

PAUL HINDEMITH'S PHILOSOPHY OF TONALITY AND FORM

An Essay

Presented to

The Faculty of the Moores School

of Music

University of Houston

In Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Musical Arts

By

Matthew Robert Lamm

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Paul Hindemith's musical and theoretical writings have been misunderstood and underappreciated by a large number of modern musicians. In the same way that J.S. Bach's oeuvre was not fully understood or valued until decades after his death, Hindemith's music has suffered a similar fate. This essay draws a historical parallel between the circumstances surrounding both Bach's and Hindemith's personal lives, their musical output, and their overarching philosophical concerns. A general discussion of Hindemith's early music is followed by a more detailed discussion and analysis of both published versions of his *Das Marienleben* song cycle. Utilizing passages from and analyses of Hindemith's *The Craft of Musical Composition*, *Trumpet Sonata*, and *Tuba Sonata*, in addition to Hindemith's published lectures, letters, and speeches, this essay will explain Hindemith's mature compositional philosophy and detail how it evolved over the course of his lifetime.

Table of Contents

Introduction	1
Hindemith and Bach	2
Early Music	5
<i>Das Marienleben</i>	12
Trumpet Sonata	22
Tuba Sonata	30

List of Examples

“Mariä Verkündigung,” from <i>Das Marienleben</i> (1923), formal tonal plan	6
“Mariä Verkündigung,” from <i>Das Marienleben</i> (1948), formal tonal plan	6
Clarinet Quartet (1938) tonal plan	6
Third Organ Sonata (1940) tonal plan	6
Trombone Sonata (1941) tonal plan	6
Hindemith’s Series 1	14
Hindemith’s Series 2	16
“Mariä Verkündigung” (1923) last measure voice spacing	17
“Mariä Verkündigung” (1948) last measure voice spacing	17
“Mariä Verkündigung” (1923) A’ section degree progression and harmonic fluctuation analysis	19
“Mariä Verkündigung” (1948) A’ section degree progression and harmonic fluctuation analysis	19
Trumpet Sonata tonal plan	22
Tuba Sonata tonal plan	23
Hindemith’s Series 2 (from <i>Craft I</i>) harmonic and melodic force	23
Trumpet Sonata final measure	26
Tuba Sonata final measure	26
Trumpet Sonata opening melody	27
Trumpet Sonata degree progression and harmonic fluctuation analysis	27
Tuba Sonata opening melody	30
Tuba Sonata degree progression and harmonic fluctuation analysis	30

Introduction

In a footnote to his study on compositional design in Hindemith's mature music, David Neumeyer ascertains that "(i)t would certainly be possible to argue that Hindemith's use of proportional structure is the expression of a philosophical or religious attitude, but it would be equally possible to argue that it was just another of his many means to an intrinsically musical end."¹ Yet this statement is slightly misleading: these two arguments may be equally possible but are they equally plausible? According to Hindemith's own lectures and published texts, it is abundantly clear that, to Hindemith, music itself was the means to an end: the improvement of the human situation and condition. To argue that music itself is the end goal, and that Hindemith's compositional choices were made in order to serve the shortsighted and limited task of composing a single piece of music, is a misunderstanding of Hindemith's philosophical attitude.

This essay has three main goals: 1) to explain Hindemith's philosophical attitude and show how this attitude motivated his creative output; 2) to demonstrate that Hindemith's later compositions manifest the compositional philosophies found within his theory textbook and result in more cohesive, efficient, and effective musical artworks; and, 3) to prove that proportional formal structure is a hallmark of Hindemith's mature music and a result of his compositional philosophy. The second of these arguments will utilize specific discussions of Hindemith's *Das Marienleben* (both the 1923 and 1948 versions), the Sonata for Trumpet and Piano (1939), and the Sonata for Tuba and Piano (1955), using *The Craft of Musical Composition* vol.1 (1937, English translation 1941) as a fundamental reference text. An overview of Hindemith's philosophical attitudes, using his own words as evidence, will serve

¹ David Neumeyer, "Tonal, Formal, and Proportional Design in Hindemith's Music," *Music Theory Spectrum* 9 (Spring 1987), 95n7.

as a solid entry point into a discussion of the music itself. A brief discussion of his early works, with a focus on the composer's stated intentions for his art, will include an interpretive analysis in order to better understand the philosophical considerations of a young Hindemith. An examination of specific examples of the compositional elements found within his earlier works will then lead to the main focus of the essay: a discussion of specific applications of Hindemith's compositional techniques, found throughout his mature music, with a comparison to his earlier music and a concluding attempt at an overall value judgment of the effectiveness of his mature compositional techniques.

Hindemith and Bach

On September 12th, 1950, at the Bach commemoration for the city of Hamburg, Germany, Hindemith delivered a speech that would later be published as the book *J.S. Bach: Heritage & Obligation*. The title of the book itself is revelatory: heritage defined as something handed down from the past, as a tradition; and obligation defined as a binding promise, contract, or sense of duty. It is truly this spirit of reverence for and duty to the past that inspires Hindemith's music.

During this presentation Hindemith makes comments regarding Bach that, in hindsight, could be said to describe Hindemith himself. For example, he states that Bach is more artist than intellectual, one who uses the newest advancement in musical science (twelve-tone equal temperament scale), but is indifferent to the theoretical aspects of his art. Some may find a hint of irony in Hindemith's statement, made in 1950, that "(a)ll considerations of technique in composition, rules of harmony, melody, and form must be

based on their [skilled theorist's] findings.”² This statement was made prior to the writing of the Tuba Sonata, but took place after the publications of both the Trumpet Sonata and *Craft*. This evidence suggests that, by 1950, Hindemith had realized that his musical output would be more effective if it were anchored to theoretical findings – findings Hindemith himself would make while writing *Craft*.

A most illuminating insight for our understanding of Hindemith's philosophical attitude comes from his comments regarding Bach's personal attitude towards artistic creation. Hindemith adopted a clear philosophical stance based on his appreciation of Bach's life and music:

In the limited realm of musical enjoyment, which, in spite of its own beauty, is again a symbol of our whole faculty of perceiving and digesting earthly experiences, recognition of the summit, once and forever, means that from now on we cannot perceive any structure of sound without measuring it against those values which Bach has demonstrated. The outward hull of music, sound, will then shrink to nothingness. If originally it was the element which drew us towards music, which alone seemed to satisfy our longings, it is now only a vessel for something more important: our own betterment. ... If music has the power to direct our entire existence toward nobleness, this music is great.³

With this in mind, one might ask if this was also the young Hindemith's philosophical approach towards art? We shall see that Hindemith (and his governing musical philosophy) was shaped over time by his environment.

When one views the previous statements made by Hindemith about Bach in light of Hindemith's own musical background, a rather obvious parallel is found: Hindemith himself was once the listener described above, drawn to the outward hull or sound of music. At

² Paul Hindemith, *J.S. Bach: Heritage & Obligation* (New Haven: Yale University Press, 1952), 23.

