

From Performance to Perception

A Critical Investigation of
Emotional Expression in Music

by

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Class of 2013

A thesis submitted to the
faculty of Wesleyan University
in partial fulfillment of the requirements for the
Degree of Bachelor of Arts
with Departmental Honors in Music

Acknowledgements

I would like to thank my advisor, Professor Jane Alden for her trust and support. Without her, I would not have the curious mind for music I have today. Thank you to my singers for lending me their beautiful voices. And special thanks to The Wesleyan Spirits, the Mixolydians, Alpha Delta Phi Society, 60 Home, Second Stage, my Mother and Father, Ashley, and Kiwi for all your love.

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Introduction

I can remember the first time I saw musical notation. I was four years old and visiting the apartment of my mother's parents. On my grandparents' couch was a bright, pink tote bag. And in that bag I discovered a stack of wonderfully illustrated piano lesson books designed for children. My cousin was taking piano lessons at the time and had conveniently "forgotten" to take her lesson books home with her. As I flipped through her books, I couldn't understand what any of the mysterious black dots and lines inside meant; but they were somehow able to draw my attention away the colorful illustrations of flowers and animals in the borders. In that moment I knew that hidden among those black dots and lines, there was some sort of beautiful magic that I wanted to be a part of.

Recognizing my interest, my parents decided to enroll me for piano lessons as well. I got to buy my own stack of colorful books and went to my new tutor's home once a week for an hour to receive my lessons. My parents were even generous enough to purchase a piano to replace the broken-down electric organ that had come with our apartment. I jumped eagerly into my lessons with a seemingly insatiable appetite for music. Unfortunately, though I dearly loved playing the piano and loved making music, I never got to a point where I excelled at the instrument.

Sitting alone at the piano my parents had purchased and practicing for an hour every day to keep up with my lessons became tiresome and lonely. I dreamed of trying out other instruments, like the cello or the saxophone, or maybe even learning how to conduct like those charismatic men on the

television! But I kept struggling through my piano lessons until high school in the vain attempt to maybe, one day, get really, really good.

High school was such a tough time for me that I finally had an excuse to quit attending my now dreaded piano lessons. My high school was titled the Academy for the Advancement of Science and Technology of the Bergen County Academies; it was a public magnet school for the sciences that gathered the brightest adolescent minds in my county. It was an incredibly competitive and stressful learning environment, and I was always weighed down by my lack of sleep and my school's rigorous curriculum.

Even so, I knew that I wanted to pursue music in some capacity, perhaps to find a productive vent for my stress. So I joined the school concert choir because it seemed like a carefree outlet for my musical interests that would not eat away large chunks of precious time. To my own amusement, I quickly found that I was just as bad at singing as I was at playing the piano because of my paralyzing stage fright. But at the very least, I enjoyed the cooperative environment that choir rehearsals necessitated much more than I enjoyed practicing alone at the piano. So I kept on singing.

I slowly lost my stage fright and even more slowly began to build up my musicianship. I came to enjoy singing in the concert choir so much that in the following years of my high school career, I snatched up every opportunity to sing more. By my last year, I had sung in the concert choir, the high school chamber choir, an innumerable number of county, regional, and state choirs, and had even toured a handful of countries in Western Europe with a select choir.

By the time I entered Wesleyan University, I knew that I wanted to seriously pursue vocal music. But at the same time, I did not want to let go of the passion for neuroscience that I had discovered during my high school career. So I split my academic time between my two primary interests at Wesleyan and decided to declare two majors: Neuroscience & Behavior and Music. In my studies, I developed a knowledge base and an approach to both the arts and the sciences that were quite different from those of my peers.

Spending so much of my time immersing myself in Neuroscience & Behavior and in Music allowed me to arrive at natural intersections between the two fields. I became very interested in approaching neuroscience through a musical lens. I was curious to discover how music could be quantitatively analyzed in a scientifically replicable manner. I researched the effects of music on the brain quite extensively, but did not find that relationship between my two fields of study to my taste.

Instead, I became fascinated by the reverse approach: the lens of cognitive science and the effects of emotional expression in vocal musical performance. Concurrently in my Wesleyan career, I was able to take classes in conducting and began to conduct and otherwise lead in my student a cappella groups and in staged musical theater productions. I found myself able to take advantage of my learning in Neuroscience & Behavior classes into my musical endeavors, and I was simply hooked.

In the pursuit of learning how to effectively utilize my knowledge of neuroscience in the context of vocal music, I participated in numerous

extracurricular activities and took many classes in both the Neuroscience & Behavior and the Music departments for the express purpose of discovering the science, theories, and practices of audition, auditory perception, and musical performance. In my senior year at Wesleyan University, I was able to pursue this senior honors thesis project as a final culmination of these studies.

In this thesis project, I attempt to describe the theories and current academic thought of emotional expression in musical performance. I then test these theories with my senior recital. I first give a brief, necessary overview of the basic auditory processes of musical perception in the brain. Secondly, I will present a model of musical communication from composer to performer to listener. Thirdly, I will explain the aesthetic purpose and the scientifically methodized nature of my senior recital. To conclude, I will describe audience feedback of perceived emotional expression from the performance of the recital, gathered in a randomly selected survey of a small sample size.

The day I discovered my cousin's piano lesson books, I knew that the pages and pages of those intriguing symbols had to be communicating something to someone. I knew at that young age that I needed to learn what it all meant. Now, the challenge I face is translating those dots and markings effectively in an expressive manner for others to become inspired and intrigued. I find myself constantly absorbed with thoughts on how to make music more socially, behaviorally, and scientifically meaningful. Considering all, perhaps it should be of no surprise to anyone that music and neuroscience have become my two strongest passions in life.

Audition & Music

Auditory System

Before one even begins to consider the musical communication of emotional expression, it is necessary to first understand how sound can be heard and perceived as music; that is, a collection of sound that is heard by the listener as an organized system with listener-perceived structure. Without setting the stage by describing the neurobiology behind music, there can be no scientific understanding of emotional expression in music.

