Fine-Tuning Expressions in Music: Examining Emotions from A Musician's Perspective

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Abstract

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Chair of the Supervisory Committee:

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Instrumental Conducting

The primary focus of this dissertation is to examine the relationship between a musician's cognitive psychology and their artistic process when conveying emotion through music. Research studies and literature from musicology and psychology will be presented that support the need for understanding the relationship between emotion and music, along with its significant impacts on music education. The areas within this field of research explore the expressive effects of compositional traits, the transmission and psychological perspectives of emotional content, and the impacts the understanding of emotional studies have on musicians, particularly performers, and conductors. In addition, this dissertation will feature a musical analysis that will present a different interpretation of viewing musical elements within a composition, aimed at providing knowledge of the music-makers role in interpreting and conveying expressive qualities through musical structure. By acknowledging the relationship and processes between emotion

and music, educators can engage in an enriching learning environment that resonates with their students in a more personable and meaningful way.

Acknowledgments

This dissertation is not only a reflection of my academic efforts but also a testament to the collective support, guidance, and love of all those who have touched my life. I am truly thankful to have such wonderful individuals in my life and am eternally grateful for every one of you.

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Chapter 1

Introduction

Music has significantly impacted humanity's emotions for centuries and continues to influence our expressive persona today. Its power to inspire has proven to evoke a wide range of individual feelings, and the interaction between emotion and music has fascinated musicians, scholars, and researchers since ancient civilizations. Significant research within the last several decades in music and psychology has revealed that the connection between human cognition and music listening experience is closely connected and that music can convey and evoke emotion.

To better understand the relationship between music and emotion, it is important to examine the different functions of how emotions are perceived and analyze how such emotions are transferred from the music maker to the music listener. The functions of emotion are supported when musicology, psychology, neuroscience, and performative studies combine their research to create more in-depth and comprehensive research. This dissertation examines the underlying context of emotion embedded within musical structure and the musician's role in communicating emotion and expression through musical performance.

1.1 Research Aim

My experience as a conductor, performer, and music educator inspired me to research this topic. Musicians of all areas (conductors, educators, performers, etc.) are trained throughout their careers to identify errors within a performance, such as wrong notes and rhythms. However, when we attempt to navigate the emotional intent of the music, our interpretations vary from one another. From a conductor's perspective, relevant adjectives will likely communicate expressive instruction, like identifying an Allegro section as "thrilling" or "exciting." But what do such

adjectives mean when put into context with a performance? Some performers may find this direction helpful, but that does not mean that every musician clearly understands how to translate such expressive adjectives to their performance. As a conductor and educator, I strive to find effective ways to communicate the technical and aesthetic components of music-making. I have found that understanding the process of emotional expression achieves a more effective rehearsal structure that ultimately leads to an expressive performance.

The following research aims to emphasize the knowledge of the complex processes involved with emotional expression in music performance. Studies presented within this dissertation examine the inner workings of conveying and perceiving emotions in music while identifying the relationship between a musician's cognitive psychology and artistic process. An essential component of this investigation will focus on the relationship between the performer and conductor in communicating emotional expression to the listener. To achieve this component, the performer and conductor need to analyze the emotional properties of musical elements and structures to interpret and convey expressive communication through performance. Additionally, it's essential to examine how the listener perceives what is being communicated to them in musical performance and the approaches that conductors, performers, and music educators can take to show how emotions are induced through the music listening experience.

1.2 Research Questions

Previous theories have determined areas of emotion in music as a natural phenomenon. However, thanks to the latest research in psychological and music studies, theories in music and emotion provide a comprehensive insight into how music can evoke emotional states. While the importance of understanding the functions of emotion with music performance has gained more

attention, certain areas require further amplification and research. To achieve the aims of the newly presented research, the following questions will be addressed:

1) What are the properties of emotion, and how are they conveyed through music?
2) How do performers interpret and express emotional intent through their performance?
3) How is the listener's emotional perception influenced through the music-listening experience?
4) How does the knowledge of emotional studies benefit the performer and conductor?

1.3 Structure of the Dissertation

This dissertation presents content organized into four chapters, addressing the research findings and supporting the outlined goals.

Chapter 2 provides a comprehensive review of relevant literature on emotion in music, exploring the functions and qualities of emotion and how the listener perceives it. Throughout this chapter, theoretical frameworks and empirical findings highlight the process of communicating emotional content in music from the performer and listener's point of view.

Chapter 3 presents research on musical narrative, defined as perceiving and interpreting a sequence of events based on the relationships between compositional elements. This research provides a comprehensive outlook on how a performer applies the aesthetic knowledge of expression to the technical music-making process. The depth of this research focuses on collaborative studies between literary sciences and music theory studies centered around a narrative analysis of Carl Nielsen's Symphony No. 2, "The Four Temperaments," Op. 16. The music analysis focuses on the musical elements that the musician

(composer/conductor/performer) interprets and intends the listener to experience. The structure of this analysis is as follows:

1) An explanation of the background and context of Carl Nielsen's Symphony No. 2.
2) An examination of movement organization within the symphony, including their significance in emotional perception based on their organized structure.
3) An investigation of the progressive tonality throughout the work in an effort to reveal emotional significance.
4) An identification of specific musical elements[1] within each movement that depict expressive features and how they interact to develop musical narrative.

Chapter 4 focuses on how integrating emotional understanding into the score study process can enrich a conductor's understanding of phrase structure. This section examines how emotional studies knowledge can impact a performer and conductor through their expressive performance.

The final chapter presents the key findings throughout the dissertation and discusses how the presented theories and practices can impact the field of music. This includes specific impacts on music education and performance and areas of limitation that the presented research has so far. The areas within this study will be summarized to identify significant contributions for future research.

1.4 Conclusion

This dissertation aims to improve our understanding of the complex relationship between music and emotion. The presented research will shed light on the different mechanisms through which emotional content is perceived and conveyed by the music maker and music listener.

[1] Musical elements will include the construction of rhythmic complexity, the use of articulation, and the expressive qualities of range and timbre.