³ Hindemith, *J.S. Bach*, 44.

nineteen years of age, and as the recently appointed concertmaster of the Frankfurt State Opera Orchestra, Hindemith performed Beethoven's Violin Concerto in concert. By the age of 28, Hindemith had published: a work for solo cello and piano, three string quartets, five string sonatas, two one-act operas, a play for marionettes, a suite for piano, and a wind quintet. It is clear that Hindemith had both an artistic vision and a message to convey, but it was not until he began teaching that he realized a fundamental truth: that in order for his message to be effectively received, it must be delivered in a clear and concise manner. Further along in this essay, we will examine specific examples from each version of Hindemith's *Das Marienleben*, as well as the Trumpet and Tuba Sonatas, which will make the previous statement crystal clear.

There are two more statements made by the mature Hindemith that will help our understanding of his foundational philosophical attitude. Both are taken from the series of Norton lectures, given at Harvard University during 1948 and 1949, and which were later published in book form as *A Composer's World*. Following a series of detailed lectures concerning specific technical aspects of composition, Hindemith comes to this conclusion: "Technical skill and stylistic versatility have only one purpose: to bring into existence what we called the vision of the genuine composer, or what comes closest to it in the imagination of his minor colleagues."⁴

It has been noted that, later in life, Hindemith rejected his earlier attitude, an attitude that has been described by many a layperson as composing "notes for the sake of notes." Whereas the younger Hindemith sought to create innovative sounds that resulted in novel musical patterning, the elder Hindemith understood that musical patterning is the means by

⁴ Paul Hindemith, *A Composer's World* (Garden City, NY: Anchor Books Doubleday & Company, 1961), 147.

which one reaches the ultimate musical goal and is not, simply put, the goal itself. It is fair to describe Hindemith's philosophical attitude as evolving over the course of his lifetime but it is also clear that, when one compares the earlier and later music, the philosophical attitude at each and every stage of life underpins the entirety of his musical creation.

One final quote from the Norton lectures will help us to segue into the second part of this essay's argument by understanding the concern Hindemith had with balanced compositional elements throughout his oeuvre.

"The greatest sin in art is not boredom, as frequently stated, but the lack of proportion, and he certainly is a bad composer who has no feeling for the balance of all his means of expression."⁵ Hindemith's early music is nothing if not active and exciting (quite un-boring), but there are still aspects of balanced elements. We find in *Craft I* Hindemith's individual theories regarding harmony and melody or the "spatial" elements of music, but no rules are given with regard to rhythm or the "temporal" element in music. Some speculative reasoning for this fact will be offered later but, as Neumeyer has shown, Hindemith was unable to fashion a comprehensive rhythmic theory, although his failed attempts led to the application of techniques found within his tonal designs – large-scale symmetrical or proportional designs – to large-scale rhythms (formal design).

Early Music

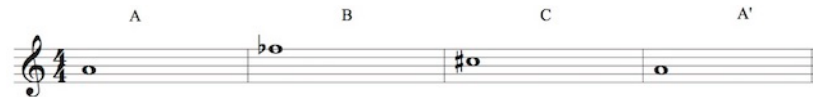
Even in his earlier works, Hindemith employed symmetrical or cyclical tonal designs. If we compare the tonal plans (as found in ex. 1 and 2) from "Mariä Verkündigung", a song from the *Marienleben* cycle, we find the original to display mirror-symmetry while the revision shows a cyclical tonal plan, beginning and ending on the tonality of A.

⁵ Hindemith, *Composer's World*, 173.

Example 1: “Mariä Verkündigung” from *Das Marienleben* (1923) formal tonal plan



Example 2: “Mariä Verkündigung” from *Das Marienleben* (1948) formal tonal plan



The revised tonal plan is actually just an enharmonically spelled A major triad; this increases the harmonic motion, yet the earlier version shows a symmetrical tonal plan, itself also a balanced tonal scheme. Neumeyer also gives tonal plans (from Hindemith’s own sketches) for the Clarinet Quartet (1938), first movement (ex. 3); the Third Organ Sonata (1940, ex. 4); and the Trombone Sonata (1941, ex. 5).

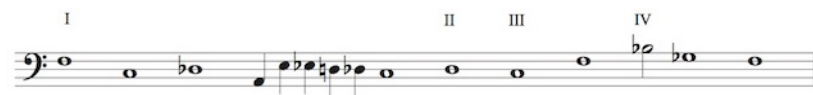
Example 3: Clarinet Quartet (1938) tonal plan



Example 4: Third Organ Sonata (1940) tonal plan



Example 5: Trombone Sonata (1941) tonal plan



When one observes these tonal schemes on the musical staff, their balanced design is apparent. The Clarinet Quartet is truly a symmetrical tonal plan while the other examples

demonstrate use of cyclical tonal plans that begin and end in the same tonality. It is clear from the sketches and published tonal centers that Hindemith consciously and carefully balanced his tonal designs.

While his philosophical approach underlies even his earliest music, those early compositions should also be understood as a direct response to his contemporary environment. Hindemith's early music has the energy and intensity of youth. Many have labeled his early output as "neo-classical", a reaction against the hypersensitivity and egocentricity of late Romanticism. The young Hindemith was interested in Baroque forms and the music of Bach, a music of a "universal" quality and not one focused primarily on the expression of "personal" feelings. Yet, even as the young Hindemith sought to compose in these old forms, he carefully balanced his compositions by employing popular melodies and song forms in juxtaposition with the older styles and forms (for example, the Piano Suite "1922", opus 26, and the *Kammermusik* series). It was almost as if Hindemith was asking the rhetorical question: how do I say something new, but in a way that people will relate to and understand?

The young Hindemith rejected many of the traditional rules of music theory and composed truly novel music. In his article on the early music of Paul Hindemith, Martin Scherzinger explains: "Eclectic, brash, and experimental, Hindemith's music adopted a wayward, anti-Romantic, and parodistic stance towards musical history, resonant with the paradoxical mood of both relief and asphalt cynicism in Germany during the Weimar Republic."⁶

⁶ Martin Scherzinger, "Heideggerian Thought in the Early Music of Paul Hindemith," *Perspectives of New Music* 43/2, 44/1 (Summer 2005-Winter 2006), 85.

Even in this early music, there is a balance of elements: new and old, relief and cynicism. Take, for example, the Piano Suite “1922,” opus 26, a work that was organized around popular contemporary dances like the Boston, Shimmy, and Ragtime. Hindemith succeeded in grafting together fragments of popular entertainment from consumer society, a kind of “high art music that had entered the speedy circuit of commodity production and destruction.”⁷ Hindemith also intended for it to be listened to and consumed; the music was intended to fade after a year or so as the perishable nature of its style was built into the structure of the music.

