My chamber orchestra piece *The World in Color* uses orchestrational devices that produce shifts in timbre that musically structure the piece around moments of “bloom.” The impetus for the work came from a video in which colorblind people were enabled to see color for the first time. Fascinated by this newly-developed technology, I was inspired to write this piece as a way to express musically what I imagined their experience might be like. I therefore employed techniques based on three processes that categorized instruments in terms of orchestrational color. In the first process, instruments were added and subtracted from the overall texture to create more or less “colorful” passages. In the second process, instruments were divided into two “light” and “dark” groupings whose musical materials interacted with one another. In the third, instruments of different families with distinct timbres were scored so that they were closely voiced. These three processes all support the “blooming” moments of the piece. This document contains a detailed analysis of how these processes were used in the piece, as well as an appendix containing the score for the composition.
THE WORLD IN COLOR FOR CHAMBER ORCHESTRA

by

Robin E. McLaughlin

A Thesis Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Music

Greensboro
2018

Approved by

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Committee Chair
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Committee Chair______________________________
Committee Members______________________________

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Date of Acceptance by Committee
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CHAPTER I
INTRODUCTION

A few years ago, I watched a video where colorblind people were given the new experience of seeing the range of colors experienced by those with typical sight through the aid of corrective glasses. People in the video described their experience as, “This is amazing!” “Wow!,” “I’m getting misty.”\(^1\) Although I have typical sight, I imagined that this new capability must be a profoundly moving experience for these people. Captivated, I decided to write a piece of music that was inspired by this visual transformation.

The musical procedures in my work are accomplished by three types of orchestrational processes. In the first process, I categorized the strings, piano, and unpitched percussion as “gray.” The addition and subtraction of wind and brass instruments represent the metaphorical presence of color. In the second process, orchestrational groupings represent differences in brightness, and are thought of as “dark” and “light.” Finally, a third process blends the timbres of different instrumental families through close voicing. These three processes guide musical structure through the work.

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CHAPTER II

ORCHESTRATIONAL DEVICES IN *THE WORLD IN COLOR*

*The World in Color* uses three orchestrational devices to produce shifts in timbre to create musical structure. Throughout this paper, I will refer to these devices or processes as Orchestrational Processes 1, 2, and 3. These three orchestrational devices are the addition and subtraction of instruments, the creation of instrumental groupings, and the blending of timbre through close voicing. In this piece, structure delineates sections, and also guides the preparation of climactic moments that “bloom”\(^2\) through the use of the entire orchestrational forces. These “blooming” moments connect to the video that inspired the work, by suggesting the same “wow” moments experienced by the colorblind when seeing color for the first time. In addition, because these “blooming” moments always use the full ensemble, the full range of musical “color” suggests the concept of “seeing” the full range of visual color. In this chapter, I will provide examples of how these Orchestral Processes provide musical structure throughout the piece, and how they are used to create moments of “bloom.”

The three main orchestrational processes - the addition and subtraction of instruments, the creation of instrumental groupings, and the blending of timbre through

\(^2\) The concept of “blooming” moments is one that is integral to the compositional process of many of my compositions. By “bloom,” I refer to moments that produced a kind of musical, “a-ha!” They are the arrival points, places where full orchestrational forces are used, and always include the use of a relatively larger range.
close voicing - serve as an important way of delineating this piece’s overall form.

Conceived of as a palindrome, the piece presents three different motivic materials, each of which are established in the first three sections. Conceived of as a palindrome, the piece presents 5 sections - Section A, Section B, Section C, Section B’, and Section A’.

This design, and the accompanying orchestrational processes, are laid out in figure 1.

