

*Ave, ave verum corpus
natum de Maria virgine,
vere passum immolatum
in cruce pro homine.*

*Cuius latus perforatum
unda fluxit et sanguine,
esto nobis praegustatum
in mortis examine.*

*Hail, hail true body,
born of the Virgin Mary,
truly having suffered sacrifice
on the cross on behalf of man.*

*Whose pierced side
trickled water and blood,
be thou for us a foretaste
in the test of death.*

A Crucial Proof of Mozart's Discovery,

Last March, in response to a question I put to Lyndon LaRouche, he suggested that the best route to understanding the profound Platonic ideas in great Classical music, is to use a short piece, such as Mozart's choral motet, *Ave verum corpus*, K.618. If the conceptions are understood as developed in a short piece, LaRouche argued, this will carry over, later, into comprehension of the larger Classical musical works.

I took his advice, and began to see the *Ave verum*—which I had known for years—with new eyes. It is these discoveries, that I want to share with you.

I begin with a few introductory remarks, mostly for those who may not be familiar with our philosophical association's work in music, and who may wonder why it is so important.

As is the case with all our work, the axiom that must govern music, is that of *agapē*: Plato's *Good*, the axiom of cultural optimism. Music written from that standpoint, is what we have come to call Classical.

On the other hand, today, we have a diametrically opposed culture of pessimism, which is better termed Romanticism. The Romantic worldview is driven by *eros*, the world of sense perception. A nation that tolerates the axioms of pessimism embedded in such forms as country and western music, the wallowings of Richard Wagner, rock, or other forms of modern popular entertainment, or which tolerates such scientific frauds as Hermann Helmholtz,¹ is a nation *on its way to fascism*. It is therefore

1. Hermann Helmholtz, *The Sensations of Tone as a Physiological Basis for the Theory of Music* (New York: Dover Publications, 1954).

This article is an adaptation, for the printed page, of a presentation delivered to the conference of the Schiller Institute in Reston, Virginia on August 31, 1996.

Mozart's *Ave Verum Corpus*

and a Short Pedagogical Exercise in Musical Memory

by Mindy Pechenuk

of the utmost urgency today, that we learn a lesson from Mozart, and create the foundation for the survival of the nation—a foundation built on the sanctity of the human creative life.²

Mozart composed the *Ave verum* at the end of his life, in 1791, at a critical time facing civilization. Only two years before, in 1789, France had fallen prey to the machinations of the evil British-Venetian oligarchy, a failed revolution which marked an ominous turning-point in history, which prompted Friedrich Schiller to raise the question whether “a great moment has found a little people.” Mozart, like Schiller, concluded that the only solution to the crisis was the ennoblement of the individual human being, and, he concentrated in his *Ave verum*, all the momentous discoveries he had made over the preceding decade. In this short piece, only forty-six measures long, you can discover Mozart’s “new higher hypothesis,” as he, in turn, built upon his friend and teacher Joseph Haydn’s breakthrough in motivic thorough-composition,³ while simultaneously working through the implications of J.S. Bach’s discovery of higher orders of modality in such works as *A Musical Offering* and *The Art of the Fugue*.



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Mozart’s compositional activity was therefore on the order of Plato’s conception of memory and hypothesis, in which a discovery by an individual goes beyond, but also fully subsumes, the earlier hypothesis of a previous discovery. Mozart’s work goes beyond that of Haydn and Bach; and yet, Mozart could not have made his discoveries without those predecessors’ contributions.

Think, therefore, of the *Ave verum* as a short drama: Do you leave a performance of the piece, concluding that you must do something substantial with your life, so as to leave this world a better place than it would have been, had you not lived? Can you die, “with a smile on your face”?

Mozart challenges you to understand how the future

2. For further discussion, see Lyndon H. LaRouche, Jr., “The Essential Role of ‘Time-Reversal’ in Mathematical Economics,” page 4, this issue; _____, “On the Subject of Civil and Natural Law,” Address to the Labor Day Conference of the Schiller Institute, *The New Federalist*, Sept. 16, 1996 (Vol. X, No. 36).