The opening movement, March, seems as if it were constructed entirely by cutting and pasting individual lines or voices and shows no thematic evolution. Robert Morgan has labeled this abstract musical manufacturing in Hindemith’s early music “severely linear.”⁸ Although the voices sound as if they are unrelated or at least inconsequentially related, they do so only with respect to pitch. Providing balance to these seemingly abstract tonalities is the employment of unison rhythm. “With voices that are curiously responsive and unresponsive to each other, the March becomes a montage of assembled mottos and events, cooperating rhythmically while sparring harmonically.”⁹ Even in this early composition, we see Hindemith’s use of balanced compositional elements, but the important question remains: what may we infer from this about his underlying philosophical attitude?

Partially as a response to the musical excesses of the Romantic era and the self-importance of the quasi-religious realm of autonomous art (which was separate from “common” society and promised to transport the listener beyond the mundane), Hindemith’s

⁷ Scherzinger, “Heideggerian Thought,” 86.

⁸ Robert Morgan, *Twentieth-Century Music: A History of Musical Style in Modern Europe and America* (New York: Norton, 1991), 222.

⁹ Scherzinger, “Heideggerian Thought,” 88.

early music-writing culminated in a socio-politically informed philosophy of music called *Gebrauchsmusik* or “Music for Use”. This philosophy involved a practical, communal dimension of music making, but the chief social aspect of the *Gebrauchsmusik* aesthetic was, according to the music critic Theodor Adorno, social critique.¹⁰

For instance, the first movement of Hindemith’s *Tanzstücke* for solo piano, opus 19, employs independent musical lines that appear in “random” transpositions and exert no influence on each other. When the voices do coordinate within unison passages, it results in a sort of oversimplified homogeneity. By taking a popular dance-tune and obscuring its tonality, the listeners reinterpret it as atypical and strange. The disassociated individual lines result in complex polytonality as a result of the young Hindemith’s almost montage-like splicing of melodic elements. Therefore, the new interpretation afforded by Hindemith’s novel musical approach allows listeners to unpack the extra-musical associations made with the original song/dance. Hearing things as they truly are rather than as one wishes them to be is an important intellectual exercise and a crucial element of social critique.

According to Scherzinger, “*Gebrauchsmusik* (Use Music) resided in a space between, on the one hand, *Eigenständigemusik* (Autonomous Music), which was associated with the idealist tradition of art for art’s sake, and, on the other hand, *Verbrauchsmusik* (Used-up Music, Consumed Music), associated, in turn, with commercialized mass music.”¹¹ Scherzinger’s article contains a rather detailed discussion on the historical origins and the philosophical background of the term *Gebrauchsmusik*, which I will summarize.

Originally attributed to the musicologist Heinrich Bessler, the concept of *Gebrauchsmusik* and its purpose “was an attempt to describe the worldly, practical nature of

¹⁰ Theodor Adorno, *Negative Dialectics*, trans. E.B. Ashton (New York: Seabury, 1973), 258.

¹¹ Scherzinger, “Heideggerian Thought,” 93.

music's authentic condition in contrast to the autonomous hermetic object of contemplation it had become under various mistaken philosophical assumptions of classical and romantic times."¹² "*Gebrauchsmusik* occupied an intermediate dialectical space between the false extremes of modern musical life."¹³ Yet the originator of the term, Besseler, was concerned with forging a link between the opposing extremes of philosophical objectivism and idealism.

When one listens to Hindemith's *Kammermusik* series (written between 1922 and 1927) with an understanding of the aforementioned *Gebrauchsmusik* philosophy, one senses elements of both autonomous art music and a living, modern music. The *Kammermusiken* Nos. 2-7 were concertante works written for a diverse set of soloists: piano (No. 2), cello (No. 3), viola (No. 4), violin (No. 5), Baroque *viola d'amore* (No. 6), and organ (No. 7). The organ was viewed as a stereotypical icon of the Baroque and the other Baroque compositional elements – instrument usage, Baroque formal types, even Baroque figuration – give the impression that these works were reproductions of Baroque models.

In the *Kammermusik* No. 1, Hindemith makes references to both historical (Baroque) and contemporary musical reality. Here is the primary level of dialectical interplay: autonomous music versus modern living music. But another level of dialectical interplay is found within the references to modern music: jazz and other popular contemporary dances were quoted (i.e. the foxtrot finale to *Kammermusik* No. 1) while contemporary art music was referenced (according to Richard Taruskin the opening of *Kammermusik* No. 1 was modeled on Stravinsky's burlesque ballet *Pétrouchka*). Even solely within the contemporary

¹² Scherzinger, "Heideggerian Thought," 93.

¹³ Ibid., 98.

allusions, Hindemith has contrasted music that was “used-up” with music that was “autonomous”.

There are specific musical elements within *Kammermusik* No. 1 that bear mention: use of the harmonic collection of B major (omitting D#) and the metric ambiguity that arises as a result of polyrhythm. For example, the violins are grouped in rhythmic figures of three that would divide each $\frac{3}{4}$ measure into two $\frac{6}{8}$ measures while the violas are grouped in two, which would divide each $\frac{3}{4}$ measure into three $\frac{4}{8}$ measures. This element of polyrhythm is further complicated by the piano’s sixteenth-note sixlet cross-rhythm sounding simultaneously over the string-instrument polyrhythm. Tightly controlled harmonic structures (B major collection less D#) and complex rhythmic interplay/overlay (tri-level polyrhythm) are life-long features of Hindemith’s music.

Notably, this early movement’s form is ambiguous: is it a da capo (ABA’) form or a rondo (ABA’B’) form? Under this strict “constructionist mimicry”¹⁴, music’s natural forms are instead understood as manufactured conventions. The third movement contains a “deconstructed” fugue with unmotivated subject entries (detached from their tonal implications) and lost countersubjects (appearing as if they were subjects). The result is a *Kammermusik* that “mockingly reorganizes patterns, figures and forms of the commonplace to magnify their organizing source. ... It becomes a counterfeit simplification in quest of revelatory precision.”¹⁵

¹⁴ Scherzinger, “Heideggerian Thought,” 111.

¹⁵ Scherzinger, “Heideggerian Thought,” 111.

Thus, *Gebrauchsmusik* was not the uncritical, world-bound music intended to be used-up nor was it “music made to be hermetically contemplated from aesthetically appropriate distances.”¹⁶ In fact, this *Neue Sachlichkeit* [New Objectivity], a movement to which Hindemith’s *Gebrauchsmusik* belongs, was a formative philosophical worldview that shaped Hindemith’s early output. While it is true that Hindemith’s philosophical worldview evolved over the course of his life, the fundamental truth that Hindemith’s music (means) served his supra-musical goals (ends) holds true through all periods of his life.

