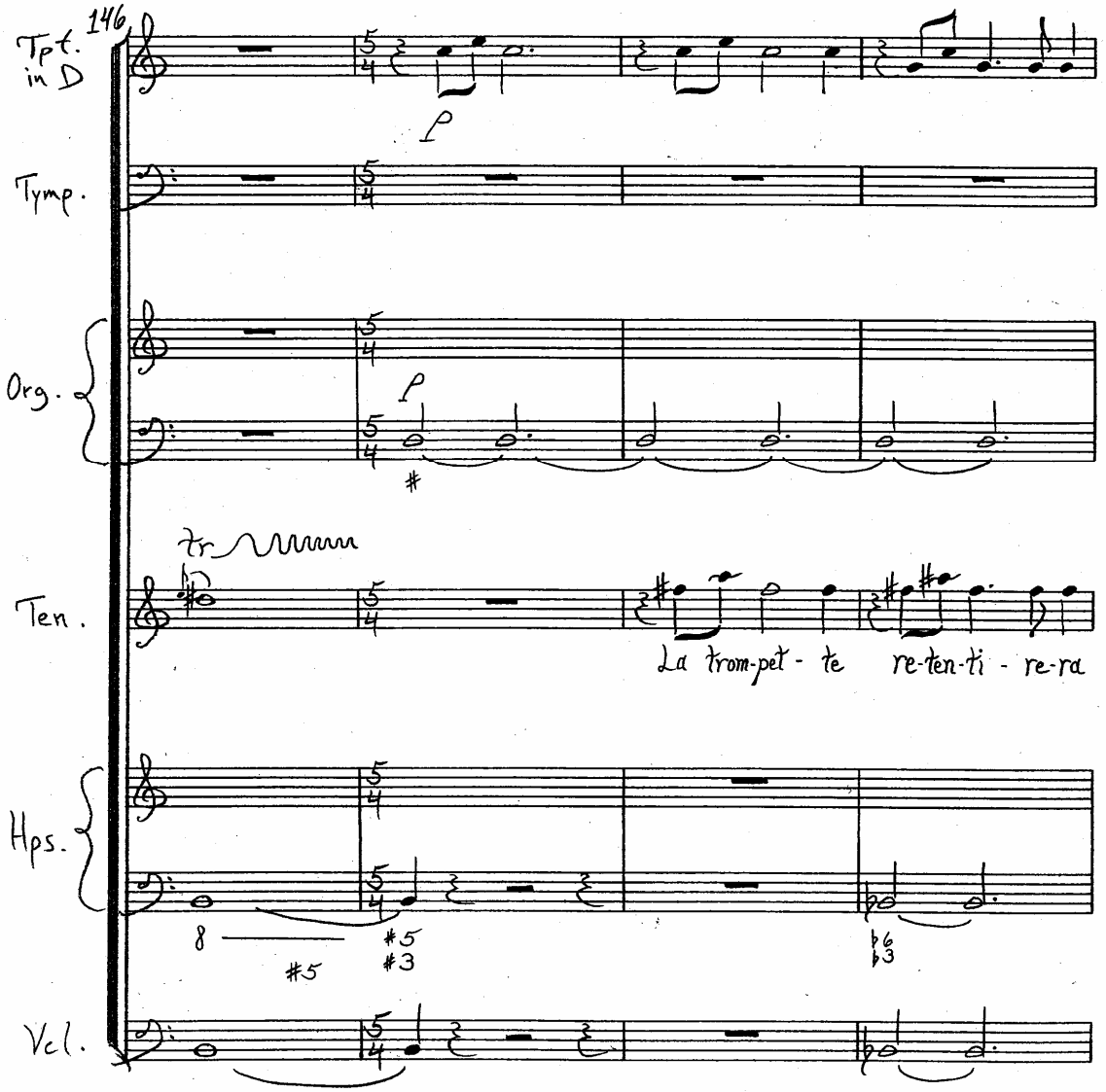

rit.
tempo
110
Tpt. in D
Tymp.
Org.
rit.
tempo
Ten.
come
"We come we come we come we
Hps.
Vcl.