The basic structure of the auditory system begins at the outer ear, including the pinna and the auditory canal; enters the middle ear, including the eardrum and the ossicle bones; and finally ends at the inner ear, or the cochlea. Physical sound waves are caught by the pinna of the outer ear and pass through the auditory canal to hit the eardrum, or the tympanic membrane. The vibrations of this thin membrane are transmitted to the three small ear bones called the ossicles, which then make contact with the oval window of the fluid-filled cochlea.

Within the spiral-shaped inner ear are what are called hair cells; when these hair cells bend as a result of the incoming vibrations from the middle ear, they create a cellular electrical action potential that is passed down through nerve fibers and into the brain. Because these hair cells are very fragile and cannot regrow once they are damaged, the middle ear plays a very important role in efficiently and safely transferring sound to the cochlea. For example, the ossicles are attached to small muscles that contract when the ear is exposed to

intense sounds. This contraction may disable the ossicles from moving, disallowing those intense sounds from entering the inner ear entirely (Moore 385).

Once sound is able to enter the inner ear, individual hair cells within the cochlea differentiate between pitches of varying ranges of frequencies and respond accordingly with the appropriate neurological process. Higher pitches, or frequencies, are detected by the hair cells closest to the opening of the ear, whereas lower frequencies are able to reach the more deeply located hair cells as well (Moore 393). This reason, along with the natural function of wave patterns, is why a listener can detect more overtones when hearing lower frequencies. This organization of pitch differentiation dependent on hair cell location is also why listeners who abuse low frequencies may lose hearing in the higher frequencies with age.

After the hair cells translate physical waveforms into electrical impulses, process-specific regions of the brain begin its work analyzing and perceiving sound. Interestingly enough, the cerebral cortex—the outermost layer and most highly developed portion of the brain—usually does not understand pure tones or single sounds. Instead, many neurons in the cortex will only activate when the brain receives instructions to analyze more complex auditory stimuli, such as when multiple pitches are received or when pitches range in dynamic intensity. The cortex is most highly activated when patterns in sound are received (Moore 395, 403).

Perception of Music

Neuroscientists who study the perception of music do not test individual experiences of musical performance. Instead, they test for four different aspects of musical experience: pitch, loudness, duration, and timbre. In fact, the study of music perception solely tests for the listener's processing of those four factors, all in the context of musical structure (Cook 65). The context of organized musical structure involves both the neurobiological auditory mechanisms previously described and certain general cognitive constraints resulting from perceptual learning, which may vary slightly between individuals.

It is important to note now that these constraints vary most between different musical cultures and different perceptual learnings. Though the study of music perception is sometimes deeply engrained in the study of ethnomusicology, for the purposes of this project, I will unfortunately only be able to touch upon a few of the conventions of "traditional" Western art music. I made this decision because my thesis project relies heavily on "traditional" Western vocal music, as I will explain in the next chapter.

There are also some psychophysical constraints to consider in the study of musical perception. These constraints are purely biological and do not significantly vary from one musical culture to another. To state some examples: the hearing range of a human being falls roughly between twenty and twenty thousand Hertz; only sounds that are louder than ten decibels and softer than one-hundred and twenty decibels are accessible; and pitches much faster than

ten to twelve beats per second and slower than one beat per second may be inaccurately temporally mapped (Dowling 470).

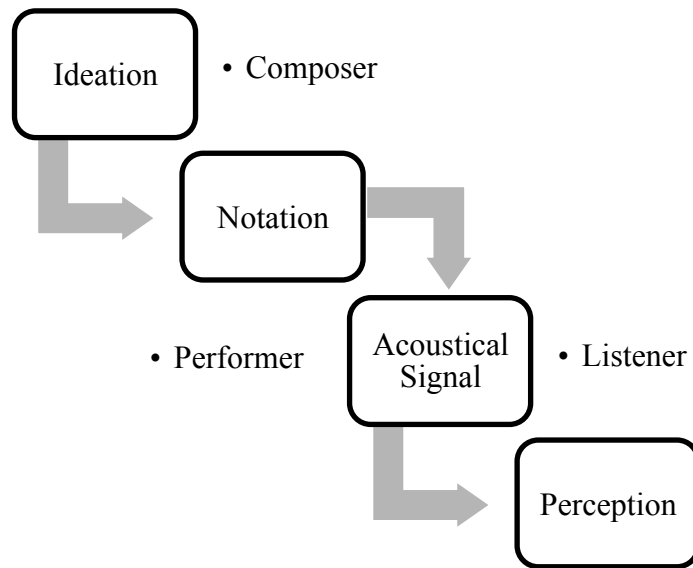
In musical convention, there is a hierarchy imposed on a subset of tones that assigns a relative importance to each of the pitches of the scale. There are also relative standards of consonant and dissonant relationships between pitches. Comparatively loud volumes contextualize music in different ways than softer volumes, and as such are perceived differently. Music is also necessarily extended in time; so musical timing must also affect musical perception. Finally, the timbre or color of pitches has shown to impart a more transparent effect to the perception of music, though this factor has proven to be the most difficult to scientifically test.

All of these factors—along with the cognitive processes of memory formation and speech identification in the temporal lobes of the brain, and the formation of emotion in the cortex—combine to create a psychological model of musical perception. Listeners apply their perception of music and their personal interpretations onto their understanding of musical structure to form musical memory (Cook 89). In the communication of musical expression, a performer may be able to take advantage of these behaviors of the listener and create more perceptually interesting music.

