6-2021

Developing Variation in the Late Work of Morton Gould and Why It Matters

J. Wesley Flinn
University of Minnesota - Morris, jwflinn@morris.umn.edu

DEVELOPING VARIATION IN THE LATE WORKS OF MORTON GOULD AND WHY IT MATTERS

J. WESLEY FLINN

To date, very little analytical work has been done on the music of Morton Gould (1913–1996). There has been one (non-scholarly, though well-sourced) biography of the composer (*Morton Gould: American Salute* by Peter W. Goodman, 2000), a series of interviews with the composer at Columbia University, and a few MM/DMA theses and articles, usually from journals within the wind band world.[1] Gould has never been discussed at annual meetings of the Society for Music Theory, at least not according to the program books. Yet in his day, Gould was one of the most well-known musicians in America, with a weekly radio show, conducting appearances and recordings with orchestras in New York, Chicago, and in Europe, and an impressive and diverse catalog, culminating in the Kennedy Center Honors and the 1993 Pulitzer Prize in Music.[2] Gould's music, in its capacity as a cornerstone of the 20th-century wind band repertoire, may provide some paths forward (as I will show, figuratively *and* literally) for some pressing concerns in music theory pedagogy. One of the reasons I decided to undertake this project is to bring the man and the music back into public and academic discourse. In addition, music theory teachers often run into problems of familiarity with repertoire. Put another way, students come in to higher

[1] For examples, see Lee Evans, *Morton Gould: His Life and Music* (New York: Columbia University, 1978), Ronald Scott, *Band Music of Morton Gould* (Lubbock: Texas Tech University, 1997), and J. Wesley Flinn, "The Story of a Tetrachord: Morton Gould's *West Point Symphony*." *Journal of Band Research*, vol. 51, no. 1 (2015): 42–57.
[2] Peter W. Goodman, *Morton Gould: American Salute* (Portland, OR: Amadeus Press, 2000), 343–9.

GAMUT 10 (2021)
 ISSN: 1938-6690

education without the general knowledge of those literatures and trends most studied in college music theory classes, and this challenges their ability to learn the concepts of the standard music theory curriculum in a timely fashion. They do, however, have familiarity with music by composers of wind band and choral music that falls outside of the traditional Western canon. Relying on this literature will help students learn the concepts better, and this article will give theory professors some ideas on how to integrate his music into the classroom.

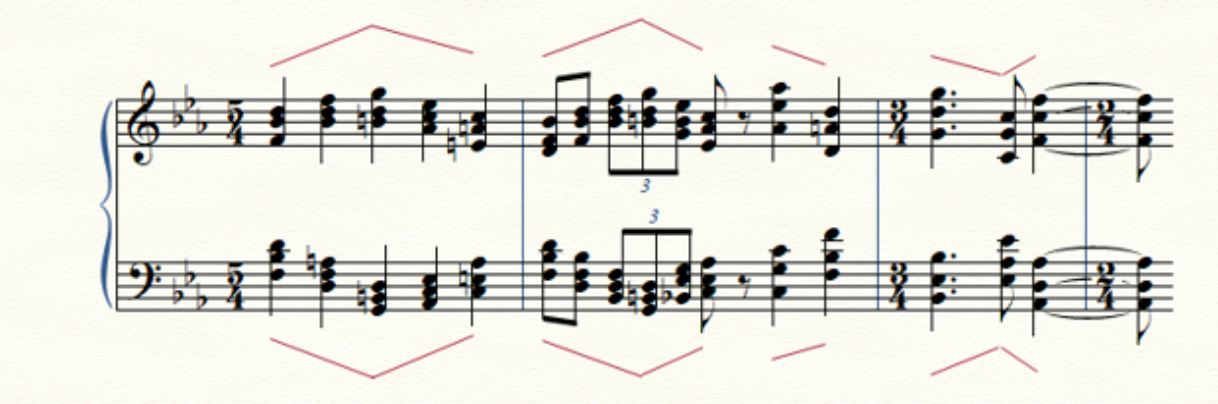
In this project, I will examine certain motivic transformational techniques used by Gould. These techniques, which can generally be filed under the principle of *developing variation*,[3] are: 1. Mirroring and reversal; 2. Reordering; 3. Motivic expansion and contraction; 4. Additive sets; and 5. Asymmetric injection. I do this to show how Gould's music may be part of a robust and more inclusive music theory curriculum and to meet college music theory students where they are. I will then examine a full movement of Gould's *Stringmusic* (1993, winner of the Pulitzer Prize in Music) with this analytical frame. I will close with a short excerpt from a work for marching band, *Formations* (1964), to show how structural/formal principles may be taught in a non-traditional setting using drill design.

[3] For more information on developing variation as a concept, consult Arnold Schoenberg, *Fundamentals of Musical Composition*, edited by Gerald Strang and Leonard Stein (London: Faber, 1967); Walter Frisch, *Brahms and the Principle of Developing Variation* (Berkeley: University of California Press, 1984); Janna Saslaw, "Life Forces: Conceptual Structures in Schenker's 'Free Composition' and Schoenberg's 'The Musical Idea,'" *Theory and Practice* 22/23 (1997/98): 17–33; Patricia Carpenter, "*Grundegestalt* as Tonal Function," *Music Theory Spectrum* 5 (1983): 15–38; Edward Pearsall, "Transformational Streams: Unraveling Melodic Processes in Twentieth-Century Motivic Music," *Journal of Music Theory* 48, no. 1 (Spring 2004): 69–98; and Miguel A. Roig-Francolí, "A Theory of Pitch-Class-Set Extension in Atonal Music," *College Music Symposium* 41 (2001): 57–90.

MIRRORING AND REVERSAL

Probably the simplest but most effective technique of motivic transformation is simple mirroring. A *harmonic* mirroring has two or more lines in inversion (or at least in contrary motion if the inversion isn't exact) to each other contrapuntally; a *melodic* mirroring has a single line whose contour is reversed at a central point. Consider this passage from *Remembrance Day* (Gould's last published work, dating from 1995):

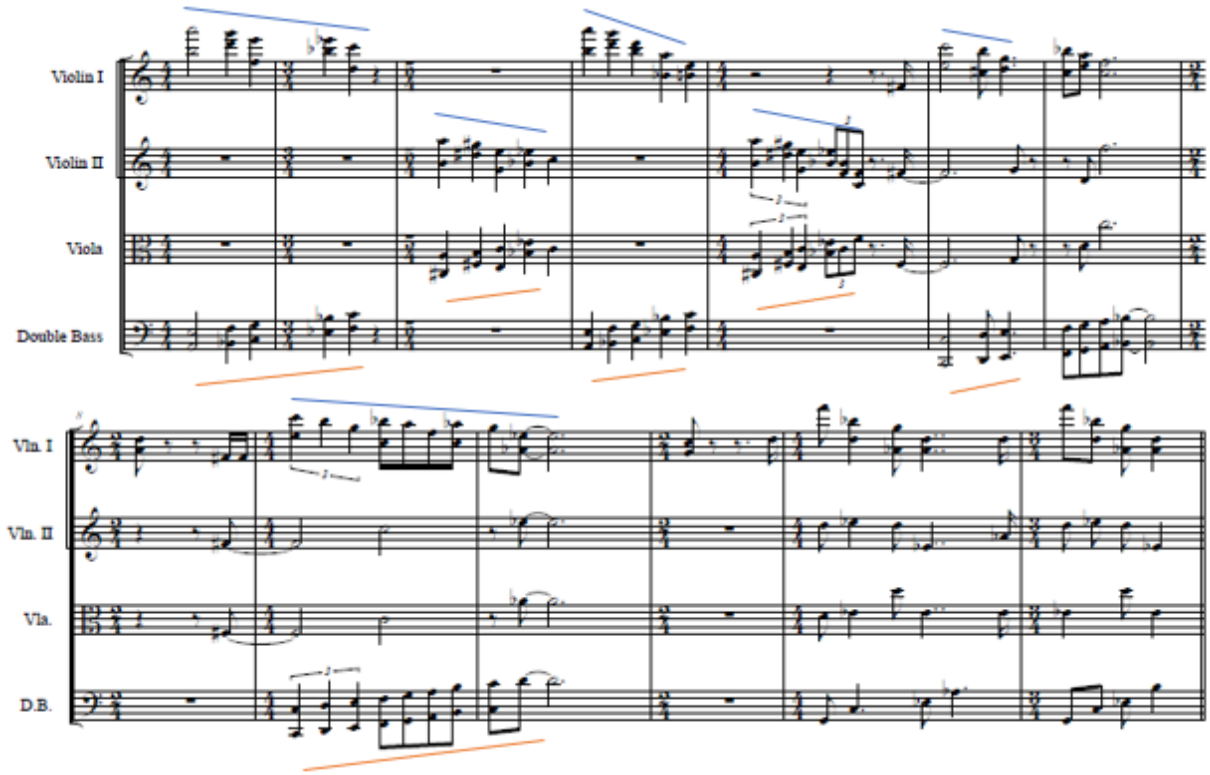
EXAMPLE 1. Gould, *Remembrance Day*, 78–81. Top staff is trumpets, bottom staff trombones.