Das Marienleben

It was during his *Gebrauchsmusik* period that Hindemith wrote the aforementioned *Das Marienleben* song cycle. This specific work is a prime illustrative and microcosmic example of Hindemith’s artistic development. Originally published in 1923, Hindemith set out to revise and strengthen the piece, post-*Craft* publication, utilizing the techniques established in his theory text. The revised *Das Marienleben* was published in 1948 and included prefatory comments by the composer regarding the revisions. Hindemith described the revisions as a correction for the shortcomings of the original; these revisions were necessary because Hindemith “like everyone else...relied on his musical instinct, since he knew nothing better.”¹⁷

Hindemith’s musical instinct is what led to the creation of his early artworks, and we have seen the underlying *Gebrauchsmusik* philosophy that colors his early artistic vision. As

¹⁶ Scherzinger, “Heideggerian Thought,” 112.

¹⁷ Paul Hindemith, *Introductory Remarks for the New Version of “Das Marienleben,”* trans. Arthur Mendel, (New York: Associated Music, 1948), 4.

Hindemith matured and began teaching collegiate composition in 1927, he started to understand that his art must be anchored to something more durable and fixed than mere transitory and relative “instinct”. The personal and musical development instigated by Hindemith’s appointment as Professor of Composition at the Hochschule für Musik in Berlin by Franz Schreker in 1927 was a driving impetus behind the creation of his *Craft* (1937) theory text.

The change in compositional style from pre- to post-*Craft* is striking. The earliest music has a surrealist quality as a result of Hindemith’s montage-like splicing of individual musical lines that typically results in polytonality. This technique served him well, but we have found that, after *Craft*, his music is much more tightly controlled with regard to tonality. The three musical examples that were previously mentioned (ex. 3, 4, 5), dating from between 1938 and 1941, demonstrate the concern Hindemith had with tonal organization in his post-*Craft* music.

Among the prefatory comments to his revised *Das Marienleben*, we find this elucidative statement: “I began to glimpse the ideal of a noble music, as near perfect as possible, that I should one day be able to realize.”¹⁸ Here again is the idea of nobleness in music. We know that this is a quality that the mature Hindemith valued and attributed to Bach’s music. Nobleness, as defined in the Merriam-Webster dictionary, means an exalted moral character or excellence. To describe it simply, morality is concerned with the relations among humankind: the right (moral) and wrong (immoral) way of interacting with your fellow human. To Hindemith (and surely Bach) a noble music is one of an exalted moral character; it is concerned with the right (moral) interactions of its elements. When music

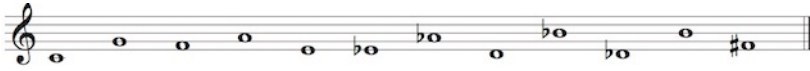
¹⁸ Paul Hindemith, *Introductory Remarks*, 4.

(such as Bach's music) employs all of its elements in a harmonious way the effect on the listener should be an uplifting of spirit - literally moral inspiration, which is why Hindemith labeled Bach's music as "right": no tonal problem went unsolved. The individual elements work comprehensively for the success of the whole; carefully balanced elements have a synergistic effect on each other, the work as a whole, and ultimately the listener.

As a direct result of the acoustical discoveries made while researching *Craft*, Hindemith carefully controlled the tonal organization of his later compositions. Take, for example, the contrasting tonal schemes from both the original and revised *Marientleben* versions (page 6, ex. 1 and 2). The "Introductory Remarks" to 1948's revised version inform the listener that the tonal center of E represents Christ, as "Godhead the center of being." The next tonal center, based on the closely related pitch of B, represents Mary, while the next most closely related pitch center of A symbolizes any application of Christ's divine nature (angels, heaven, etc.).¹⁹ The original version does not have an overriding tonal plan (other than its aforementioned mirror-symmetry) or tonal symbolism and stands in contrast to the revised version's diversity of tonality. The revised first section is based on A, quite appropriate as the text here is describing the entrance of the angel. The B section centers on Fb, a tonal degree that, according to Series 1 (ex. 6), is the most strongly related tone to A; but the true nature of the interval (perfect fifth) and its tonal relationship is obscured through its enharmonic spelling.

¹⁹ Hindemith, *Introductory Remarks*, 4.

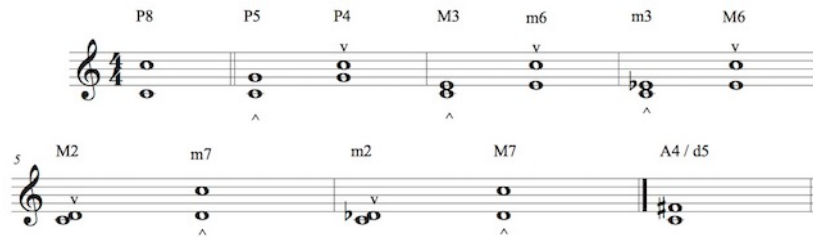
Example 6: Hindemith's Series 1 – strength of relation, from strong to weak, between tones referenced to C [from *The Craft of Musical Composition*, trans. Arthur Mendel, vol. 1 (New York: Associated Music, 1942; rev. ed., 1945), 96.]



The B section text is speaking of the purity of Mary. As a human, Mary is the furthest thing from an angel. But, as Mary is the future mother of Christ, it is interesting that this section is essentially in E: the tonal center of Christ. The most rhythmic excitement and harmonic tension is found in the C section. This section's tonality is C# - a minor third below the previous center (E down to C#) – which is also a major second above Mary's symbolic tonality of B. To me, this shows Mary's spirit has been enlightened as a result of her encounter with the angel. Mary is now in a different tonal center than her original B and closer spatially to the E of Christ. The final section, one line of text depicting the angel singing, is firmly back in A. Hindemith utilized the organizing principle of his Series 1 to determine the overall tonal progress of the revised version. In addition to the tonal structure imposed, we also gain important tonal symbolism. By employing the Series 1 tonal principles, Hindemith was able to more tightly control harmonic interactions, but also able to increase the diversity, scope, and musical effect of these elements. Hindemith applied the organizing principles of Series 1 to govern the large-scale tonal progress of the cycle but also the individual songs within the cycle.

In addition to the organizing power of Series 1, the harmonic principles of Series 2 (ex. 7) are applied throughout the revised version. *Craft's* Series 2 classifies the intervals according to their harmonic value as a result of their combination tones.

Example 7: Hindemith's Series 2 – intervals in descending order of harmonic value and ascending order of melodic value with interval roots marked (from *Craft I*)



Whereas overtones arise from a single sounding tone, combination tones arise from two or more tones sounding simultaneously. These combination tones either correspond to the original interval or do not. Those intervals whose combination tones double the interval members are more pure than those intervals whose combination tones are unrelated to the original sounding pitches. The further along Series 2, the less the combination tones coincide with the interval tones and the more “impure” the interval.