Musical Expression

Musical Communication

The most basic challenge of musical communication is the effective conveyance of musical and nonmusical ideas from the composer to the performer to the listener. Though in the past, cognitive scientists had exclusively studied the musical expression and impact of specific performances of specific pieces, more recent scholarship has explored the broader communication of musical expression (Kendall 136). The findings of contemporary cognitive studies have demonstrated that the model of musical communication can be simplified to the transmission and reception of four necessary processes and three bodies that receive and transmit those communications:



I will refer to the four processes—ideation, notation, acoustical signal, and perception—as “codes”, and the actions of the three bodies that receive and transmit these codes—composer, performer, and listener—as “functions”.

It is important to note that for the purposes of this project, I will only address “traditionally” notated Western art music in which the composer, performer, and listener are the only functions involved. I will not consider the degree of participation of each functional body, nor will I consider musical cultures or styles that lack some of the components—or even supplement with more components—of this proposed model.¹

In this model adapted from similar models proposed by Juslin (1797), Krumhansl (4), and Kendall and Carterette (131), the progression of musical expression and communication begins with the composer who has an idea for a musical piece and recodes that ideation into notation. Next, the performer recodes the notational form of the music into an acoustic signal, or performance. And finally, the listener recodes the acoustical signal into a personal perception of musical communication.

According to the preliminary ideation, the composer may choose to augment the notational code with expressive cues—such as with measure lines, dynamic markings, phrase ties, textual instructions, or other symbols—to more effectively communicate their ideation to the performer. This is due to the reality that once the performer receives the notation, the composer has lost much of the ability to communicate the ideation behind the notation. But by exploiting the code in this way, the composer utilizes shared implicit and explicit conventions of notation for the performer to understand and employ when recoding. When

¹ This project will largely focus on the communicative relationship between the functions of the Performer and the Listener, including the codes Notation, Acoustic Signal, and Perception.

and if the performer receives the composer's intended message, communication has occurred (Kendall 135).

Likewise, the performer may choose to employ shared implicit and explicit conventions of acoustical signaling for the listener to better understand and involve in recoding. Oftentimes, the performer may even choose to deviate from the notational code that has been transmitted to them in an effort to take fuller advantage of the shared conventions of acoustical signaling and to affect the musical performance in an interpretative manner. This phenomenon of altering transmissions of musical communication—which of course does not affect in any way the initial communication between the composer and the performer—is often referred to as “performance expression”, and can differentiate one performance experience from another (Juslin 1797).

Several studies have found that performance expression is a non-random phenomenon, and that the precise method of performance expression can affect acoustical signaling in a way that may influence the listener's impression of a musical piece in surprisingly profound ways (Juslin 1798). In other words, performers are often able to successfully replicate their own microstructural performance expressions across multiple trials; though there are other studies that have found that this phenomenon may have more variable results (Juslin and Timmers 453).

It is important to note that not all deviations from intended notation to acoustical signal, though they may be intended to be expressive, are received as performance expression; indeed, the perception of musical expression is in the

sole domain of the listener (Kendall 131). Of course, it is also important to note that there may be other factors to consider in the performance expression's functional ability to effectively transmit information to the listener, including setting and other musical, environmental, or cognitive affects.

What is amazing is that the communicative processes of music, regardless of the fact that there may be large differences among performers in their function, show precisely replicable, significantly consistent success in musical communication (Juslin and Timmers 460). The fact that performers are successful at musically communicating to their listeners in a replicable manner must then mean that the shared conventions of understanding the transmission and reception of acoustical signal are well matched between the two functions.

If this is the case, the most basic challenge of musical communication between the performer and listener can be rearticulated in two parts: the performer's duty to know how to utilize those shared conventions, including performance expression, in communicating with the listener; and the listener's duty to know what those conventions are, in order to recode an expressive performance into auditory and emotional perception.

What complicates the matter of transmission from the performer to the listener is that during the function of recoding acoustical signal into perception, the listener may impose meaning onto the performer's transmission just as the performers apply performance expression to the composer's notation. The most confounding aspect of this alteration, which I will refer to as "transformed recognition" of acoustical signal, is that the listener may perceive contexts

entirely unintended by the composer, simply due to the fact that the listener is so far removed from the composer in the progression model of musical communication. Indeed at this point in the progression, the composer's work serves as little more than a framework for the dialogue between the performer and listener.

Emotional Expression

It is perhaps because of performance expression and transformed recognition of acoustical signal that the communication of emotional expression is especially salient between the performer and the listener. But firstly, there is an important distinction to be made between the two uses of the term *expression* in this paper: "performance expression" refers to the deviations and variations applied to the recoding of notation to acoustical signal; "emotional expression" refers to the emotional content of the acoustical signal present in the performer's function and the listener's perception. For the remainder of this paper, I will only use the term to describe the latter definition.

The performance of music is a dynamic process for which the reception of expression is dependent upon a host of factors that are not necessarily present in the relationship between the composer and the performer. In fact, the simple experience of receiving aural signaling has proven to be a more emotionally evocative coding of music than notation (Sloboda 82).

In the performance of texted vocal music, the listener is able to engage with the text as an easy access point to the transmission of emotional expression

from the performer. As a result of this access point, the listener may apply transformed recognition less frequently while experiencing vocal music than during a performance of purely instrumental music, resulting in a more successful reception of the intended communication of emotional expression.

That is not to say that the effects of the listener understanding text will completely obscure the fundamental musical structure of vocal music. In fact, the reverse situation may hold more truth; many cognitive studies testing the relationship between speech and music have demonstrated that emotional expression in even simple, musically unaccompanied speech may rely heavily on pitch, timbre, rhythm, and melodic structure (Patel 213-214). It can be inferred, then, that sung text has the possibility of being perceived in association with textually inappropriate emotional content.

Aside from emotional expression in vocal music, there are certain replicable strategies that a performer can utilize to reliably elicit an emotional response in the listener without the use of text (Peretz 119). These strategies can be considered to be canonical conventions of musical performance, shared by both the performer and the listener. Cognitive studies have found that there are four reliably transmitted, “basic” emotions in the realm of musical performance: happiness, sadness, anger, and fear. These four basic emotions happen to be among the main focuses of all current cognitive neurobiological studies because they are believed to be among the most basic, innate, reflex-like psychological responses that cause distinct and recognizable cognitive and physiological processes (Peretz 101).