This is a straightforward example; the mirroring in this case is between the trumpets and trombones. This technique is closely related to asymmetric wedging but is not contingent on starting on the same pitch class (pc) as is usually done with that technique. The result of this is each group of instruments moving through (mostly) the same chords but via different inversions. A similar event happens in the first movement of *Stringmusic*, which is given in example 2. In this passage, the first violin and basses are in divisi and moving in contrary motion, with the second violins and violas occasionally mimicking this division. In this example, the basses are divided

first into perfect 5ths and then into perfect octaves, while the first violin divisions encompass everything from perfect fourths to minor sevenths.

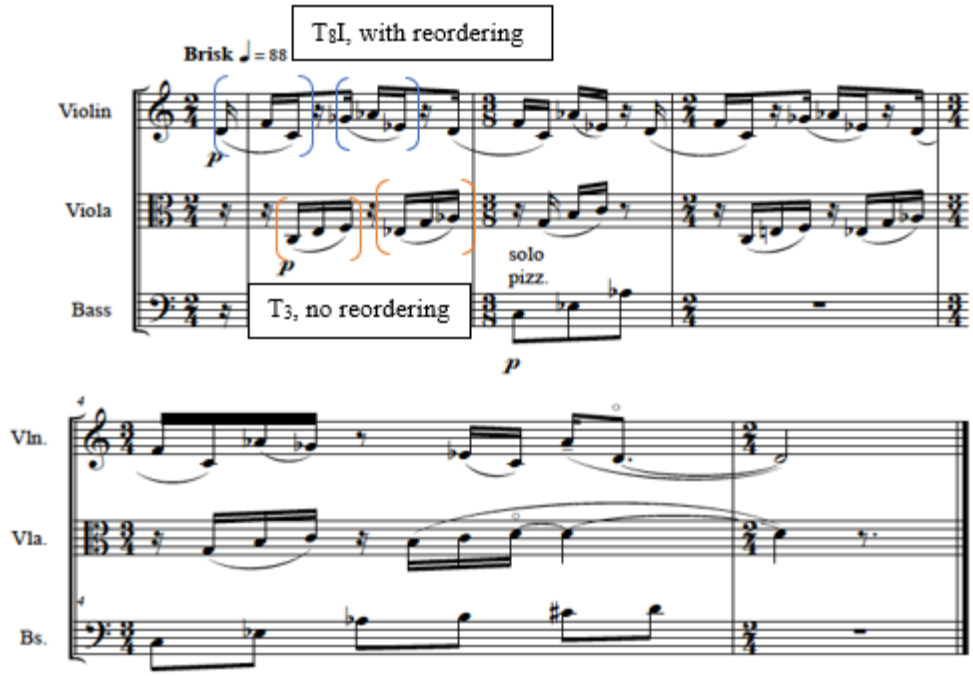
EXAMPLE 2. Gould, *Stringmusic*, I, 19–31. Blue lines indicate descents; red lines, ascents.



REORDERING

For the purposes of this project, *reordering* refers to changing the musical order of pitches of a set within a musical idea. For example, assume a motive features an opening gesture B–C–A, and those pitches are then repeated but in the order C–A–B. The two trichords are, obviously, identical in pitch content, but the order has been altered. This can be shown with actual pitches or with pcs, and is often used in conjunction with transposition. At measure 37 of the first movement of *Stringmusic*, Gould uses a rotated trichord to generate the thematic material:

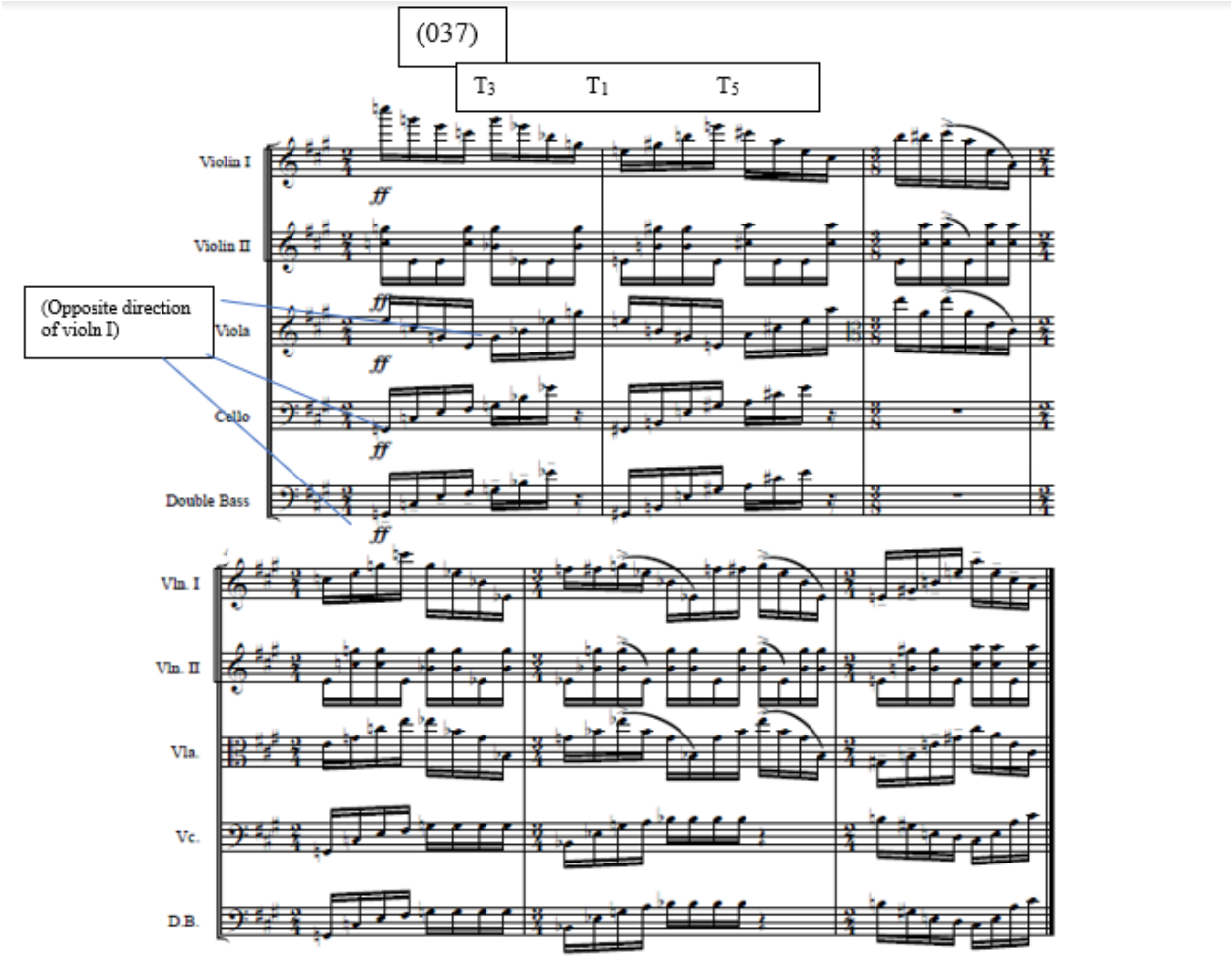
EXAMPLE 3. Gould, *Stringmusic*, I, 37–42.



The violin begins with the pitches D4–F4–C4 (which form the set 3-6 (025)), and then transposes those pitches to Gb4–Ab4–Eb4. The reordering of the pitches is more than just a simple TnI operation, as the resultant trichord takes the pitches in an order not created by simple inversion (<+3, -5> becomes <+2, -5>). To emphasize the reordered nature of this manipulation, Gould has the viola play an altered, mostly transposed but not reordered, version of the trichords down an octave as a contrapuntal device.

Gould uses a similar technique in the final movement of *Stringmusic* – in this case, the set is transposed but reordered to expand the intervals without actually engaging in a mirroring-like process as above.

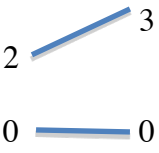
EXAMPLE 4. Gould, *Stringmusic*, V, 91–96.



The triads alternate in different ways – sometimes it is simply root motion by fifths, as in measures 92 and 96, and sometimes it is root motion by minor thirds, as in measure 94. The inconsistency of alternation, when added to the change in voicing, propels the thematic material forward and destabilizes the markers of traditional tonality (V–I relationship, hierarchy of pitches, etc.). This particular technique has been a hallmark of Gould's for some time (similar moves can be found in the *"West Point" Symphony*), but in this particular work, coupled with the *moto perpetuo* aspect of the movement, the technique seems particularly fierce and urgent.