3. See Lyndon H. LaRouche, Jr., “Norbert Brainin on *Motivführung*,” *Executive Intelligence Review*, Sept. 22, 1995 (Vol. 22, No. 38) (also *Fidelio*, Vol. IV, No. 4, Winter 1995), for discussion of an original contribution to the discovery of this principle of motivic thorough-composition (*Motivführung*) made by Norbert Brainin, first violinist of the legendary Amadeus Quartet.

Wolfgang Amadeus Mozart, drawn by Dorothea Stock, sister-in-law of Friedrich Schiller’s friend, the poet Gottfried Körner.

governs your present actions. For Mozart, as for Plato before him, the relationship of God, Man, and Nature, of cause and effect, is not to be found in a mechanistic notion of “causality.” It is not as most people think: that the past orders the present, which in turn determines the future. For, as Lyndon LaRouche recently noted, the truth lies in “the Riemannian conception of the future, which is the Platonic conception of the future: that the future exists outside time—that is, outside time as normally conceived. The future exists in what Plato calls the Good The Good is a form. The Good is an existence outside of time, but which *affects and determines time*. The Good is something which does not change, in and of itself, as it acts. It rather acts *upon* time.”

This is Mozart’s conception of how the future determines the present, which is essential to understanding the actual ordering of a musical composition.

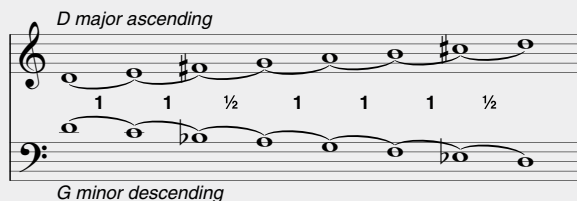
The Musical Medium

In the musical medium, we are concerned with the question of the transformation of modality, and its relationship to motivic thorough-composition.* If we treat the two as a “one,” we find that the modality becomes richer in the densities of singularities.

Modality, therefore, is not a fixed series of frequencies, organized according to some mystic, mechanistic notion of Nature, as Helmholtz, Wagner, and others insist. Rather, it is discoveries made by each great composer concerning the paradoxical nature of the well-tempered system. Each such discovery is equivalent to a new hypothesis, overthrowing the previously accepted hypothesis—the previous modality. What Mozart has done, is to generate, through his discovery of a *new modality*, a new yardstick for measurement. In musical terms, we discover what both LaRouche and Riemann have characterized as a $(n+1)/n$ order of change. Therefore, the new modality redefines all the relationships of the intervals, so that the intervals are not fixed distances, but are undergoing a constant process of change. This change, as LaRouche would say, prompted by a “valid axiomatic-revolutionary discovery of principle, also represents elevation to a higher cardinality.”

* “Mode,” “modality”: Beginning with J.S. Bach’s later works, the terms “key” and “modulation” became no longer capable of accurately characterizing the transformations within a Classical musical composition, and must be superseded by a notion of “modality,” in which a given mode may contain two or more “keys” simultaneously. J.S. Bach’s *A Musical Offering*, for example, develops the modality of C major-C minor.

FIGURE 1. *D major generates G minor, by taking the same intervals of the D major ascending scale, and changing their direction.*



Beginning in 1782, Mozart made a fundamental creative leap: the treatment of the major and minor modes as a “One,” and not as separate major and minor modes. The “one-ness” of the major and minor, for Mozart, has the following significance. Take the case of the modality of the *Ave verum*, D major-D minor. Think how D major generates G minor, by taking the same intervals of the D major ascending scale, and *changing their direction*, playing the intervals downward, instead of upward, from D [SEE Figure 1]. Such explicit or implicit *changes of directionality* are crucial, both for the discovery of the paradoxes of the “new modality,” and for Mozart’s development of motivic thorough-composition.

Now, think about all the potentialities that exist in the entire composition—major and minor—as a *One*, and you begin to grasp the higher hypothesis which governs the composition as a whole.