Examining each perspective will ultimately strengthen the overall appreciation and understanding of emotional power in music performance and its impact on the listening experience.

Understanding how music is perceived, interpreted, and produced is essential to comprehending how musicians (performers, conductors, composers, educators) can communicate emotion through performance. The impacts of this research reach beyond the field of music and extend into various studies within psychology, neurology, performance practices, and education. Comprehensive knowledge within this study area offers insights into developing performance skills that evoke emotion, expressive communication, and an elevated level of musicianship. Improved knowledge of the performer's perspective of expressive communication provides a comprehensive path toward understanding the power of emotion in music and its significance for the human experience.

Chapter 2

Literary Research

When we think of the word "emotion," we are referring to an underlying state of feeling that results in physical and psychological changes, which influence our thoughts and behaviors.[2] Emotions are often associated with moods and temperaments. They play a significant role in the human experience, impacting everyday scenarios from decision-making to social interactions.

The study of emotion in music is a dynamic and collaborative field of research, engaging musicologists, theorists, and psychologists alike. Throughout the past century, scholars from diverse disciplines within the arts and sciences have joined forces to explore the connection between emotion and music. This collaborative effort has enhanced our understanding of the technical processes musicians utilize in performance and revealed the profound capacity of organized sound to evoke and convey emotions. The interplay between music, listener, and environment is a complex but necessary field of research that significantly contributes to our increased understanding of psychology in music and music education.

By linking the connection between music and emotion, researchers and musicians wonder whether music expresses emotion from the performer to the listener. Do listeners truly "feel" emotion by listening to music? If so, how do performers elicit emotions from their listeners? Questions that derive from music cognition serve as an access point for musicians to understand and engage in further research within the psychological and performance sciences.[3] To better understand the complex connection between music and emotion, it is important to view how the

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[2] Reisenzein, Ranier. "What is a Definition of Emotion? And are Emotions Mental-Behavioral Processes?" *Social Science Information* 46, no. 3 (September 2007): 425.
[3] Stambaugh, Laura A. *Music and the brain for musicians understanding the research and getting involved*. Tecumseh, MI: Conway Publications, 2022.

qualities of emotions are measured based on their intensity and how the perspectives of the music listener differ from those of the music maker.

2.1 Qualities of Emotion

Examining research in emotional studies unveils many facets of our basic emotions. Theories and studies on emotion have generated an overview of qualities that identify how emotions are felt and experienced within general psychology. Scholars have concluded that two dimensions of experience represent the activation of emotions: *valence* and *activity*.[4] These qualities work together to measure how specific emotions are felt through experiences. Understanding the distinction between the two dimensions reflects how emotional behavior can be affected.

Valence represents the degree to which an emotion is felt as pleasant or unpleasant (positive or negative). Most human interactions and experiences can be classified within this dimension, and it has been widely documented that emotional valence strongly influences human cognition.[5] The significance of this is that it reflects how one's personal preferences (based on pleasant and unpleasantness) can affect one's emotional experience, and it is supported that the degrees of valence significantly influence emotional reaction. However, it is questioned whether one's influences are due to a level of bias since various factors are involved in the role of bias and the design of the studies that measure the degrees of valence. However, multiple studies show that emotionally significant stimuli, or more pleasant experiences, enhance human perceptual processing.[6]

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[4] Barrett, L. F., & Russell, J. A. The Structure of Current Affect: Controversies and Emerging Consensus. *Current Directions in Psychological Science* 8, Issue 1, (February 1999): 10.
[5] Kauschke, Christina, Daniela Bahn, Michael Vesker, and Gudrun Schwarzer. "The Role of Emotional Valence for the Processing of Facial and Verbal Stimuli-Positivity of Negativty Bias?" *Frontiers in Psychology* 10 (July 2019): 2.
[6] Zeelenberg, René, Eric-Jan Wagenmakers, and Mark Rotteveel. "The Impact of Emotion on Perception." *Psychological Science* 17, no. 4 (April 2006): 290.

The activity dimension, often referred to as arousal, "refers to a sense of mobilization or energy," ranging from sleep on the low end to frenetic excitement at the high end[7]. This dimension is commonly associated with specific physical responses due to the degree of active strength, such as a changing rate of heartbeat, a fluctuation in body temperature, or a sudden shiver down the spine. A range of studies focusing on activity sensations from music listening has been reported in studies of emotion, and it's conclusive that defining the intensity and quality of emotion is complex.[8] Emotions ranging from thrills to sadness have collectively been understood to demonstrate spontaneous reactions and show that such responses reflect intense experiences.

The valence and activity dimensions can display quality and intensity. However, categorizing descriptive emotions can be challenging within a single dimension (such as only within the dimension of valence or activity). Instead, researchers commonly utilize both dimensions when measuring the quality and intensity of an emotion. A two-dimensional model, structured and adapted by James Russell, was developed and utilized by researchers and scholars through various emotional studies to measure and understand emotional descriptors.[9] This model allows for a clearer understanding of emotional experiences that reflect the degrees and combinations of both valence and arousal.

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[7] Barrett, L. F., & Russell, J. A. The Structure of Current Affect: Controversies and Emerging Consensus. *Current Directions in Psychological Science* 8, Issue 1, (February 1999): 10.
[8] Reisenzein, Ranier. "Pleasure-Arousal Theory and the Intensity of Emotions." *Journal of Personality and Social Psychology* 67, no. 3 (September 1994): 526.
[9] See Figure 2.1