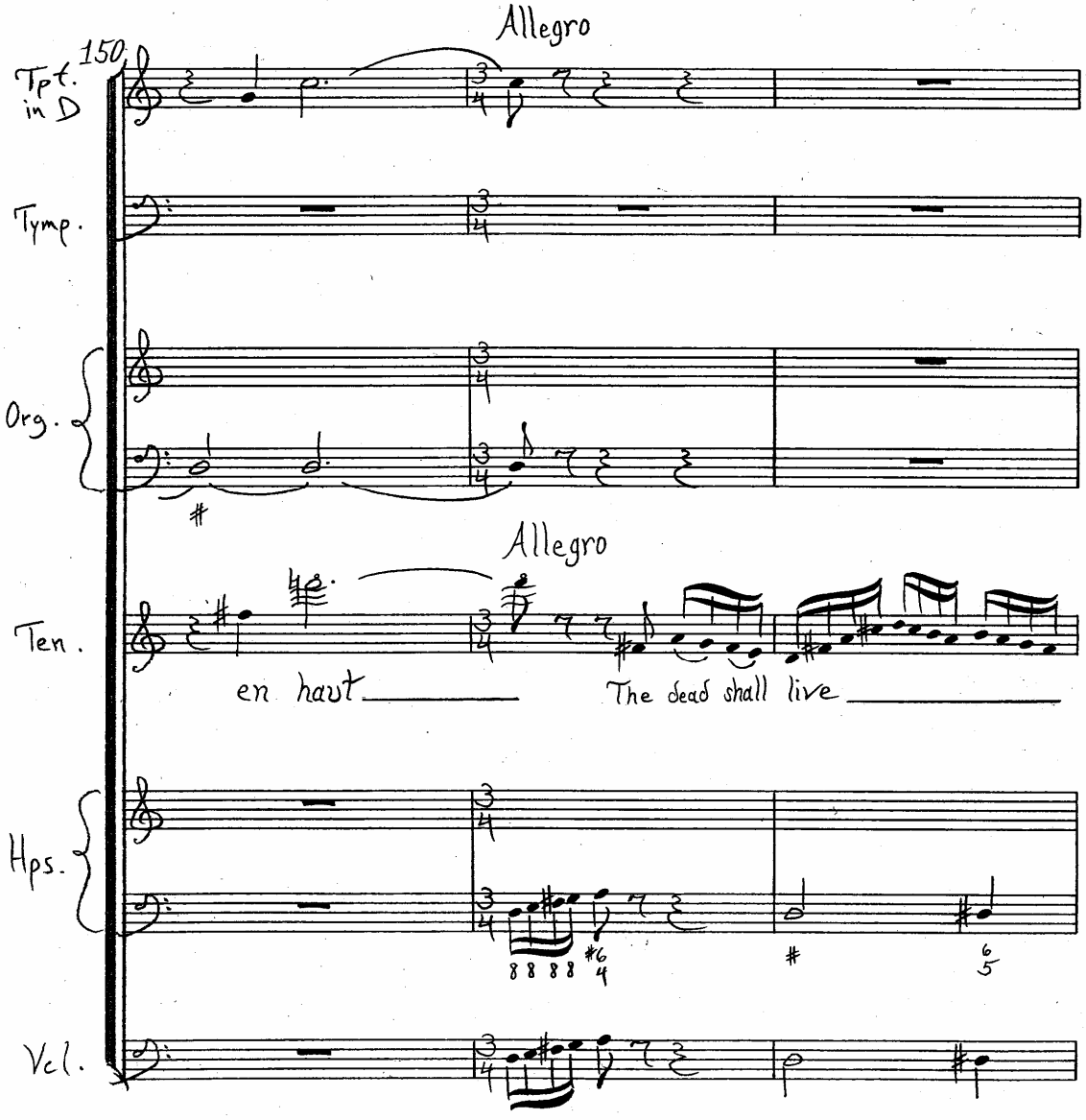

117
Ten.
come," says the dou-ble double double beat of the thun- d'ring drum. 'Tis too
Hps.
Vcl.
122
late to re- treat 'tis too late to re- treat charge charge ch- charge

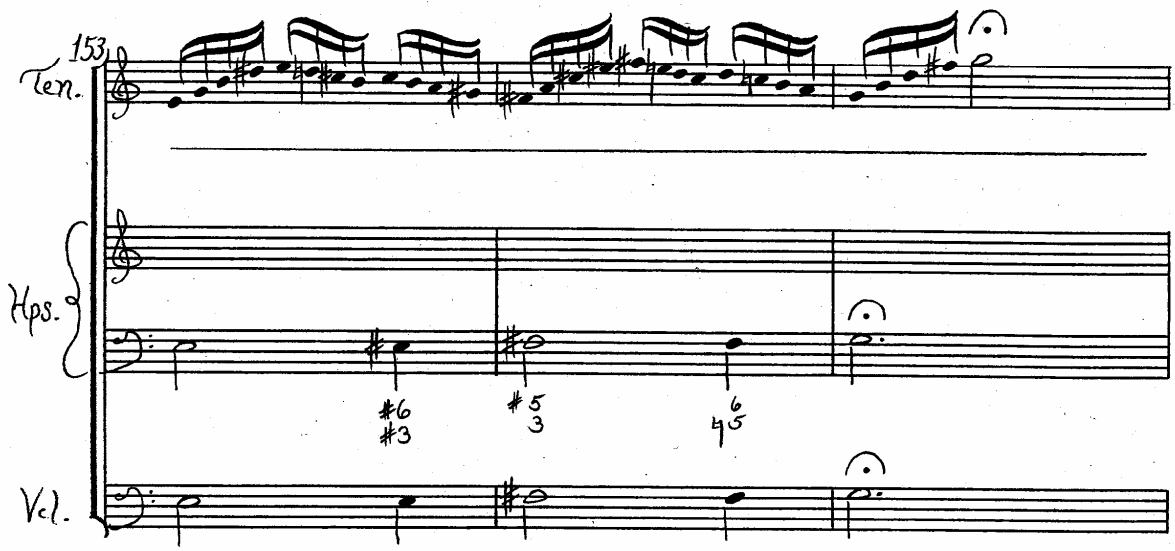

127
Ten.
charge tis too late to re - treat the double double beat of the
Hps.
Vcl.
132
thun - d'ring drum cries hark hark hark hark the foes

