Papaya Whip

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PAPAYA WHIP

By

Daniel P. Dickinson

A THESIS

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PAPAYA WHIP

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Papaya Whip is an original composition for orchestra in one movement. The accompanying paper discusses the evolution of the piece followed by an analysis of the work in relation to temporal structure, pitch structure, and orchestration. The paper concludes with a discussion of implications and future projects.
ACKNOWLEDGMENTS

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Table 1.1. Overall structure of *Papaya Whip*. .................................................................2
For a composer in the first decade of the twenty-first century, the symphony orchestra poses a frustrating dilemma. On the one hand, the orchestra continues to offer a relatively standardized ensemble with a tremendous range of possible timbres. Its hierarchical structure and emphasis on a high level of instrumental ability lends itself to complex works to be played with precision. On the other hand, the economics of rehearsals and these organizations’ important role in the preservation of older works means that an orchestra performance remains one of the more elusive treasures of composition. Nonetheless, the orchestra retains a reputation as a testing ground for fledgling composers. We find ourselves drawn to the medium both by a genuine musical interest and by the compulsion to have at least one or two orchestral pieces in our portfolio.

From these strangely complementary motives emerged Papaya Whip, a piece for orchestra that is the subject of this thesis. In writing the piece, I sought to continue the exploration of several ideas that have preoccupied me for some time. The first is the conscious application of contrasting temporal structures: in particular, a steady, repetitive pulse opposed to held chords that emphasize duration. The second is a compositional method akin to collage, in which sections of music are composed, then copied and pasted at various points around the piece. These sections may be modified to some extent, usually be truncation or augmentation, but they are rarely developed in the traditional
manner of motivic development. I had previously explored both of these ideas in an obscure 2005 piece topically entitled *Superdome*, but I wanted to make another attempt at orchestral composition in light of my own development as a composer.

*Papaya Whip* consists of a single movement that should last about eight minutes. As shown in Table 1.1, it can be broadly divided into two major sections: an upbeat first section that emphasizes a steady pulse and high density of musical events; and a slower, second section that emphasizes duration and slowly evolving sounds. The second section is slightly longer than the first, but they are both around four minutes long. The general temporal flow of the piece is from greater activity to less activity, although this flow is interrupted at a number of points. The piece does not make systematic use of common practice functional harmony, but at most moments the listener should be able to clearly discern a tonal center. The orchestration tends to treat all of the instruments simply as sound-producers, and although they are used for melodies, their melodic function is often de-emphasized in favor of their ability to contribute to an overall timbre, or to form a layer in a multi-layered cross rhythm.

![](image)

Table 1.1. Overall structure of *Papaya Whip*.

<table>
<thead>
<tr>
<th>Section</th>
<th>Predominant Musical Quality</th>
<th>Start Measure</th>
<th>Length in Measures</th>
<th>Approximate Duration (min:sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Pulsed rhythms</td>
<td>1</td>
<td>113</td>
<td>3:45</td>
</tr>
<tr>
<td>B</td>
<td>Durations</td>
<td>114</td>
<td>124</td>
<td>4:00</td>
</tr>
</tbody>
</table>

In this paper, I will discuss the details of the temporal structure, introducing the concept of “unit classes”: different categories into which we can place the musical elements that comprise the piece. These classes are called Pulsed, Durational, and
Disruptive. They will be discussed in Chapter 3. In Chapter 4, I will examine the pitch structure of the piece, focusing on the centricity of different sections. In Chapter 5, I will discuss the orchestration of the piece. I will conclude with a discussion of future directions for research and composition related to the ideas in this paper. Before turning to these discussions, I will first provide a history of Papaya Whip.
Chapter 2
THE HISTORY OF PAPAYA WHIP

Papaya Whip underwent five revisions to get to its final version. Like a species undergoing natural selection in response to changing conditions in its environment, the piece evolved largely due to practical performance reasons, and for aesthetic motivations that grew out of a series of readings and rehearsals. An orchestra piece seems particularly prone to these sorts of adjustments. Most orchestras are so expensive to rehearse, and so focused on presenting traditional repertoire, that a new piece must make accommodations or be doomed to a life of MIDI playback. The story of the piece is presented here as an illustration of my compositional process, and as an example of the give-and-take between compositional ideas and practical considerations that are largely outside the control of the composer.

Evolution of the Piece

Papaya Whip started life in late 2007 as a diagram. The piece was to consist of five sections, each featuring a dramatically different texture and built on a shared harmonic concept. The first section was comprised of a long, slow build-up heavy with glissandos. As the section progressed, the slow durations were to be interrupted by increasingly frequent short bursts. The contrast between these two elements was to establish two approaches to time: continuously evolving duration versus discrete temporal events. Work on this piece was progressing slowly when an opportunity presented itself: a reading session with members of the Cleveland Orchestra in the spring
of 2008. This was to be a chamber orchestra, with single winds, brass, percussion, and strings. I had begun to make progress on section 4 of the piece, the rhythmic section, so I decided to dramatically compress my original concept.

What emerged was a fast-paced, two-and-a-half-minute composition in two sections. (Although it was called simply *Papaya Whip*, for this discussion I will refer to this version as *Papaya Whip Chamber*.) The first section featured a triplet-based rhythmic motive in pizzicato strings, and a quintuplet-based motive in the percussion. Also present was a back-and-forth rhythmic gesture that emphasized the quarter-note offbeat. This can be seen, for example, in the first violin in Example 2.1. Here, the repeated staccato quarter notes change pitch on the second quarter note of each cut-time measure. This offbeat accent was placed against the oboe playing squarely on the beat. The goal was to create a sort of “oom-pah” rhythm with the emphasis on the “pah,” inspired by Jamaican ska music with its heavy accents on the eight-note offbeat. The effect was subtle here, but became a central feature of the piece in later versions.