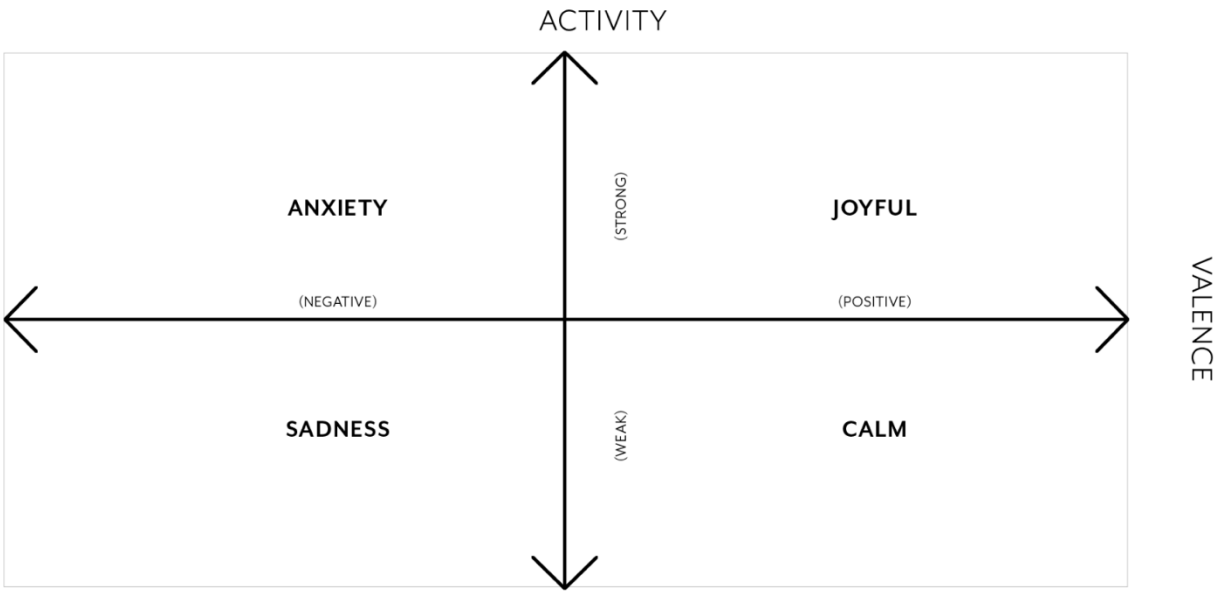

Figure 2.1 Adaptation from James Russell's Circumplex Model

In Figure 2.1, the Y-axis (vertical "Activation/Deactivation") represents the active intensity level of emotion, while the X-axis (horizontal "Pleasant/Unpleasant") represents the valence quality level of emotion. The measurements of emotional qualities are categorized within four quadrants in clockwise motion: 1) High Positive Valence – High Arousal, 2) High Positive Valence – Low Arousal, 3) Low Positive Valence – Low Arousal, and 4) Low Positive Valence – High Arousal. On the model's right side, the emotions have a higher valence but are separated between the first and second quadrants based on intensity. On the model's left side, each emotion shows a more negative valence and is divided based on intensity between the third and fourth quadrants. Viewing emotions through this structure helps researchers gain insight into the various aspects of human behavior and assists in analyzing emotional responses in different contexts.

The combination of the valence and activity dimensions is part of a person's underlying state of feeling, which is generally referred to as "affect."[10] These are primary states of feeling, often unconscious, that are influenced by behavior and cognition.[11] Within the performing arts, our judgments on the effect of a musical performance can be affected by a combination of components, such as preferences (e.g., appreciation) or mood (a lasting affective state).[12]

When we view emotional reactions to music performances, the common question centers around how and why music evokes emotions. Those outside of the field of psychology would generally associate such questions with the phenomena of feelings. However, analyzing the properties of emotions' reveals the inner workings contributing to our emotional experiences.[13] Having a more profound knowledge of the underlying process of how music arouses emotions would ultimately facilitate the study of music and emotion[14], and analyzing the perspectives of the music listener and performer ultimately allows the opportunity for a clearer understanding.

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[10] Cornell, Dave. "Affect (Psychology): 15 Examples and Definition." Edited by Chris Drew,January 2024, Helpful Professor https://helpfulprofessor.com/affect-psychology-examples/. This is also commonly referred to as the "core effect" by James Russell (2003).
[11] Russell, James A. "Core Affect and the Psychological Construction of Emotion." *Psychological Review* 110, no. 1 (2003): 150.
[12] Juslin, Patrik N., "Emotional Reactions to Music." *The Oxford Handbook of Music Psychology*, (2nd ed) Susan Hallam, Ian Cross, Michael Thaut, editors (March 2015): 197 – 214.
[13] lbid.
[14] Juslin, Patrik N., Gonçalo Barradas, and Tuomas Eerola. "From Sound to Significance: Exploring the Mechanisms Underlying Emotional Reactions to Music." *The American Journal of Psychology* 128, no. 3 (2015): 282.

2.2 Perspectives of Music Listening

The music-listening experience creates an auditory stimulation that drives different responses from each listener and has a unique emotional perspective regarding the music they experience. This can be influenced by their history, cultural background, or overall character. A comprehensive understanding of the listener's emotional responses enhances our appreciation of music and, more importantly, provides more explicit insight into the processes of human cognition.[15]

Attention to the perception of musical expression has gained research momentum within music psychology. Expression refers to the process of conveying thoughts or feelings, and while they are closely related to emotions, they represent different components of the human experience. The question, "What kind of emotions does music express?" is the focus of most of the recent studies dedicated to emotion in music.[16] Since music is highly subjective and open to interpretation, it is understood that individual listeners may not experience identical feelings or emotional reactions.[17] Much of the foundation within this study area was attributed to the two viewpoints regarding music perception: *perceived* emotion and *induced/felt* emotion.[18]

Perceived emotions are identified when the listener recognizes emotions based on the context and structure of music but does not feel them. This viewpoint is closely associated with symbolism or portrayal; in this case, music is an object used for reflection. Induced emotions, commonly referred to as felt emotions, are those the listener truly feels. In this case, music is an

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[15] Tillmann, Barbara, and Emmanuel Bigand. "The Relative Importance of Local and Global Structures in Music Perception." *The Journal of Aesthetics and Art Criticism* 62, no. 2 (2004): 215.
[16] Stambaugh, Laura A. *Music and the brain for musicians understanding the research and getting involved*. Tecumseh, MI: Conway Publications, 2022.
[17] Sloboda, John A. "Music Structure and Emotional Response: Some Empirical Findings." *Psychology of Music* 19 (1991): 119.
[18] Gabrielsson, Alf. "Emotion Perceived and Emotion Felt: Same or Different?"; Meyer, Leonard B. *Emotion and Meaning in Music*. Chicago: University of Chicago Press, 1956.

object that causes an emotional reaction. The distinction between the two is clear, though it can easily be misidentified depending on the circumstances.[19]

Like emotion's dimensional qualities, emotion perception can take various relational forms. Figure 2.2, developed by Alf Gabrielsson, illustrates how perceived and induced emotions can be related. Those relations are organized into four different categories: positive relationship, negative relationship, no systematic relationship, and no relationship.