MOTIVIC EXPANSION AND CONTRACTION

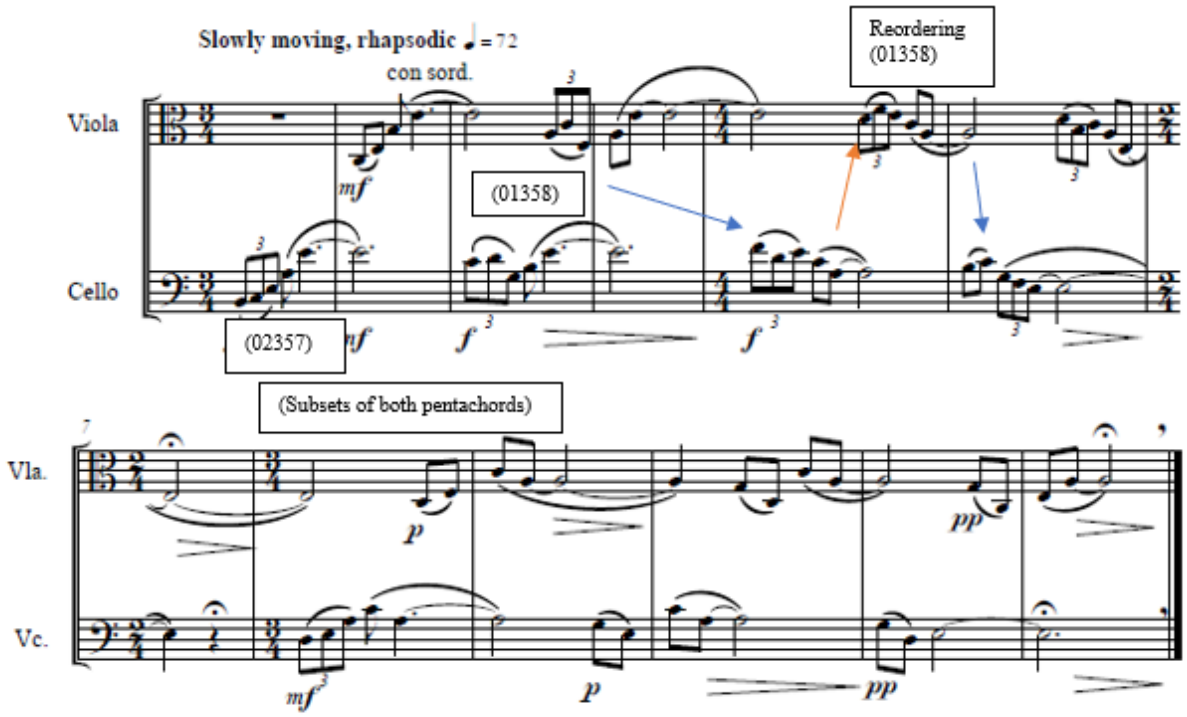
Ian Quinn, in his article "Fuzzy Extensions to the Theory of Contour," described "tune-families" as having the same number of pitches and similar but not necessaril exact contours.[4] *Motivic expansion/contraction* refers to the process of keeping the contour of a motive – i.e. keeping it within the same "tune-family" – while changing the size of the intervals. If a three-note gesture has the intervallic series <+3, -2>, it could be expanded into <+5, -3> or in some other fashion. Similarily, it could be contracted into <+2, -1>. The expansion/contraction need not be applied evenly. In many cases, only half or so of the motive is manipulated in this way.[5] In a previous article, I traced the expansion and contraction of a tetrachord in Gould's *West Point Symphony*[6], showing how Gould used manipulations of the (0158) collection to generate pitch material and formal markers. In that artice I argued that, in lieu of traditional tonic-dominant tonality, (0158) serves as the primary tonal and especially formal generator. I do not claim that in this project, but I do claim that the *Grundegestalt* has influence over structure and materials in these works. In this section, the analysis will use graphic notation that can show motion in either pitch or pitch-class space; examples will indicate which space is being investigated. Sets and set classes will be shown vertically and spatially, followed by lines showing movement between the sets/set classes, as shown by a comparison of the dyads [02] and [03]:



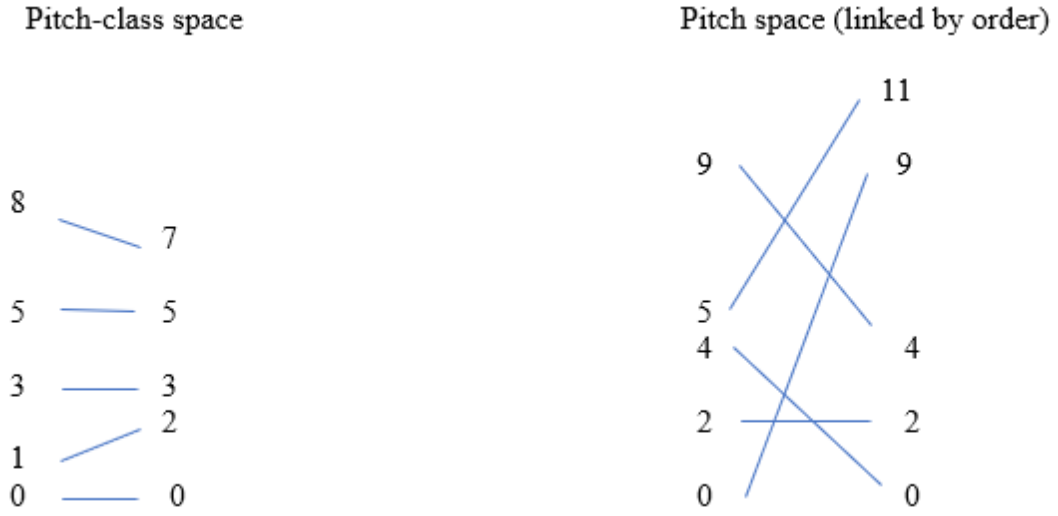
[4] Ian Quinn, "Fuzzy Extensions to the Theory of Contour."*Music Theory Spectrum* 19, no. 2 (1997), 233.
[5] See Shaugn O'Donnell, "Klumpenhouwer Networks, Isography, and the Molecular Metaphor." *Intégrale* 12 (1998): 53–80 for a further discussion of this idea, which he calls "dual transposition."
[6] Flinn 2015.

Consider the opening of the first movement of *Stringmusic* (example 5). Tracing the viola and cello lines, we can look at how Gould expands and contracts the motive. The viola line adds the pitch A3 to transform 3-4 (015) into 4-20 (0158). This motive is enlarged further by the presence of F4 to become 5-27 (01358). After this additive process (more on that later), we see Gould's first manipulations of the pentachord. In measure 6, the opening interval of the set class is expanded and the closing interval is contracted, transforming 5-27 (01358) into 5-23 (02357). The use of set classes combined with reordering of pitches in subsets gives the section the feeling of unity while avoiding direct repetition.

EXAMPLE 5a. Gould, *Stringmusic*, I, 1–12.



EXAMPLE 5b. Gould, *Stringmusic*, I, graphic representation of change in pentachord from measure 1 to measure 6.



In both pitch and pitch-class space, there is at least one truly common tone, and in pitch space there are four common tones, though they occupy different places in each pitch set.

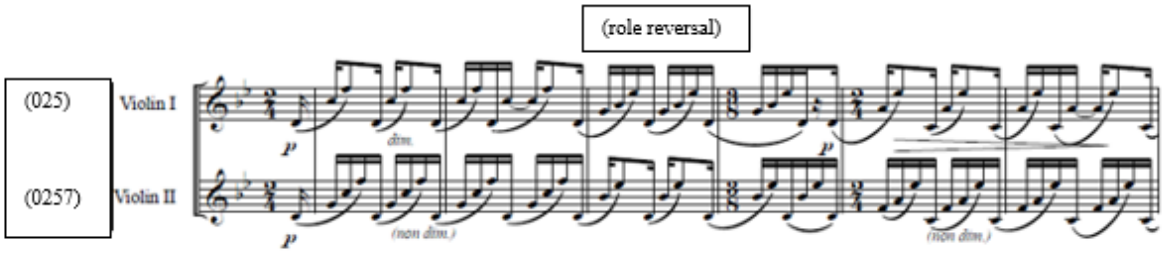
Put together, we see that Gould likes set consanguinity but also likes to create opposition in motion, creating a sense of familiarity that is undercut by the contrariness of the motives as expressed. This technique appears in other places in the piece as well, such as measures 53–63 in the third movement and starting at measure 199 in the final movement, which brings back the opening material from the first movement, giving the entire piece a large-scale formal arc.