The tempo was set at a brisk $\frac{j}{1} = 120$, which gave the entire section a nervous energy. In the reading session, the players managed the tempo, but the triplet figures proved problematic for the string players. I think the difficulty was precisely coordinating the triplets, which started on different beats in each measure. (See Example 2.2.) It is likely that the ensemble would have been able to master the rhythms with a little more
practice, but the fact that professionals with a top-tier orchestra were struggling was a strong indication to me that I needed to make some changes.

Example 2.2. Difficult string figure. *Papaya Whip Chamber*, mm. 44-48.

At m. 73, the texture shifted to long held notes, with a steady rhythm played on the suspended cymbal. This change in texture effectively marked the beginning of a “B” section, and marked a shift in time from the staccato rhythms of the “A” section into an emphasis on evolving durations. The concept sketched out in my original diagram had made it into the piece, but in dramatically altered form (see Example 2.3).
Another problem that I noticed during the reading was the overuse of certain percussion. The cymbal proved overwhelming in the reading session. Although my intent was to mimic the subtle drone of a bebop drummer’s ride cymbal, clearly I had failed to account for the dominant volume of the cymbal in relation to the small orchestra. (See Example 2.4.) In addition, the entire element simply seemed out of place and unnecessary, and undermined the slow, durational effect of this section. Even with a full orchestra, it seemed that the cymbal was a poor compositional choice that should be eliminated in future versions.
Example 2.4. Overuse of cymbal. *Papaya Whip Chamber*, mm. 93–100.
The next opportunity for performance came a couple of months later at a reading session of the Frost Symphony Orchestra, the University of Miami’s student orchestra. I decided to rework *Papaya Whip* for the full orchestra. This revision, re-titled *Mango Dip* for the occasion, was built by applying a series of informal transformations to the original. First, I changed the time signature to 4/4 and slowed the tempo by half to \( \textit{j} = 120 \). I eliminated the quintuplet percussion motive and shortened the pizzicato string motive to a fraction of its original length (Example 2.5). I modified its rhythm to straight eighth notes instead of triplets, hopefully eliminating the problems that had arisen during the Cleveland reading. The opening gesture was also stretched out, as shown in Example 2.6. The quick triplet in the original version was replaced by quarter notes. At the slower tempo, this made the opening much more emphatic and deliberate, creating a less neurotic, more upbeat feel that permeated the new edition.

Example 2.5. *Mango Dip*, mm. 28-30
The most significant change, however, was a decision to emphasize the off-the-beat rhythm that was hinted at in the first version. In *Mango Dip*, the rhythm was brought to the fore starting at measure 3 to establish a steady groove that was maintained throughout the piece (Example 2.7). Whereas the rhythms in the chamber version were meant to suggest a sort of clumsy fumbling around, *Mango Dip* was simply aimed at bobbing heads. This embrace of the groove made sense to me. First, it fit with my own personal aesthetic and love of groove-based music. Second, I thought it would appeal to the student members of the orchestra, weaned on hip-hop and electronic dance music. I added some additional percussion to help maintain the groove. To simplify matters for the reading, I simply scrapped the second, slower half of the piece, and wrapped things up with a series of rhythmic, downward glissandos in the strings (Example 2.8). The reading went well, and although some improvements were in order, I was generally satisfied with the new direction of the piece.
Example 2.7. Opening measures. *Mango Dip*, mm. 1-11

The next opportunity for performance came in fall of 2008 with the South Florida Youth Symphony, a North-Miami-based orchestra drawing on young players from the Miami area. Over the summer, I had finished a third revision of the piece by combining *Papaya Whip Chamber* with *Mango Dip*. Bearing in mind the more limited capabilities of the orchestra, I had stuck with the new, slower tempo. I returned most of the elements from *Chamber*, but slowed down and reordered.

What I ended up with was something close to the final version. However, I was still working on the second half of the piece, so I simply lopped it off at rehearsal letter Q and called the remaining first half *Papaya Whip: Lemon Zest*. In September 2008, rehearsals began with the South Florida Youth Symphony under the baton of my advisor, Dennis Kam. The biggest problem with the new arrangement proved to be not the material itself, but the orchestration. The orchestra rehearsed on Sunday afternoons, drawing high-school students from throughout the northern section of Miami-Dade County. Many students, particularly the wind and brass players, had other commitments
(such as marching band). As a result, it was hard to predict which players would actually be able to make it to each rehearsal.

At the first rehearsal, the instrumentalists did a fine job of reading through the material, but entire sections of the piece simply turned into silence because no one was there to play them. In particular, the orchestra only had one percussionist—on timpani—no harpist, no bassists, and only a sprinkling of brass. Although the orchestra planned to bring in guest artists (mostly alumni) for the concert to flesh out the ensemble, it was not certain what the final personnel would be. This posed a particular problem to Papaya Whip because the harp and marimba played prominent roles, and certain moments in the piece were nothing but percussion (see, for example, mm. 16–18 in Example 2.9).