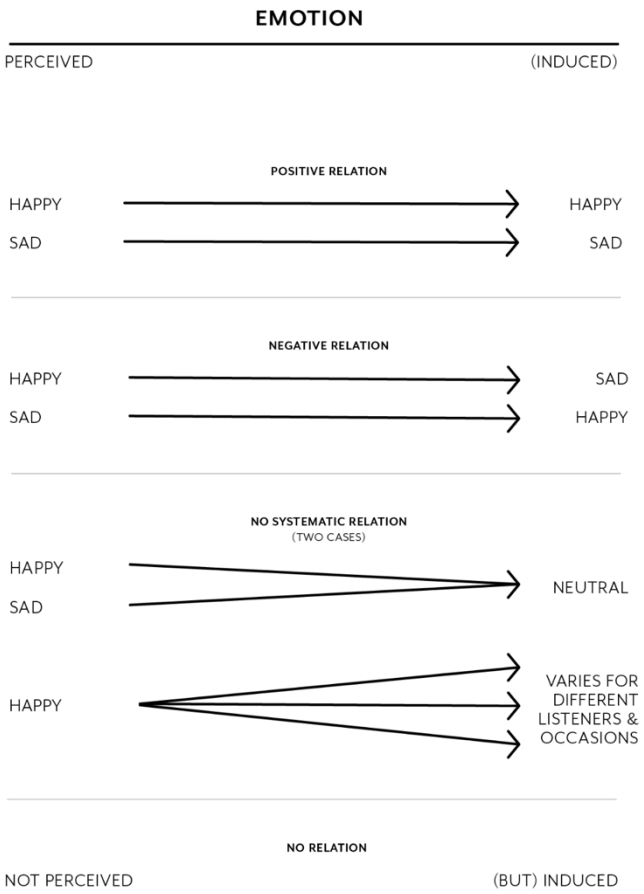

Figure 2.2 Adapted from Gabrielsson's relationships of perceived and induced emotions

[19] Gabrielsson, Alf. "Emotion Perceived and Emotion Felt: Same or Different?" *Musicae Scientiae* 5, no. 1 (September 2001): 127.

A positive relationship occurs when the listener experiences an agreement between perceived and induced emotions. The context and structure of the music are equally matched by the felt emotions that the listener experiences. Researchers, in their studies reporting emotional responses to music, find that listeners often use music to release or intensify existing emotions, and a positive relationship is a natural association when examining musical preference and mood induction from the listener.[20]

In a negative relationship, the listener's reaction to the music is an emotion that contrasts with what is being expressed. A positive emotion based on the musical context is experienced as a negative feeling, or vice versa if considered in terms of valency. Considering the degree of activity, music regarded as high in activity[21] may be reacted to in a calm or serene manner by the listener. This relationship may also be affected by the environment in which the listener is experiencing the music. Suppose the music's expression is not considered "appropriate" in the environment, such as lively dance music played during a memorial service. In that case, it may cause a negative emotion in the listener.[22]

No systematic relationship has the broadest range of variety among the listed relationships. One outcome could reflect the listener's state of emotional neutrality, regardless of what the music is expressing. This may occur when the listener is experiencing music analytically or in an adjudicated event. Another outcome of this relationship is experiencing varying emotions throughout a range of experiences. This depends on the listener's knowledge, situation, and other

[20] Sloboda, John A. "Empirical Studies of Emotional Response to Music." In M. Riess-Jones and S. Holleran (Eds.) *Cognitive bases of musical communication*. American Psychological Association (1992): 40.
[21] High-arousal music can refer to aggressive or exciting music.
[22] Gabrielsson, Alf. "Emotion Perceived and Emotion Felt: Same or Different?" *Musicae Scientiae* 5, no. 1 (September 2001): 135.

environmental factors. In a study by Gabrielsson, participants registered inconsistent emotional reactions even after listening to the same musical excerpt.[23]

The final category is called no relationship, where the potential to connect the perceived and felt emotions is nonexistent. In this situation, there are no apparent connections between musical expression and emotional responses when someone feels an emotion that cannot be expressed through music. Felt emotions, such as warmth or humility, generally cannot be mutually felt between the listener and performer at a high enough degree.[24] The perception of complex emotions like these typically depends more on the listener's personal experiences or preferences.

The factors between the music and the listener reflect how we respond and experience emotions in music. Properties within the listener, such as previous experiences, musical knowledge, and personal preferences, can affect musical perception when combined with the structure of music and the environment where the music-listening experience occurs. The emotional qualities conveyed through the music have much to do with the expressiveness between the characterizations of musical structure and human experiences.[25]

Studying the degrees and measurements of emotional qualities and perception in music offers valuable insights into the connection between structured sound and human emotions. Combined research in psychology and music has unveiled the complex relationships between emotion and music and shown how music evokes emotions within the listener. Exploring the qualities of emotion and perception allows a comprehensive view of the fundamental aspects of human cognition, processing, and communication. Further research exploration will undoubtedly

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[23] Gabrielsson, Alf and Erik Lindström. "The Influence of Musical Structure on Emotional Expression." In *Music and Emotion: Theory and Research*, edited by Patrik N. Juslin and John A. Sloboda, 223 – 48. United Kingdom: Oxford University Press, 2001.
[24] Gabrielsson, Alf. "Emotion Perceived and Emotion Felt: Same or Different?" *Musicae Scientiae* 5, no. 1 (September 2001): 136.
[25] Davies, Stephen J. *Musical Meaning and Expression*. Ithaca, N.Y.: Cornell University Press, 1994.

continue to impact our knowledge and understanding of human emotion connected to the performing arts. The art of musical performance serves as the vessel for musicians to communicate and express a spectrum of emotions that intertwines with technical proficiency and emotional abstracts within a structured composition. Musicians are storytellers who connect interpretive narratives with the provided structured compositional elements, which transcend the boundaries of the listener's cognitive processing.