<table>
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<tr>
<th>Measures</th>
<th>Mm. 1-50</th>
<th>Mm. 51-74</th>
<th>Mm. 83-114</th>
<th>Mm. 120-173</th>
<th>Mm. 181-195</th>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>B’</td>
<td>A’</td>
</tr>
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</table>

Figure 1. Orchestral Processes and Sections

Section A uses Orchestral Process 1, which adds and subtracts instruments. Orchestral Process 1 reflects my inspiration for the piece. By imagining a texture where the strings, piano, and unpitched percussion might be gray, and the flute, oboe, clarinets, horn, and vibraphone add instrumental color, the new ability to see color can be suggested. Figure 2 provides an overview of when instruments are added and subtracted.
In addition, the addition and subtraction of instruments directs the section toward and away from the important structural moment of “bloom” through changes in orchestration. The moment of “bloom” in this passage - in mm. 39-42 - occurs after the completion of the addition process, and lasts until the start of the subtraction process. Figure 3 provides a graphic representation of Orchestrational Process 1 (addition/subtraction.)
Figure 3. Graphic Representation of Mm. 1-50
Figure 3 illustrates how Orchestrational Process 1 (addition/subtraction) supports the musical structure by creating direction toward, and away from, the most important moment: the moment of “bloom.” The process of instruments being slowly added to the texture creates direction toward this moment. When this moment occurs, it is scored with all instruments together, adding emphasis to the motivic material. After the moment of “bloom,” the process of instruments being slowly subtracted provides direction away from this climactic moment. Orchestrational Process 1 (addition/subtraction) thus provides direction toward and away from the most important moment of the section, and emphasize it when it occurs.

In addition to highlighting the climactic moment of “bloom,” the orchestration delineates Section A. At the beginning, the texture is sparse. In the middle, all orchestrational forces are used. At the end, there is a return to the texture of sparsity. This motion away from and back toward sparsity provides direction and return, providing closure at the end of the passage.

Orchestrational Process 1 (addition/subtraction) is also present in Section B, mm. 51-74. However, in this passage, instruments are added, but are not subtracted. Figure 4 provides a table for when instruments are added, and Figure 5 provides a graphic representation of this process.
<table>
<thead>
<tr>
<th>Measure(s)</th>
<th>Musical Event</th>
</tr>
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<tbody>
<tr>
<td>mm. 51-74</td>
<td>Addition of instruments</td>
</tr>
<tr>
<td>mm. 51-61</td>
<td>Strings only</td>
</tr>
<tr>
<td>mm. 62-64</td>
<td>Entrance of oboe, Bb clarinet, bass clarinet, flute, and horn</td>
</tr>
<tr>
<td>mm. 62-74</td>
<td>Presence of all strings, winds, and brass</td>
</tr>
</tbody>
</table>

Figure 4. Orchestrational Process 1 (Addition/Subtraction) in Mm. 51-74

Figure 5. Graphic Representation of Mm. 51-74

Whereas in Section A, the winds and brass were added to the gradually, in Section B, the winds and brass are added all at once. All instruments remain present until m. 74. While Section B uses Orchestrational Process 1 (addition subtraction) just as Section A does, the compositional process is employed with a different method. In this passage, the “blooming” moment again occurs at the moment where all orchestrational forces are present. However, because the winds and brass enter all at the same time between mm. 62-64, the orchestrational transition happens more suddenly. Because the orchestrational
process of adding instruments is different in Section B, the “blooming” moment is unique from the “bloom” of Section A. Whereas the “bloom” of Section A is more gradual and anticipated, the “bloom” of Section B is more dramatic.

The orchestrational process of addition also delineates section B into a discrete passage of music. Whereas the subtraction of instruments created a sparsity of texture that provided an endpoint for Section A, here, the climax of instrumental presence is used to provide an endpoint for Section B. The persistence of the full orchestrational forces provides an endgoal to the process of addition.