Hindemith's combination tone research led to two more important discoveries regarding interval roots and chord spacing. Hindemith found that each interval has a dominant tone: the interval member that is doubled by its combination tones. Intervals with their root in the lower tone are more acoustically stable. Hindemith's combination tone study also led him to the discovery that intervals with large distances between their constituent tones lose stability as a result of their distribution of combination tones. The more stable intervals maintain this stability over greater distances, but even the octave is less stable than the fifth at distances of more than two octaves. Why, then, would Hindemith end the original version of “Mariä Verkündigung” with the intervals of a fourth and four octaves followed by a fifth and four octaves (ex. 8)? The clarity and purity of each interval is lost due to the enormous distance between their constituent tones. It is Hindemith's study of combination tones that gives him insight into the problems created by extreme intervallic distances.

Hindemith's revised version shows that his conception of chord spacing obviously changed post-*Craft*.

Example 8: “Mariä Verkündigung” from *Das Marienleben* (1923) last measure voice spacing

Example 8 shows the last measure of the piece. The Soprano part has a whole rest. The Piano part has a whole note chord. The right hand contains F#4, A4, and C5. The left hand contains F#3. A slur connects the F#4 in the right hand to the F#3 in the left hand, indicating a tritone relationship.

Example 9: “Mariä Verkündigung” from *Das Marienleben* (1948) last measure voice spacing

Example 9 shows the last measure of the piece. The Soprano part has a whole rest. The Piano part has a whole note chord. The right hand contains F#4, A4, and C5. The left hand contains F#3. A slur connects the F#4 in the right hand to the F#3 in the left hand, indicating a tritone relationship.

In addition to revising the overall tonal plan and chord spacing, *Craft's* influence on *Marienleben* may be uncovered by examining what Hindemith called “harmonic fluctuation” and “degree-progression”. To Hindemith, the tritone is a special interval having no significance either harmonically or melodically. He groups all chords into those without tritone (group A) and those with tritone (group B). These groups are divided further into chords including seconds and sevenths and those without. The third defining factor in assessing the quality of a chord lies in determining its root. A chord's root is the root of the most harmonically stable interval within the chord. Chords involving two or more equal

intervals would designate the lowest interval's root as the chord root. Inferring chord roots allows for a third subdivision within each group of chords: those in which the chord root occurs in the bass and those in which the bass tone and chord root do not coincide. Thus, there are six sub-groups of chords: I, III, and V belong to group A (no tritone); II, IV, and VI belong to group B (with tritone). As one moves from group I to VI the harmonic value of the chords decreases while their harmonic tension increases. A convincing progression will increase in tension before releasing tension as the progression terminates. When this principle of harmonic fluctuation is considered alongside the principle of chord roots it is possible to analyze the effectiveness of complex chord progressions. According to Hindemith the progression of chord roots is termed a degree-progression:

If the tonal center is to possess particular stability, one had better see to it that there is a nice balance of intervals in the degree-progression centering around it... The degree-progression gives us a means of combating the effects of harmonic fluctuation in chord-successions... If the chords have varied harmonic weight, being members of very unequal groups, the degree-progression may be vary smooth, ... If, on the other hand, the chords all belong to the same or closely-related groups, and so vary little or not at all in tension, then the degree-progression must introduce variety...²⁰

The effective application of these two harmonic principles is found in the revised *Marienleben*. Upon examination of the degree-progression and harmonic fluctuation of the A' sections of each version, certain elements become apparent.

²⁰ Hindemith, *The Craft of Musical Composition*, trans. Arthur Mendel, vol. 1 (New York: Associated Music, 1942; rev. ed., 1945), 143-144.

Example 10: “Mariä Verkündigung”, from *Das Marienleben* (1923), A’ section degree progression and harmonic fluctuation analysis

IV2 IV2---- IIb2 IV2---- III1 IV1 III1 I1 IV2-----

IV2 III1 IV1 III1 III1----- I1 I2 I1 III2 I1 V1 I1 III2

I2 I1 I2----- I1----- III1 I1 III1----- I1-----

I2 I1 I2----- I2 I1 I2 I1 I2----- I1

Example 11: “Mariä Verkündigung”, from *Das Marienleben* (1948), A’ section degree progression and harmonic fluctuation analysis

I1 III2 I1 III2 I1 III2 I1 III2 I1 III2 III1 IV2 III2 IV2 IV1 IV2

I1 III2 III1 III2 III1 III2 III1 IIb1 III1 III2 I1 III1 I1 III1 III1 I1 III2 III1

I2 III2----- III2----- I1 III1----- I1, III1----- I1

III1 I1 III1----- III1

The first noticeable detail is Hindemith’s use of the tritone. When comparing both *Marienleben* settings it is obvious that the 1923 version (ex. 10) employs many more group II, IV, and VI chords than the 1948 version (ex. 11). Of the original’s 51 labeled chords, 14 of them include a tritone. A tritone is used in 27.5% of the chords in this section, more than a quarter of the time. Of the revised version’s 52 labeled chords only five contain a tritone, or

9.6% of the total number of chords. This is fascinating because, to Hindemith, the tritone is an ambiguous interval that stifles harmonic progress. The original version's A' section begins with a plethora of group II and IV chords, but by the last two phrases, Hindemith is using only group I and III chords. This effectively diminishes the tension leading into the final chord.

Looking at the revised version, the group II and IV chords are carefully placed within the first phrase. Hindemith begins on a group I chord, the most stable chord group, but as the phrase progresses the tension increases to its climax in measures 105 and 106 (numbered measures 7 and 8 in ex. 11). The tension then steadily dissipates throughout and from the last line of text onward we have only group I or III chords. Hindemith shows a more nuanced use of harmonic fluctuation in the revised version in contrast to the saturation of lower-value chords found within the original.

The revision's degree-progression is also more melodically effective. The original employs many tritone relations within its degree-progression. Although this is a melodic interval, Hindemith never resolves it as a leading tone. The first interval is a tritone (A-D#) followed by a perfect fourth. Four chords later we find another tritone (C-F#) that then moves up a perfect fifth. Hindemith negates the melodic power of the tritone throughout his degree-progression.

Strikingly, there are no tritone relationships found in the revised version's degree-progression. Hindemith creates a balance between harmonic and melodic intervals: there are a good number of perfect fifth/fourth relations (harmonically strong) but also minor sevenths

and major/minor seconds (melodically strong). The cumulative effect of this results in a well-defined tonal center that employs a melodically satisfying degree-progression.

From the previous examples it is obvious to see that Hindemith applied principles espoused in *The Craft of Musical Composition* to his *Marienleben* revisions. The organizing principles of Series 1 govern the large-scale tonal progress of the cycle but also the individual songs within the cycle. The harmonic principles of Series 2 are found in the intratonal relationship of chords, as evidenced in the degree-progression and harmonic fluctuation analyses.