To elaborate: the basic emotion of sadness is understood when a listener receives acoustical signaling with slow tempos and minor harmonies; happiness can be identified in music by the relatively faster, more dance-like tempos and major harmonies; fear is associated with very rapid tempos, dissonant harmonies, and large variations of dynamics; and anger with rapid tempos as well, but with generally louder dynamic markings (Krumhansl 46).

In a study by Krumhansl in 1997, test subjects were able to identify the intended emotional responses from three-minute clips of previously unknown musical pieces at a significantly higher rate than they identified unintended emotional responses. Another study by Juslin in 2000 demonstrated that performances of short melodies played by musicians with the specific instruction to express different emotions resulted in subjects correctly identifying the corresponding emotion approximately seventy percent of the time—an astoundingly high majority (Juslin 1808). These two studies demonstrate the shared conventions of musical performance between the performer and the listener.

Perhaps the most compelling evidence for shared conventions of musical performance—as well as the argument that emotional reception to music may be an innately human characteristic—is found in child psychology studies with music and emotional expression. Such studies have found that infants are able to receive emotional expression from their mothers through both speech and song. At nine months, they are able to differentiate between happy and sad music. At age three, they can consistently identify happy music. And by the age of six,

children show adult-like abilities to identify all four basic emotional expressions in music, including sad, fearful, and angry emotions (Peretz 103). All of these findings are incident to the specific performances of the child's mother.

In comparison to child psychology studies or self-reported perceptions of musical expression, even more dramatic results have been recorded in scientific studies investigating the connection between music, emotion, and the physical human body. There have been reliably recorded psychophysiological responses in listeners from expressive performances of music. Shockingly, music can stimulate respiratory function, cardiac function and blood flow, and even electrical conductance of the skin.

These studies have also found that different emotional responses elevated physiological processes in varying positive amounts from the emotional baseline; for example, sad ratings were most strongly associated with changes in blood pressure, heart rate, and skin conductance and temperature (Krumhansl 46). Indeed, it has been scientifically proven that expressive music can act as a physical force that not only affects the mind, but also the human body.

Perhaps it can be inferred that if expressive music can affect the human body both physically and emotionally, then it might also motivate the human brain to respond to musical stimuli to create complex cognitive processes. Skilled performers may be able to take advantage of this correlation of musical experience and cognitive response—whether or not they understand the scientific jargon—in order to recode not only the listener's emotional perception of musical expression, but also to create more complicated human behavior.

Senior Recital

In partial fulfillment of my senior honors thesis within the Music Department of Wesleyan University, I curated, conducted, and performed with nine other singers a senior recital titled “Loss & Longing” of nine unaccompanied choral pieces and three spoken texts. I directed our group of ten singers in rehearsals twice a week starting in the month of September 2012 as well as in infrequent sectional rehearsals. We performed our concert Tuesday evening of April 2, 2013 in the Memorial Chapel at Wesleyan University. The program and the names of the singers, along with each of the piece’s translations and important stage movements, may be found in the Appendices.

The Program

The inspiration for the program of my senior recital stemmed from my interest in the musical communication of the specific emotions of sadness and loss. Many of my more meaningful musical experiences at Wesleyan have been singing sorrowful choral works that embodied profound mourning and contemplation. Often these songs were religious in nature, such as funeral pieces or requiems. These musical involvements, both academic and extracurricular, also happened to occur concurrently with some personal, emotional troubles. As such, sad choral works hold deep meaning and significance in my musical experiences.

As I began to select songs for my recital, I found myself rejecting the idea of performing a contextually unrefined and randomly organized assortment of

those tragic musical works that spoke so deeply to me. Instead, I became more and more compelled to carefully curate a concert program that would convey some sort of story, all the while making musical, thematic, and emotional sense in its performance.

I decided to use the story of Orpheus and Eurydice as a framework for the recital. This was a very difficult decision for me to reach. I wanted to choose a relatable, well-known story to give my recital an identifiable underlying arc; but I knew that curating a concert program of mostly religious pieces in this manner could seriously limit my ability to select appropriate musical works. Though I felt that using Orpheus & Eurydice as a scaffold made sense because of the tragedy of their story and because of Orpheus' famed status in Greek mythology as a musician, I was only able to firmly decide on this ancient Greek myth after much research into the figure's historical depictions from the medieval era.

In my research, I found that there are compelling historical parallels between the depictions of Orpheus and Christ in art and literature. Orphic priests were often referred to as "shepherds", and Orpheus, as their leader, was referred to as the "Good Shepherd". This title became a very common reference to what became the hybrid "Orpheus-Christus"² figure by the late third and early fourth century. Indeed, an artistic depiction of this Orpheus-Christus with a lyre, surrounded by sheep and other biblical animals, can be found in the frescos of

² In *Orpheus in the Middle Ages*, John Block Friedman explains that the characteristic attributes of Orpheus—including his peaceful nature, his ability to influence others with music, and his death at the hands of his own people—made him perhaps a better candidate for early Christian appropriation of pagan figures than other notable characters who visited and subsequently emerged from Hades, such as Heracles or Hermes (39).

the Christian catacombs of Rome (Friedman 40-43). This historical Orpheus-Christus figure was a strong enough connection for me to come to the ultimate conclusion that conveying the story of Orpheus would be the perfect way to structure my concert.

My recital's story begins at the wedding of Orpheus and Eurydice. The opening song (*Tota Pulchra Es*) is sung from Orpheus' point of view and hails Eurydice³ as a pure, beautiful, and honorable woman. Directly after their wedding concludes, Eurydice walks into a meadow with her bridesmaids (*Sous le dôme épais*), is bitten on the ankle by a poisonous viper, and is immediately ushered away to the underworld by Hermes (*Tristesses de la lune*). Though Eurydice accepts her death and willingly follows Hermes to the underworld (*Dixit Maria*), Orpheus cannot accept her death, and mourns the loss of his loved one (*Ave verum*).