Orchestrational Process 2, “categories,” is employed in Section C, mm. 83-114, and involves the division of instruments into categories that establish and exchange musical materials. In contrast to how Orchestrational Process 1 (addition/subtraction) imagines the addition of instrumental timbres to create a more “colorful” texture, this process divides instruments into a “light” and a “dark” groupings. These groupings correspond with range - the “light” grouping, comprised of the flute, oboe, clarinet, piano, and glockenspiel, are presented in a relatively higher register. The “dark” category, comprised of the horn, bass clarinet, and violins, are presented in a relatively lower register. A third category, comprised of the viola, cello, double bass, and drum set, serves as accompaniment. The accompanimental category provides harmonic and rhythmic context for the materials of the other two categories. These categories are presented in Figure 6.
<table>
<thead>
<tr>
<th>Category 1 - “Dark”</th>
<th>Category 2 - “Light”</th>
<th>Category 3 - Accompaniment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horn, bass clarinet,</td>
<td>Flute, oboe, clarinet, piano, glockenspiel</td>
<td>Viola, cello, double bass, drum set</td>
</tr>
<tr>
<td>violins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6. Light, Dark, and Accompanimental Categories

After the “light” and “dark” categories of instruments are established, they are gradually disassociated from the musical material they had originally established, outlined in Figure 7.

<table>
<thead>
<tr>
<th>Measure(s)</th>
<th>Musical Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mm. 83-114</td>
<td>Interactions between categories of instruments</td>
</tr>
<tr>
<td>Mm. 83-91</td>
<td>Establishment of “light,” “dark,” and “accompanimental” categories of instruments</td>
</tr>
<tr>
<td>Mm. 92-98</td>
<td>“Dark” violins move to the higher register of the “light” category</td>
</tr>
<tr>
<td>Mm. 99-114</td>
<td>“Light” category instruments play musical material of the “dark” category instruments, “dark” category instruments play musical material of the “light” category instruments</td>
</tr>
</tbody>
</table>

Figure 7. Orchestral Process 2 (Categories) in Mm. 83-114

The instruments in the “light” category gradually starts to play the musical material that the “dark” grouping was playing, and the instruments in the “dark” category start to play the musical material that those in the “dark” grouping were playing, as if they were cross-pollinating one another. Figure 8 provides a detailed diagram of the process.
Figure 8. Graphic Representation of Mm. 83-114
Because this passage uses the full orchestral forces the entire whole way through, it can be understood as one long “blooming” moment. The section is delineated by the orchestration as well. On either side of this passage, the musical texture is sparser, and the orchestral forces are small. In this way, Orchestrational Process 2 (categories) provides musical structure, and gives meaning and definition to the structure of the piece.

Section B’, mm. 121-173, uses Orchestrational Process 3, the blending of instruments of different timbres through close voicing. In Section B’, the same musical material from B is presented. When this material was presented in Section B, it was first presented with a single family of instruments - the strings, seen in Example 1 - and later with a tutti.
However, when this same material is presented in B’, it is orchestrated with smaller
groups of instruments that contain different families. For instance, in mm. 121-128, flute,
oboe, clarinet, violins, and viola spell chords together in the same register, seen in
Example 2.
Example 2. Strings and Winds in B’, with Orchestral Process 3 (Timbre Blending)

In addition to sharing a register, the instruments sometimes double one another, and are interlocked. For instance, on beat 1 in m. 121, a C7M chord is written with a concert C5 in the clarinet (written D5), E5 in the viola, G5 in the oboe and violin II, and B6 in the
flute and violin I. This close voicing of a chord, that includes interlocked and doubled pitches, blends the timbres of the instruments.

By orchestrating the motivic material from Section B with Orchestral Process 3 (timbre blending), larger-scale development is provided for the piece. In Section A and Section B, the separation of families of instruments was necessary to facilitate the orchestrational process of adding and subtracting instruments. In Section C, instruments from different families are placed together in the three categories of “light,” “dark,” and accompaniment. However, the process used in B’ provides the most intentional melding of timbre yet seen in the piece - here. Orchestral Process 3 (timbre blending) places Section B’ within the color-combining trajectory of the entire piece. This passage does not feature a “blooming” moment, but instead points toward the greater “bloom” that is about to occur in Section A’, in mm. 181-195.