Before proceeding any further, I must strongly encourage readers who are not already familiar with Mozart’s *Ave verum*, to become so, before reading on. The full choral and orchestral score [SEE pages 43-45] may be used for reference, but it is no substitute for actually hearing the work in your own imagination, however you might be able to accomplish this. Singing the work in a small group, or singing each of the vocal lines, is highly recommended. If circumstances make this impossible, repeated listening to a passable recording becomes a second-best option.⁴

Now, referring to Figure 2, compare the very last phrase of the work, sung on the words “in mortis examine,” with the very opening bars, sung on “Ave, ave.” Study, or listen to, these two sections enough, so that each

4. A videotape of the presentation of this paper to the Labor Day Conference of the Schiller Institute, which presentation was assisted by the Schiller Institute chorus under the direction of John Sigerson, is available from the Institute. Note that virtually all commercially available recordings of the work, are flawed from the very outset by their use of the modern, arbitrarily high tuning of A=440 Hz.

FIGURE 2. Hypothesis E. Compare the very last phrase of the work (Hypothesis E), sung on the words “in mortis examine” (a), with the very opening bars (Hypothesis A), sung on “Ave, ave” (b). Note the greater density of Lydian intervals in (a).

(a)

in mor - tis ex - a - mi - ne.

in mor - tis ex - a - mi - ne.

in mor - tis ex - a - mi - ne.

in mor - tis ex - a - mi - ne.

FIGURE 2. (b) Hypothesis A.

(b)

A - ve, a - ve ve - rum cor - pus,

A - ve, a - ve ve - rum cor - pus,

A - ve, a - ve ve - rum cor - pus,

A - ve, a - ve ve - rum cor - pus,

forms a distinct image in your mind. Then, ask yourself, what governs the density of singularities in the “in mortis examine,” as compared to the opening “Ave, ave.” Do not perform this comparison “analytically,” but, rather, “synthetically”; what is crucial here, is the process that governed Mozart’s generation of ideas. You will discover that “in mortis examine” is transformed, in relation to the opening “Ave, ave”—it is related, and yet it is different. Ask yourself, what has changed, and, more importantly, *what has ordered that change?*

Clearly, there is a greater density of action, marked by a greater density of Lydian intervals [SEE box]. This change, is the crucial *characteristic* of the composition—a change which Helmholtz, Wagner, and the Romantics deny exists. That is, they would deny that Mozart has

here made a deliberate and intelligible creative discovery. Instead, they would claim that, by some *unknowable* means, Mozart has managed to arrange the “in mortis examine” section as a particularly sensually pleasing series of seventh chords and minor thirds—since, for them, the musical medium is reduced to a simple linear continuum.

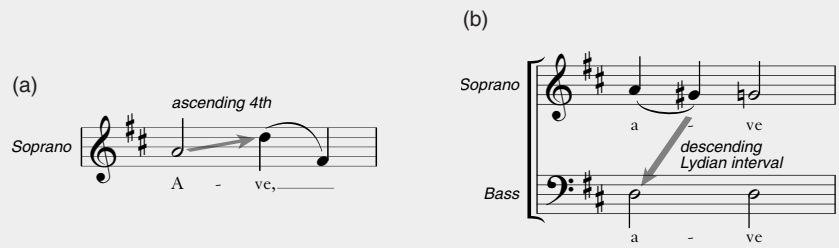
The question before us, however, is, *What governs the shift which Mozart has made?*

To find the answer, we must consider, in succession, each section of the “Ave verum,” in the same way that Plato treats the idea of hypothesis, higher hypothesis, and hypothesizing the higher hypothesis. For example, to begin with, consider the opening interval pairs as a paradox derived from this process. In order to focus us upon the very first interval pair, Mozart departs from the standard Latin text of the poem, by repeating the first word, “Ave,” a second time; instead of “Ave verum corpus,” Mozart composes “*Ave, ave* verum corpus.” In this way, Mozart sets up the opening paradox, which is crucial to the development of motivic thorough-composition.