From thereon, the story of Orpheus quite precisely illustrates the five stages of grief according to the Kübler-Ross model. As such, my selection of songs and texts reflected the five stages of grief as well. At first Orpheus is struck by shock and denial (*Denial*). He is unable to sing his once beautiful tunes and instead begins to sing songs of only sadness and anger (*Ach, arme Welt*). He resolves to travel to the underworld and somehow bring his wife back to the world of the living. Once Orpheus completes his fearsome journey down to the

³ Because it is nigh impossible to find sacred music that references Eurydice, I decided to allow the name Mary to act as her substitute in the context of my recital.

underworld, he bargains with Hades to return Eurydice back to him (*Hear my Prayer, O Lord*).

But Orpheus is ultimately unable to keep his deal with the god of death and, while leading Eurydice out of the underworld, famously looks back at his wife a moment too early and loses her forever. Not allowed by the gods of Olympus to return to the underworld a second time while alive, and unable to truly reunite with Eurydice, Orpheus falls into a deep depression and forsakes the company of all men and women (*O vos omnes*). During this time, while he is completely unable to accept his loss and move on with the rest of his life (*Acceptance*), he is stumbled upon by a band of hysterical Maenads and is torn limb from limb. Only in his death and with his rendezvous with Eurydice does Orpheus find any comfort from his loss and longing (*Os Justi*).

My recital concludes with a song by William Hawley, titled *Io son la Primavera*. The song proclaims the return of spring, life, and love. As a whole, it is a song that heralds happiness and hope. But interestingly enough, *Io son la Primavera* ends with a cautionary message that such happiness brought to us by spring will not be able to last forever. I felt that this poignant warning was an appropriate way to end a concert program that deals with tragedy and acceptance. Perhaps knowledge of the fact that “Spring for you will not return forever” can ease the sorrow of losing a loved one.

Intentions

In the spring semester of 2012, I asked seven sophomore and junior students at Wesleyan if they would be kind enough to collaborate with me in producing my recital. These seven students were all musicians with whom I had worked before in multiple capacities: some I met in my student a cappella groups, The Wesleyan Spirits and the Mixolydians; others had performed in staged musical theater productions for which I had directed and conducted the music; and a few I had sung with in other choirs, ensembles, or senior recitals and projects in past years. These seven singers were important to me, not only because I had become especially close with them while pursuing various musical endeavors at Wesleyan University, but also because I trusted their voices and musicianship.

Among the eight of us, I had two people assigned to each voice part. Regarding my recital as a more democratically collaborative effort of eight voices than a didactic project where my primary involvement would consist of instructing, directing, and conducting, I felt it was appropriate for me to both sing and lead the music in a less authoritative manner. I was comfortable with this decision because I had had significant experience in simultaneously singing and cooperatively leading in my two a cappella groups.

I intended to perform a recital with these seven ensemble members to test the relationship between performer and listener in the communication of emotional expression. To this end, I involved very many stage movements and spoken texts to theatrically augment the musical content. I even required that

concert dress be white for women, khakis and spring colored shirts for men, and white binders for all. Considering my careful choices of songs, poems, text adaptations, stage directions, and the visual factors of dress and eye-contact with audience, my recital became for me more of a dramatic production than a standard concert of music.

In order to effectively gauge the level of communication between the performers and the listeners, I was careful not to mention the Orpheus framework in the program booklet. This was a conscious decision, made to preserve an open-minded, objective audience. I even refused to divulge to my ensemble members the final order of the program or the significance of the recital's structure until approximately a month before the performance to make certain that the information would not be leaked to possible audience members. Following the recital, I surveyed a random selection of twenty respondents out of one-hundred and five audience members to gauge a small portion of the audience's emotional perceptions from the concert.

Execution

As our initial ensemble of eight singers began to rehearse in the fall of 2012, I came to the quick realization that this project was going to encounter some situations that would prove to be much more difficult than anything I had had experienced while leading my a cappella groups. I experienced a substantial amount of difficulty in leading an ensemble of singers who had never worked with each other before. The music we were tackling was also quite challenging to

teach, especially considering the different levels of sight-reading ability and understanding of music theory amongst the ensemble members.

I led the early rehearsals with the ensemble sitting in parts, in a circle, and facing each other. Each time I introduced a new piece, I allowed some time for the singers to quickly look over their parts before diving right into sight-reading. When a certain voice part needed help to work through difficult sections, I paused the entire group for some quick sectional work, accompanying the singers on the piano. Once the notes to a piece were fully learned, I asked the ensemble to mark into their scores dynamic markings and expressive phrasings. After each run-through of a piece, I was certain to always ask if there were any problematic sections that I had not noticed.

Unfortunately, learning the music took many more weeks than I'd first hoped. A large reason for this may have been because I was approaching the project from a completely egalitarian, collaborative standpoint. Oftentimes, the rehearsals were too loosely structured, allowing the group to become distracted, get off track, and waste precious time. Another reason for this was that our rehearsals frequently ran into schedule conflicts. At first, I thought that I was being a fair peer to allow a singer to arrive late or leave early if they had conflicts.

A few of the ensemble members approached me on this matter and asked me to be more strict about keeping rehearsal times, making me wish that I had received such feedback earlier in the process. Further feedback from my ensemble members led me to amend other aspects of my rehearsal structures,

such as not pausing the entire group to review difficult sections with individual voice parts.

Above all, I was finding a lot of difficulty in singing while simultaneously having to fully conduct the ensemble. Near the beginning of the process, I found it nigh impossible to both sing my part and keep an ear out for mistakes in other voice parts, all the while conducting the ensemble for tempo, dynamics, and other emotionally expressive cues. After some serious reflection and reconsideration, I decided not to ask an additional student to join my group to alleviate the issues of singing while conducting. The reasons for this decision were twofold.