One last thought on motivic expansion and contraction: It is not uncommon for Gould to use this technique along with reordering as described above. Thus, the issue of cardinality, in my opinion, is not as central to the discussion as it may be in other analyses.

ADDITIVE SETS

We have seen this built into earlier techniques as well (see examples 1, 2, and 3), but I wish to expand on the technique to focus on an explicit realization of it. In this case, one or more pcs are added to a set to generate more melodic material. Consider this passage:

EXAMPLE 6. Gould, *Stringmusic*, I, 67–72.

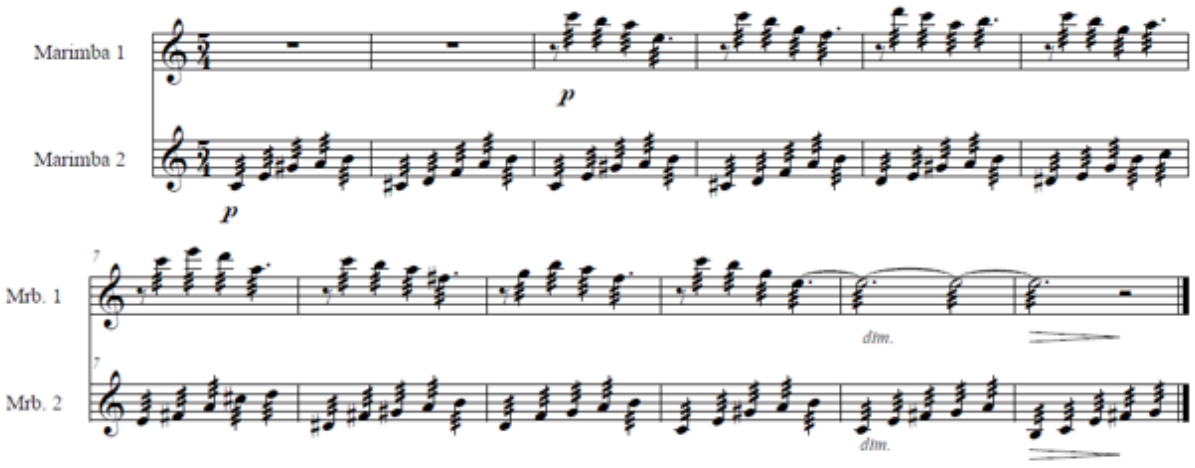


The interplay between the two violins involves the second violin repeating the first violin line in canon at the unison, with the addition of one pitch, after which the roles are reversed. The lines show the time delay on the arrival at the high point of each set arpeggiation as well as the role reversal. In other circumstances, a canon at such a close temporal interval may very well obscure the perception of said canon, or at least weaken it.[7] By adding the additional pitch, Gould avoids creating a tonal wash and clarifies the material presented. By switching which instrument is the leading instrument in the canon, Gould also utilizes subtle timbral shifts to avoid obscuring the material.

The technique of additive sets can be applied in reverse to examine subsets as well. Consider the opening of *Remembrance Day*:

[7] Nicholas Cook's analysis of Schumann's "Vogel als Prophete" in *Music, Imagination and Culture* (New York: Oxford University Press, 1990), 164 addresses this phenomenon.

EXAMPLE 7. Gould, *Remembrance Day*, 1–12.



This is an interesting example, because even though the lower line is a series of pentachords and the upper line is a series of tetrachords, the tetrachords are not always abstract subsets of the pentachords (see Table 1); Gould is almost always willing to sacrifice fealty to a particular technique for a better musical experience.

TABLE 1. Relationship of tetrachords to pentachords in *Remembrance Day*, 1–12.

Measure	1	2	3	4	5	6
Tetrachord			(0237)	(0157)	(0235)	(0135)
Pentachord	(01348)	(02458)	(01358)	(02458)	(01568)	(01458)
Subset?	n/a	n/a	Yes	No	No	No

(TABLE 1 cont.)

7	8	9	10	11	12
(0247)	(0136)	(0246)	(0158)		
(01358)	(02358)	(01369)	(01348)	(02358)	(01568)
Yes	Yes	No	No	n/a	n/a

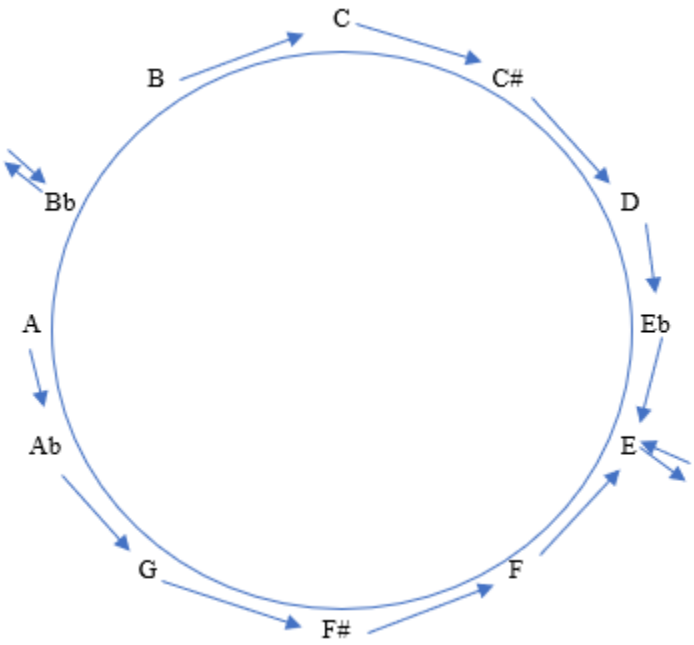
The tetrachord is a subset of the pentachord only three times. The second such tetrachord happens at an interesting moment, however. Before this, all tetrachords had been moving in the opposite direction as the corresponding pentachords. At measures 6 and 7, there is a slight shift in the contour. At the end of measure 6, the tetrachord ascends, and in measure 7, the tetrachord has an initially ascending motion before returning to the downward shape. This happens again two measures later, but at that point the tetrachord is no longer a subset of the corresponding pentachord. This appears to be in direct contradiction to Gould's previously-noted predilection for set-class consanguinity, but what he lacks in set-class connections he makes up for by the use of common pitch classes.

Gould's use of additive and related sets in this work is inconsistent, but occurs at moments of thematic importance/interest or formal importance (measure 99, for example, implies a reversal of most of what has happened in the previous eight measures).

ASYMMETRIC INJECTION

The last technique is *asymmetric injection*. This is an adaptation of the "injection function" of David Lewin.[8] In Lewin's model, a pitch class is "injected" into a set, causing the rest of the pitches in that set to move around pitch-class (pc) space in a way that each pitch moves closer to the pitch an augmented 4th/diminished 5th from the injection pitch. This means pitches can move either clockwise or counterclockwise in pc space. Figure 1 shows a traditional injection function, which Lewin defines as "wedging to E" (using the symbol w^E)[9]. The pitch classes E and B-flat remain constant, while every other pitch is transposed one step up *or* down depending on its relationship to B-flat and E (notes above B-flat/below E move up, notes below B-flat/above E move down).

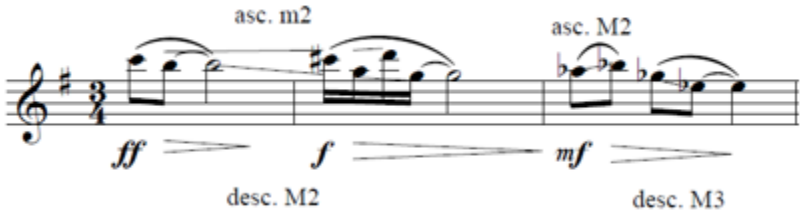
FIGURE 1. Injection function ("w^E").



[8] David Lewin, *Generalized Musical Intervals and Transformations* (New York and London: Oxford University Press, 2007), 123-56.
[9] Lewin, 125.