There is only one other place in the entire composition, where Mozart repeats the text: the concluding line, “in mortis examine”—“the test of death.” The second “in mortis examine” is totally *different* than the first. What is Mozart saying about how creativity works, and about how the human mind works? How do you reflect on your life, so that you live your life in order to triumph over death, by being a creative person? That is why Mozart repeats this “in mortis examine” differently.

Now, go back to our first interval pair, on “Ave,” which consists of two parts as a “one”: the first “Ave” is a leap of a fourth upward, while the second “ave” is a descending line (A-G -G♯) sung by the sopranos, against a sustained D in

FIGURE 3. *The opening paradox.*
 (a) *The first “Ave” is a leap of a fourth upward.* (b) *The second “ave” is a descending line sung by the sopranos, against a sustained D in the bass vocal line.*



the bass vocal line [SEE Figure 3(a) and (b)].

With this D-G cross interval, Mozart is unfolding something very special: the Lydian interval, our first generation of a singularity. The mechanists, such as Helmholtz, would once again insist that this G be treated as simply a passing tone, a sensually pleasing musical arabesque. After all, they would argue, God created a universe in which all relationships are fixed—all that mankind can do, is arrange and rearrange these relationships according to fixed rules. But this is not Mozart’s viewpoint. Within the opening two measures of the chorus, Mozart presents you with a paradox, in the form of the interval pairs—in this case, the fourth upward and the descent into a Lydian interval. It is this *discontinuity*, as discovered by Mozart, which is crucial. It is also crucial, that this discontinuity be *heard* when the piece is performed. That is, one must not perform merely the interval of the fourth or the Lydian, as such; what must be performed, is the interval *between* the intervals: what the great conductor Wilhelm Furtwängler meant, when he once remarked, that one must play, and sing, “between the notes.”

The Future Determines the Present

Go back to what I stated earlier about Mozart and Plato’s concept of *agapē* and the Good, the *hypothesizing of the higher hypothesis*. This is what governs the metaphor, which takes its form in Mozart’s mind, and governs the unfolding of the entire composition. Unfolding in music, is what Plato would call “the becoming.” So, it is this *One*, that must prevail, from that pregnant moment just before the performance starts, to the moment after the last sound is heard. But this, in turn, presents us with a fundamental paradox: Whereas the composition must be performed sequentially from beginning to end, in linear time—A, B, C, D, E—it is nevertheless *generated* from the future, to the present. In other words, A does not *generate* the next section B, nor does B generate C; the past does not *generate* the present.

This paradox flies right in the face of the “pit creatures” of the Enlightenment, who claimed that the ordering of ideas occurs only according to a naive sense perception of space, with continuous linear extension and three

categories of direction: back-forward, side-to-side, and up-down; time, meanwhile, being extended, in a similar way, from past to future. The failure even to admit the existence of this paradox, is what is wrong with standard music training today, and with anyone who insists that the printed score is the literal statement of the composer’s intent. The score is no such thing; it is only a footprint of the metaphor in the composer’s mind.

In the *Ave verum*, you have the *One*, Mozart’s higher hypothesis, which generates the following five hypotheses:

Hypothesis A:

Ave, ave verum corpus
natum de Maria virgine,

Hypothesis B:

vere passum immolatum
in cruce pro homine.

Hypothesis C:

Cuius latus perforatum
unda fluxit et sanguine,

Hypothesis D:

esto nobis praegustatum
in mortis examine.

Hypothesis E:

in mortis examine.

Let us now sweep through each level of hypothesis. This is not intended to be an analysis of the piece, and I will not go into every detail. The crucial point, is to put yourself into Mozart’s own mind, discover his discovery, and to think about how you can recreate those ideas. Note, in the case of each new hypothesis, the change or transformation of the original interval pairs, the crucial changes in the vocal registration, and the increased densities of singularities.

I start with the end, before the beginning, as did Mozart: **Hypothesis E**, “in mortis examine”—“the test of death.” It is the underlying discovery of this hypothesis, as generated from Mozart’s unspoken higher hypothesis, and his *hypothesizing the higher hypothesis*, which governs the entire composition. Throughout this discussion, remember, as you sing or listen, that this is the question

of “the test of death.”