Firstly, I wanted the recital to be a culmination of my musical studies at Wesleyan, which have largely focused on vocal music performance. Considering my academic history at Wesleyan, I did not think it would make very much sense not to sing in my own recital. Also, I had already grown far too personally attached to the songs I'd selected at that point to relinquish my opportunity to sing them.

Secondly, I wanted to somehow preserve the collaborative nature of the recital's project, so fully stepping into the position of "director" and "conductor" did not at all appeal to me. In the same vein, I believed that not having an authoritative conductor best suited the type of emotionally expressive performance I wanted the listener to experience. After all, testing the expressive communication between us the performers and the audience was the primary purpose of this performance.

I eventually came to the conclusion that I would conduct all the songs and otherwise lead the group during the rehearsal process, but that I would endeavor to shed some of the conducting responsibilities by the time of the final performance. This decision allowed me to continue to sing as a member of the ensemble and sustain the cooperative ideal I held for the project.

I certainly developed a very specific skill set to conduct and maintain musicality while singing my own part and listening for others' mistakes. Thankfully, I was able to stop fully conducting all of the pieces as the ensemble became more and more familiar with the music, leaving me with the pieces that only required a few necessary cues or reminders for expressive content, just as I'd hoped.

At the start of the spring semester of 2013, I received some bad news that my two grandfathers had both become very ill. I was heavily emotionally affected by the news, and my senior recital and my entire thesis project became an uncomfortably personal experience for me.

Because of my negative emotional state, I began to revisit my considerations for the recital. I realized that my originally planned concert program could be altered to more effectively express the emotions of loss and longing. At that juncture, I was forced to decide whether or not to modify my initial vision for the purpose of creating a more emotionally evocative performance for the audience.

Ultimately, upon conference with the rest of the ensemble members, I decided to shorten my proposed concert program from sixteen songs and texts

to twelve. More significantly, I asked two new singers to join the project to sing a duet and the final, ten-voice piece. Fortunately, my recital's date was adjusted to allow for these major changes. When one of my grandfathers passed away during the spring break session, I decided to make one more change and added a final poem to my program booklet titled "Do Not Stand at My Grave and Weep". This poem was not read during the recital in order to allow the audience to reflect upon its relationship with rest of the concert program in silence.

Once we began our technical rehearsals within the Memorial Chapel the week before our concert, the ensemble was finally able to incorporate the stage movements into the performance. At this point, we were so familiar with all of the pieces that we worked solely on creating a dramatic, emotionally expressive performance experience. Rehearsing within the chapel even gave the ensemble an additional layer of gravity and emotional context to work with.

If the survey of the audience following the conclusion of the recital is any indication, I believe the ensemble succeeded in effectively communicating complex emotions and ideas during the night of our performance. Though I later noticed in a recording of our performance that a number of the songs fell in pitch and that the ensemble had made a few mistakes, I was immensely proud of the work that we had all put into the concert to be able to convey profound emotional expression through music.

Conclusion

After my senior recital came to a close, I gathered the names and contact information of twenty randomly selected audience members to ask a few very brief questions about their emotional perceptions and about the ensemble's transmission of emotional expression. I chose to ask twenty people in order to survey at least a fifth of the audience present the recital. I thought that twenty percent of the audience was a manageable amount to survey and interview, yet still large enough to gain a number of different responses.

When I asked each of my twenty subjects how they would describe the overall emotional content of the concert, a number of them responded that though the overarching tenor of the concert was quite haunting and reminiscent of death and sadness, there were appropriate moments within the program that sounded much happier and more hopeful. My respondents described a sort of "flow" during the progression of the concert that made smooth transitions from generally sad-sounding pieces to generally happy-sounding ones. A smaller fraction of my subjects mentioned that it took a little time for them to adjust to the concert's content because only one song and two spoken texts were in English. This portion of respondents told me that it took a while for them to perceive emotional flow.

Interestingly enough, though my subjects were able to receive the emotional expression from the ensemble's transmission, when I asked them to describe their own emotional experience to the concert, many of them

responded “calming” or “peaceful”. Others described their emotional experience as “ethereal” and “transcendent”.

With these responses, I was reminded of the fact that different genres of music already hold predictable characteristics in audience perception. My concert program of unaccompanied songs, texts, and movements made no use of other performative possibilities. Though that had been my purpose, I wondered what kind of feedback I would have received if I had incorporated accompaniment, a stage set, or manipulations of light, technology, or acoustics.

When I asked my respondents if the physical presence and movements of the performers affected their emotional perceptions, many of them marveled at the fact that they were most emotionally moved during the first and last songs while the ensemble stood in the aisles, surrounding the audience. Many of these subjects also mentioned that the ensemble’s willingness to move and look at the audience and each other as we sang also added an emotional layer to the performance. A smaller number of subjects remembered that the first spoken text was read from above and behind them, and that it had caught them by surprise. An even smaller fraction of respondents mentioned that our concert dress made a very big difference in their reception of the emotional expressiveness of the ensemble.

Next, I asked my respondents if the program booklets with translated texts affected their emotional perception. Surprisingly, many of my subjects said that the booklet made no difference to their experience at all. A few told me that though they glanced over the booklet before each piece, they focused more on

experiencing the aural quality of the performance than on the booklet in front of them. A number of my subjects even thought that the booklets were outright distracting. As a listener who pores over translated texts and program notes before a performance even begins, I was quite pleased to learn that even without translations, the audience was able to perceive emotional expression.