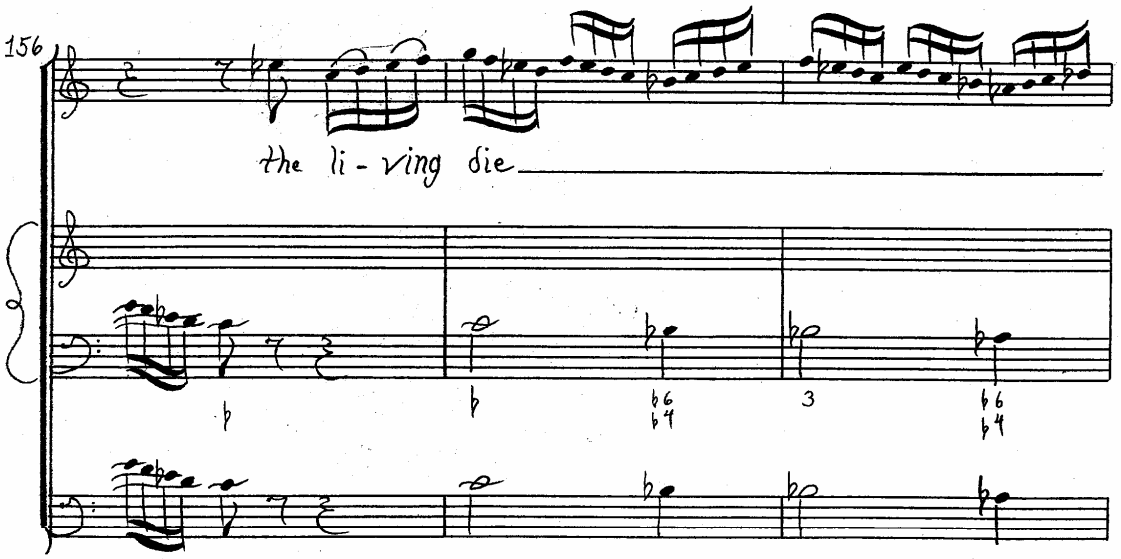

137
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.
F
F
tr
recit.
Quant à la der-