Compare, once again, “in mortis examine” with the opening “Ave, ave.” I think you can hear that there is more tension in the “in mortis examine,” a more concentrated rate of change, than in the opening “Ave.” The two levels of hypothesis are related, but there is difference. Once again, this *difference* is precisely what must guide the performer, when he performs the opening.

First, let us take the bass vocal line in Hypothesis E. Mozart has generated this phrase as a transformed series of singularities—a combination of the opening descending line, and the play of the one-ness of major and minor. Sing, in alternation, this bass line, and then the opening “Ave, ave” soprano line [Figure 2].

Mozart sets up our new paradox by composing the other voices, unfolding his discovery of the Lydian and major-minor, as generated by his *new modality*. Think, for example, of Mozart’s transformation of the soprano line, leaping a fifth upward on “in mor-,” as an inversion of the ascending fourth in the sopranos’ opening “Ave” [SEE Figure 4]. Combine this transformation of the fourth and fifth, with the inversion of the bass voice, and you will discover how Mozart generates every singularity of the piece, now transformed.

Now, put all four voices together. Think about why all this development occurs on the idea of “mortis”—“death,” remembering what I said at the beginning, that Mozart is posing to you the question, Can you live a creative life? Can you make such transformations for all of mankind?

In putting all four voices together, as the sopranos sing a sustained D on “mor-,” the tenors and altos enter, with a Lydian interval between them, on “in.” Then, with the sopranos still sustaining their D, and the other voices now joining the sopranos on “mor-” of “mortis,” Mozart touches upon the G minor mode; only then, to create yet another Lydian series (in fact, double Lydian*) between all four voices. Still on “mor-,” he continues, forming successive

FIGURE 4. **Hypothesis E.** Mozart’s transformation of the soprano line, leaping a fifth upward on “in mor-” (a), as an inversion of the ascending fourth in the soprano opening “Ave” (b).

Lydian intervals between the basses and tenors, and then between the basses and sopranos, until the “-tis” of “mortis.”

So, here you have, within a few short measures, the unfolding of the *new modality*—of Mozart’s discovery, a discovery which is made only in Mozart’s mind. Mozart drives the tension throughout this section, and, on the final “examine,” brings all the voices into their first register—as audience and performers reflect on the “test of death.”

The entire Hypothesis E is exactly like a couplet at the end of a poem by Shakespeare or Schiller: a transformation of hypothesis. What has been unfolded previously, in other hypotheses, is now a higher order in only a few short measures.

With Hypothesis E in mind, go back to the beginning of the composition, to **Hypothesis A**, which is governed by one completed idea. In singing or listening through Hypothesis A, keep in mind the original interval pair through which Mozart has presented his paradox—a paradox that is governed by Mozart’s higher hypothesis, as generated from his hypothesizing of the higher hypothesis.

Now, let us consider **Hypothesis B**, “vere passum.” Familiarize yourself with this section [SEE Figure 5(a)], so

* I.e.,

that it

FIGURE 5. (a) **Hypothesis B**, “vere passum.”

FIGURE 5. (b) **Hypothesis B.** Entrance of the basses is an inversion of the sopranos' original second "ave."

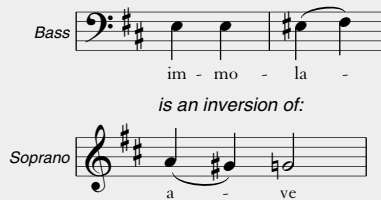
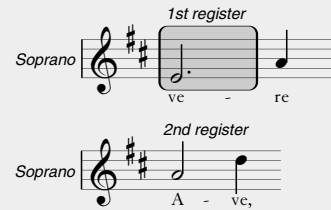


FIGURE 5. (c) **Hypothesis B.** Shift in soprano voice register, compared to opening "Ave."



is firmly in mind, and then mentally re-perform the entire composition from the beginning, up through this section. While you might recognize some similarity between the opening interval pairs of Hypothesis B and Hypothesis A, they are quite different. Hypothesis B is of a higher order than A; B involves greater rates of change, and a greater density of singularities. It is both the unspoken metaphor and the transformations between B and A, that must govern the performance at this point.⁵ While you are singing A to B, it is actually the higher-order mental process which is governing the unfolding of the composition, and generating the creative tension in the performance.