Finally, I asked my twenty respondents if they could detect an underlying progression or story behind the concert order. Unsurprisingly, many of my respondents simply reiterated the fact that they felt a certain flow in the performance. They enjoyed that though the overall emotional content of the concert was sad, that it ended on an “optimistic” note even in the face of “haunting” loss. It was a pleasant surprise to me after I revealed to my twenty respondents the deeper context of the Orpheus story within the concert program that each of them was able to piece together their own emotional perceptions of the concert with different parts of the myth of Orpheus and Eurydice.

I believe that it was only through the ensemble’s collaborative mindset, trust in each other’s musicianship, and the hard work each of the singers put into the performance of this recital that we were able to effectively communicate the musical, textual, and emotional contents of the concert program. The musical voice is an essential aspect of our human identity: of who we are, how we feel, how we communicate, and how other people experience us (Welch 245). I believe that through my research and the successful execution of the recital by my ensemble, I have been able to demonstrate that a neuroscientific approach to vocal musical performance can lead to valuable emotional expression in music.

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Appendix A: Program Order

Loss & Longing

A Senior Recital by Brian Hyunsuk Lee

1. *Tota pulchra es* by Ola Gjeilo (b. 1978)
2. *Sous le dôme épais*, from the opera *Lakmé* by Léo Delibes (1836-1891)
3. *Tristesses de la lune*, a poem from *Les Fleurs du mal* by Charles Baudelaire (1821-1867)
4. *Dixit Maria* by Hans Leo Hassler (1564-1612)
5. *Ave verum* by William Byrd (1540-1623)
6. *Denial*, a poem by George Herbert (1593-1633)
7. *Ach, arme Welt*, Op. 110 no. 2 by Johannes Brahms (1833-1897)
8. *Hear my prayer, O Lord* by Henry Purcell (1659-1695)
9. *O vos omnes* by Pablo Casals (1876-1973)
10. *Acceptance*, an adapted text from *On Death and Dying* by Elizabeth Kübler-Ross (1926-2004)
11. *Os Justi* by Anton Bruckner (1824-1896)
12. *Io son la Primavera* by William Hawley (b. 1950)
13. *Do Not Stand at My Grave and Weep* by Mary Elizabeth Frye (1905-2004)

Performed by

- Sopranos: Mary Foster, Audrey Kiely, & Leah Rosen
- Altos: Paulina Jones-Torregrosa, Mariana Quinn-Makwaia, & Emily Hunt
- Tenors: Brian Hyunsuk Lee & Nathan Shane on Tenor
- Basses: Brian Goodell & Marc Whittington

Appendix B: Texts & Translations

Tota pulchra es

Tota pulchra es, Maria,
et macula originalis non est in te.
Vestimentum tuum candidum quasi nix,
et facies tua sicut sol.
Tu gloria Jerusalem, tu laetitia Israel,
tu honorificentia populi nostri.

Thou art completely pure, Mary,
and the stain of original sin is not within thee.
Thy garments are as white as snow,
and thy face is as the sun.
Thou art the glory of Jerusalem, joy of Israel,
the source of honor to our people.

Sous le dôme épais

Sous le dôme épais où le blanc jasmin à la rose s'assemble,
sur la rive en fleurs, riant au frais matin,
viens, nous appellent ensemble.
Ah! Doucement glissons en suivant,
suivons le courant fuyant de son flot charmant;
Dans l'onde frémissante, d'une main nonchalante.
Viens, gagnons le bord où la source dort, où l'oiseau chante.
Sous le dôme épais, sous le blanc jasmin,
Ah! Descendons ensemble!

Under the dense canopy where the white jasmine blends with the rose,
on the flowering bank, laughing in the fresh morning,
come, we are called together.
Ah! Let us gently glide along,
and follow the fleeing current with its enchanting flow;
Into the rippling surface, a lazy hand reaches.
Come, let us go to the shore where the spring sleeps, where the bird sings.
Under the thick dome, under the white jasmine,
Ah! Let us drift down together!

Tristesses de la lune (Translated by Lewis Piaget Shanks)

Ce soir, la lune rêve avec plus de paresse;
Ainsi qu'une beauté, sur de nombreux coussins,
Qui d'une main distraite et légère caresse
Avant de s'endormir le contour de ses seins,

Sur le dos satiné des molles avalanches,
Mourante, elle se livre aux longues pâmoisons,
Et promène ses yeux sur les visions blanches
Qui montent dans l'azur comme des floraisons.

Quand parfois sur ce globe, en sa langueur oisive,
Elle laisse filer une larme furtive,
Un poète pieux, ennemi du sommeil,

Dans le creux de sa main prend cette larme pâle,
Aux reflets irisés comme un fragment d'opale,
Et la met dans son coeur loin des yeux du soleil.

the moon tonight, more indolently dreaming,
as on a pillowed bed, a woman seems,
caressing with a hand distraught and gleaming,
her soft curved bosom, ere she sinks in dreams.

against a snowy satin avalanche
she lies entranced and drowned in swooning hours,
her gaze upon the visions born to blanch
those far blue depths with ever-blossoming flowers.

and when in some soft languorous interval,
earthward, she lets a stealthy tear-drop fall,
a poet, foe to slumber, toiling on,

with reverent hollow hand receives the pearl,
where shimmering opalescences unfurl,
and shields it in his heart, far from the sun.

Dixit Maria

Dixit Maria ad angelum:
Ecce ancilla Domini,
fiat mihi secundum verbum tuum.

Mary said to the angel:
Behold the handmaiden of the Lord,
let it be done to me according to your word.

Ave verum

Ave verum corpus natum de Maria Virgine,
vere passum, immolatum in cruce pro homine:
Cuius latus perforatum unda fluxit sanguine.
Esto nobis praegustatum in mortis examine.
O dulcis, o pie, o Jesu fili Mariae,
miserere mei.

Hail to the true body born of the Virgin Mary,
who truly suffered, sacrificed on the cross for mankind:
From whose pierced flank flowed water with blood.
Grant that we may taste you at the hour of our death.
O sweet, o holy, o Jesus son of Mary,
have mercy on me.