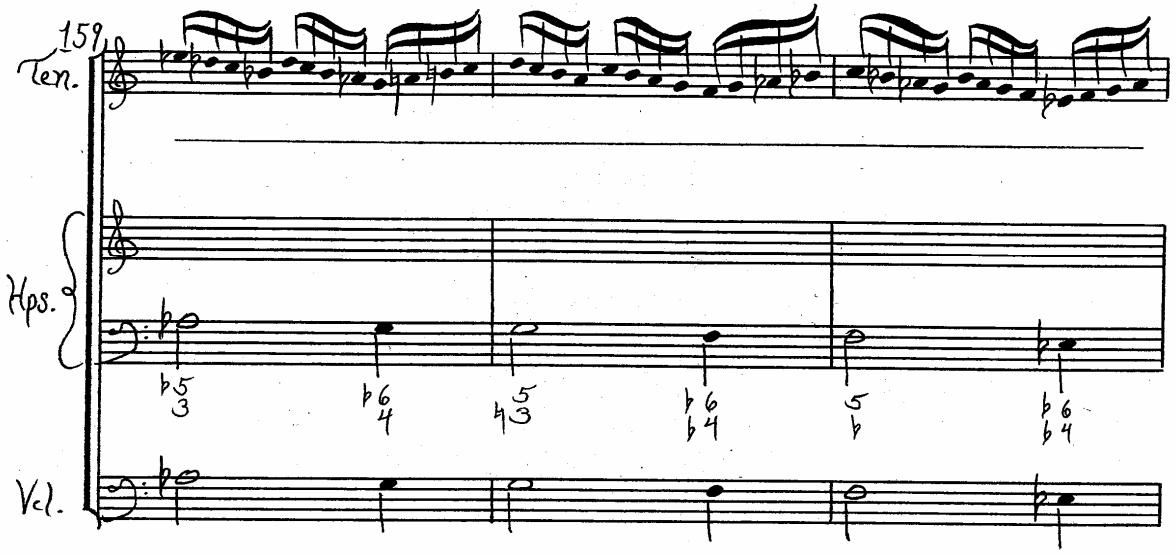

142
Tpt. in D
Tymp.
Org.
Ten.
niè - re et ter - ri ble heure ce spec-ta- cle effrité dévore-
Hps.
Vcl.

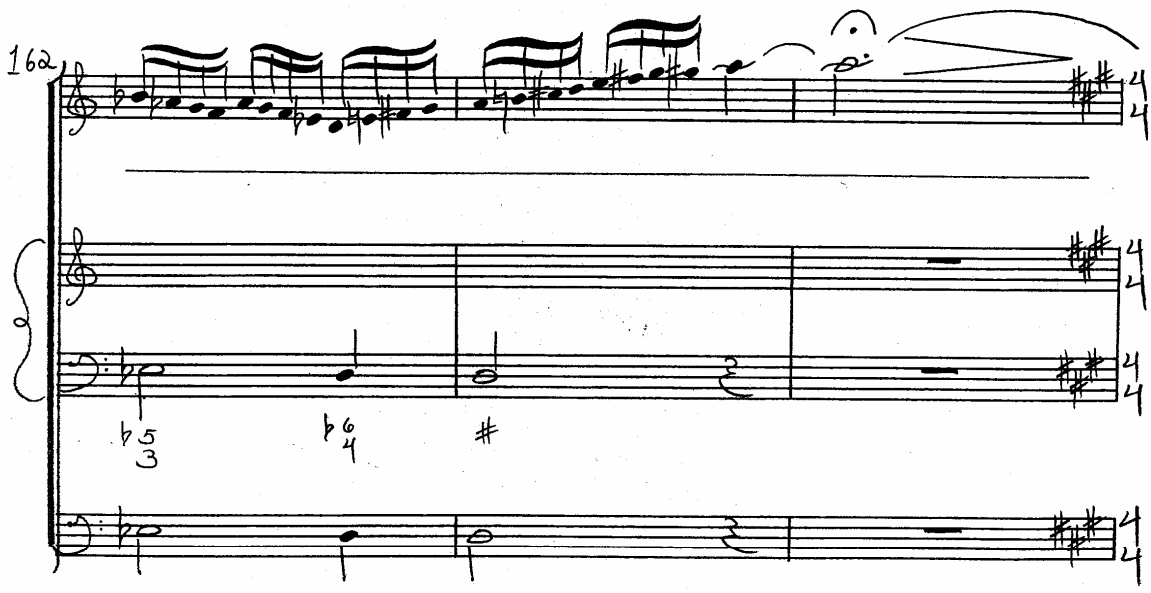

146
Tpt. in D
Tymp.
Org.
Ten.
tr
La trom-pet - te re-ten-ti - re-ra
Hps.
Vcl.

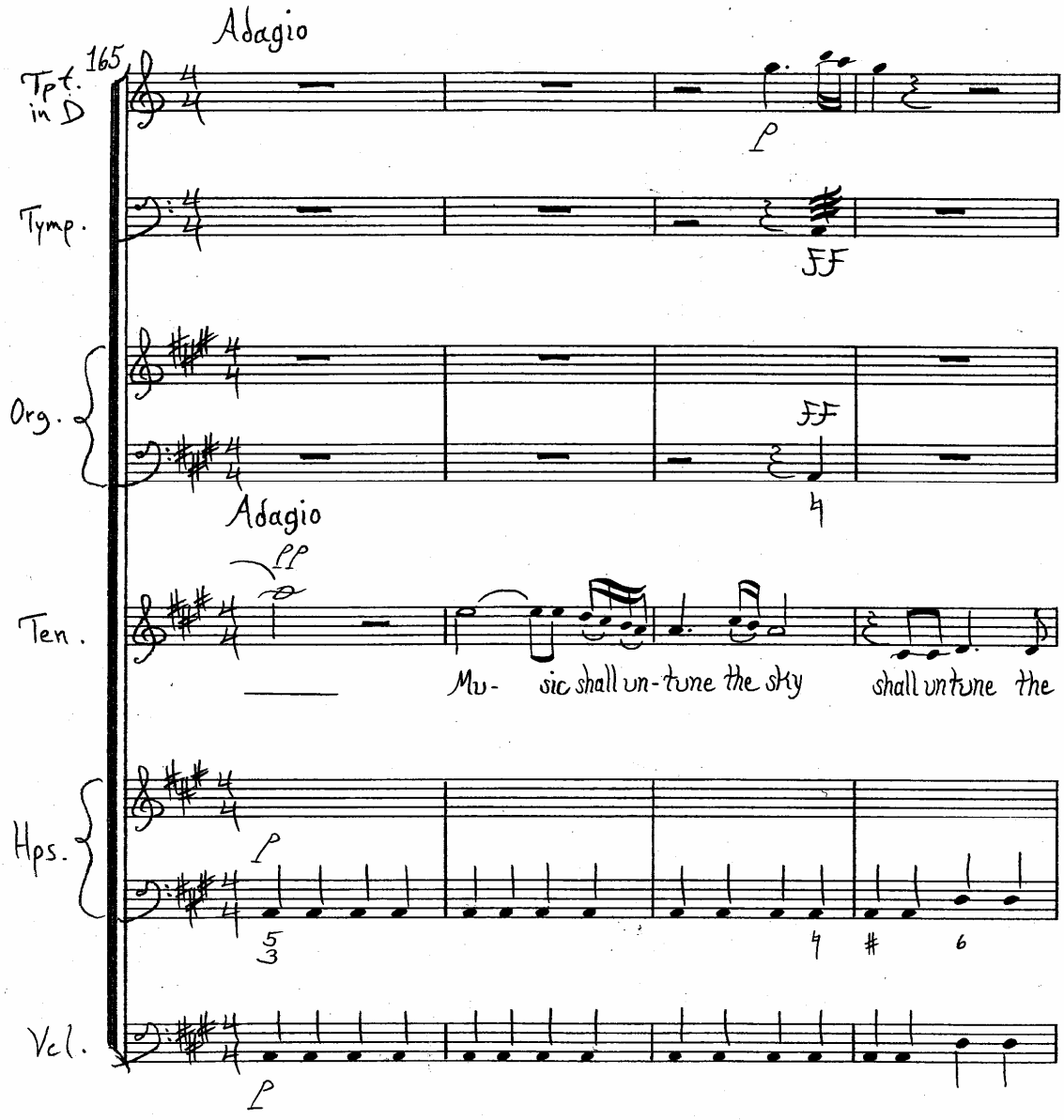

Allegro
150
Tpt. in D
Tymp.
Org.
Allegro
Ten.
en haut
The dead shall live
Hps.
Vcl.