2.3 Expression Through Performance

Defining expression has taken various forms among scholars and researchers seeking a unified explanation. The emotional expression in music reflects the process by which composers and performers communicate underlying feelings based on their social experiences. Through such means, a complex interplay of verbal and nonverbal communication is prevalent throughout humanity, consciously and subconsciously. It is appropriate to say that emotional expression reflects our responses to the sensations in our daily environment.[26] Expressions can reflect our beliefs, feelings, or emotions caused by sensations, like laughter from a joke amongst friends, which shows an expression associated with joy or amusement.

In musical performance, expression can refer to the listener's perception of a performance. The performer manipulates the musical elements[27] within a composition, and the listener's perception of the performance is based on this manipulation along with their own experiences. Examining the production of musical performance and the musician's intent with its relationship to the listener's perception as a combined entity, instead of examining it

[26] Tormey, Alan. *The Concept of Expression: A Study in Philosophical Psychology and Aesthetics*. Princeton, N.J.: Princeton University Press, 1971.
[27] Musical elements can include but are not limited to tempo, articulation, and dynamics.

independently, allows us to fully comprehend the function and processes of expression.[28] Research in this area of study suggests that expression in musical performance may be better understood as a multi-dimensional phenomenon comprised of different sources that significantly contribute to the impact of performance.[29]

We can view the different sources of performance expression through a computational model known as the GERMS model.[30] The development of this model aims to 1) describe the main sources and variables within a musical performance, 2) examine the importance of integrating these sources to the aspects of performance, and 3) present an essential foundation for a model that views the development and process of music performance. The model categorizes expressive variations in performance within five main sources: Generative rules (G), Emotional expression (E), Random fluctuations (R), Motion principles (M), and Stylistic unexpectedness (S).[31]

[28] Gabrielsson, Alf, and Patrik N. Juslin. "Emotional Expression in Music Performance: Between the Performer's Intention and the Listener's Experience." *Psychology of Music* 24, no. 1 (April 1996): 78.
[29] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 454. Oxford: Oxford University Press, 2010.
[30] Juslin, Patrik N., Anders Friberg, and Roberto Bresin. "Toward a Computational Model of Expression in Music Performance: The GERM Model." *Musicae Scientiae* 5, no. 1 (2001): 64.
[31] See Figure 2.3 for a schematic outline of the GERM model.

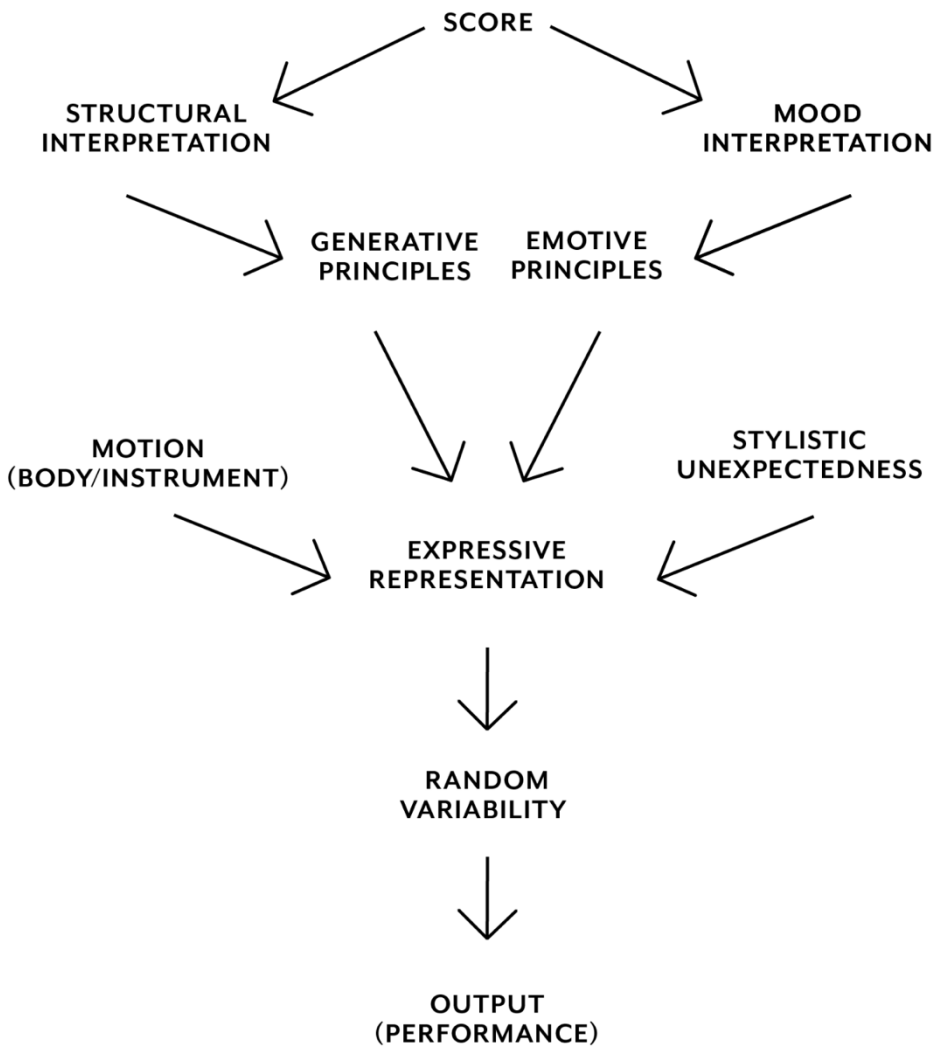

Figure 2.3 An outline of the GERMS model adapted from Juslin, P.N. (2003)

Generative Rules (G)

The musical structure must be conveyed by interpreting its musical elements to execute performance expression successfully. Generative Rules view the representation of musical structure based on the hierarchy of musical manner. They also view the production and control of

expressivity in performance.[32] For example, motivic material can be combined to form a sub-phrase, continuing to develop into a larger musical phrase. Through variations of compositional boundaries, the performer can emphasize the extended aspects of the musical structure.