Gould rarely uses a textbook Lewinian injection function, but he does use a similar technique in which pitches move in opposite directions in pc space at unequal intervals. In Lewin's injection function, the point of injection dictates the target of the wedge. In Gould's use of asymmetric injection, there is no target *per se*; rather, the injection is described by how many pcs each side of the wedge pushes for each appearance of the function. Let us consider first this excerpt from *Remembrance Day*:

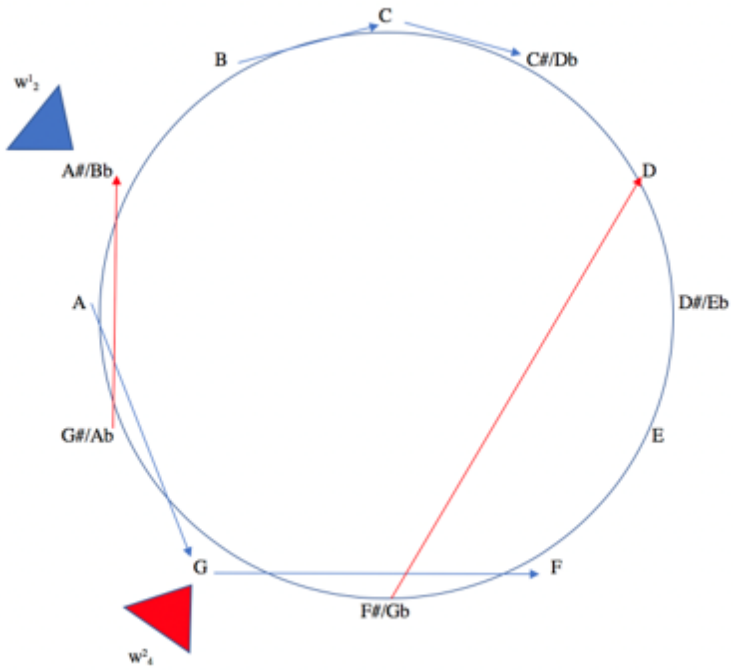
EXAMPLE 8. Gould, *Remembrance Day*, 13–15.



The motive begins with a dyad (B5-A5 in concert pitch) that expands outward. The upper pitches are ascending by *half* step (m2), while the lower pitches are descending by *whole* step (M2). This creates the effect of a motive expanding as if a wedge is driven into the pc space, but in an unequal fashion. In measure 15, the process is repeated, but this time the ascending line is moving by whole step (M2) and the lower line is moving by *two* whole steps (M3).

It might be possible to show this by adapting Lewin's analytical notation. Lewin used the symbol w^x (where x is the target pc a tritone from the injection site). I propose that an asymmetric wedging like this be shown as follows: $w^x{}_y$, where x and y are interval sizes (based on half steps). Thus the action in measures 13 and 14 can be expressed as $w^1{}_2$, while measure 15 would be expressed as $w^2{}_4$. If you wish to see that graphically, it looks like this:

FIGURE 2. Asymmetric injection in Gould, *Remembrance Day*, 13–15.

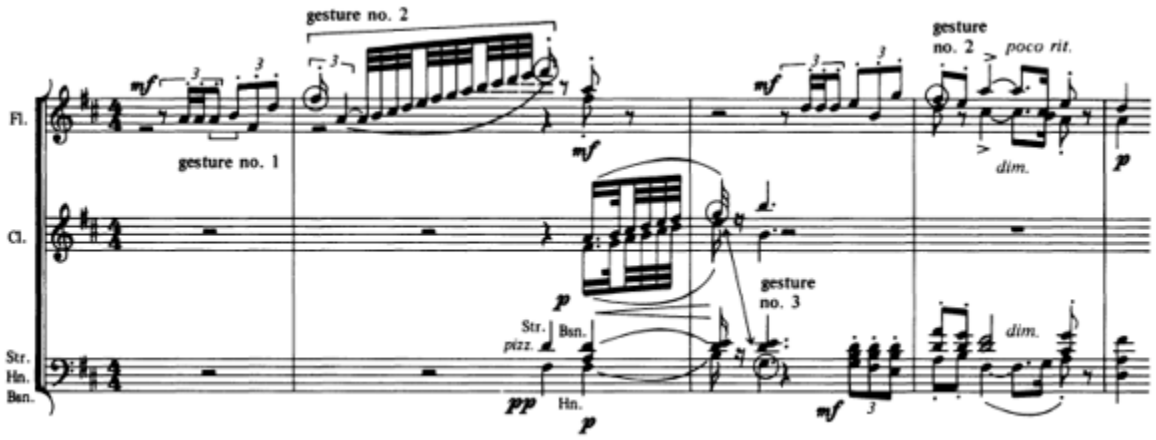


A FULL MOVEMENT ANALYSIS – STRING MUSIC, FOURTH MOVEMENT.

In an analysis of the first section of Richard Strauss's *Don Quixote*, Graham H. Phipps pointed to three gestures that, in his words, "are predictive of the formal structure of the entire composition."[10] Phipps identifies what he believes to be the *Grundestalt* for the work, and highlights the three relevant gestures, then spends the rest of the article developing that idea.

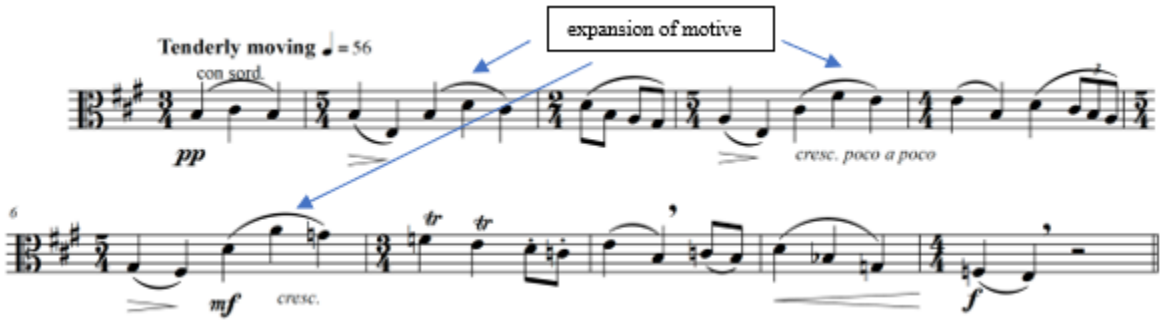
[10] Graham H. Phipps, "The Logic of Tonality in Strauss's *Don Quixote*: A Schoenbergian Evaluation," *Nineteenth-Century Music* 9, no. 3 (1986): 192. The three gestures are 5-6, tonic stress on F-sharp, and G harmonized with an E minor chord.

EXAMPLE 9. Strauss, *Don Quixote*, 1–4 (from Phipps 1986).[11]



Based on the discussion above, I believe a similar project may be undertaken with one of the works under investigation. As an example, let us examine the fourth movement of *Stringmusic*, "Ballad," which formally divides easily into two halves. Example 10 shows the opening viola line.

EXAMPLE 10. Gould, *Stringmusic*, IV, viola line, 1–10.

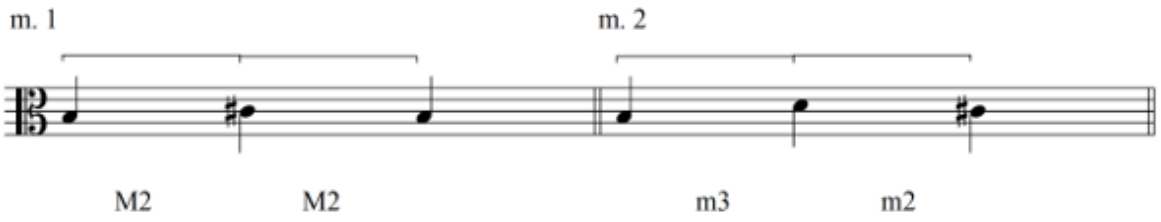


Every aspect of the movement is derived from the opening motive through these techniques. The viola carries the primary melodic material in the first eight measures. This melody

[11] Phipps, 192.

constantly expands and contracts intervals (similar to what was described above) as it grows out of its *Grundegestalt* (basic shape). The first part of the gesture involves 2 and 3 (in this case, in the key of A major). The second part of the gesture, which overlaps with the ending of the first part, is a lyrical motive that covers a minor seventh, emphasizing the pitches of the dominant-seventh chord. The ending of the gesture can be considered a developing variation of the beginning, using the principle of motivic expansion and additive sets, as B–C#–B (2-3-2) becomes B–D–C# (2-4-3) and a dyad becomes a trichord:

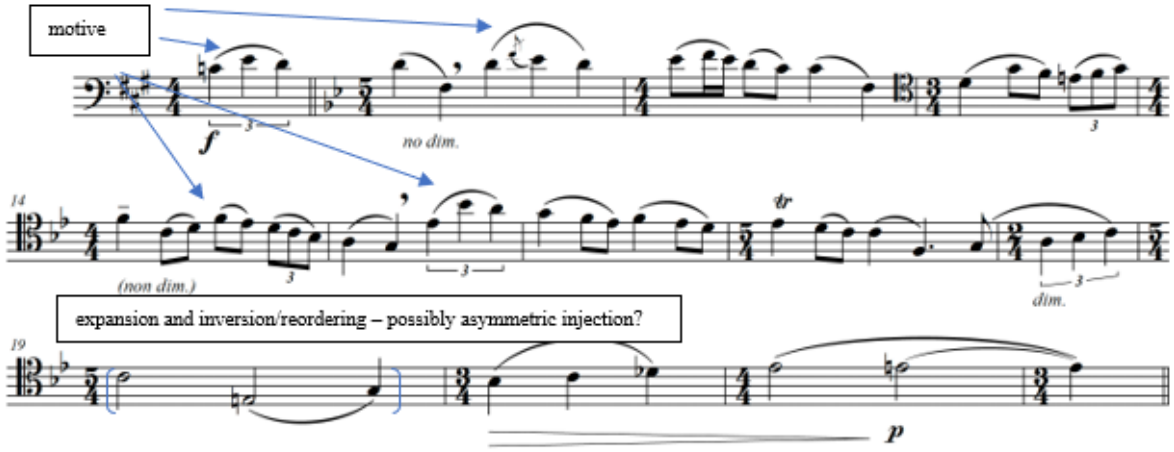
EXAMPLE 11. Internal developing variation (motivic expansion), Gould, *Stringmusic*, IV, 1–2.