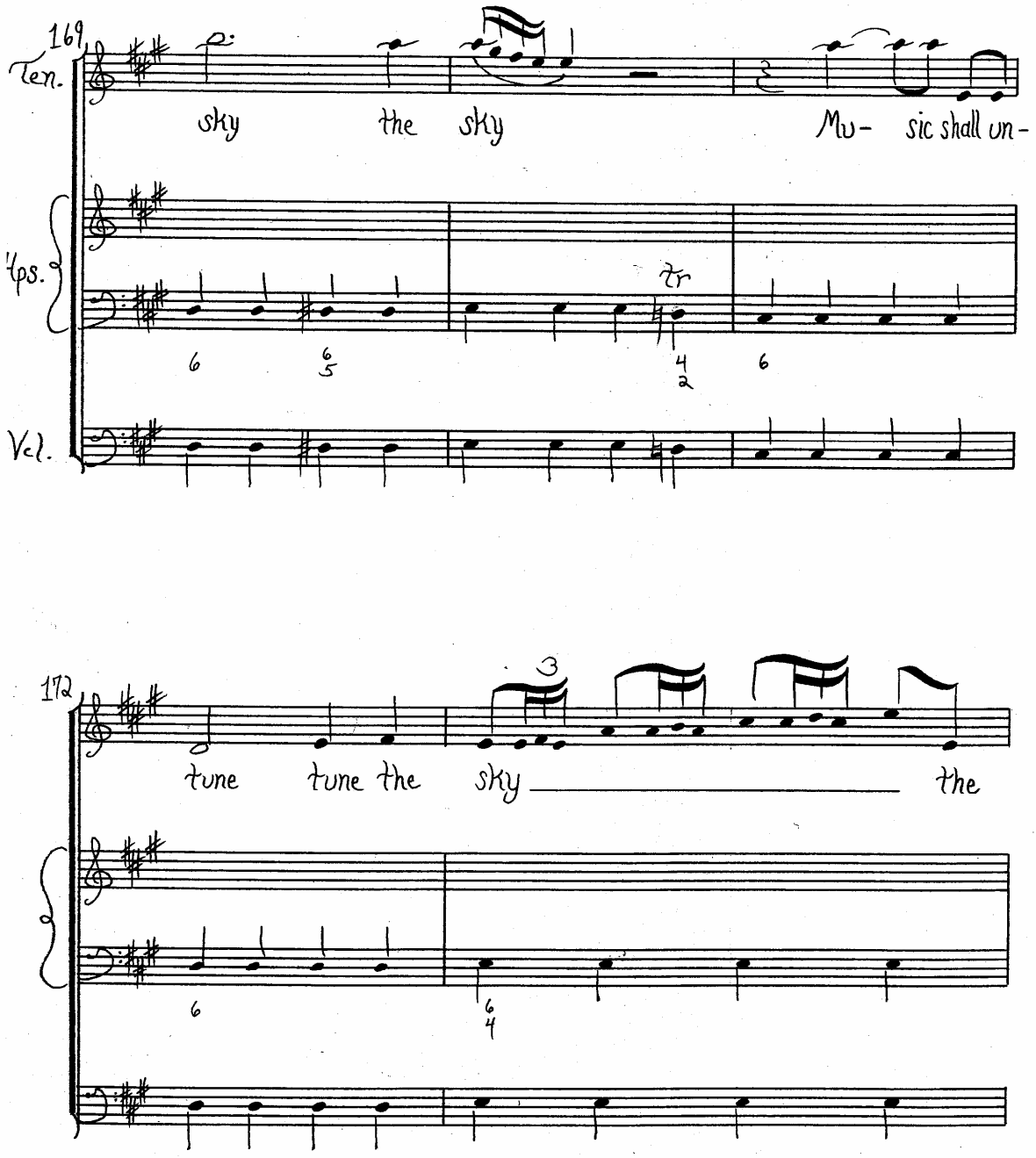

153
Ten.
Hps.
Vcl.

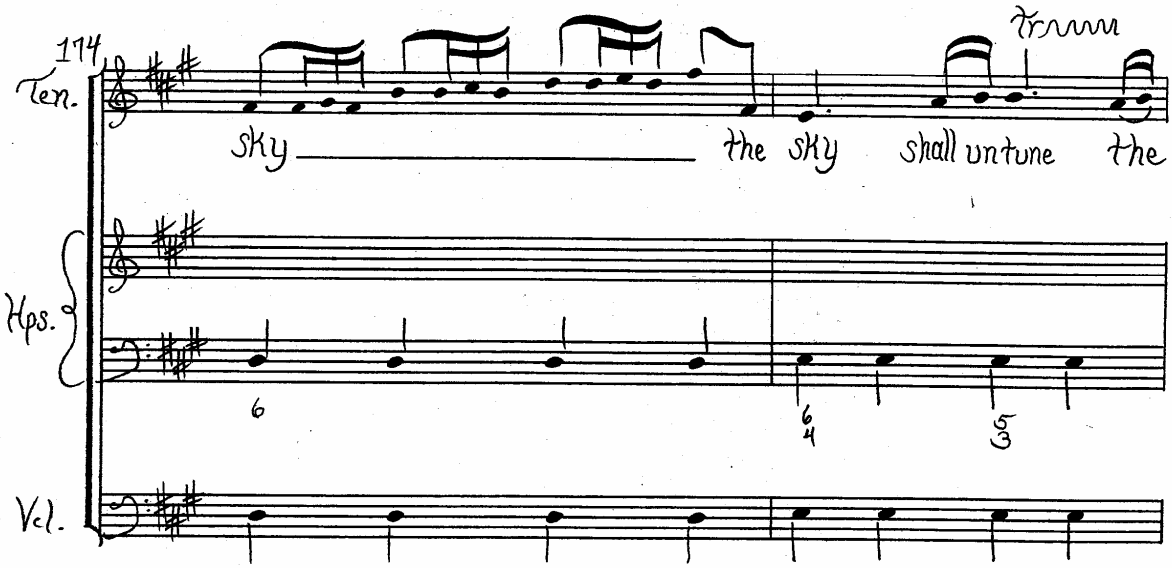

156
the li - ving die

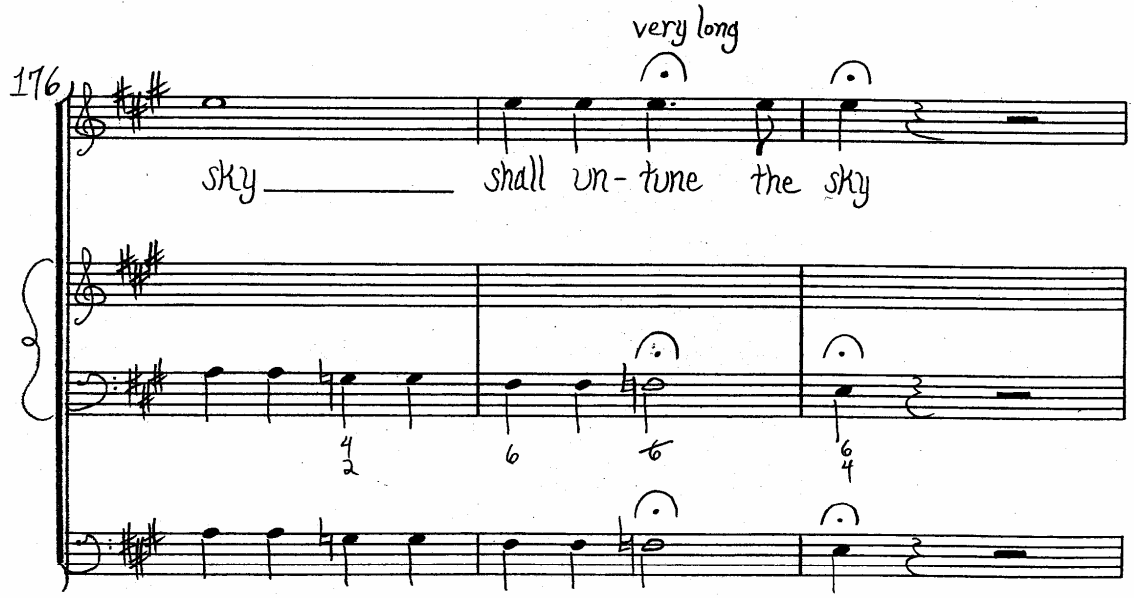

159
Ten.