Let us look at Hypothesis B more closely, and see what is different about it. First of all, Mozart takes his first singularity, of the Lydian interval, and subjects it to a process of development. You find this in the interplay between all four voices. Throughout the voicing of "immolatum," Mozart increases the rate of the singularities, first on the "-mo-" between the tenor and alto, singing D and G respectively, followed by a double Lydian interval on the syllable "-la-," the first between the bass and soprano lines, and the second between tenors and altos. This interplay, which creates the intensity of "immolatum," requires that the performers achieve a maximum of vocal transparency, so that the listener does not hear the music "vertically," as a "diminished chord" and so forth, but, rather, dialectically, as a Platonic dialogue among the individual voices.

Mozart increases the intensity further by offsetting the entrance of the basses, on E-E -F , which you can now

easily recognize as an inversion of the sopranos' original second "ave," A-G -G♯ [SEE Figure 5(b)]. But once again, even though the notes seem similar, we have a totally transformed idea here, governed by a different level of hypothesis.

Mozart doesn't allow you to stop, but drives the idea still further, with the sopranos entering for the first time alone, on "in cruce"—"on the cross, on behalf of man." Here, Mozart brings together the paradox of the opening in the most concentrated transformation up to this point. We have the rising fourth (our original interval pair) in the soprano voice, while the three other voices play upon the paradox of the Lydian interval, such as between the tenors and altos on "in."

To complete this hypothesis, it is important to note the crucial role that the natural registration of the human singing voice plays among all the voices as the modality unfolds.⁶ Take the opening of this hypothesis, on the words "vere passum." Mozart starts the sopranos in their first, "chest" register, then leaps upward a fourth, just as in the opening statement; but this time, there is a clearly-defined shift in tone-quality and shaping between the first and second notes. This shift in voice register creates a changed idea [SEE Figure 5(c)].

Hypothesis C, "Cuius latus perforatum unda fluxit et sanguine," is related to, but, again, different from the opening idea. Now you have an even greater rate of change. And once again, I must remind you that Hypothesis C is of a higher order than Hypotheses B and A. Hypothesis C is generated by Mozart's higher hypothesis, not by A or B. And it is this difference which must be heard.

Familiarize yourself with this section, and then mentally compare its intensity with that of Hypothesis A, "Ave, ave" [SEE Figure 6(a)]. From the standpoint of

5. For further discussion of the principle of metaphor, see the following works by Lyndon H. LaRouche, Jr.: "Mozart's 1782-1786 Revolution in Music," *Fidelio*, Vol. I, No. 4, Winter 1992; "On the Subject of Metaphor," *Fidelio*, Vol. I, No. 3, Fall 1992; "That Which Underlies Motivic Thorough-Composition," *Executive Intelligence Review*, Sept. 1, 1995 (Vol. 22, No. 35); *The Blunder in U.S. National Security Policy* (Leesburg, Virginia: Committee to Reverse the Accelerating Global Economic and Strategic Crisis: A LaRouche Exploratory Committee, November 1995).

6. See *A Manual on the Rudiments of Tuning and Registration*, Book I, ed. by John Sigerson and Kathy Wolfe (Washington, D.C.: Schiller Institute, 1992).

FIGURE 6. (a) Hypothesis C, “Cuius latus.”

S
Cu - ius la - tus per - fo - ra - tum un - da flu - xit et san - gui - ne,

A
Cu - ius la - tus per - fo - ra - tum un - da flu - xit et san - gui - ne,

T
Cu - ius la - tus per - fo - ra - tum un - da flu - xit et san - gui - ne,

B
Cu - ius la - tus per - fo - ra - tum un - da flu - xit et san - gui - ne,

FIGURE 6. (b) Hypothesis C. Soprano “Cuius latus perforatum,” is a minor inversion of the major “Ave, ave verum corpus” of Hypothesis A.