Emotional Expression (E)

Emotional Expression reflects the transmission of emotions from the performer to the listener. While generative rules are interpreted in relation to a specific area of musical structure, emotional expression offers an extended view of musical interpretation that expands the boundaries explained in the generative rules. The strategies to convey emotional expression do not always occur within the performer's consciousness. Therefore, researchers find a way to view the acoustic measurements. The musician can use various *cues* and *codes* to convey a specific emotional expression through music. Cues[33] refers to specific acoustic parameters that are part of or emphasize different musical elements within a composition. Codes[34] are a combination of cues used to produce an emotion.[35] Manipulating different composition features, such as tempo or dynamics, forms an emotional character intended by the musician and suitable for the musical work.

[32] Clarke, Eric F. "Generative Principles in Music Performance." In *Generative Processes in Music. The Psychology of Performance, Improvisation, and Composition,* edited by John A. Sloboda, 2. Oxford: Clarendon Press, 1988.
[33] See Figure 2.4.
[34] See Figure 2.5.
[35] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 460. Oxford: Oxford University Press, 2010.

Figure 2.4 Table of Acoustic Cues outlining their definitions and measurements in musical performance.[36]

Acoustic Cues	Perceived Correlate	Definition and Measurements
Fundamental Frequency (F0)	Pitch	Acoustically defined as the lowest periodic cycle component of the acoustic waveform. One can distinguish between the macro pitch level of particular musical pieces, and the micro intonation of performance. The former is often given in the unit of the semitone, the latter is given in terms of deviations from the notated macro pitch.
F0 Contour	Intonation Contour	Sequence of F0 values. Intonation refers to the manner in which the performer approaches and/or maintains the prescribed pitch of notes, in terms of deviations from precise pitch.
Vibrato	Vibrato	Periodic changes in the pitch of a tone. Depth and rate of vibrato can be measured manually from the F0 trace.
Intensity	Loudness	Intensity is a measure of the energy in the acoustic signal. Usually measured from the amplitude of the acoustic waveform. The standard unit used to quantify intensity is a logarithmic transformation of the amplitude called the decibel (dB).
Attack	Rapidity of Tone Onsets	Attach refers to the rise time or rate of rise of the amplitude of individual notes. Usually measured from the acoustic waveform.
Tempo	Velocity of Music	The mean tempo of a performance is obtained by dividing the total duration of the performance until the onset of its final note by the number of beats, and then calculating the number of beats per minute (bpm).
Articulation	Proportion of Sound to Silence in Successive Notes	The mean articulation of a performance is typically obtained by measuring two durations for each tone – the duration from the onset of a tone until the onset of the next tone, and the duration from the onset of a tone until its offset. These durations are used to calculate the articulation of each tone.
Timing	Tempo and Rhythm Variation	Timing variations are usually described as 'deviations' from the nominal values of a music notation. Overall measures of the amount of deviations in a performance may be obtained by calculating the number of notes whose deviation is less than a given percent of the note value.
High-Frequency Energy	Timbre	Refers to the relative proportion of total acoustic energy above versus below a certain cut-off frequency in the frequency spectrum of the performance. In music performance, timbre is in part a characteristic of the specific instrument. However, different techniques of playing may also influence the timbre of many instruments.

[36] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 461 - 62. Oxford: Oxford University Press, 2010.

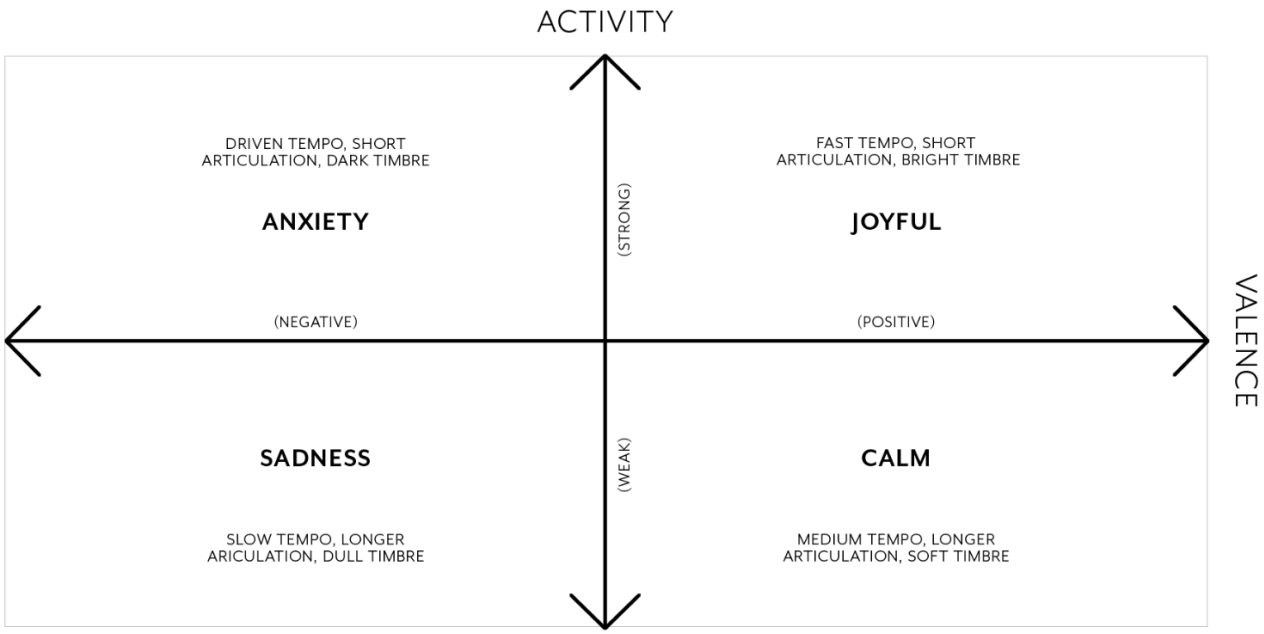

Figure 2.5 Application of combined Codes used to express emotions in performance

Random Fluctuations (R)