Hps.
Vcl.

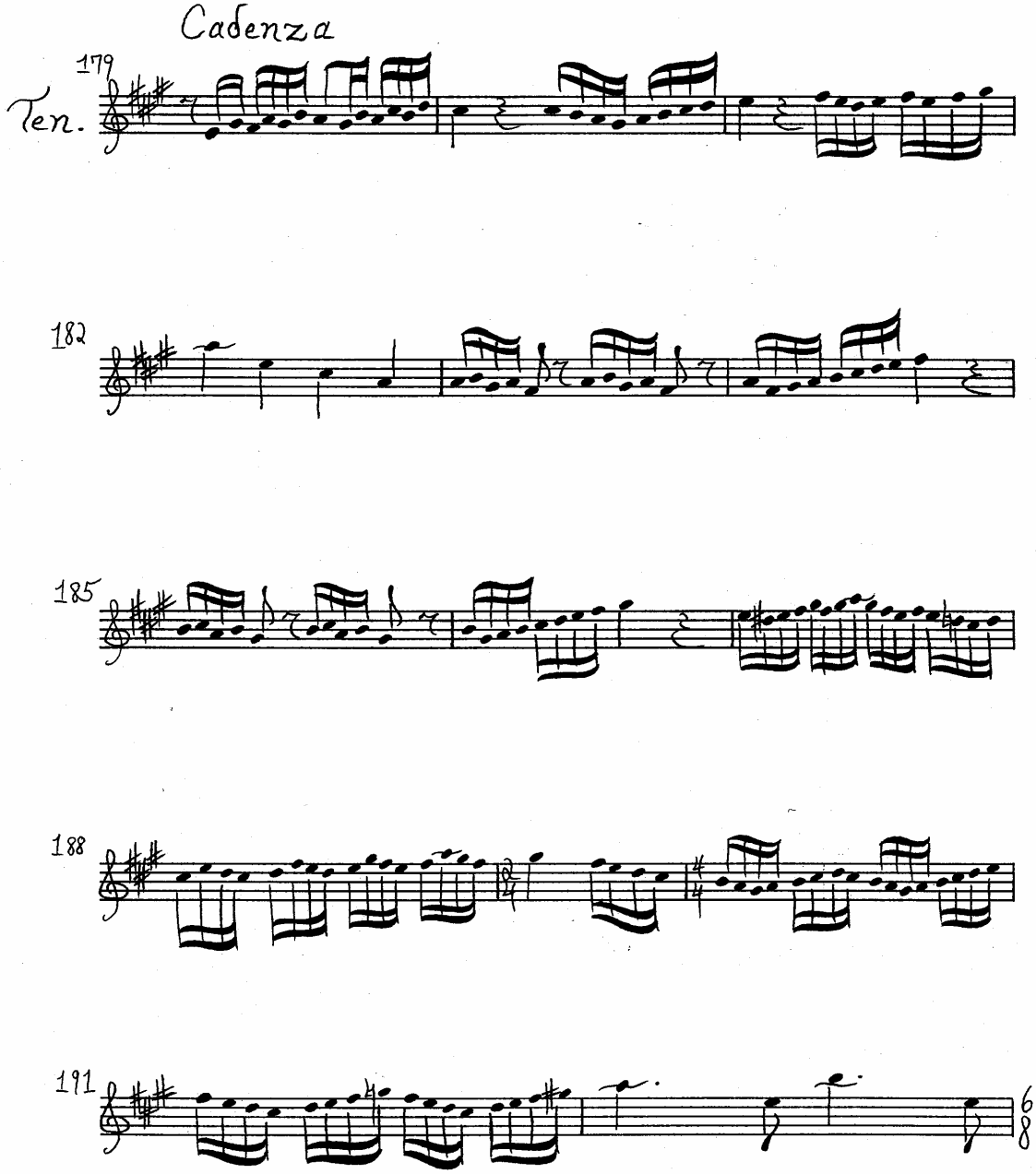

162

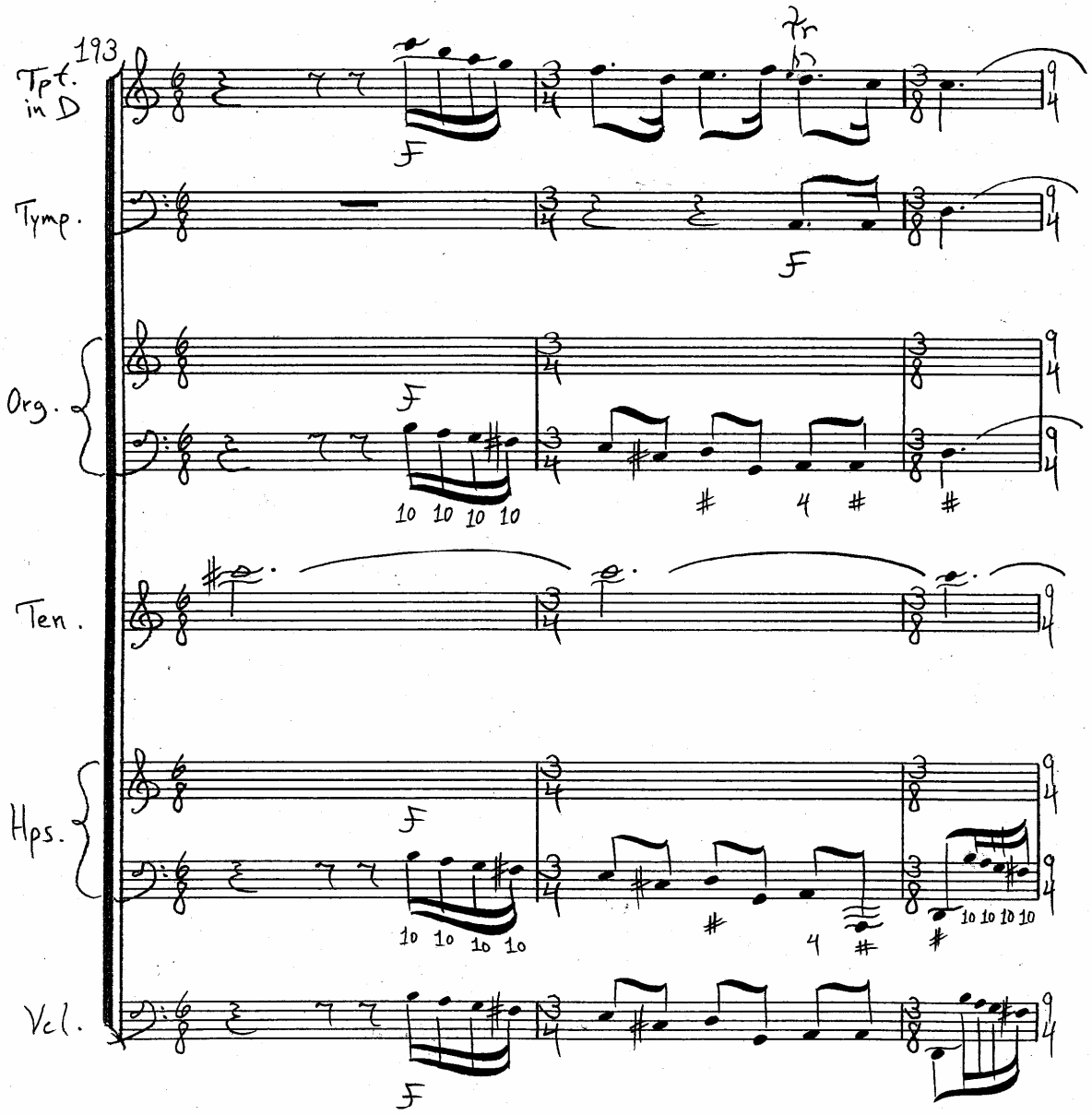

Adagio
165
Tpt. in D
Tymp.
Org.
Adagio
Ten.
Mu- sic shall un-tune the sky