Conspicuously absent from the revisions are any manifestations of a codified rhythmic theory. In the English translation of *Craft*, there is a passage that makes it clear that Hindemith was “reluctant to see the word *Tonsatz* (literally, the setting of tones) rendered by ‘composition’, but diligent search failed to reveal any fully satisfactory substitute.”²¹ If one translates the German title of the text (*Unterweisung in Tonsatz*) using this translation the title instead would be: *The Craft of Musical Tone-Setting*. Hindemith knew he was unable to fashion a theory on rhythmic relations and this was his way of reducing any liability to his (potentially disgruntled) readers and students. The most success Hindemith had with refining a rhythmic theory that could philosophically parallel his harmonic theory (that the natural properties governing the inner relations of a single tone, i.e. the overtone series, could be extrapolated into a large-scale controlling force, tonality) is found in the following statement from another of his theory textbooks, *Elementary Training for Musicians*:

²¹ Paul Hindemith, *Craft*, 179n.

the smallest metric and rhythmic units...are...only the ultimate subdivisions and ramifications of the powerful metric and rhythmic pulsations that organize the general temporal outlines of a musical form and divide it into movements and sections, peaks and valleys of intensity, and so on down to the very smallest subordinate units.²²

As we will see in this essay's final analyses, Hindemith's tightly controlled compositional structures result from tonality and its harmonic relations' ability to generate form much more so than any metric or rhythmic elements. In the 1950s, at the end of his search for a comprehensive rhythmic compositional theory, Hindemith allegedly "emphasized on numerous occasions...that when it came to the underlying secrets of form we still know very little."²³ And this sentiment is noticeable throughout both his Trumpet Sonata and Tuba Sonata: rhythmic and metric elements are carefully balanced, as are the melodic and harmonic elements, but it is the latter that has the most formally organizing power of the four elements.

Trumpet Sonata

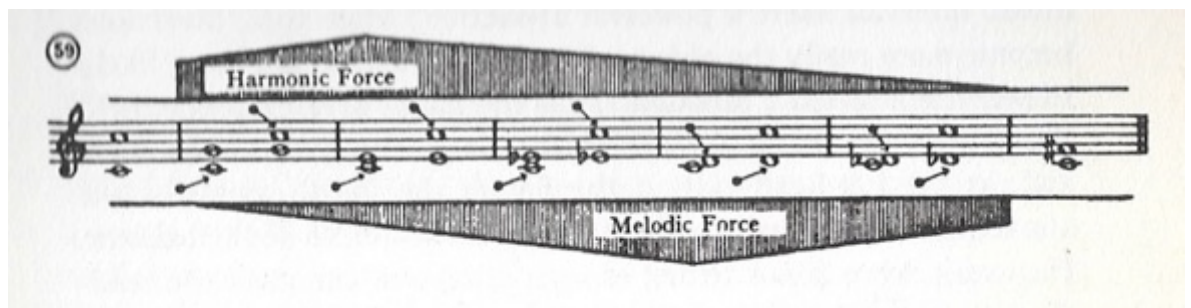
Example 12a: Tonal Plan from the first movement of the Trumpet Sonata



²² Paul Hindemith, *Elementary Training for Musicians* (New York: Associated Music, 1946), 158.
²³ Eckhart Richter, "A Glimpse into the Workshop of Paul Hindemith," *Hindemith Jahrbuch* 6 (1977), 139.

Both sonatas employ cyclical tonal schemes – beginning and ending on Bb. Yet the earlier sonata includes the dreaded tritone interval between three pairs of its tonal centers: F-B, D-G#, and A-D#. Hindemith would later write in *Craft* that the tritone interval has no significance harmonically so it is problematic that he would use a form-negating interval between tonal centers of major sections in this sonata.

Example 13: Hindemith's Series 2, labeled with the harmonic and melodic force of each interval (from *Craft* p. 87)



When looking at example 12 it should be apparent that the earlier sonata moves through many more key centers but in a way that comes across as haphazard. In fact, the Trumpet Sonata's first movement goes through all 12 possible tonal spheres except C and G. Those two pitches represent the intervals (based on Bb) of a major second and a major sixth. It is interesting that Hindemith does not use these pitches to center any tonal spheres, as those are two of the most melodically forceful intervals and would have provided strong forward motion to a succession of tonalities.

The most egregious tonal problem is the use of the tritone interval within the formal tonal plan. Hindemith resolves the first two tritones (F-B, D-G#) as expected, by half step, but chooses to condense the intervals to perfect fourths rather than expand them outward to create perfect fifths. The difference between resolving to a fourth or a fifth is certainly negligible in this context but the final tritone (A-D#) is not resolved at all. Hindemith simply jumps down a perfect fourth (as an enharmonically spelled augmented third) to the main tonal center of Bb. Not only does Hindemith use the interval of the tritone in a manner that is inconsistent with his theory textbook, but he also chooses the least effective voice leading to resolve the interval members.

The younger Hindemith, however, does rely on his tonal spheres to help the listener understand the overriding tonality of the movement. He smartly begins and ends in the main tonality of Bb but, over the course of taking the movement through sixteen tonal spheres, manages to use Bb as a tonal center five times and D#/Eb as a center three times. Each of the remaining eight tonal centers is only visited once. This is an effective, if elementary, way to guarantee that the listener understands Bb as the main tonality of the movement. Once again,

it is interesting that, besides Bb, the next most visited tonal center is Eb, a perfect fourth from the main tonality, instead of the more expected perfect fifth interval.

By comparison, when viewing the Tuba Sonata's tonal plan (ex. 12b), the symmetry and balance of its tonal centers is obvious. Hindemith begins and ends on Bb but takes the listener through the distantly related tonal center of E. This is striking when compared to the Trumpet Sonata's use of the tritone interval; E is the tritone to Bb, true, but it is approached by the interval of a descending major second and is then resolved up by perfect fourth to A. Hindemith effectively travels the largest possible tonal space, from Bb to E and back, all while avoiding the tritone interval in adjacent tonal centers.

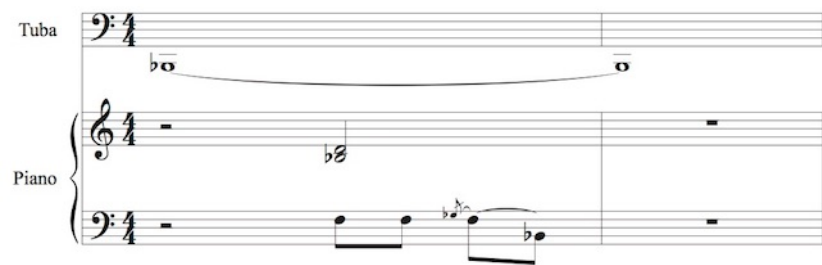
The choice and use of tonal centers is also judicious, as Hindemith only employs five unique tonalities. He also varies the chosen tonal centers; this results in a mixture of both strongly harmonic and melodic tonalities. For example, the centers of B and A are both minor second intervals away from Bb and generate strong melodic force. The tonal sphere of F# is an enharmonically spelled minor sixth, itself a strongly melodic interval but with more harmonic force than the minor second. Finally, the E is the tritone to Bb, which will sound to the listener as the most weakly related tonality to Bb, yet makes sense as the tonal outpost that the movement is travelling to and then returning back from. Out of the eight tonal centers visited in this movement: three are Bb and two are A with the remaining three (B, F#, E) visited each only once. Hindemith uses the A tonality for both the second theme area and the recapitulation, and since it is the leading tone to Bb using it as the second most visited tonality is quite logical.

