Chiaroscuro: 
An Investigation of Light, Darkness, and Spatiality in Music

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Abstract

Chiaroscuro is the creative use of stark contrast between light and dark often found in painting. I have been interested in how the audience perceives music and what variables can account for different reactions. During the past year I composed a large-scale musical work, Chiaroscuro, which explores the dimensions of the concert hall and investigates different lighting effects to create a unique atmosphere for the listener. Through the analysis of other well-known works, which use spatialization or darkness, I examine how these works differ from conventional pieces and how these pieces informed my own compositional process. I also examine how these outside factors shaped my own piece and discuss the in-depth analysis of my composition.
Chiaroscuro: An introduction

Chiaroscuro is a term used to describe a style of painting primarily in the 16th century. The word, which translates to light and dark, was used to describe the stark contrast between light and dark within the paintings. The artwork is created and viewed based on the perceptions of light and shadows. Musicians of the time were also inspired by this term. They used lower and upper voices and instrumental colors to represent light and darkness. My interpretation of both the technique and the concept of chiaroscuro was to write a piece that will be performed in darkness. Music as a whole would act as the light that the listener would experience and the integration of the darkness would create a new perception of the music. Music is classified as an aural experience, however, other senses are at play when we experience music. By removing light from the performance, I am limiting the audience to a purely aural experience.

Contemporary classical music has traditionally challenged the expectations of the audience. Composers have strived to broaden the scope of what is classified as music or musical performances. A way to create these experiences is to alter the conventional perceptions of a concert experience. For music, the most influential perceptions come from those of sight and sound. In my research, I was influenced by two pieces that each investigated one of these aspects: Charles Ives’ *The Unanswered Question* (1908), which investigated music in relations to space and David Burge’s *Sources III* (1967), which used candles to manipulate light and darkness throughout the progression of the piece. In this analytical essay, I will examine these two works along with my own composition. I will also reflect on my own compositional process and how it was affected by incorporating spatiality and darkness within the piece.
Charles Ives’ *The Unanswered Question* (1908) is written for a flute quartet, trumpet and a string quartet. The quartets are intended to be separated from each other. Ives states in the foreword of the score that cues are given in the score, but it is not important for the performers to stay together. Violins are given a strict tempo of 50 beats per minute (bpm) that they maintain throughout the whole piece, but the flutes are given various tempo changes, with no precise metronome markings. The piece is written for two separate groups of instruments. As such, the measures do not line up between the flutes and the strings; the flutes have no barlines between the unplayed measures, so they must rely on the cues from the string quartet. Ives has written this piece with the realization that it will be difficult for the performers to stay together; he both helps and hinders this process in his composition. By notating the violins in a strict tempo, he has produced a constant pulse stream that performers can rely on throughout the whole piece. However, the violins are often playing sustained notes, so the only sense of time the flutes receive is when they change chords. Also, the vague tempo markings in the flute quartet along with misalignment of barlines between the two parts encourage the performers to stray from one another. Although my piece requires that the performers remain together, I also play with this idea of the instruments straying from one another in some of the motives where the performers echo each other. Also, Ives encouraged the trumpets to answer sooner than notated, but the flutes are never to come in any earlier; this becomes a difficult task when there is no pulse in the violins or trumpets. (Ives, 1953). The main importance of this piece is the call and response between the flutes and the trumpets. Ives exaggerated this point by placing them in different spaces of the hall so the audience perceives a realistic call and response where the two voices sound from different locations. I used this idea in the antiphonal parts within my trumpet section.
Ives also explored fluid time in this piece, as that is the only way that the performers can truly stay together.