shall untune the
Hps.
Vcl.

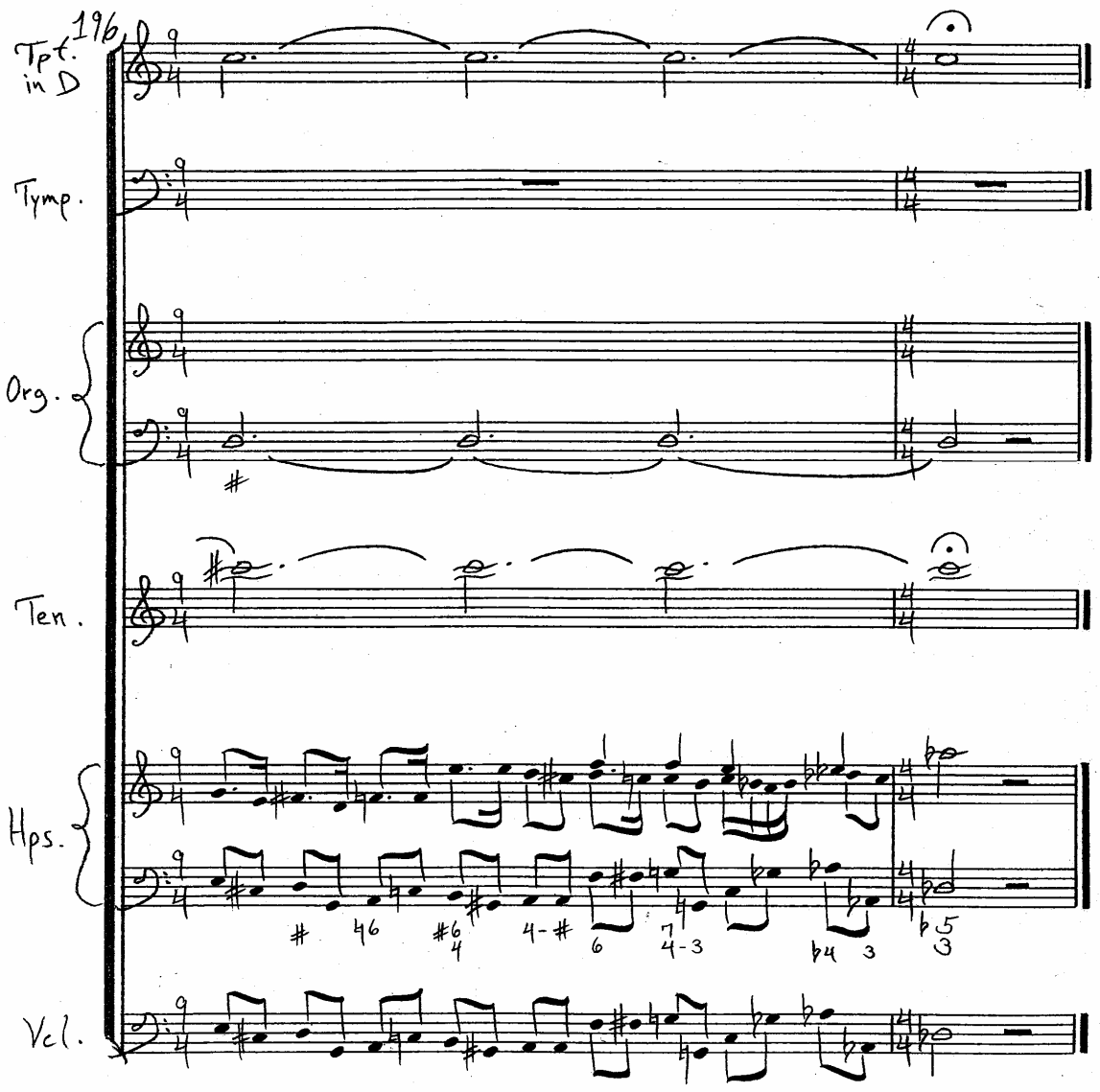

169
Ten.
sky the sky Mu- sic shall un-
Ups.
tr
Vcl.
172
tune tune the sky the


174
Ten.
sky
the sky
shall untune
the
Hps.
Vcl.


very long
176
sky
shall un-tune
the sky


Cadenza
179
Ten.
182
185
188
191
6/8


193
Tpt. in D
Timp.
Org.
Ten.
Hps.
Vcl.
F
tr


196
Tpt. in D
Tymp.
Org.
Ten.
Hps.
Vcl.