Hindemith also adjusted his approach to chord spacing as a result of his *Craft* research. This was shown in the *Marienleben* examples, and is obvious when looking at the final measures from both the Trumpet (ex. 14) and Tuba (ex. 15) Sonatas.

Example 14: Trumpet Sonata final measure; solo part rescored in C and full score calibrated to common time



Example 15: Tuba Sonata final measures; full score calibrated to common time



It is important to notice that both sonata endings utilize intervals that, due to their roots, point to Bb as the overriding tonal center. Yet the later sonata takes great care in providing closely spaced intervals in the accompaniment line so as not to obscure the tonal center. By placing the last sound as a single, unaccompanied Bb in the solo voice, Hindemith ensures that the listener will recognize this pitch as the principal root of the entire movement.

In the Trumpet Sonata, however, Hindemith has stacked five Bb octaves directly upon one another. This is the young composer's way of showing the listener the movement's tonal center but, certainly post-*Craft*, this approach is heavy-handed. It is true that *Craft*

This essay’s final analysis will compare the “degree progression” and “harmonic fluctuation” from each of the brass sonata’s opening phrases. As a reference tool, each solo instrument’s melody, rewritten in C treble clef and with octave transpositions to facilitate ease of comparison, has been provided.

5

27

progression. Astoundingly, the degree progression actually mirrors the piano accompaniment and not the trumpet line. The **nc** (non-chord) designation refers to intervals made up of only two unique pitches, yet the quality of these chords (intervals) is given as if another interval of the same class was included in the original interval. With that information in mind please notice that the Trumpet Sonata opening melody begins and ends with intervals, not chords, starting with a Bb/F perfect fifth and concluding on an F/A major third. Thankfully, those consonant intervals are in root position, which strengthens the relationship between the melody line and accompaniment.

But what should one make of the convoluted “harmonic fluctuation”? Hindemith thought that progressions using repetitive degrees should employ varying chord values but in the first measure the chord values only change when the degrees change and on repeated degrees we see repeated chords of the same value. The higher value chords are designated by lower numbers so moving from chords of group I to III is an increase in harmonic tension and a decrease in chord value. Alternating between chord groups I and III is simply an increase in tension followed by an equal decrease in tension. Throughout this opening phrase Hindemith thwarts any buildup in tension by resolving the harmonically tense chords almost immediately into more harmonically stable chord groups. Take, for example, measure two: III, V, III, IV, I. It would be more satisfying musically to delay the resolution until after suitable tension is built up: III, IV, V, I. That way the listener would truly feel as if they have traversed musical space, rather than this mild alternating of slightly more and less harmonically tense chords, a procedure akin to the rocking of a boat tied to a dock: swaying to and fro but not actually travelling anywhere.

Surprisingly, Hindemith avoids the tritone interval in the degree progression until the penultimate chord change yet, in this instance, Hindemith has a three-fold tonal problem. First, the interval between the solo line and the degree progression on the downbeat of beat four, measure eight, is a tritone. He resolves this by moving the degree on the upbeat to match the trumpet's Bb but now the degree progression is moving by tritone. And, finally, the two chords on beat four of measure eight are both the same low-value, high-tension chords of V2. Remember, post-*Craft* Hindemith believed that introducing high-tension chords should be done on harmonically stable degrees and vice-versa; here he is using high-tension chords on highly unstable interval members. This results in a high-degree of harmonic tension but also introduces some harmonic instability that is unsuited for a phrase ending. It would have been better to locate the tritone more centrally, at the climax of the phrase, and reintroduce tonal stability in the approach to the cadence.

Also of note is the proportion of tritone chords (II, IV, VI) used. Of the 55 labeled chords (ten of the 65 tonal structures in this section are merely intervals), twelve contain tritones. That means 21.82% of this opening phrase's chords contain tritones while there are five major triads, two dominant seventh chords, a minor seventh chord, and multiple consonant intervals in the place of chords (all the non-chord structures are major thirds except the first, P5, and measure six's tritones). This eclectic mixture of tonal structures betrays Hindemith's ties to traditional music theory. In 1939 Hindemith was still tied to traditional chord structures but dispatched them in a way at odds with contemporary musical construction. His placement of major triads and dominant chords is ambiguous by both traditional theory's standards and his later *Craft* provisions.

Tuba Sonata

Example 18: Tuba Sonata opening melody, rewritten in treble clef with minor octave adjustments



Example 19: Tuba Sonata degree progression and harmonic fluctuation analysis

It is striking how closely the Tuba Sonata's degree progression resembles the melody. This results in the listener hearing the solo line as an organic product of the tonal structures employed. Similar to the Trumpet Sonata, Hindemith begins and ends the opening phrase of the Tuba Sonata with intervals and not chords. However, in this case, the starting interval is a major second while the concluding interval involves three unison octaves.

In contrast to the earlier sonata, which uses the stable fifth to begin and ends on the even more stable third (see Series 2, ex. 13, page 23), Hindemith begins with the most melodically forceful interval, the major second, and ends on the most harmonically stable

interval, the octave. Essentially he has built in a sort-of energy generating and dissipating force to the tonal structure of the composition. The other two non-chord structures use a major third (m. 8) while the penultimate chord is solo tuba alone.

Hindemith avoids using any tonal constructs that may be construed as “traditional” while also limiting the number of chords with tritones to four total. Out of 29 chords in this opening phrase, only four employ tritones, or 13.8%. Please note the placement of the group II and IV chords as well; both occur in a central location. The opening phrase may be divided into two sub-phrases of four and six measures. When viewed as two sub-phrases, Hindemith has placed the tritone chords in the center of each sub-phrase. And, in fact, Hindemith uses the group II chords first, with the more harmonically tense group IV chords in the second sub-phrase. But also notice how these four tritone chords follow their own tonal logic: IIa, IIb2; IV2, IV1. Tension is increased and then decreased specifically with regard to these four chords and within the overarching harmonic plan as well.

Hindemith also observes his rule that highly varied degrees should employ similar chords (see measures five and six). But, much like the Trumpet Sonata, Hindemith has let a tritone interval creep into his degree progression at measure three. The degrees progress from D to Ab but the melody is moving by major second, Gb to Ab. Hindemith is using this tritone relation as a tension-generating device. Notice that the Ab in the melody is the musical climax (due to metric and spatial placement) of the first sub-phrase. It is approached by whole step, maintaining its melodic force, while Hindemith uses the underlying degree progression to introduce harmonic tension, which then takes four measures to dissipate.