Over the next several measures, the viola develops the line further using these two techniques, as shown in example 13. With each successive exploration of the motive, a longer transition is attached to the end, from a 2/4 measure to a 4/4 measure and then finally to three 3/4 measures and the first half of a 4/4 measure.

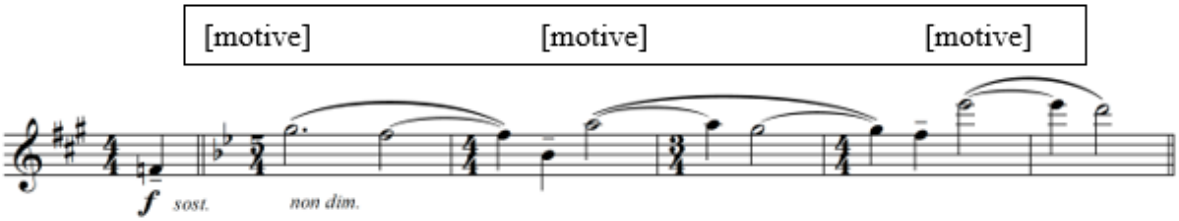
The cello picks up the viola line, using the same techniques and also including mirroring/inversion, a little bit of reordering, and some rhythmic diminution.

EXAMPLE 12. Gould, *Stringmusic*, IV, 10–22, cello part.



While this is going on, the second violin is engaging in rhythmic augmentation and motivic expansion of the first motive, replacing seconds with ninths or sevenths.

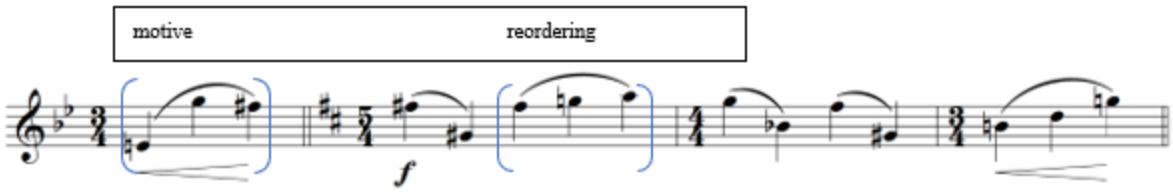
EXAMPLE 13. Gould, *Stringmusic*, IV, 10–15, violin II part.



The rhythmic augmentation continues as the motive generates a countermelody to the cello melody; the two lines unify at measure 21 on E4. At that point, Gould begins the process once again. The second half of the movement begins with the first violins taking over the motive, but then taking the initial descent and using that as the basis for generating a new melodic gesture. The

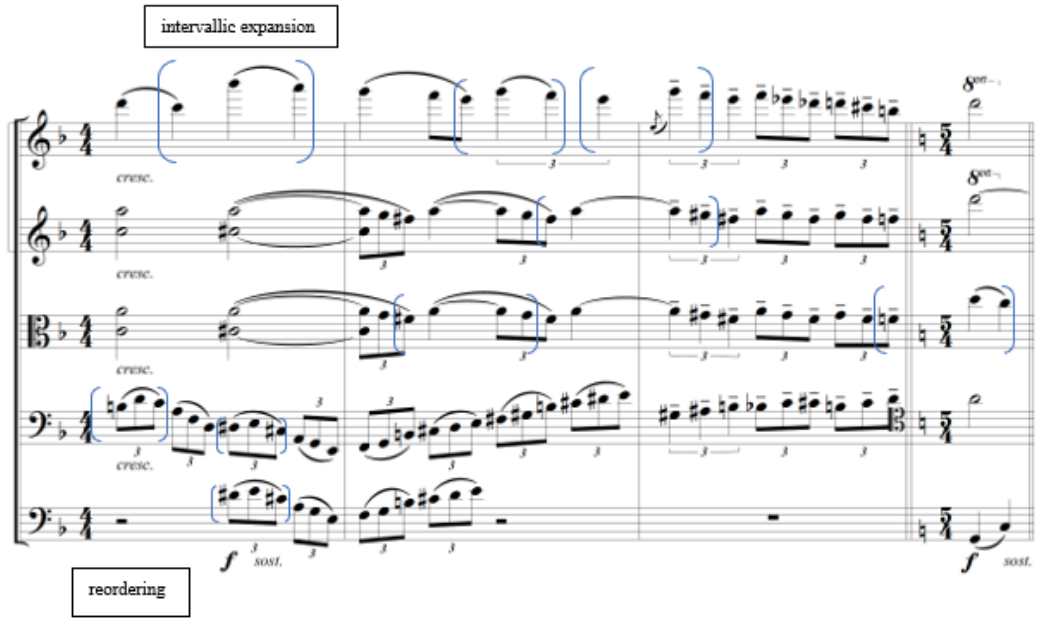
first violins also use the motivic expansion from the earlier second violin line, giving the new melody a much broader sweep.

EXAMPLE 14. Gould, *Stringmusic*, IV, 22–25, violin I part.



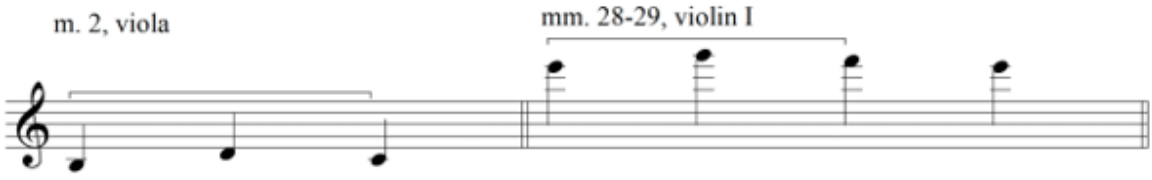
The first violin line reaches a zenith of sorts in measure 27, when Gould uses octave displacement (a form of motivic expansion) to manipulate a descending line so that it reaches B♭6 and creates a callback to the opening gesture of the second half. This coincides with the reappearance of the bass, playing eighth-note triplets (see below), and begins the redirection of the line to a new tonal and emotional goal (reached at measure 30).

EXAMPLE 15. Gould, *Stringmusic*, IV, 27–30. Motive appearances in brackets.



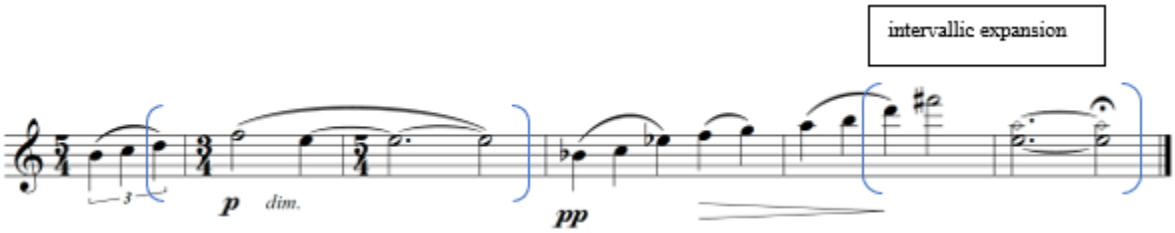
From a metrical standpoint, this new melody, while still utilizing changing meters, does not have a consistent pattern of change in meter, and eventually settles into 4/4. To counteract the regularity of the meter, Gould adds a turbulent cello line that holds some consanguinity with the shape of the earlier descent pattern. Eventually, this is developed into eighth-note triplets and the direction is reversed, building to the return of 5/4. The closing section also begins with an octave displacement on the initial motive (reaching D7), before undoing the displacement and returning to C6, thus using octave-based motivic expansion on *both* ends of the motive.

EXAMPLE 16. Motive as it appears at both m. 2 and mm. 29–30 of *Stringmusic*.