In previous research studies, musicians tasked with playing a series of musical patterns at a consistent tempo would still naturally have interrupted discrepancies in time.[37] Random fluctuation represents humans' natural limitations regarding motor precision. Executing expression through performance will naturally have random inconsistencies due to our human nature. While the differences may seem initially minor, two successful performances of the same musical work will never be purely identical, even if the same emotional qualities are produced. Researchers in performance studies commonly call this type of variation *error variance* – an element of variability produced by inapplicable factors, such as imprecision in measurement or

[37] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 454. Oxford: Oxford University Press, 2010.

the states of natural human variability.[38] Part of what makes the GERMS model unique is that it includes random variations when examining expression as they significantly contribute to the narrative and overall "character" of the music. If our goal is to simulate an act of expression or emotion through human performance, then the inclusion of random fluctuations is necessary.

Motion Principles (M)

Research in music-induced movement has supported the notion that perceived emotional content within music is directly correlated to movement features. Patterns in movement among the performer, and potentially along with the listener, appear most noticeably when the melodic or rhythmic structure reflects high activity and is highly pleasant in valence. However, a broad view of motion in music may conclude that every change within the compositional structure is a source of motion.[39] The GERMS model focuses on the specific type of motion referred to as *biological motion* – the patterns of movement that correlate with the characteristics and animation of human beings.

This motion demonstrates that music performance can reflect movement by the performer, supporting the expressive connection between motion and music. Performers can intentionally create or re-create patterns in motion to display the shape of the performance, such as elevating their upper body during a climactic point in the melody. They can also unintentionally display patterns in motion that show the natural physiological constraints amongst humans. Theorists Patrick Shove and Bruno H. Repp conclude, "An Aesthetically satisfying performance is presumably one whose expressive microstructure satisfies basic

[38] Juslin, Patrik N., Anders Friberg, and Roberto Bresin. "Toward a Computational Model of Expression in Music Performance: The GERM Model." *Musicae Scientiae*, Volume 5, no. 1 (2001): 76.
[39] lbid. 82.

constraints of biological motion while also being responsive to the structural and stylistic requirements of the composition."[40]

Stylistic Unexpectations (S)

A relatively new component of Juslin's model, Stylistic Unexpectations reveals the performer's attempt to shift away from stylistic expectations. Creating stylistic choices that are noticeably different from past experiences or create strong contrast when compared to the music's previous character creates a sense of tension in the performance, creating a sense of unpredictability for the listener. Changes in a pattern that can create musical tension ultimately leave the listener with a new sense of engagement and allow the performer to add a significant layer of expression.

Examining the five components separately can be useful when teaching or researching the areas of expressivity in performance. Each component has its individualized source of origin and reflects distinctly different characteristics. From a neurological point of view, other portions of the brain can process the respective components of expressivity.[41] From a non-analytical approach, each component would ideally combine and interact to provide an expressive performance. Musicians may isolate selected components to achieve a specific quality of expressivity while unconsciously utilizing and implementing other areas within the GERMS model. The knowledge of this multi-dimensional structure used to view the functions of

[40] Shove, Patrick and Bruno H. Repp. "Musical Motion and Performance: Theoretical and Empirical Perspectives." Chapter In *The Practice of Performance: Studies in Musical Interpretation*, edited by John Rink, 78. Cambridge: Cambridge University Press, 1995.
[41] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 455. Oxford: Oxford University Press, 2010.

expressivity in musical performance can allow the performer to make significant aesthetic impacts on their performance.

2.4 Communicating Expression through Performance

Throughout the previous section, the functions and components of emotional expression have been examined and supported by various sources in the research literature. When expression is examined from the performer's perspective, it's important to note that the musician is more than likely not producing the literal emotion that is attempted to be portrayed. From the musician's perspective, conveying an expression could be felt or recognized based on the context and their knowledge of the music's background. Regardless of the musician's conception of expression, there is a process of communication that links the portrayal of music's emotion to the listener. Examining the process of communicating emotion through music provides valuable insight into understanding the functions and concepts of expression, communication, and emotional processing within the human mind.

To examine expressive communication, viewing the words "expressive" and "communication" separately is best to understand their function within music performance. When the musician conveys an expression, the listener does not need to fully comprehend what the musician intends to express in a performance. The listener may not recognize the expression performed by the musician, but that does not mean that the expression does not exist. However, when the performer intends to *communicate* such expressions, the listener needs to perceive and recognize the intention presented by the musician.[42] While communication can exist, the

[42] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 455. Oxford: Oxford University Press, 2010.

effectiveness of expressive communication is often questioned. To examine the process of emotional communication through performance in more detail, researchers often utilize the *lens model* adapted by Patrik N. Juslin.

Juslin's lens model[43] is an adaptation by psychologist Ego Brunswik. Brunswik developed theories of perception based on probabilistic environments, viewing the correlated relationship between objects and perceptions within an environment. Brunswik's lens model was initially developed as a framework illustrating the understanding of judgment performance, also called "achievement," by comparing the relationship between the human subject and a normative judgment process. This theory suggests that humans do not perceive objects within an environment directly; instead, they process multiple imperfect cues based on our current interpretations. For example, we can perceive a flower based on what we infer about its shape, size, color, and possible odor.[44]

[43] Juslin, Patrik N., "Emotional Communication in Music Performance: A Functionalist Perspective and Some Data." *Music Perception* 14, no. 4 (1997): 394. See Figure 2.7.
[44] Wigton, Robert. "What Do the Theories of Egon Brunswik Have to Say to Medical Education?" *Advances in Health Sciences Education: Theory and Practice* Volume 13 (June 2006):110 – 11. See Figure 2.6.

