The Function of Timbral Processes in Webern’s Symphonie op. 21, mvt I

Connor Way

Follow this and additional works at: https://scholarworks.gsu.edu/music_hontheses

Recommended Citation
doi: https://doi.org/10.57709/29099583

This Thesis is brought to you for free and open access by the School of Music at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Music Honors Theses by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.
THE FUNCTION OF TIMBRAL PROCESSES IN WEBERN’S SYMPHONIE OP. 21, MVT I

An Honors Thesis

Submitted in Partial Fulfillment of the
Requirements for Graduation with
Undergraduate Research Honors

Georgia State University

2013

by

Connor Way

Committee:

______________________________
Dr. Steven Harper, Honors Thesis Director

______________________________
Dr. Larry Berman, Honors College Dean

Date
ABSTRACT

As important as orchestration is for composers during the compositional process, timbre in music has historically been given a role subsidiary to that of pitch and rhythm. Throughout this paper I look into the possible ways that the timbral element of music might be brought to the foreground. I will discuss concepts introduced by Arnold Schoenberg which had significant impact on timbre theory as well as Schoenberg’s Five Orchestra Pieces, op. 16 no. 3 which makes use of timbral variation to an unprecedented degree. In closing, I will make an argument about the possibility which the timbral element of music has to bolster structural forms (as evidenced by Anton Webern’s Symphonie, op. 21, mvt I).

INDEX WORDS: Timbre, Color, Klangfarbenmelodie, Webern, Schoenberg, Analysis, Symphonie op. 21, Harmony, Progressions, Orchestration, Twentieth-Century, Music
THE FUNCTION OF TIMBRAL PROCESSES IN WEBERN’S SYMPHONIE OP. 21, MVT 1

by

CONNOR WAY

An Honors Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Music in Composition

in the College of Arts and Sciences

Georgia State University

2013
THE FUNCTION OF TIMBRAL PROCESSES IN WEBERN’S SYMPHONIE OP. 21, MVT I

by

CONNOR WAY

Honors Thesis Director: Dr. Steven Harper
Honors College Associate Dean: Dr. Larry Berman

Electronic Version Approved:

GSU Honors College
Georgia State University
December 2013
ACKNOWLEDGEMENTS

I would like to offer my thanks to my composition teachers, Mr. Brent Milam and Dr. Nickitas Demos, for the guidance and intellectual stimulation they have provided me over the past year while I have been pondering the role of timbre in music. I would also like to thank Dr. Steven Harper for his direction in constructing this paper.
# TABLE OF CONTENTS

**ACKNOWLEDGEMENTS**

**CHAPTER**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td><em>Klangfarbenmelodie</em>: A Theoretical Precedent for Timbral Organization</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>Schoenberg’s <em>Five Orchestra</em> Pieces, op. 16, no. 3</td>
<td>4</td>
</tr>
<tr>
<td>IV</td>
<td>Summary of Formal Design and Content In the <em>Symphonie</em>, op. 21</td>
<td>10</td>
</tr>
<tr>
<td>V</td>
<td>Timbral Processes and Their Function In the <em>Symphonie</em>, op. 21</td>
<td>14</td>
</tr>
<tr>
<td>VI</td>
<td>Conclusions</td>
<td>20</td>
</tr>
</tbody>
</table>

**BIBLIOGRAPHY** 23
I. Introduction

Timbre in music, being defined as “tone-colour; that which distinguishes the quality of tone…”¹, has long been an existing element used purposely and tactfully by composers of the Western classical tradition. Often used interchangeably with “tone quality” and “color”, timbre refers to the difference between any two sounds emitting the same frequency, e.g. trumpet and violin both playing middle C. The vast array of different timbres found within various musical instruments can be likened to the pallet of colors available to visual artists hence the frequent use of terminology such as “change of color” to denote a change in instrumentation.² As important as the element of timbre is for composers during the compositional process, it has historically been given a role subsidiary to that of pitch and rhythm. Consequently, harmonic, melodic, and rhythmic elements are usually what occupy the foreground when it comes to analyzing and codifying the musical language of influential composers.

In this paper, I look to uncover potential functions of timbre that operate in a more primary role alongside pitch and rhythm. The intrinsically central nature of pitch within music is scientifically supported by the physical reality of acoustics and this paper will not seek to deemphasize the undeniable significance of the frequency of sound waves. Such an argument would be naively erroneous and unhelpful for gaining a deeper understanding of timbral function. Instead, this paper discusses ways in which timbre has been brought to the foreground


² It is important to note, however, that special effects such as plucking the strings of a violin in lieu of bowing (pizzicato) or putting a mute in the bell of a trumpet also cause a significant change in color while avoiding an actual change of instrument.
so it may effectively coexist as a leading element beside pitch and rhythm. Building upon what theorists have already discovered regarding Webern's orchestration techniques in the *Symphonie*, op. 21, I will look further into timbral usage throughout the work and make claims about how these factors have significant implications for the overall structure of the piece.