The solution was fairly simple: increase doublings and decide which parts I could live without. For moments like those in Example 2.9, I added parts in the strings or winds so that the percussion would not be playing alone. Although the effect would be different, the rhythmic momentum of these sections could be maintained. I also decided that most of the percussion would have to be optional. For example, the section beginning at letter D made heavy use of an ostinato composed of bongos, wood block, guiro, and cowbell, used in an idiomatic way that would be awkward to replace with the remaining instruments. So I simply left the part there and didn’t worry about it.
Example 2.9. Original and re-orchestrated versions, *Lemon Zest*, mm. 16-18.
None of this bothered me much. Of course, I was grateful to have the performance, so it was no time to be choosy. But my collage approach led me to an understanding of the piece as separate, juxtaposed units anyway. In getting to this point, I had already recombined the units in several different ways, so a little bit of indeterminacy in the instrumentation seemed like a natural extension of my process.

In the end, I think all of the changes made the piece much better. It thickened orchestration that was perhaps a little too sparse to begin with, and made better use of the players. At the performance in December 2008, the temporary personnel included bassists, an additional percussionist, a harpist, and a professional trumpeter, so that some of the sounds that had never been heard in rehearsal were heard for the first time at the performance, and the piece sounded better than ever.

For the final version, submitted as part of this thesis, I restored the long, slower second half of the piece, and expanded some of the slowly evolving chords that appear briefly in the first half. These chords (which I will refer to as “Durational Units” in Chapter 3) foreshadow the similar gestures that dominate the second half. By extending them, their significance grows and the foreshadowing effect is enhanced.

**Collage Technique**

It was in the transition from *Mango Dip* to *Lemon Zest* that the “collage” or “cut-and-paste” approach to composition really came into play. In this approach, I treat individual compositional segments as units that can be moved around and mixed up in many possible combinations. The segment will turn up at multiple points in the composition, often at the same transposition and modified only slightly if at all. Where significant transformation does occur, it is often simply a matter of “slicing” the segment into
smaller pieces. The smaller segments can themselves be treated as material to be inserted separately.

One example of this approach involves the figure that occurs in its longest form at mm. 107-111 in the strings (Example 2.10). This was the figure that—in the slightly more complicated version shown in Example 2.2—caused some difficulty during the Cleveland reading. This figure was originally one of the earliest in the composition. But over several revisions, only traces appear until this point, which is actually the very end of the youth orchestra edition (subtitled *Lemon Zest*). In all the other occurrences, the gesture is interrupted as in Example 2.11. In this way, the compositional unit is revealed a little bit at a time over the course of the piece.

This technique is uniquely suited to, and in some ways is a direct result of, the use of computer-based notation software such as *Finale*. These tools simply make it very easy to cut and paste segments of music to different moments in the piece. To some, this may seem like a lazy approach to composition. For example, in a lecture a composer made the following recommendation: when you want to repeat something, write it out by hand, and you will almost certainly find something that can be varied. This is good advice, but it clearly privileges the variation of musical material over its absolute repetition. There’s nothing wrong with that approach, but I think of cut-and-paste as an equally valid aesthetic choice, akin to the digital sampling techniques used by hip-hop musicians.
Chapter 3

TEMPORAL STRUCTURE

Many possible definitions of musical “structure” exist. For example, in set theory, we might discuss the pitch sets that comprise most of the musical material. This approach helps us understand the structure of a piece of music in the pitch domain. Another type of structure deals with listeners’ perception of a piece as it unfolds in time, its temporal structure. In this chapter, we will examine the temporal structure of Papaya Whip.

The musical units that comprise the structure of Papaya Whip can be grouped into three distinct classes, each taking a different approach to time. For notational convenience, we will assign the following monikers to these classes: Pulsed, Durational, and Disruptive. Pulsed units feature a steady rhythmic pulse. Durational units emphasize the duration of sounds rather than the attacks. Disruptive units have irregular rhythm and tend to interrupt the more static nature of Pulsed or Durational units. These classes sometimes coexist with one another, and sometimes succeed one another in time. Their interactions help to define larger structures within the piece. We will now examine the characteristics of each of these classes in turn, before turning to a discussion of how the different unit classes interact within the piece.

Pulsed Units

The Pulsed units have the following characteristics:

- A prominent, steady, rhythmic duple pulse.
• Accents on *even-numbered subdivisions* of the pulse. For example, if we take as our subdivision the quarter note, the rhythms tend to emphasize beats 2 and 4 of the common-time measure, instead of the usual 1 and 3. If we take as our subdivision the eighth note, the rhythms tend to emphasize the offbeat. Counting eighth notes from the beginning of a measure—1, 2, 3, 4, 5, 6, 7, 8—the accents will be on 2, 4, 6, and 8: the even-numbered subdivisions.

• Static pitch content, usually alternating between two or three notes or chords. The pulse can be seen as a framework over which are draped various other gestures, usually those from the other two classes, Durational or Disruptive.

The primary means of establishing this offbeat pulse are register and instrumentation. The lower note is played on the “strong beats” of the meter, while the higher note is played on the “weak beats,” often with a brighter articulation, creating the accent. For example, in mm. 3-6 (Example 3.1) the cello and bass play $E_2$ and $E_3$ *on* the beat, while the violin and viola play the notes $E_4$ and $E_5$ *off* the beat. The much sharper pizzicato sound of the higher strings along with the actual higher pitch places the accent squarely on the offbeat.
We might refer to these pulsed rhythms as “syncopated,” as the pulse constantly emphasizes the weak beats of the meter. One of the definitions of syncopation given by the *Grove Music Online* is, “The regular shifting of each beat in a measured pattern by the same amount ahead of or behind its normal position in that pattern.” ¹ Here, through registral and timbral placement, we have shifted each beat one eighth-note behind its “normal” position. Furthermore, the musical lines established by this pulse “can be perceived as contrary to the pulse established by the organization of the music into bars,” or by the metric indicators established by the lower, less-accented, on-the-beat attacks. ²

However, while this sort of rhythm may meet the dictionary definition of “syncopation,” I’m not sure it meets the *spirit* of the term. The term tends to imply a certain tension that develops while the musical line is “contrary to the pulse”, a tension that begs to be resolved, much like a dominant harmony “wants” to resolve to the tonic.