*Sources III* (1967) by David Burge for clarinet and percussion consists of five movements that are played in darkness with the exception of ten candles, which are extinguished progressively throughout the performance. The clarinet moves throughout the performance while the percussionist remains at center stage. The clarinet starts at the front left of the stage and wanders further backstage as the piece progresses until both performers are offstage. Burge extends the visual performance from candle lighting to movement cues to the performers. The clarinet is instructed to sway his or her instrument back and forth synchronous with the musical rhythm. The percussionist is given directions to act apprehensive while the clarinet gives two cues. The clarinet then pretends to give a third cue but does not play and is ordered to “turn page ostentatiously” while the percussionist “gives up and turns page” (Burge). This choreography draws attention to our expectations, as the audience is also perceptive to the cue. Not only does Burge play with our expectation, but he also denies us the outcome of this expectation by ending the movement. The first candles are not extinguished until the end of the third movement. This allows the audience enough time to become comfortable with the ambience before it begins to change. The use of candles on the stands of the musicians helps draw the audience’s attention to the performers actions, creating a spotlight. The longer the piece progresses, Burge ensures that the audience’s attention remains focused on the performers by limiting their vision to smaller areas of the hall. By having the performer move further backstage with each passing, Burge has created the same sense of fading in the music that he created with the candles. The candles are slowly removed from our vision, but Burge takes this one step further by removing the
performers from the stage, playing the last note offstage (Burge, 1957). I have adapted Burge’s ideas by removing lighting completely from my piece. I am taking away any focal point that the audience may rely on, including the performers.

Chiaroscuro: An analysis

As the piece is to be performed in the dark, I wanted to identify other ways that I could defy expectations. The piece begins in a pentatonic key and although there is a sense of tonality, there is not a full major chord until measure 160. Even then, the chord is inverted so as to still present some sense of instability. By composing with pentatonic scales, I was able to avoid conventional tonal progressions. The chord progression that builds up to the F# major chord in measure 160 is generated through the voice leading of each individual voice instead of the harmonic progression. Although the end of the piece is in G minor, it ends with the same five-note motive as the beginning and ends in unresolved dissonance.

The composition of this piece required careful planning concerning orchestration, location, and melodic structure. The first thing that needed to be considered for the spatial layout was the timbre of each instrument. In my research, I discovered Henry Brant’s article, “Space as an Essential Aspect of Musical Composition” within the book, Contemporary Composers on Contemporary Music. Brant explored spatiality within his own compositions and presented me with several ideas and reflections on how to best meld the composition of sound within a given space. In his investigation of sound and space, Brant concluded the exploration of the space worked best when instruments of a higher register were located in higher spaces while lower pitched instruments remained on lower levels (Schwartz, 232). The quality of high and low
registers are not determined strictly by pitch, but rather the relative proximity of their timbres in space and spectrum. For the woodwinds, the clarinets have the darkest timbre, reminiscent of a lower tone, so they remained at floor level. The flutes have a much lighter quality of tone and were moved to the upper level along with the soprano saxophone. The trombones have the lowest register in the brass so they also remained on the lower level. As I composed each motive, I had to consider which timbre I wanted to present each motive and how the sound would travel across the space of the hall. For the opening motive (see fig 1), I wanted the melodic line to create a sense of movement across the hall. In order to create this effect, the clarinets were widely spaced out in a straight line in the front of the hall. I also knew that I wanted the percussion to surround the audience in order to best enhance the vibrations of the timpani. The spatial layout of the instrumentalists’ location was modified based on where I wanted certain motives to be presented; however, the final layout dictated what each instrument would be playing.

![Opening motive notation](image)

**Figure 1:** Opening motive. First heard in the clarinets starting in measure 1.
Orchestration and the arrangement of sound textures was a significant aspect of my compositional process. There is a significant amount of blending between the flutes, clarinets and soprano saxophone, but the clarinets and flutes also have several melodies that are played simultaneously with the horn. Brant warns that when performers are separated, “it will cause a deterioration in rhythmic co-ordination of the separated groups,” (233). There are several parts within the piece that create an echo by having several performers play the same melody with a small delay between parts. This occurs in the echo melody (fig. 2) where the fourth clarinet is the first to play the melody. The second flute comes in an eighth note later, followed by the soprano saxophone, the first flute, and the first clarinet; each enter an eighth note apart from each other. Instead of trying to counter the instability between the performers, this echo effect is purposely creating a rhythmic deterioration, making it a recurring theme within the piece. The piece concludes with the same effect when the clarinets return with the opening motive at measure 260. The clarinets begin with the same rhythmic pattern as the beginning, but slowly distort the rhythm by small delays in between parts starting in measure 269. Although the tempo doesn’t fluctuate, I used rhythmic patterns and varying time signatures to give the appearance that the tempo varied throughout the piece.