My analytical objectives are all, to certain extant, a means to an end since ultimately, by grasping an effective method of timbral exploitation used by other composers, I hope to enrich my own compositional craft. It is this mindset that ultimately led this project to a timbral analysis of the first movement of Anton Webern’s *Symphonie* which has always stood out to me as being somewhat of a timbral spectacle. Prior to analyzing the Webern piece, I will discuss concepts introduced by Arnold Schoenberg which had significant impact on timbre theory as well as Schoenberg’s *Five Orchestra Pieces*, op. 16 no. 3 which makes use of timbral variation to an unprecedented degree. In closing, I will make an argument about the possibility which the timbral element of music has to bolster structural forms (as evidenced by the Webern *Symphonie*).

**II. Klangfarbenmelodie: A Theoretical Precedent for Timbral Organization**

The main theoretical notion which likely influenced the way Webern thought about timbre is the idea of *Klangfarbenmelodie*. Arnold Schoenberg, Webern’s longtime teacher and colleague, proposed this concept at the tail end of his book *Harmonielehre* (translated *Theory of Harmony*) which was written in 1911. *Klangfarbenmelodie*, a compound German word which translates “tone-color-melody”, is a concept Schoenberg introduced only briefly in the closing
paragraphs of *Harmonielehre*. The origins of the idea are simple enough: Schoenberg postulated that pitch is actually a subcategory of the overall tone (*klang*) of a given sound. Composers up until that point had successfully written music which made use of all dimensions of tone but only formally organized the pitches of said tones; any manipulation of tone color was guided by instinct. Having stated that premise, he wonders out loud, “we do write progressions of tone colors without a worry, and they do somehow satisfy the sense of beauty. What system underlies these progressions?” He then takes the next logical step to propose this revolutionary idea: in regards to the pitch dimension of tones being configured into progressions, he ponders, “then it must also be possible to make such progressions out of the tone colors of the other dimension, out of that which we call simply ‘tone color’, progressions whose relations with one another work with a kind of logic entirely equivalent to that logic which satisfies us in the melody of pitches.” This concept must not have been quite as alluring at the time to Schoenberg as other more concrete theoretical possibilities such as various dodecaphonic techniques because he said *Klangfarbenmelodie* “has the appearance of a futuristic fantasy and is probably just that” although he did say he firmly believed it would be realized and would indeed be “capable of heightening in an unprecedented manner the sensory, intellectual, and spiritual pleasures offered by art.”

---


4 Ibid, 421.

5 Ibid, 421.

6 Ibid, 421.
III. Schoenberg’s Five Orchestra Pieces, op. 16, no. 3

The famous example in Schoenberg’s music that many theorists have pointed to as being the inaugural *Klangfarbenmelodie* is the Five Orchestra Pieces, op. 16 no. 3. This movement of the work, suggestively titled “Farben”, opens with a five note chord (C, G#, B, E, and A) that is sustained three measures before gradually morphing into other chromatic chords. The aforementioned opening chord initiates what theorist Charles Burkhart calls the “five-voice organism” around which the piece centers. These five voices evolve into various other chromatic harmonies by way of a very slothful sort of voice-leading.

What is noteworthy about this five-voice organism is how it rotates between different combinations of timbres faster than it changes to different harmonies. That is to say, harmonies remain somewhat static (with each of the five voices sustaining one pitch for at least one measure at a time, usually more) while changing of instruments within each voice happens at an average rate of twice per measure. For the first ten measures, two different consorts of instruments oscillate back and forth between each other to establish the half-note timbral pulse. Figure 1 shows this relation by outlining each new color combination of mm. 1-3 with a dashed box. The dashed boxes are shown inside a solid box representing the first harmony which sustains until m. 4. The dashed oval highlights a two-note, extra-chordal motive that Schoenberg uses twelve different times throughout the piece.

---


8 The exception to this ratio is the climactic passage in mm. 26-29 where timbral shifts occur at frequencies as high as one every sixteenth note and harmonic shifts occur as often as once per quarter note.