---

² “Syncopation.”
But whether or not this tension arises depends on the context. In particular, the terms “strong” and “weak” beat must be seen as concepts specific to a particular musical culture, that of European art music and its immediate descendants. In this music, the “normative” behavior is for rhythmic accents to coincide with the odd-numbered subdivisions of the meter. Thus, the term “strong beat” becomes synonymous with beats 1 and 3 in 4/4 time.

In other musical subcultures, the exact opposite is true. In particular, in African-American musical traditions including jazz, rock, and various other descendants, the normative behavior is to place an accent on beats 2 and 4 of a 4/4 measure. This rhythm is often referred to as a “backbeat.” We might reasonably say, then, that the strong beats of the measure are in fact beats 2 and 4. In fact, in the context of this sort of rhythm, if a measure suddenly appears with a strong emphasis on beats 1 and 3, that measure might very likely be perceived as “syncopated.” It is “contrary to the pulse” that has been established by the backbeat.³

Yet it is equally clear that in both contexts—the traditional “classical” one and the “jazz” context—the meter remains the same. That is, the jazz musician does not perceive the downbeat to have shifted to beat 2, even though that is the beat most emphasized. The tension between the downbeat and the accented second and fourth beats is an important aspect of what drives the music forward and relates it to the bodily movement of dancing. That tension is in fact the “spirit” of syncopation that I questioned earlier, but for the purposes of our discussion, the point is that a rhythm can remain “shifted”

indefinitely to where it becomes the norm. Once it has become the norm, I’m not certain the term “syncopated” still applies.

**Durational Units**

In Durational Units, the perception of duration predominates over the perception of individual attacks. Musical units in this class share the following attributes:

- Long held notes with very few rhythmic events.
- Sparse and unevenly distributed attacks, often subsumed within the larger instrumental texture.

In addition, the following attributes are secondary characteristics of these units:

- Dense instrumentation.
- Gradually changing dynamics.
- Gradually changing harmony, if the unit is long enough (two or more measures).
  
  The change is affected either by adding new instruments to the existing texture, or by changing the pitch played by one or two instruments at a time.

These units often begin and end with a strong attack or other prominent gesture. Alternately, they may simply fade in and fade out.

Durational Units first appear in a limited form in m. 2, where the timpani, orchestra bells, and marimba play a four-measure roll, accompanying a slow-moving melody in the violin and oboe, with held notes in other winds (Example 3.2). Here, the Durational units coexist with a Pulsed unit in the strings and brass. The Durational gesture would most likely be perceived as background material, not really rising to the foreground until the final attack in m. 6. This attack, on beat 2, coincides with the prevailing Pulsed material, so that the two units merge.
A more prominent example is shown in Example 3.3, where the woodwinds play a sustained chord that introduces a second, longer Durational unit two bars later. These two units demonstrate all of the characteristics listed above. The dynamics are a long crescendo, from pianissimo to forte. The beginning and ending of each unit is clearly demarcated with an accented attack. The harmony is mostly static, with occasional subtle changes. At m. 72, we begin with the pitch classes F, A, and E, gradually introducing the pitches D, C, and finally B to form a six-note chord. Throughout the unit, the bass note remains F. The effect is of an increasingly complex chord built on F. These variations might be seen as an augmentation of the currently sounding harmony, rather than a chord change.
Example 3.2. Durational Unit simultaneous with Pulsed Unit, mm. 2–6.
Disruptive Units

Disruptive units are those musical gestures that are characterized by clearly articulated rhythms that resist the creation of a steady pulse. These units have the following attributes:

- Accents and attacks occurring irregularly, rather than following a regular pattern.
- Rhythmic patterns that work against a sense of steady pulse.
• Rhythms that give the impression of speeding up or slowing down. For example, m. 109 (Example 3.4) features a quarter note triplet, followed by two eighth notes, followed by four sixteenth notes.

• Abrupt beginnings and endings, followed or preceded by either Durational Units or Pulsed Units.

In addition to these defining characteristics, which give the units their “disruptive” nature, their harmonic content tends to be thin, with chords of only two or three notes, and their melodic content tends to be angular, characterized by frequent leaps and changes in direction.

The unit shown in Example 3.4 exhibits all of these characteristics. This is a recurring motive that is suggested in m. 1, but not fully expanded until this point. Here, the strings (doubled by one or more woodwinds) play groups of three pizzicato eighth notes, followed on the successive eighth note by a forte attack in the brass (with some other instruments doubling). The trombones and tuba play another short attack five eighth notes later, and another seven eighth notes after that. The pizzicato groupings follow the same pattern. This irregularity creates a lurching sense of time that contrasts with the steadiness of the other two unit classes.

In the next measure (109), the strings continue with a quarter-note triplet, two eighth notes, and four sixteenth notes, leading into the regular rhythm at m. 110, then continuing into m. 111. Here, the gesture ends on an offbeat, enhancing the disruptive feel of the unit. Over these three measures, the pacing rapidly speeds up, abruptly stops, then accelerates again. In addition, the last four sixteenth notes in m. 109 are played
pizzicato at a tempo that may cause synchronization problems for many string sections, creating a sloppy flurry of notes more than a tight rhythm.