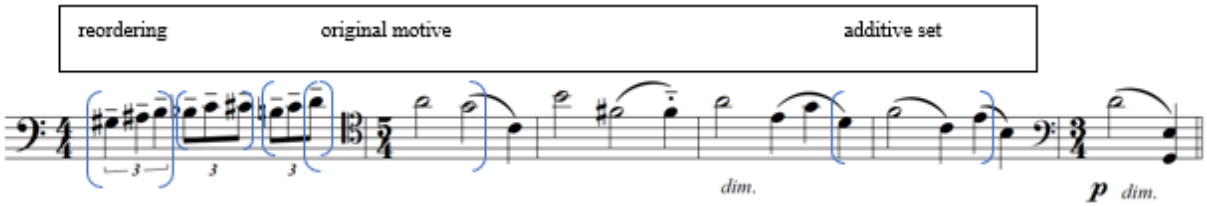
The motive can be identified in the first violin two more times – in measures 33 through 35, and in the last two measures.

EXAMPLE 17. Gould, *Stringmusic*, IV, 33–38, violin I part. Motive identified.



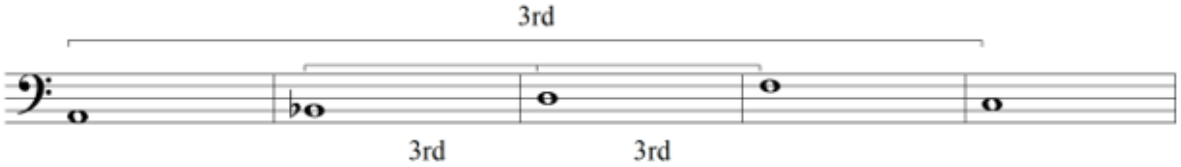
This closing section uses the initial motive in the cello as well; the intervals are gradually reduced, undoing the earlier expansions.

EXAMPLE 18. Gould, *Stringmusic*, IV, 29–34, cello part.



The motive in its initial three-pc appearance was B3–D4–C#4; at measures 29 through 30, it is B5–D7–C6. Gould lowers the last pitch by a half-step, but keeps the same basic shape. There are also reorderings present. One of the traits of a *Grundegestalt* is that in some way it not only generates motives but also is a determining factor in the form of a work, and I believe the motive generates the key structure of the work. If you look at the tonal centers at each double bar, you get this pattern:

EXAMPLE 19. Tonal centers in *Stringmusic*, IV.



The overall shape is very similar to that of the initial motive – an ascent followed by a descent that is proportionately smaller. Also, by changing the C in measure 30 to a C#, Gould confirms the overall tonal goal of C major and keeps within the proportions established by the *Grundegestalt*.

WHAT'S NEXT?

These techniques are not limited to Gould's late works; an investigation of scores from the 1940s through the 1980s would likely yield similar results. By choosing the two works investigated herein, we see that Gould, once he had the foundations of his craft in place, chose to refine what he had already developed rather than necessarily seek out new techniques. This places him in opposition to composers like Copland and Stravinsky, who were adapting other techniques and

methods throughout the entirety of their compositional careers. Gould wrote only one explicitly serial work (*Jekyll and Hyde Variations*, 1956), and while he adapted popular and other musics throughout his life I have found no evidence of a major shift in compositional approach over the entirety of his output. He did not shy away from experimentation with timbre and resources, as works like the *Tap Dance Concerto* (1952) and *The Jogger and the Dinosaur* for rapper and orchestra (1992) show, but the techniques remained remarkably consistent throughout his life.

Music theory and analysis is often a solitary sport; many – though to be sure, not all – of our collegiate music students have come up through *ensembles* and thus may not be ready for the self-motivation necessary for the individual nature of our discipline. In addition, so much of the college music theory experience still focuses on common-practice techniques, which (as many of us know all too well) students may not know to the extent that we feel they should. It is my hope that using works by a composer with which students have *corporate* familiarity in analytical situations – and, most importantly, by ensemble directors both programming these works and guiding the students through analysis-based projects *as a group* – will both expand the available repertoire for analysis and allow students to make the necessary connections to the, shall we say, less social aspects of music theory. This is a good literature for study because of Gould's consistency of style and technique over a long period of time, which allows for the transfer of skills from work to work.

There is a larger issue at work here as well. A consistent problem high school and college music theory teachers have is that students come in without knowing the basic common-practice repertoire that is at the heart of the standard college music theory curriculum. Most students – this writer included – simply had not been exposed to the literature that they would be expected to analyze as they went through their theory curriculum, and the literature they *did* know tended to

use a different set of techniques. There is nothing inherently wrong with the music they knew, as it is often enjoyable to hear and to perform, but when the primary literature discussed in music theory classes starts with Bach chorales and runs through Schoenberg and the students are most familiar with the music of Eric Whitacre, John Mackey, and Robert W. Smith, syntax and comprehension issues move to the pedagogical forefront.

We often speak of meeting the students where they are, and thankfully many newer theory books are willing to include examples from popular music, wind band music, and even world musics. Ultimately, though, our textbooks still have a strong bias toward the Traditional Western Canon, including literature from the twentieth century, and the analytic techniques they showcase are applied in a narrow way. Those of us who teach theory need to do a better job of helping students with concepts occurring in music outside of their own repertoire. Perhaps this is one path: make analysis *corporate*, not just an individual activity. If every player in the ensemble can imagine their role in the musical performance from the perspective of "This is how my part changes both by itself and in conjunction with the other parts," then musical performance will improve.

There is precedent for using embodiment as an analytical tool. Authors such as Elaine King,[12] Anthony Gritten,[13] Michael Berry,[14] Alexandra Pierce,[15] and Andrew Mead[16] have all spoken of the role of bodily gesture in the understanding of music. Pierce, in particular, has spoken of using embodied interpretation to understand various music theory pedagogical concepts. As an

[12] Elaine King, "Gestures and Glances: Interactions in Ensemble Rehearsal," in *New Perspectives on Music and Gesture*, ed. Anthony Gritten and Elaine King (Burlington, VT: Ashgate Publishing, 2011), 177–201.
[13] Anthony Gritten, "Distraction in Polyphonic Gesture," *New Perspectives on Music and Gesture*, 99–122.
[14] Michael Berry, "The importance of Bodily Gesture in Sofia Gubaidulina's Music for Low Strings." *Music Theory Online* 15, no. 9 (2009).
[15] Alexandra Pierce, *Deepening Musical Performance through Movement: The Theory and Practice of Embodied Interpretation* (Bloomington: Indiana University Press, 2010).
[16] Andrew Mead, "Bodily Hearing: Physiological Metaphors and Musical Understanding." *Journal of Music Theory* 43, no. 1 (1999): 1–19.

example – one of many in Pierce's book – she has students walk forward, their footsteps landing concurrently with their hearing of changes in the fundamental bass of an excerpt.[17] This application of movement techniques to harmonic analysis, coupled with Pierce's subsequent pedagogical successes with her students (documented in the text), shows that there can be a connection between movement and theory pedagogy at the individual or small-group level. Elements of the process could be incorporated into rehearsal by having a group of players march through the various incarnations of the tetrachord, allowing students to connect a visual element to the musical analysis and reinforce understanding of the materials. Taken to one possible conclusion, it is possible that, via these techniques, analysis can be shown as drill maneuvers and implemented into a marching band show.[18]

Let us now apply a similar idea to a section of a different work. In 1964, Gould wrote *Formations* for the University of Florida Gator Band. The second movement, "Rally," features antiphonal brass and percussion. The antiphonal nature of the work lends itself well to drill moves. Let's look at a section when all the brass are playing.

[17] Pierce, 90–94.

[18] Apart from the above sources, this is inspired by Nancy Rogers and Michael Buchler, "Square Dance Moves and Twelve-Tone Operators: Isomorphisms and New Transformational Models." *Music Theory Online* 9, no. 4, (2003). Rogers and Buchler apply this idea to tone-row manipulations, but I believe it would work well for tetrachordal and other transformational analyses.