![Figure 2: Echo melody. Measure 37.](image)

Chiaroscuro is centered on a pentatonic scale with the normal form [10,11,1,4,6] and a prime form of (01368), known as the Shang mode established by Li Yinhai as a Chinese national
mode (Lu-Ting & Kuo-huang, 133). This mode is heard immediately in the opening motive by the clarinets. The melodic line is divided among the performers so that each note within the melody is sustained. The piece is written in 5/4, although the melodic line only moves through the first four beats of the measure. The fifth beat of the measure acts as a prolongation of the chord that delays the downbeat of the next measure. Other instruments enter as a means of supplementing the melody of the clarinets. As each voice enters, it adds another layer to the music, but does not obscure the focus from the opening motive in the clarinets. The flutes add an accent to the prolongation of the final beat in the measure. The timpani imitate the melody in the clarinets before developing a more rhythmically complex melody. The trombones enter at measure 17 with glissandi in opposite directions; they often overlap on their way to the next pitch. This intentional voice crossing was done in order to create a sense of crossing by their positions on opposite sides of the hall. The trumpets have a call and response motive. The first trumpet sets the call on an F# and the second, third, and fourth trumpets respond on an A#. Because of their position in the hall, the call and all three responses occur in different locations. The first and fourth trumpet alternate antiphonally initiating the call, which gives the impression of the sound bouncing back and forth across the hall.

The instrumentalists repeat their individual motives until measure 37. The timpani lead the crescendo as their rhythmic line becomes more dense. When the soprano saxophone enters at measure 27, the single high pitch is a contrast to all the dark lower tones that have been playing thus far. The flutes join the ensemble two measures later, playing the same note and a similar rhythmic pattern. The timpani also adapt to this rhythm in measure 32. The unison part in the timpani leads the crescendo into the contrasting section at measure 37. The crescendo ends
abruptly, with the first flute and clarinet holding a unison C# while the rest of the ensemble is silent.

The C# holds through measure 37 and becomes the beginning of the echo melody (Fig. 2). The melody is played in five voices, each displaced by an eighth note. The first flute and first clarinet hold the C# and are the last to play the new melody so the dissonance between the C# and the B is heard for every entrance. The trombones are muted at their entrance at measure 40 in order to fit the change in texture. The woodwinds end the echo melody with a rising motive (fig. 4), which the timpani carry into the next section (fig. 5). They maintain the pattern as if the piece continues in 5/4, so the presence of the 3/4 time is not prominent until the horn enters at measure 48. The four-note motive (fig. 5) is repeated eight times. Each time, more performers enter playing either the horn melody or an F# pedal point. The entrance of the performers is coordinated with their position in relativity to the horn. The sound travels to the closest performers, which gives the impression of the sound accumulating and sweeping across the hall (Schwartz, 238). The motive increases in volume and intensity until the eighth time, when a melody emerges on top of the motive (fig. 6).

Figure 3: Rising motive heard in the woodwinds in measure 42.
Figure 4: The rising motive passes down to the percussion in measure 43.

Figure 5: Horn melody first heard in the horn in measure 48.

Figure 6: Triumphant melody in measure 75

At measure 82, the idea of a sustained melodic line such as in the beginning and the echoic quality found in measure 37 are combined. The five-note melodic line is divided among the woodwind section much like the opening motive. In this instance, there are two instruments per note, but the attack of the note is separated by an eighth note to recreate the echo effect. As this section comes to a close, the trumpets come in at measures 85 and 86 with the triumphant melody. The melody is passed on through two measure intervals, first to the horn, then second
trombone and lastly the first trombone. The melody becomes slightly modified through each pass, until it forms a new three-note motive that leads into the next section (fig. 7). This motive is played in the second and third trumpet and trombones, each set a quarter note apart from one another.

Figure 7: Shortened rising melody. Measure 93.

Figure 8: Cascading melody. First heard in the soprano sax in measure 101.

Figure 9: Running melody first heard in measure 129.

The soprano saxophone comes in with the cascading melody (fig. 8) at measure 101 and is joined by an echo in the first and fourth clarinets at measure 105. The flutes and second clarinet enter at measure 113 with an ascending unison pattern, which builds to the running melody at measure 129 (fig. 9). The running eighth notes in the melody are placed so it echoes through the soprano saxophone and clarinets even though they are still playing a different melodic line. This occurs in instances such as measure 131 with the E to F # and in measure 133 with the C # to B. The three note motive from the previous melody is sustained through this
whole section and as the melody nears its end, the motive slowly diminishes until it is just in the
timpani followed by a break in the music.