Example 3.4. Disruptive Unit, *Papaya Whip*, mm. 107–111.
Units and Psychological Time

Each of these units has a particular effect on psychological time. By *psychological time*, I mean an individual person’s sense of the passage of time. This is a highly subjective quality, as opposed to *clock time*, which can be measured objectively. The same amount of clock time can be perceived in vastly different ways, depending on the context. For example, an hour might fly by to someone who is watching an exciting movie, but the same hour might seem to last an eternity to a woman who is in labor. In a similar way, the temporal passage of music can seem shorter or longer depending on both the listening situation and certain qualities of the music itself. Some of this effect is culturally (or even biologically) ingrained, due to similarities between musical sounds and certain environmental sounds.⁴

We might call the psychological time of Pulsed Units *forward time*. Due to the steadiness of the pulse, we have a constant sense of moving forward. These sounds are semantically linked with other sounds that are associated with movement, such as heartbeats, trains, running, and machinery. R. Murray Schafer points out that the occurrence of these sorts of sounds in the environment increased dramatically with the industrial and electrical revolutions of the 19th and 20th centuries.⁵ Durational Units, on the other hand, place the listener in what we might call *slow time*. Since attacks are far apart and de-emphasized, these units have a tendency to stretch time, much in the same way that when we are doing very little, time seems to pass more slowly than when we are busy.

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⁴ There does not appear to be consensus among scholars as to the best terminology for these concepts. See Jonathan D. Kramer, *The Time of Music* (New York: Schirmer, 1988), for a book-length discussion.
Larger Formal Structures and the Perception of Time

The interactions between these musical units create the overall form of *Papaya Whip*. As mentioned earlier, the piece can be divided into two major sections, A and B, with rehearsal letter Q as the dividing point (see Table 1.1). Generally speaking, the first section is dominated by Pulsed units, while the second is dominated by Durational Units. However, both sections contain many instances of all three unit-classes. The recombination of these unit classes helps to unify the piece.

We have already discussed how Durational units in section A form a background texture against a Pulsed foreground in the opening section. A more prominent instance occurs at rehearsal letter K, where two significant Durational units interrupt a Pulsed texture (Example 3.5). In a moment like this, the rhythmic events mostly disappear, creating the effect of suspended animation, in which the steady march of time delineated by the pulse has been frozen. To the listener, these moments may come as a welcome respite from the relentless rhythmic activity, perhaps analogous to a cadence in traditional classical music.

Something of the opposite effect occurs in the B section. At rehearsal letter S, a steady eighth note pulse re-enters after roughly 40 seconds (20 measures) of durational units. (See Example 3.6.) Although these 40 seconds—which begin at letter Q—contain several Durational units, each with a prominently featured beginning gesture, we essentially inhabit “slow time”. When the pulse re-enters, the listener may feel a sense of relief that the slow time has ended. This *reverses* the effect of the two unit classes in the A section.
Example 3.5. Pulsed Unit followed by Durational Unit, *Papaya Whip* mm. 66–76.

The cadence analogy can be extended to a discussion of the *function* of each unit class. In traditional harmonic theory, chords are categorized according to three functions: tonic, dominant, and pre-dominant (or dominant preparation). These functions summarize the different chords’ role in creating a sense of tension or resolution, with the tonic acting as the resolution while the other chords (usually) function to build tension.

So which unit types—Pulsed, Durational, and Disruptive—fill the “tension-building” role, and which act as resolutions? Based on the contrast between the two major sections, we might conclude that the *function* of each unit is dependent on the
context. A long section of Pulsed units eventually begins to build tension, which can be resolved by a Durational unit, whereas a long sequence of Durational units can be resolved by a Pulsed unit.
Example 3.6. Pulsed Unit after long Durational Unit, mm. 128–136.
Chapter 4
PITCH MATERIALS

So far, we have examined the temporal (including rhythmic) structures of *Papaya Whip*. Now we will turn our gaze to the pitch structures of the piece. Although no systematic pitch methods were applied during composition of the piece, certain structures and patterns do emerge. In particular, the tonal center of the piece goes through a series of changes, creating a large-scale form that occurs simultaneously with the temporal form described in the previous chapter. We will begin with a discussion of this centricity, followed by a brief look at certain intervals that play a significant role in the piece.

Centricity

Although *Papaya Whip* is not tonal in the eighteenth-century sense, it clearly demonstrates tonal centricity. This centricity changes throughout the piece, but large sections can be demonstrated to have a particular tonal center. This changing centricity serves as another structural aspect of the piece that runs parallel to the temporal structures discussed in the previous chapter.

Pitch centricity is reinforced through a number of techniques: bass notes and pedal tones; seconds and glissandos that lead to the tonal center; V–I root movement; and the use of tritone movement. These techniques are often used simultaneously to strengthen the center. We will now examine the structure of the entire piece as it relates to tonal centricity.
The opening measure of the piece might imply a tonal center of F#. (See Example 4.1.) This effect is due to the “small intervals” in relation to F#. The pitch sequence G-A-F# implies a Phrygian sound centered on F#. The next two pitches—D# to E—again sound as though they are leading towards F#. This quality is reinforced (and complicated) by the F⁷ in the first violins, which could be perceived as the leading tone of F#.

However, any hint of F# centricity quickly evaporates, replaced by E. While the violin and oboe do arrive at the F#, the rest of the instruments get stuck on E. The E is reinforced through repetition in the most of the instruments. The Pulsed units in this section features the note almost exclusively. The tonal center is also reinforced through other means, such as the descending melody in m. 12 (Example 4.2)—Bb-A-G-F—or the similar figure two bars later: C-Bb-A♭-G♭-E. The scalar material here is highly chromatic, but the target pitch of each gesture is the E.