Finally, in Section A’, Orchestral Process 2 (categories) informs the timbre of the final section of the piece, mm. 181-195. Just as like Section C, instruments are again divided into a “light” group and a “dark” group, and again distanced by register. An example of this passage is shown in Figure 9.
Example 3. Example of Groupings in Section A’
In this passage, the musical materials of the “light” and “dark” grouping do not exchange materials. Through the use of the entire orchestrational forces, the entire passage serves as a final moment of “bloom” for the piece. By providing a final “blooming” moment for the entire piece, Section B’ provides a sense of conclusion to the work.
CHAPTER III

CONCLUSION

The musical structure of *The World in Color* is enforced by orchestrational devices that provide shifts in timbre, directing the music toward “blooming” moments. These three musical procedures - the addition and subtraction of instruments, orchestrational groupings, and the blending of timbres through voicing –provide direction for the music toward the important moments of “bloom.” By using orchestration to direct the music toward “blooming” moments, I suggest musically what I imagined experience of seeing in color for the first time to be.
BIBLIOGRAPHY

APPENDIX A

SCORE OF *THE WORLD IN COLOR*
The World in Color
for CHAMBER ORCHESTRA

Robin McLaughlin
Program Notes

A few years ago, I watched a video where colorblind people were given the new experience of seeing the range of colors experienced by those with typical sight through the aid of corrective glasses. Although I have typical sight, I imagined that this new capability must be a profoundly moving experience for these people, and this was confirmed in the reactions expressed in the video - “This is amazing!” “Wow!,” “I’m getting misty.” Captivated by the poetry of the experience, I decided to write a piece of music that was inspired by this visual transformation.

The World in Color uses a variety of timbre-shifting orchestrational devices, such as the addition and subtraction of "colorful" instruments, "light" and "dark" sounding orchestrational groupings, and the blending of timbres. These orchestrational processes structure the piece around these "Wow!" moments, which seem to bloom in the texture. By using orchestration to direct the music toward “blooming” moments, I suggest musically what I imagine the experience of seeing in color for the first time to be.

Instruments

- Flute
- Oboe
- Bb Clarinet
- Bass Clarinet

Horn in F

Percussion 1 (Bass Drum, Sleigh Bells, Sus. Cymbal, Hi-hat, Snare Drum, Kick Drum, Wood Blocks)
Percussion 2 (Vibraphone, Glockenspiel)

- Piano
- Strings
The World in Color

Robin McLaughlin

Slow (\(\frac{3}{\dot{4}}=60\))  \hspace{1cm} \text{rit.}  \hspace{1cm} A \text{ tempo} (\(\frac{3}{\dot{4}}=60\))

Flute

Oboe

Clarinet in Bb

Bass Clarinet in Bb

Horn in F

Percussion 1

\textit{persistently}

Percussion 2

Piano

\begin{align*}
\text{Violin I} & & & & & \\
\text{Violin II} & & & & & \\
\text{Viola} & & & & & \\
\text{Violoncello} & & & & & \\
\text{Double Bass} & & & & & \\
\end{align*}

\text{Slow (\(\frac{3}{\dot{4}}=60\))  \hspace{1cm} \text{rit.}  \hspace{1cm} A \text{ tempo} (\(\frac{3}{\dot{4}}=60\))}

23
rit. .................. A tempo (♩=60)

Fl. 

Ob. 

Cl. 

B. Cl. 

Hn. 

Perc. 1 

Vib. 

Pno. 

rit. .................. A tempo (♩=60)

Vln. I 

Vln. II 

Vla. 

Vc. 

Db.
(Diagram of sheet music with various instruments and symbols, including:
- Flute (Fl.)
- Oboe (Ob.)
- Clarinet (Cl.)
- Bassoon (B. Cl.)
- Horn (Hn.)
- Wood Blocks
- Vibraphone (Vib.)
- Piano (Pno.)
- Violin I (Vln. I)
- Violin II (Vln. II)
- Viola (Vla.)
- Cello (Vc.)
- Double Bass (Db.)

Symbols include:
- P
- With mute
- Wood Blocks
- Hard wool mallets
- Arco
- K

Note numbers: 129, 130, 131)