9 At which point similar processes in the five voice organism continue on throughout the entire piece but only mm. 1-3 are graphically illustrated in Figure 1 for the sake of clarity.
Figure 1
Figure 2 offers a closer look at the top two voices (flute 1 and 2) of the first timbral combination and the top voice (english horn) of the second timbral combination. Solid boxes are drawn around the aforementioned voices of each combination to illustrate the overlap built into each color change. Schoenberg utilizes this orchestration technique (letting each voice sound an eighth note’s duration into the next timbre zone) to achieve smooth transitions throughout the piece.

![Figure 2](image)

The timbral pulsing creates an undulating texture which draws attention to the revolving colors in a way that enables the timbral element to compete with the relevancy of the pitch material to create a sense of balance between color and pitch. Pitch remains an important factor in the progression of the music but elevates color to a somewhat equal role. The fact that the frequency of color change is significantly greater than the frequency of harmonic change (when usually the opposite holds true) is what effectively brings the timbral element, and the changes thereof, to the fore. Other harmonic material — not the least of which being the striking, two-note motive which first occurs subtly in m. 7 in the bass clarinet — add depth to the landscape so the piece does not run the risk of becoming uninteresting by relying on the five-voice organism alone. Figure 3 (Highlighting mm. 25-26 using the same methods as Figure 1) shows how the
Figure 3
prioritization of timbral shifting over harmonic shifting continues on into the climactic passage which starts in m. 26. The dashed oval highlights another sort of extra-chordal, embellishment motive used for dramatic effect.

Nevertheless, the five-voice organism holds primary importance and seems to suggest to the listener that the shifts in timbre are the main focus. The fact that Schoenberg is highlighting timbral shifts in a very conscious way is made even more evident by the fact that no one combination of timbres in the five-voice organism (except mm. 1-11 of course) is the same. The appearance of timbral organization is supported even further by the climactic passage between mm. 26-29 which, as Burkhart discovered, actually utilizes a serial ordering (top four voices only — the previous sentence still holds true) of color combinations. It is noteworthy to observe Schoenberg using a serial technique on timbre relations even before he came to serialize the twelve pitches of the chromatic scale which would be his biggest contribution to compositional technique.

Alfred Cramer argues against “Farben” being a Klangfarbenmelodie and proposes that Schoenberg likely had an entirely different process in mind having to do more with harmony when he first proposed the concept. He suggests that attempts made by theorists to find a prototype of Klangfarbenmelodien from Schoenberg’s catalogue has led to “Farben” being used to fill the “vacuum” because of it’s title and obvious exploitation of color. Cramer found that a letter from Schoenberg to Josef Rufer written in 1951 describes Klangfarbenmelodie as a

---

10 Although the ratio of color change to chord change is technically one-to-one in m. 25, the change in color still retains primary focus because of how all five voices in the organism change color but only one of them moves to a new pitch (by a mere half step from a G# harmonic in the cello to an A in the third clarinet).

11 Burkhart, 163.

technique that “involved ‘combinations of moving voices’” as opposed to shifting instrumentation.  

In a stern essay also written in 1951, Schoenberg tells of a visit paid to him by the musicologist Frederick Dorian-Deutsch who had been studying composition with Webern. Dorian-Deutsch had evidently informed Schoenberg that Webern thought himself to be a successful creator of *Klangfarbenmelodien* and possibly the inspiration for the closing remarks in *Harmonielehre*. In an apparent effort to clear the air once and for all, Schoenberg states in no uncertain terms that neither he nor Webern had succeeded in writing *Klangfarbenmelodien*. Furthermore, he goes on to state that if *Klangfarbenmelodien* were to “equal harmonic progressions in terms of inner logic”, then “they would need to be given form, and to the same extent — but according to laws of their own, in keeping with their nature”. He goes on to explain why this idea would necessitate a new formal construct: “progressions of tone-colours would certainly demand constructions different from those required by progressions of tones, or of harmonies. For they were all that, and specific tone-colours as well”. These remarks seem to support Cramer’s argument that the term *Klangfarben* does not denote a quality distinct from pitch but rather indicates a larger, all-inclusive conception of tone.

For the purpose of this paper, the correct definition of *Klangfarbenmelodie* (if such a definition exists at all) is less important than understanding how the perception of this theoretical technique, and previous timbral experiments by Schoenberg, likely influenced the way in which

---

13 Ibid, 4.
15 Ibid, 485.
16 Cramer, 2-3.
his student Anton Webern thought about timbral processes, and the deployment thereof, at the
time of his Symphonie, op. 21. Seeing as how Schoenberg was experimenting with sophisticated
timbral processes as early as 1909, it is beyond a shadow of a doubt that the topic of how timbre
functions in music would have been on the mind of Anton Webern.