Denial

When my devotions could not pierce
 Thy silent ears,
Then was my heart broken, as was my verse;
 My breast was full of fears
 And disorder.

My bent thoughts, like a brittle bow,
 Did fly asunder:
Each took his way; some would to pleasures go,
 Some to the wars and thunder
 Of alarms.

“As good go anywhere,” they say,
 “As to benumb
Both knees and heart, in crying night and day,
 Come, come, my God, O come!
 But no hearing.”

O that thou shouldst give dust a tongue
 To cry to thee,
And then not hear it crying! All day long
 My heart was in my knee,
 But no hearing.

Therefore my soul lay out of sight,
 Untuned, unstrung:
My feeble spirit, unable to look right,
 Like a nipped blossom, hung
 Discontented.

O cheer and tune my heartless breast,
 Defer no time;
That so thy favors granting my request,
 They and my mind may chime,
 And mend my rhyme.

Ach, arme Welt

Ach, arme Welt, du trügest mich,
Ja, das bekenn ich eigentlich,
Und kann dich doch nicht meiden.

Du falsche Welt, du bist nicht wahr,
Dein Schein vergeht, das weiß ich zwar,
Mit Weh und großem Leiden.

Dein Ehr, dein Gut, du arme Welt,
Im Tod, in rechten Nöten fehlt,
Dein Schatz ist eitel falsches Geld,
Dess hilf mir, Herr, zum Frieden.

Alas, poor world, you have deluded me,
Yes, I confess verily,
That which you cannot deny.

You, false world, you are not true,
I know and rue that your glories do fade,
with grief and great suffering.

Your honors and riches, poor world,
Are all naught in distress and in death.
Your vain treasures are falsely wrought.
Lord, give me eternal peace.

Hear my prayer, O Lord

Hear my prayer, O Lord, and let my crying come unto thee.

O vos omnes

O vos omnes, qui transitis per viam,
Attendite et videte si est dolor sicut dolor meus.

O all ye that pass by the way,
Attend and see if there be any sorrow like to my sorrow.

Acceptance

There are a few of us who will fight to the end, who will struggle and keep a hope that will make it almost impossible to reach acceptance. They are those who will say the day they stop fighting,

I just cannot make it any more. The fight is over. The harder I struggle to avoid the inevitable death, the more I try to deny it, the more difficult it will be for me to reach peace and dignity.

We may consider them to be tough or strong, we may encourage that fight for life to the end, we may implicitly communicate that accepting the end is regarded as a coward's choice, as a deceit, or, worse yet, a rejection of life.

How do I know if I am giving up too early? How can anyone differentiate between acceptance and cowardice? How can I live on for ever, even after my death?

Os justi

Os justi meditabitur sapientiam,
et lingua ejus loquetur judicium.
Lex Dei ejus in corde ipsius:
et non supplantabuntur gressus ejus.
Alleluia.

The righteous in his heart shall see wisdom,
And his tongue shall speak what is just.
The law of God is in his heart;
And his feet do not falter.
Alleluia.

Io son la Primavera

Io son la Primavera,
Che lieta, o vaghe donne, a voi ritorno
Col mio bel manto adorno
Per vestir le campagne d'erbe e fiori
E svegliarvi nel cor novelli amori.
A me Zeffiro spira,
A me ride la terra e'l ciel sereno;
Volan di seno in seno
Gli Amoretti vezzosi a mille mille,
Chi armato di stral, di chi faville.
E voi ancor gioite,
Godete al mio venir tra risi e canti;
Amate i vostri amanti
Or che'l bel viso amato april v'infiora:
Primavera per voi non torna ognora.

I am Spring

Who gladly, lovely women, returns to you
With my beautiful, embellished mantle
To dress the countryside in greenery and flowers
And to arouse in your hearts new loves.
For me Zephir sighs,
For me the earth laughs, as do the serene heavens;
From breast to breast
Fly the charming Amoretti by the thousands,
Armed with arrows and with torches.
And you again are delighted,
Take pleasure in my coming amidst laughing and song;
Love your lovers now,
while April adorns lovely faces with flowers:
Spring for you will not return forever.

Do Not Stand at My Grave and Weep

Do not stand at my grave and weep,
I am not there; I do not sleep.
I am a thousand winds that blow,
I am the diamond glints on snow,
I am the sun on ripened grain,
I am the gentle autumn rain.
When you awaken in the morning's hush
I am the swift uplifting rush
Of quiet birds in circling flight.
I am the soft starlight at night.
Do not stand at my grave and cry,
I am not there; I did not die.

Appendix C: Stage Directions

Enter from behind House	N X Mc B P My Mi L E A
Tota Pulchra Es: F & A	
Applause	Audrey Exits -> Balcony Mary & Paulina -> Center Stage Etc -> First Row
Dome Epais: A & C#	
Applause	Arc Center Stage: Mc B E Mi [P] [My] L[A] N X
Tristesses de la lune Dixit Maria: Ab	Audrey Read @ End of Applause
Applause	Audrey Re-enters Mary & Paulina Exit ->First Row Same Arc: Mc B E Mi L A N X
Ave verum: Bb & Db & F	
Applause	
Denial	Nathan -> Stage Edge & Read Etc. -> Stage Edge @ " <i>O cheer and tune</i> " Order: E Mi Mc B N X L A
Ach, arme Welt: C & E & G	
Applause	Form Arc down Steps Same Order
Hear my prayer, O Lord: C	No Applause
O vos omnes: C & Eb & G	
Applause	Mary & Paulina Re-enter Move Arc to Floor: [P] E Mi Mc B N X L A [My]
Acceptance Os justi: F & A & C	Brian & Emily -> Step Up, Read, Re- enter Arc
Applause	All move Down Aisles to Original Positions:
Io son la Primavera: E	N X Mc B P My Mi L E A
Applause	Bow In Bow Out Exit behind House