As shown in Example 4.3, the tonal center shifts to D♭ at measure 26, by transposing a figure from a few bars earlier. The original gesture descends from B down to E, following an Aeolian mode. The new gesture is simply transposed down a major second so that it ends on D. The D is subsequently reinforced through a number of means. The six-note figure in Example 4.4 features a repeated D, followed by notes a major second (E) and a tritone (G#) away. Although the tritone is classically associated with the dominant seventh chord and resolution by half step, in this context I would argue that the tritone behaves almost as the root of a dominant. It doesn’t sound like it wants to go anywhere other than back to D, despite the fact that D-E-G# outlines a very straightforward V7 chord in A.
Example 4.1. Pitch centricity from F# to E, mm. 1–6.
Example 4.2. Descending melodies suggesting E-centricity, mm. 11–16.

Example 4.3. Transposed melody alters centricity from E to D, mm. 19–20, 25–26.
This effect is likely due to the constant reinforcement of D, and the absence of any other implications of A-centricity. For example, at m. 37 (Example 4.5), the high strings play A-G#, but the G# is immediately followed in the low strings by a glissando down to D, strongly reinforcing its status as tonal center.

Example 4.5. D-centricity reinforced by glissandos, mm. 37–38.
At rehearsal letter J, the tonal center quickly moves to F (Example 4.6). This shift is accomplished subtly by shifting the bass note. The bass trombone, tuba, harp, bassoon, and double bass all begin to feature the note F instead of D, with particular reinforcement provided by the octave glissandos in the cello. This center is strengthened at rehearsal letter K by a long Durational Unit with F in the bass. (See Example 3.3.)
Example 4.6. Bass causing the tonal center to shift to F, mm. 60-65.

This behavior continues until m. 103, where the gesture that opens the piece returns in augmented form (Example 4.7). We again perceive a hint of F# centricity, reinforced by the F#-minor triad outlined by the bass in mm. 103-104. The C# in the bass
at m. 105, mm. 108–109, and m. 111 provides a dominant function that alternates with the tonic function caused by the F♯ in the bass. The melody of this segment also ends on F♯/Gb (m. 105) until finally the whole thing crashes into a sustained F♯ at letter Q. The G that appears in the bass at letter P acts as a sort of “upper leading tone” to F♯, an effect that is repeated in the chord just before Q, where a held G in the lower brass leads down to the F♯.

Example 4.7. F♯-centricity, rehearsal letters P and Q, mm. 103–114.

Through pedal tones in the bass, F♯ continues to hold the tonal center until rehearsal letter T. The piece clearly ends centered on G, again courtesy of the sustained bass notes. But in between, the harmony moves through a series of tonally ambiguous chords. A good example is the chord at letter V (Example 4.8). This chord includes the pitches A, F, F♯, and G in the bass, with every pitch of the C major scale included at least once. The lack of a clearly dominant bass pitch undermines the primary technique used to establish centricity, and creates a very ambiguous tonal center, although the pitch content leans heavily on the “white key” scale.
Example 4.8. Tonally ambiguous chord, rehearsal letter V, mm. 161–168.
This scale content continues for some time. At rehearsal letter X the pitches F, then D, predominate—again, through held bass notes (see Example 4.9)—until at letter Y the tonal center reaches what will be its final destination, G, as shown in Example 4.10. At rehearsal letter Z, the opening of the piece returns and we are back to E centricity. Note that here the brief flicker of F# centricity that might have been perceived in m. 1 is bypassed. Even though this measure is almost identical to the opening measure, it passes so quickly that we are unlikely to hear it as a separate tonality. Eventually we find our way back to G to close the piece, still with our white-key scale, emphasizing the major-ninth between G and A in the pulse created by the harp and marimba (Example 4.11).
Example 4.9. F-centricity, then D-centricity, rehearsal X, mm. 174–182.
Example 4.10. Centricity changing from G to E, mm. 188–196.
Intervallic Material

Although *Papaya Whip* was not deliberately built from one small set of intervals, two pitch relationships that do occur frequently and significantly are seconds (and ninths) and tritones. The tritone is especially featured in the first half of the piece, as it figures prominently in the disruptive gesture at m. 103 that served as generative material for much of the section. (See Example 4.7.) As previously noted, the interval is important in establishing D as the central pitch, and figures in the downward string glissandos starting at m. 37 (Example 4.5).
Seconds (and their inversions as sevenths) are also prominent. In some cases, the seconds are simply employed as stepwise motion in a melody. This is not a particularly noteworthy occurrence, but in other cases the interval is used in a more interesting way. For example, in the chord we previously examined at letter V (Example 4.8), the strings are built in sevenths and ninths. Going from lowest pitch to highest, we have A to G (minor seventh), G to F (minor seventh), F to F# (minor ninth), and F# to G (minor second). Looking at the entire chord, we again see that it features a cluster of seconds in the bass and a cluster of seconds in the upper register.

The Pulsed unit involving harp and marimba that appears three times in the second half also makes use of the major ninth, in some ways echoing the pizzicato figure at m. 36, which alternates two notes a minor second apart (Example 4.12). The expanded interval played by the harp and marimba in Example 4.12 combined with the longer sustain of the instruments helps to soften the effect of the repetitive rhythm, given it a much more relaxed quality.