Soprano
la - tus per - fo - ra - tum

inversion

Soprano
a - ve ve - rum cor - pus,

Mozart’s discovery in modality, you have more singularities *per* interval of action. Note the play between the major, the minor, and the Lydian. Think about the unspoken “higher hypothesis” which generated this hypothesis, and how this governs the unfolding of this hypothesis. Take, first, the Lydian interval on “-tus” of

“latus” between the bass and tenor voices; second, the Lydian interval between basses and tenors on “un-” of “unda”; and third, the double Lydian interval on “san-” of “sanguine” among all four voices.

On another level of change, Mozart starts this section with a direction-reversal of the sopranos’ second opening “ave.” Sing the two soprano lines, “cuius latus perforatum” and “Ave, ave verum corpus,” while keeping the other voices in mind. What do you hear as the difference? The “cuius latus” is the minor inversion of the major [SEE Figure 6(b)]. What Mozart is developing in his third hypothesis, is a play between the major, minor, and Lydian—a *new modality*. And thus, when you put the four voices together, something entirely new has occurred, which is not in any of the notes or intervals themselves, but is generated from Mozart’s discovery, his metaphor, his “higher hypothesis.”

Proceed now to **Hypothesis D**, “Esto nobis” [SEE Figure 7]. Once again, fix this section in your mind, and then

FIGURE 7. Hypothesis D, “Esto nobis.”

S
es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne,

A
es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne,

T
es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne,

B
es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne,

sing, or imagine, the entire piece up to this point, keeping in mind the differences in each of the successive sections, and their relation to each other and to the unspoken *One*, the higher hypothesis. Compare the opening of Hypothesis D, to the both Hypothesis C, and to the “Ave, ave” of Hypothesis A.

Mozart has again increased the rate of action, including, for the first time, his introduction of voice pairs entering in time displacement, as in a canon. The rising fourth as sung by the soprano voice in the opening “Ave,” has been subsumed by the canonical entrances across the voice pairs, such that the tenors and basses enter an inverted fourth (i.e., a fifth) lower than the sopranos and altos. Note the transformations in the unfolding of the phrase beginning with “esto,” through the “examine”—the test of death. It is on the “ex-” of “examine,” that Mozart places the Lydian—a subtlety which cannot be glossed over in performance. Mozart is challenging the listener and performer, to

look inside themselves and ask the question: *Have you lived your life, such that you have triumphed over death? Have you lived a creative life, and done something crucial for all mankind?* Thus, Hypothesis D subsumes all that is come before, and, like each hypothesis previously, it is generated by the higher hypothesis which is never explicitly stated.

From this standpoint, now turn back to to Hypothesis E, the final “in mortis examine.”

* * *

Like all great writers of tragedy, Mozart has made *change*—and you, his listener—the subject of his discussion. And, like Plato, Mozart, through the *Ave verum*, has unfolded the discovery of musical memory.

Listen to the entire *Ave verum*. Let us take our lesson from Mozart. With it, we shall win the battle for every child in every nation, for many generations.