The musical tension actually arises from the interplay between the melody and degree progression and does not rely solely on the melody itself. Performers of Hindemith’s later

music would do well to understand the degree progressions and level of harmonic fluctuation involved in each work: there are instances where the solo line should be played with no inflection as it is the harmonic structures that generate the melodic force and intent. Likewise there are moments where the harmonic structures remain static and the musical energy is dependent on the inflections of the solo line.

Hindemith hoped he could fashion a comprehensive (and nature-based) rhythmic/metric theory much like he had done with his harmonic/melodic theories, but he was unable ultimately to do so. What he learned from the nature-given properties of the overtone series he was able to extrapolate into a set of rules governing the usage of all intervallic material. But what overriding theory of musical time was he to have used?

Time, in the sense that we understand it, is a human construct. What nature provides is simply a contrast of proportions: half the day is light and half the day is dark. Hours, minutes, and seconds – even weeks, months, and years – are man-made, societal constructs. Nature provides a day (itself of varying length) that is roughly divided into two halves. And, yet, is this not the same proportional principle undergirding our modern rhythms? A whole-note equals two half-notes; a half-note is two quarter-notes; a quarter-note is two eighth-notes; an eighth-note is two sixteenth-notes, etc. A whole-note can be as long as a quarter-note, depending on tempo. Duration is not defined, merely the proportional relationships of each rhythm.

During one of his Harvard lectures Hindemith admitted: “There are but two basic metrical units: those of two beats and those of three beats; and rhythm, once explained rationally, will probably also turn out to be an endless variation of very few and very basic

units.”²⁴ Analogous to Hindemith’s tonal theory (which stipulates that intervals are the nature-made material while the key is the construct) is the idea that proportional rhythms (small-scale) and proportional formal divisions (large-scale) are the natural phenomena while the meter is the construct. The mature Hindemith fully internalized this knowledge; that is why he notated the tuba solo line in $\frac{6}{4}$ time while the piano accompaniment is notated in $\frac{2}{2}$ time. Each meter has two “big beats” that will align but Hindemith also wrote the cut-time accompaniment in groups of eighth-note triplets. In effect, the cut-time eighth-note triplets align perfectly with the tuba’s compound-meter eighth-notes.

This level of subdivisional alignment is inaccessible to most performers; only after careful score study would this fact be understood yet it remains the performer’s responsibility to faithfully recreate the agogic emphasis inherent to each meter. When both solo and accompaniment lines perform their meters faithfully, and align properly, the audible effect is one of streamlined harmony, with both parts working together towards a musical sum greater than its parts.

When analyzing Hindemith’s later music, one should critically consider the composer’s choice of meter. For instance, the central main section (in E) of the Tuba Sonata is also the only section where the meters align between the tuba and piano. Even his choice of the $\frac{6}{4}$ meter shows his preoccupation with alternating between triple and duple divisions as six is the smallest number that is evenly divided by both three and two. Although Hindemith does use meter to slightly differentiate formal divisions, it is the proportional length of the formal sections that is most important in his later music.

²⁴ Hindemith, *Composer’s World*, 91.

As he stated towards the end of the Norton lectures at Harvard, where he implored all musicians to relate their own sound production to previous musical experiences of human vocal expression, “temporal relations must appear in well-proportioned balance”.²⁵ Neumeyer has provided numerous examples of proportional design found within Hindemith’s own compositional materials and sketchbooks. Specifically the Concerto for Horn (1949) utilizes a simple tonal plan but “the proportional plan, on the other hand, is complex, involving elements of golden section divisions, whole number ratios, and harmonic proportions.”²⁶ Neumeyer defines these harmonic proportions, providing a formula for the “harmonic mean”²⁷, but the essential point for this essay is the fact that Hindemith consciously controlled the proportions of his formal section lengths. Whether these proportions were regulated by simple ratios or more complex mathematical formulae, the fact remains that balanced proportional design was a consciously cultivated element of Hindemith’s mature output.

When one considers the Tuba Sonata in light of this discovery, the proportions of its sections make obvious logical sense. The Tuba Sonata can be divided into three major sections whose total lengths, in measures, are: 48, 25, and 32. This may be simplified into the simple ratio of 6:3:4. Although if we subject these measure number totals to the above-mentioned “harmonic mean” formula we see the true inspiration for Hindemith’s formal

²⁵ Hindemith, *Composer’s World*, 191.

²⁶ Neumeyer, “Proportional Design”, 106-111.

²⁷ “The harmonic mean for any pair of numbers a and b (where a is smaller than b) is that number c which creates the same ratio between the differences, c-a and b-c, as exists between a and b. The formula is $c = (2ab) \div (a + b)$. There are other ways to calculate the harmonic mean (see, for instance, Zarlino’s method as described in *On the Modes: Le Institutioni harmoniche*, 1558, Part 4, trans. Vered Cohen, ed. Claude V. Palisca [New Haven: Yale University Press, 1983], viii), but the classic formula given here was written down by Hindemith himself as part of an extensive set of notes on musical temperament. The notes include formulas for all three of the pythagorean proportions-arithmetic, geometric, and harmonic-notes on the relationships between them and series built on them, as well as remarks on the golden section. Hindemith’s direct source for this information is unknown.” Neumeyer, “Proportional Design”, 105n27.

section lengths: $c = (2 \times 25 \times 48) / (25 + 48)$ or $c = 32.8$. Assuming the fermata on the final note accounts for the extra .8, the length of the third major section (containing the recapitulation and coda material) is the harmonic mean of the first two major sections (the exposition and development, respectively, if compared with sonata form architecture). Since this proportional formal design cannot be found in the earlier Trumpet Sonata, yet is prevalent in the construction of his post-*Craft* output, it stands to reason that this feature of Hindemith's late music is representative of his mature compositional philosophy.

Hindemith, during all stages of his artistic development, sought to exert influence over his audience. From the brash, young performer who originally delights in the external hull of music (sound), to the mature, wise composer/theorist who ties all artistic creation to laws found in the natural world, Hindemith's mission statement remained unchanged: to direct our human existence towards nobleness. His quest to turn musical inspiration into moral power took many forms: from the staunchly objective *Gebrauchsmusik* of the *Neue Sachlichkeit* to the mature and more esoteric compositions created post-*Craft*. What remained at all points in his personal journey was a commitment to truth: showing things as they truly are rather than as their romanticized and highly stylized versions – at a time in which our modern consumer society preferences entertainment's analgesic properties over the ethical and moral impetus found in great art. Much like Hindemith discovered that the multitude of variously sized intervals is natural (while the “key” and twelve tone equal temperament are constructed), he discovered that proportions – whether among small-scale rhythms or large-scale formal sections – are the natural temporal building blocks while meter and clock-time are man-made constructs. Proportional formal design is therefore a feature of Hindemith's mature music and an important element of his cultivated compositional philosophy.

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