Chapter 5

ORCHESTRATION

As discussed in Chapter 2, the orchestration of Papaya Whip was affected in no small way by the direct experience of working with actual orchestras in readings and rehearsals. It bears reiterating the importance of work with an actual orchestra for fledgling composers interested in the medium. We have already discussed the need for more doubling that came out of rehearsals with a sparsely populated youth orchestra, and the need to reduce my dependence on percussion that came out of the reading with members of the Cleveland Orchestra. In this chapter, I will discuss other orchestration issues and my motivations for making certain choices.

One of the first orchestration choices that any composer must make is the instrumentation. I chose a very basic ensemble, with woodwinds in 2, 2, 2, 2; brass in 4, 2, 3, 1; strings, 3 percussionists, timpani, and harp. In part, this ensemble was determined for the Mango Dip version based on the availability of players in the Frost Symphony Orchestra. I included the bass trombone to provide more low-register volume in the brass section. I opted not to include instruments such as English horn or contrabassoon to minimize difficulty at the reading session, and to avoid decisions about substitutions that would likely come up at the youth orchestra level.

The choice of percussion (including harp) was made very carefully. I was planning to make heavy use of string pizzicato, so I wanted instruments that would complement that sound. In addition, I generally wanted a “light” percussion quality. Both
of these desired attributes favored instruments whose sonic profile is similar to that of a plucked string: a prominent attack with rapidly diminishing resonance. The harp and marimba perfectly match this profile, especially in their upper range. Both instruments also have rich lower ranges that make them useful for thickening bass textures.

Some instruments were chosen to fill a role in a particular moment in the composition. For example, from rehearsal letters D through N, I wanted an ostinato percussion pattern to create an interlocking rhythm with the other instruments. (See Example 5.1.) For this pattern, I chose to alternate bongos and wood block. I directed the bongos to be played with mallets, mainly to facilitate switching between the two instruments, since I wanted to assign the pattern to one player. To avoid too much regularity, I varied the amount of time spent on each instrument. I think the combination of these instruments works well. They both have fairly dry sound with minimal resonance, and thus are appropriate for a sixteenth-note pattern such as the one used here.

Example 5.1. Ostinato percussion pattern, mm. 38–43.

Played against the bongos and wood block are alternating gestures on cowbell and guiro. Undoubtedly, I was influenced in making these choices by my past experience playing Afro-Cuban jazz, which often features these instruments. But I was not deliberately attempting to mimic or recall Afro-Cuban styles. Rather, like the bongos and wood block, these two instruments feature minimal resonance after the attack, but the
guiro has the advantage of being able to sustain a note for a short amount of time. By alternating them, I was able to set up an interesting cross-rhythm to complement the bongo/wood block pattern. The limited resonance of these instruments and their relatively high pitch ensures that they will not interfere too much with other aspects of the ensemble.

Glissandos are used at various points in many of the instruments. Timpani are sometimes used in this manner, striking the drum and then sliding the pitch upward. (See Example 5.2.) This technique is designed to undermine the precise pitched quality of the timpani and give a more pronounced shape to each strike of the drum. Similar pitch-bending drums in some African styles inspired this approach, although again I was not expressly trying to emulate those styles. These glissandos are mirrored in other instruments at various points, such as the brass, woodwinds, and strings at m. 127 (Example 5.3). Together, they can act as another unifying element.

Example 5.2. Timpani glissandi, mm. 16–19.
Example 5.3. Glissandos, mm. 127–132.
At rehearsal letter R through U, the glissandos are used in the hopes of creating a disorienting effect. As shown in Example 5.4, fairly slow glissandos are played in opposite directions. This should lead to microtonal harmonies that shift and interact in ways that are not entirely predictable, depending on the precise manner in which the performer plays the glissando. This approach treats these instruments much the same way that many percussion instruments are often treated: with a pitch that is not quite precise.

Example 5.4. Glissandos in opposite directions, mm. 142–144.

The glissandos put these instruments in the role of creating “sound effects,” a role often served by percussion. For much of the piece, I treat the strings like an extension of the percussion section. Strings are often used pizzicato or with staccato bowing, or make use of techniques such as tremolo glissandos that serve more of a rhythmic and timbral purpose than a melodic one (Example 5.5). By design, the entire piece greatly underutilizes the melodic capabilities of the string section, instead emphasizing other capabilities of these instruments.
In some moments, the wind instruments provide counterpoint to the rhythmic effects taking place in the strings and percussion, while at other moments the winds reinforce the other groups. Often, the role of an instrument will change from measure to measure. Example 5.6 shows the woodwinds and brass from m. 36 to the first beat of m. 39—the same moment as the strings in Example 5.5. Together, these examples demonstrate both approaches to orchestration. The low brass and the bassoon repeat an ascending ostinato that is scored against the descending glissando in the low strings. The two gestures are in the same register, and overlap, heading in opposite directions to resolve on D. In m. 37, the woodwinds are all used to create a single, multi-registral melodic gesture. This gesture is related to the harp and marimba part (see the first measure in Example 5.1), but is not played at the same time.

At m. 38, the oboe and clarinet play along with the violins, the bassoon resumes the basso ostinato along with the horns, and the flute plays along with the marimba. This strategy creates a constantly fluctuating rhythmic texture. Repeated pitched and rhythmic
motives retain clear identities, but their orchestration changes from moment to moment, lending interest and variety to this section.

Example 5.6. Winds and brass in counterpoint with strings, mm. 36–39.