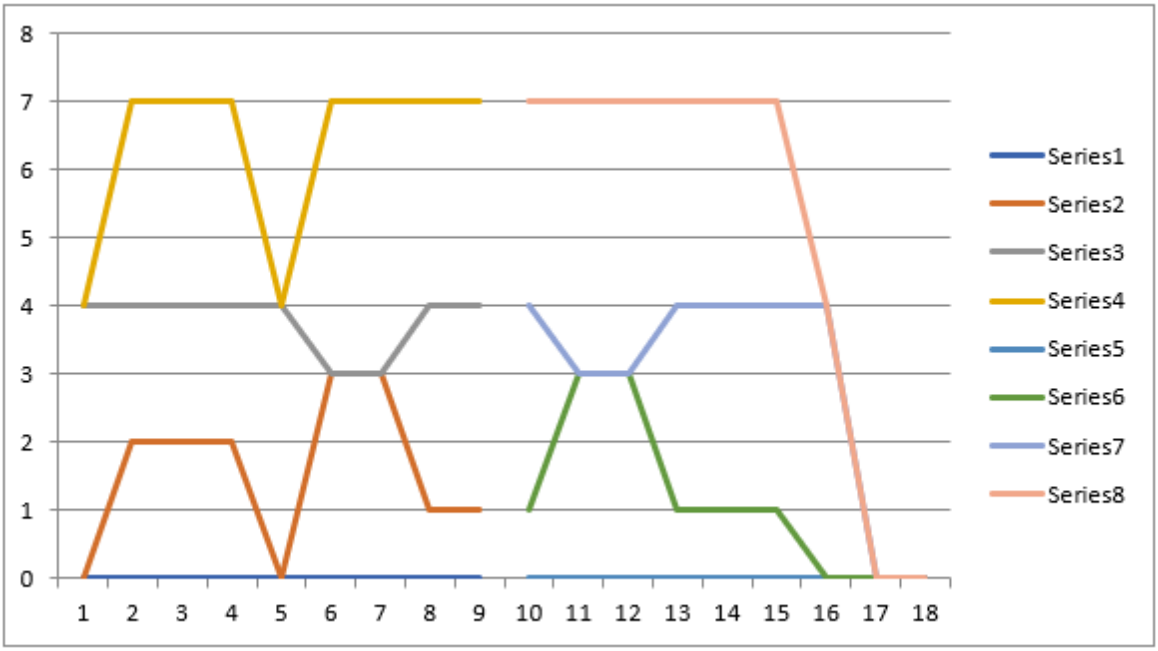
TABLE 2. Sets/Groups in Gould, *Transformations*, II, 100–108.

Inst/M	100	101	102	103	104	105	106	107	108
Tpt A	(04)	(0247)			(04)	(037)		(0147)	
Tbn A	(02)	(0235)			(02)	(0235)		(013)	
Bar A	(05)	(0237)			(05)	(0237)		(037)	
Tba A	(0147)	(01356)			(0147)	(01357)		(02357)	
Tpt B			(04)	(0147)			(037)		(0147)
Tbn B			(04)	(037)			(0235)		(013)
Bar B			(05)	(037)			(0237)		(037)
Tba B			(01356)	(0135)			(0123578T)		(0235)

What we have here are the sets for each instrumental group at measure 100 through measure 108. I chose this point because you have both antiphonal brass groups playing; it is the perfect place to see how things might be shown visually through drill.

Visually, this same idea can be represented as below. The x-axis represents marching steps left to right (with the step between 9 and 10 serving as a 50-yard line of sorts), and the y-axis is steps on or behind a reference point (such as the front sideline or a hash mark).

FIGURE 3. Plots of sets in Gould, *Formations*, II, 100–108.



What I have done, in this case, is reverse-plot the B group, yielding the model seen here. Series 1–4 are the A group brass, and series 5–8 are the B group brass. The next stage is to turn this into actual drill. The score calls for three trumpets, two trombones, two baritones, and two tubas. I assumed a medium sized band of two players on each part. For simplification, this drill is *only* for the brass players.[19]

FIGURE 4. Drill for *Formations*, II, 100–108.

(**https://youtu.be/tXQvIvxjU-0**)

[19] The move to "MG" at the end of the video was a flourish added by the drill designer, Andrew Houston of Alexandria, KY. The move itself is impractical given the circumstances given the distance of movement by the number of people in the amount of time allowed.

I split the players antiphonally and plotted them using various horizontal points (sidelines, hash marks, etc.) as each set's zero point. The players are plotted by the sets of each instrumental combination (an 02 would plot the instrumentalists at steps 0 and 2, etc.). Green represents trumpets, mauve trombones, blue baritones, and black tubas. The two groups move inward toward the 50-yard line. In this drill, each side continues during rests, creating an antiphonal effect musically while using continuous motion visually.[20] Eventually, both groups end in the middle of the field.

To the untrained eye, this would appear to be relatively standard, if somewhat tame, marching drill. It is more or less symmetrical, and each instrument group moves according to its own music. But by incorporating a level of analysis into the drill, students who are playing and studying the music could also bring the drill into their studies, recognizing and studying the techniques of motivic expansion/contraction, additive sets, and mirroring/reversal, and perhaps those who work better as visual learners could achieve a higher level of success. (Personally, I think drill moves based on asymmetric injection would look *really* cool.) In addition, knowing that set classes are incorporated into the drill may help the students learn their *drill* better – after all, if you are the three of an 037, and you know where zero is on the field, you can be more accurate in your placement of three. That, of course, is a happy side effect. Even without going to that level of involvement, though, band directors and theory teachers can collaborate on new ways of incorporating embodiment and analysis into curricula.

[20] As a reviewer pointed out, Group A could also stop in mm. 102–103, 106, and 108, and Group B in mm. 100–101, 104–105, and 107, creating an accordion effect. The educator/drill writer could make several interesting choices.

WORKS CITED

Berry, Michael. "The importance of Bodily Gesture in Sofia Gubaidulina's Music for Low Strings." *Music Theory Online* 15, no. 9 (2009).

Carpenter, Patricia. "*Grundegestalt* as Tonal Function." *Music Theory Spectrum* 5 (1983): 15–38.

Cook, Nicholas. *Music, Imagination and Culture*. New York and London: Oxford University Press, 1990.

Flinn, J. Wesley. "The Story of a Tetrachord: Morton Gould's *West Point Symphony*." *Journal of Band Research* 51, no. 1 (2015): 42–57.

Frisch, Walter. *Brahms and the Principle of Developing Variation*. Berkeley: University of California Press, 1984.

Goodman, Peter W. *Morton Gould: American Salute*. Portland, OR: Amadeus Press, 2000.

Gould, Morton. *The Reminisences of Morton Gould*, November 23, 1982, p. 12, in the Columbia Center for Oral History Collection.

_____. *Stringmusic*. New York: G. Schirmer, 1993.

_____. *Remembrance Day (Soliloquy for a Passing Century)*. New York: G. Schirmer, 1995.

Gritten, Anthony. "Distraction in Polyphonic Gesture." *New Perspectives on Music and Gesture*, ed. Anthony Gritten and Elaine King, 99–122. Burlington, VT: Ashgate Publishing, 2011.

King, Elaine. "Gestures and Glances: Interactions in Ensemble Rehearsal." *New Perspectives on Music and Gesture*, ed. Anthony Gritten and Elaine King, 177–201. Burlington, VT: Ashgate Publishing, 2011.

Lewin, David. *Generalized Musical Intervals and Transformations*. New York and London: Oxford University Press, 2007.

Mead, Andrew. "Bodily Hearing: Physiological Metaphors and Musical Understanding." *Journal of Music Theory* 43, no. 1 (1999): 1–19.

O'Donnell, Shaugn. "Klumpenhouwer Networks, Isography, and the Molecular Metaphor." *Intégrale* 12 (1998): 53–80.

Pearsall, Edward. "Transformational Streams: Unraveling Melodic Processes in Twentieth-Century Motivic Music." *Journal of Music Theory* 48, no. 1 (Spring 2004): 69–98.

Phipps, Graham H. "The Logic of Tonality in Strauss's *Don Quixote*: A Schoenbergian Evaluation." *Nineteenth-Century Music* 9, no. 3 (1986): 189–205.

Pierce, Alexandra. *Deepening Musical Performance through Movement: The Theory and Practice of Embodied Interpretation*. Bloomington: Indiana University Press, 2010.

Quinn, Ian. "Fuzzy Extensions to the Theory of Contour." *Music Theory Spectrum* 19, no. 2 (1997): 232–263.

Rogers, Nancy, and Buchler, Michael. "Square Dance Moves and Twelve-Tone Operators: Isomorphisms and New Transformational Models." *Music Theory Online* 9, no. 4 (2003).

Roig-Francolí, Miguel A. "A Theory of Pitch-Class-Set Extension in Atonal Music." *College Music Symposium* 41 (2001): 57–90.

Saslaw. Janna. "Life Forces: Conceptual Structures in Schenker's 'Free Composition' and Schoenberg's 'The Musical Idea.'" *Theory and Practice* 22/23 (1997/98): 17–33.

Schoenberg, Arnold. *Fundamentals of Musical Composition*. Edited by Gerald Strang and Leonard Stein. London: Faber, 1967.

ABOUT THE AUTHOR:

J. Wesley (Wes) Flinn (b. 1973), a native of Pinhook, IN (pop. 19), holds degrees from Morehead State University and the University of Cincinnati College-Conservatory of Music. He has held teaching positions in Kentucky, Massachusetts, Ohio, Georgia, and Minnesota, and his compositions have been performed and recorded throughout the United States and Europe. His research has been published in *Music Research Forum*, the *Journal of Band Research*, and the *Journal of Music Theory Pedagogy*. Currently he is Associate Professor of Music at the University of Minnesota-Morris, where he teaches music theory and composition courses and is also Coordinator of the Music Discipline. An active performer, Wes is principal trombone of the Central Lakes Symphony Orchestra and plays in the tuba-euphonium quartet Four on the Floor. He lives in Morris, MN with his wife Amanda and three cats.