III. Summary of Formal Design and Content In The Symphonie Op. 21

Throughout the past several decades, much has been written about Webern’s Symphonie. The way Webern treats every musical element at his disposal is extremely calculated and compact — not unlike many of his other works. The tone row for this piece is constructed so as to form a transpositional mirror of itself (which I will explain in detail) and Webern exploits this part of the row’s DNA throughout the piece on nearly every level. Although my intention is not to rehash a piece which has been thoroughly dissected by a myriad of theorists, an investigation of the pitch material and form of this movement is necessary before discussing the timbre for two reasons: firstly, a basic understanding of all the elements present in the piece is necessary if we are to draw a firm conclusion on any one element; secondly, and most importantly, Webern’s timbral processes have significant implications (as I will address later) for the formal meta-narrative that shapes the piece. Thus, it is important to discuss each musical dimension. Figure 4 shows the twelve-tone row Webern uses for the piece as it first appears (in prime form at a transposition level of zero) in the dux of Canon I. The second hexachord in the row is a retrograde of the first hexachord. In keeping with the properties of a twelve-tone row (being that all twelve pitches within the octave must be present therefore there cannot be repeated tones), the
second hexachord is transposed up a tritone. This endows the row with a powerful degree of
cohere[n]cy while still maintaining dodecaphonic properties. The second hexachord introduces six
brand new pitches but interval content is the same (but in retrograde) as what was heard in the
first hexachord.

Figure 5 illustrates another interesting symmetrical quality of the row; namely, the way in
which it’s last two notes overlap with the first two notes of the inversion of the row transposed
up a minor third. This allows Webern to morph tone rows into their complement. He employs

Figure 5

this technique at the conclusion of every tone row within the exposition. Figure 6 shows an
example of this procedure which occurs in mm. 16-18 in the harp and violas. If the tone row
itself (Figure 4) is Webern’s realization of symmetry at the microscopic level, then the
palindromic B section of the movement (which makes the bar line between m. 34 and m. 35 into
a line of symmetry) can be considered the macroscopic level. Figure 7 illustrates this moment in
which a literal palindrome is constructed out of the B section. solid lines are drawn on either side
of the symmetrical divide to link the mirrored gestures of the palindrome. I am indebted to
Kathryn Bailey’s analysis of the Symphonie for illustrating the all-pervasive symmetrical nature
of the row. Interestingly, the palindrome structure is juxtaposed with the sonata structure which is clearly represented by the |: A :|: B A’ :| design. It appears that Webern is playing with the idea of structural duality.

Figure 6

IV. Timbral Processes In The Symphonie Op. 21

At least a few aspects of Webern's timbral usage in the *Symphonie* are immediately accessible on the surface after a quick first glance. The material is so unapologetically simple and texturally sparse that, given the shifting quality of timbre content, the listener is immediately aware of the orchestral color as a central element. Strikingly, the piece opens with a noble, fanfare theme in the horn which is accompanied by single notes in the harp and pizzicato strings. The “calm stride” which is indicated by the tempo marking, is established and sustained throughout the exposition. Figures 8a and 8b show how Webern conceives of each canon as having a distinct timbral personality throughout the exposition. Canon I presents the clear, resonant material (primarily winds) while Canon II presents the contrasting, muted sonorities (harp and strings). Bailey notes that throughout the entire exposition, clarinets never appear in Canon II and neither the harp nor violins ever appear in Canon I. The appearance of the horns within Canon II throughout mm. 9-15 is not as problematic as it appears. The reason is that none of the horn notes in this section have an attack point to themselves; every change of note represents a simultaneity with another instrument which causes the horn section to temporarily conform to the character of Canon II. Likewise, when the violas and celli appear in Canon I, they only play arco in keeping with the resonant character of Canon I. The bass clarinet in mm.

---

18 Bailey, 188.

19 There are other timbral factors that come into play and disguise the clear sounding color of the horns; namely, the relatively low registers throughout the passage, a mute in m. 12 of horn 2 (indicated by a plus sign above the note), and generally quiet dynamics. This is an example of color change being achieved without a change of instrumentation.
Figure 8a
23-24, however, does represent an important exception to the moratorium of clarinets in Canon II. Bailey suggests that this is likely to foreshadow the recapitulation which does away with strict canonic instrumentation altogether.\(^{20}\)

At the start of the development, distinctive qualities between the two canons begin to dissolve. In keeping with the classical sonata form idea of juxtaposing two themes on top of each other, Webern makes the sustained notes of the exposition sustain even longer and the muted notes of the exposition shorter and more gestural. This process brings a strong sense of drama into the musical context, all while the clear versus muted dichotomy melts away (the horn only plays four notes the whole development section and the strings stop playing pizzicato).