When the whole ensemble reenters at measure 153, they are all pitched at an F#. The
melody that is played is the same as the opening motive, but this becomes more obscured with
every measure as some instruments remain on the previous pitch, eventually forming a cluster
chord in measure 159, which resolves to the first full major chord in the piece at measure 160.
This is an F# major chord, however it is a first inversion of the chord, creating an unstable
cadential pause. The brass sustain the F# chord while the woodwinds play running sixteenth
notes alternating between the parts according to their location in the hall. The beginning theme
returns in the clarinets. The rest of this ensemble echoes the idea of the opening motive by
having each performer enter at a different time. As the ensemble grows more dissonant, the
percussion take over. The rest of the ensemble interjects with fragments of the opening theme.
The flutes reenter with a variation of the running melody at dissonant intervals. The dissonance
is sustained as the clarinets introduce a new theme (fig. 10); the theme is divided among the
clarinets and soprano saxophone and becomes more complex with every repetition. The trumpets
play a hocket of the melody and the horn introduces the last melody (fig. 11). The piece becomes
more dense as each instrument comes in with a different motive until everyone lands on a G
minor chord. The previous melody is played in retrograde in eighth notes. Because the pattern is
uneven the accent is placed on a different note with each repetition of the melody.

The clarinets enter at measure 260 with a variation of the opening motive (fig. 13). The
motive remains in G minor and has a normal form of [6,7,10,2] and a prime form of (0148).
The loudest points are located at measures 75, where two melodies are played simultaneously and 160, on a resolution to the previous cluster chord. These two points mark the middle of the piece, which encapsulates most of the themes presented in the piece, but leave the pentatonic motive to round off both ends. The pentatonic theme is played often, but remains
undeveloped. In this way, the middle of the piece is where other themes are explored and
developed, but the progression of the piece is connected through the stability of the pentatonic
theme.

Measures 153-163 represent one of the few instances in which each performer is playing.
This also occurs in measures 245-247. In measure 153-163, performers are reinforcing the
pentatonic motive by playing together, creating power in unity. This is a drastically different
effect from measures 245-247 in which the performers are playing nine different rhythmic
patterns before holding a chord at measure 248. The complexity of the rhythm along with the
harmonic and melodic dissonance makes this feel like the densest section within the piece, which
creates a stark contrast to the pentatonic motive that immediately follows.

Although there is no chord progression that leads the listener to a sense of a tonic center,
the receptiveness of certain pitches are more prominent and act as a base for the piece. Overall,
F#, C# and A# are the most “played” notes within the piece respectively. A# is the most
prominent note in the first 152 measures. The A# also acts as a center of tonality because the
opening motive ends by returning to this pitch, giving the sense that the A# is a stable place to
return to. The F# becomes more prominent in measures 153-178. The brass solidify this tonal
point by holding a pedal point on the F# during the triumphant melody. Because of the nature of
this piece, the tonal center is not clear even when it transitions into G minor. For instance, E flat
is the most played note from 179-219 and the key of G minor is not prominent until measure
226. When the modified opening motive returns at measure 260, it outlines a G minor chord, but
the addition of the F# makes it difficult to perceive this as a tonic chord. The piece ends
unresolved on the minor V7 chord.
Chiaroscuro creates an integral listening experience by incorporating spatiality and darkness within the composition. The darkness creates an intensity within the piece because the listener has no other option than to rely on the sonic structures present in the hall. The perception of music surrounding the audience also brings a new dimension to the space of the hall. Even the perception of the length of the piece may be skewed by the addition of darkness. Sound is the only sense that the individual can truly rely on.
Bibliography


Chiaroscuro

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Duration 11:22

Flutes 2
Clarinets 4
Soprano Saxophone
Horn
Trumpets 4
Trombones 2
Percussion 1: Timpani
Percussion 2: Timpani and cymbal
Percussion 3: Timpani and cymbal
Percussion 4: Timpani and cymbal

Score written in C
Chiaroscuro

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Flute 1

Flute 2

B♭ Clarinet 1

B♭ Clarinet 2

B♭ Clarinet 3

B♭ Clarinet 4

Soprano Saxophone

French Horn

B♭ Trumpet 1

B♭ Trumpet 2

B♭ Trumpet 3

B♭ Trumpet 4

Trombone 1

Trombone 2

Timpani 1

Timpani 2

Timpani 3

Timpani 4
with brushes