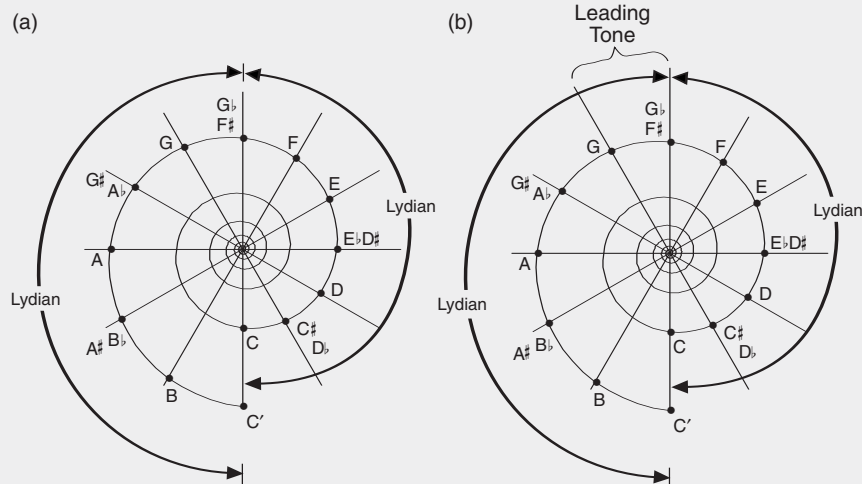
The Lydian Interval

A singularity of great importance, the “Lydian” interval is the interval which divides the octave exactly in half. It is often misnamed the “devil’s” interval, or tritone. From the standpoint of the diatonic scale in itself, it is also popularly described as an augmented fourth or diminished fifth.

The Lydian is the only interval which cannot be generated by the principle of inversion or complementary intervals within any given mode. This interval

uniquely divides the octave exactly in half: that is, the interval from the tonic to the Lydian tone is the same amount of change as the interval from the Lydian tone to the octave. In the mode of C major/minor, for example, this corresponds to the interval between C and F \sharp , which also corresponds to the physical singularity of the register breaks in the soprano and tenor singing voice [figure (a)].

In the major/minor mode, the Lydian interval is a dissonance with respect to any given mode. For example, in the mode of C major/minor, the interval C-F \sharp is such a dissonance. Yet, this Lydian interval has the unique property of being a pathway from one mode to the next, by way of the leading tone of that next mode (F \sharp - G in the mode of G major/G minor) [figure (b)].



—Bruce Director,
*“What Mathematics Can
 Learn from Classical Music”*
Fidelio, Winter 1994 (Vol. III, No. 4)

Ave verum corpus

Motet for SATB, Strings, and Organ

Wolfgang Amadeus Mozart

K. 618 (1791)

Adagio
sotto voce

Violin I
Violin II
Viola
Soprano
Alto
Tenor
Bass
Organ

tasto solo
sotto voce

5

A - ve, a - ve ve - rum cor - pus, na - tum de Ma - ri - a

5 3 - 6 5 2 - 4 4 - 6 5 - 9 8 4 3 - 6 5 -

10 15

vir - gi - ne, ve - re pas - sum im - mo - la - tum in cru - ce pro

vir - gi - ne, ve - re pas - sum im - mo - la - tum in cru - ce pro

vir - gi - ne, ve - re pas - sum im - mo - la - tum in cru - ce pro

vir - gi - ne, ve - re pas - sum im - mo - la - tum in cru - ce pro

9 6 5 - 4 3 - 6 7 8 9 8 6 7 5

20

ho - mi - ne. Cu - ius la - tus per - fo -

ho - mi - ne. Cu - ius la - tus per - fo -

ho - mi - ne. Cu - ius la - tus per - fo -

ho - mi - ne. Cu - ius la - tus per - fo -

tasto solo

5 4 - 5 - - 6 4 - 7- 9- 8- 7-

4 - - 3- - 5 3 - 6- 5-

25

30

ra - tum un - da flu - xit et san - gui - ne, es - to

ra - tum un - da flu - xit et san - gui - ne, es - to

ra - tum un - da flu - xit et san - gui - ne,

ra - tum un - da flu - xit et san - gui - ne,

- 5. - 6 - 6 6- 6 7 6 - 6. 7. 3 4 4 -

- - 4. - - 5- 3. - 4 - 4 - 7. 2 2 -

- - 2 - - - - 2 - - - - -

35

no - bis prae - gu - sta - tum in mor - - - - - tis ex - a - mi - ne, in mor -

no - bis prae - gu - sta - tum in mor - - - - - tis ex - a - mi - ne, in

es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne, in

es - to no - bis prae - gu - sta - tum in mor - tis ex - a - mi - ne, in

7 6 7 6 7 - 6 6 6 6 5 6 6 6/5 3.

40

45

- - - - - tis ex - a - mi - ne.

mor - - - - - tis ex - a - mi - ne.

mor - - - - - tis ex - a - mi - ne.

mor - - - - - tis ex - a - mi - ne.

6 6 6 4 6 6 6 7 6 7 6 6 5 3