In the recap, the shifts of timbre pallet continue but there are interesting moments, such as the two-note horn motive in mm. 52-53 (see Figure 9). The horn plays forte and in a high register with a contour that harkens back to the opening fanfare. It is as if the horn is crying out for an important role once again but it is only heard two more times in the piece (m. 61 and 64) both of which are quiet and dramatically less significant.

![Figure 9]

\(^{20}\) Bailey, 187.
Instead (see Figure 10) the violins and violas go through several slithering flourishes which bring the piece to a close. The harp adds an extra flourish for increased string dominance.

The graph in Figure 11 was created by recording the sum total of attack points for each measure within the two main instrument sections (winds & strings and harp). The shape presented by this graph provides interesting information regarding how Webern orchestrated the piece. On one hand, there is a general tendency throughout the length of the graph (whose x-axis is a measure map of the piece) to display symmetry between the two families. That is to say, the peaks of the string curve tend to coincide with the troughs of the wind curve and vice versa. On a micro level, this tendency illustrates a Schoenbergian rotation of colors. There is not a consistent rhythm of shifting timbres in the Webern Symphonie like there was in Schoenberg’s “Farben”;

![Graph showing winds and strings](image-url)

**Figure 11**
Figure 10
but there is a palpable sense of timbre change happening frequently enough to become a noticeable factor.

V. Conclusions

Analyzing the progression of timbres in Schoenberg’s *Five Orchestra Pieces*, op. 16, no. 3 shows how tone-color can be successfully brought to the foreground and offers a glimpse into perhaps the most seminal example of timbre based music in the early twentieth century. It also becomes quite clear, however, that despite Schoenberg’s success in elevating timbre to a level of primary significance, the technique of merely shifting through colors faster than pitch content has a relatively limited potential for evolution. Subsequent composers did not (and likely will not) offer much in the way of an expansion on the specific technique utilized in Schoenberg’s “Farben”. But it did cause a good number of people, Anton Webern in particular, to begin thinking about how timbre can be exploited in ways that previous generations of composers had neglected. The danger often times with highlighting timbral processes in music is that composers run the risk of neglecting pitch content. Even the Schoenberg piece, whose harmonic content employed carefully crafted, tightly knit voice leading, ultimately failed to provide a sustainable technique for timbral progressions. This is likely due to the impression of stasis which the harmonies put forth; though the chords were constantly shifting, they never travelled far from the original five-note sonority or a transposition of it.
Anton Webern, on the other hand, is a composer who possesses the ability to utilize timbral processes which are hugely effective yet still tastefully subtle. Webern’s genius lies in his instinctive tendency to simplify certain elements while deeply enriching others in a way that exhibits the ideal balance between clarity and complexity. As Claus Clüver states, “Because of Webern’s reduction of all the musical materials and the increased transparency thus achieved, each individual event is given a heightened function and significance. One of the ways to bring this about is a constant change in timbre, both horizontally and vertically. Webern’s compositions gain in intensity what they lose in extension.”

In the Symphonie, op. 21, Webern exploits color in both the micro and macro arenas. In the case of the former, we can observe what is likely to be Webern’s conception of Klangfarbenmelodie: a texturally, vibrant landscape that portrays each note of attack as a momentous sonic event, drawing the listener into a keen awareness of each new timbre. The eloquent brevity of Webern’s orchestration methods is ultimately more effective than Schoenberg’s timbral pulsation because it synthesizes with the other musical elements (pitch, rhythm, etc) in a more sophisticated way. In the latter arena, regarding the macro applications of timbral processes, we can see how Webern’s music benefits from an added structural depth provided by large-scale timbral trends. The opening of the Symphonie, with its balanced juxtaposition of resonant and muted timbres, continues on through a gradual process of obfuscation which gives way to domination by the slithering strings. After having already superimposed a palindrome on top of a quasi sonata form, Webern effectively adds a third

---


22 Clüver’s essay is a great example of how influential the theory of Klangfarbenmelodie was in the twentieth century both for music theory as well as other disciplines — even if they were incongruent with ideas of Schoenberg.
dimension to the overall structure of the first movement by skillfully taking the ensemble through a gripping timbral narrative.
Bibliography


Cramer, Alfred. “Schoenberg’s *Klangfarbenmelodie*: A Principle of Early Atonal Harmony”.