A similar approach of constantly shifting texture is taken in durational moments as well. A typical example occurs at rehearsal letter BB. As shown in Example 5.7, staggered entrances at different pitches are used to keep the orchestral texture in constant
motion. The dynamics vary for each instrument as well, so that certain instruments will move to the foreground as others are receding a bit. Also, instruments are overlapped in range, and the interval space between two instruments in the same family is inconsistent. For example, the trumpets are separated by a perfect fourth, but the flutes are separated by a major seventh. The goal is to create a rich, asymmetrical vertical texture along with the horizontal one.

Example 5.7. Winds in slowly evolving texture, mm. 205–215.
This approach suited my compositional goals, but I was concerned that the performers might be dissatisfied with playing so many long notes. My approach to orchestrating *Papaya Whip* emphasizes each player’s role as part of the ensemble, rather than showcasing individual players. However, I attempted to give shape to each note, either through dynamics or initial articulations, such as the eighth notes in the trombones and second clarinet (m. 207 in Example 5.7). In this way, I hope that the individual instrumentalists will feel that they are playing genuinely musical gestures, even if those gestures are simple. Only further performances and rehearsals—and communication with the performers—will reveal if I have succeeded in this goal.
Chapter 6
CONCLUSION

The experience of composing and studying *Papaya Whip* has raised a number of issues that warrant further exploration. In particular, the revision process has raised questions about what defines a composition. To me, all the different versions of the piece are part of the same larger “meta-composition,” even though they are quite different. What they share is certain elements, these “units” that are combined and manipulated in different ways. I can imagine an almost infinite number of combinations arising from just one batch of elements such as these. A composer could simply get a library of small ideas, and every composition could be a recombination of those same ideas.

In a way, this is reminiscent of a statement by Anton Webern in reference to dodecaphonic technique and the repeated use of the same tone row. Webern describes Goethe’s view of plant life:

> [E]verything is the same: root, stalk, blossom… And it’s Goethe’s idea that one could invent plants ad infinitum. And that’s also the significance of our style of composition. And we needn’t be afraid that things will manifest themselves with too little variety….”

In much the same way, the different units of *Papaya Whip* or any other piece could be used to invent an almost infinite number of variations, just as the basic structure of a plant has been varied often enough to create millions of different species.

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But if each of these variations is a clearly identifiable, separate species of plant, then perhaps by analogy the different versions of Papaya Whip are not really part of the same piece, but all simply belong to the same category. In that sense, the “meta” Papaya Whip is not actually a composition but a family of possible compositions. In mathematical terms, we might define it as, “the set of all compositions that reworks material that originally appeared in Papaya Whip, Papaya Whip Chamber, or Mango Dip.” In practice, this gives a composer license to relentlessly reuse material. Over time, each new member of the Papaya Whip family would likely introduce some new material as well. Eventually, the family might get to the point where a new piece does not contain any of the original source material. At this point, have we moved on to a different family? Can we retroactively examine the body of work and conclude that in fact we have two overlapping families?

Along these lines, I would like to consider a more formal approach to using different temporal units—Pulsed, Durational, Disruptive, and any others—in a composition. Given the potential of these units for creating tension and resolution, as discussed in Chapter 3, it would seem possible to delineate a theory of temporal units that would suggest ways to manipulate them for desired effects. With that theory in hand, we might begin a piece with a few small building blocks, and then experiment by combining them in different ways. One could easily imagine further implications for this process. For example, an improvisational vocabulary could be built around these building blocks. Or a digital database of units could be developed, and software written to generate many possible variations, from which the composer (or the performer or listener) could choose.
If this sort of database were placed on the Internet, with anyone allowed to contribute, the possibilities would multiply exponentially.

Another concept that I think merits further exploration is the cultural and contextual specificity of the term “syncopation.” If meter is defined by a pattern of accents, then what happens when those accents do not fall at the beginning of the metrical unit? If they consistently fall on other beats, does that establish a new norm against which syncopation must be determined? Can other rhythmic patterns be established as such a norm? These would be interesting questions to explore both through composition and research.

In the Introduction, I mentioned my previous orchestral piece, Superdome, which I wrote before starting my graduate studies. That piece has a lot in common with Papaya Whip, especially its combination of Pulsed time and Durational time. However, since that earlier piece was composed, I feel that my compositional style has grown. The orchestra is much better utilized in Papaya Whip, and I think the formal structure of the piece is much more coherent, with a better integration of the different materials. Whereas the earlier piece seems to leave a lot of ideas underdeveloped, Papaya Whip does a much better job of working things out. Hopefully, the possibilities discussed in this chapter will help me continue to improve in these areas.

In closing, I would like to tout to all composers the merits of working with local amateur orchestras, including youth orchestras. The experience with the South Florida Youth Symphony was invaluable to my development as a composer, and gave me a chance to work with young musicians who were very open to new ideas. If concert music is to continue to grow and thrive, composers must direct at least some of their music to
players who are less experienced or less polished. In this way, composers can reach people outside of professional circles: not only performers, but also the families and friends of those performers. This audience may come to a concert only because their sisters or sons or cousins are playing, but they can leave exposed to brand new contemporary music. These groups thus present an exciting opportunity to expand the audience for contemporary concert music.
BIBLIOGRAPHY


Appendix A

INSTRUMENTATION

2 Flutes
2 Oboes
2 Clarinets in B♭
2 Bassoons
4 Horns in F
2 Trumpets in C
2 Trombones
Bass Trombone
Tuba
Harp
Timpani
Strings
Percussion 1: orchestra bells, wood block, bongos (with sticks or mallets)
Percussion 2: marimba
Percussion 3: bass drum, tam-tam (sometimes bowed), triangle, guiro, cowbell

Approximate duration: 8 minutes
Appendix B

SCORE IN C