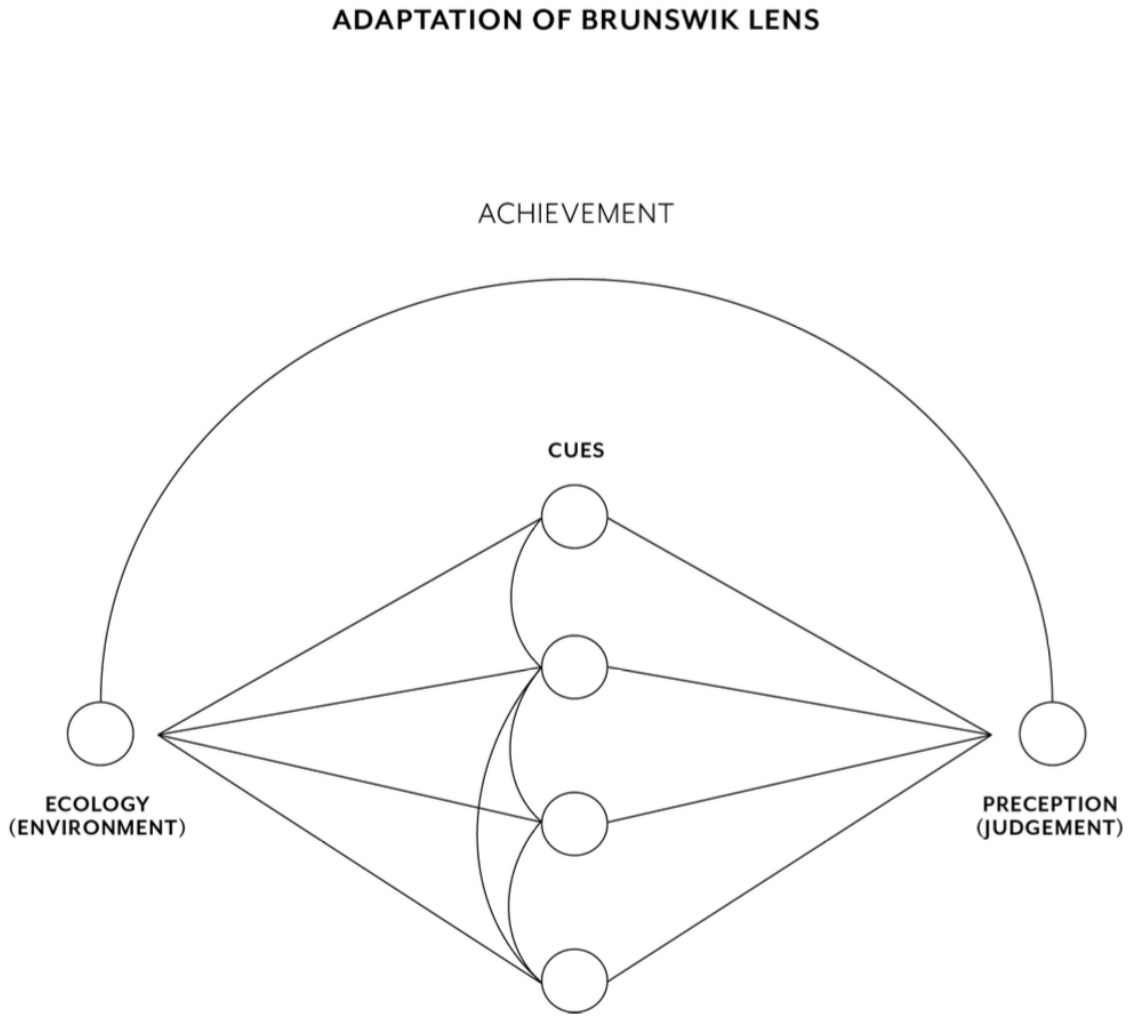

Figure 2.6 An adaptation of Egon Brunswik's Lens Model, capturing the correlations between human perception (right) and imperfect cues (middle), simultaneously correlated with the object's actual environment (left).

Juslin adapts this model of the performer and listener simultaneously correlating the recognized expressive acoustic cues. The performer interprets the intended expression based on sets of acoustic cues, and the listener then recognizes that interpretation. Since independent acoustic cues are unreliable indicators of the intended expression[45], the performer and listener

[45] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A.

compile a set of acoustic cues to achieve a more reliable communication process. The more acoustic cues utilized in performance engage more reliable and successful communication of emotion.[46] In Juslin's lens model in Figure 2.7, the *functional achievement* reflects the relationship between the performer's expressive intent and the listener's perception. The *ecological* and *functional validity,* or *cue weights*, refers to the strength of the respective cues.

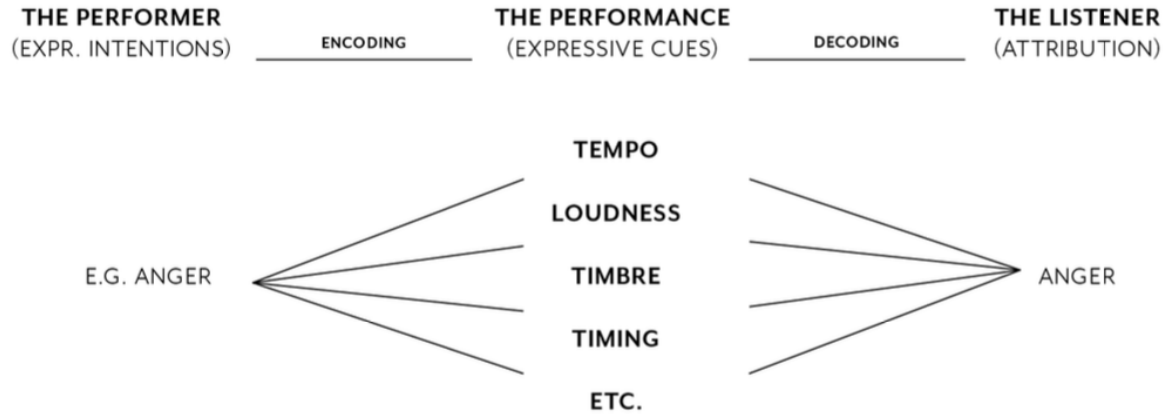

Figure 2.7 An adaptation of Juslin's modified lens model conceptualizing emotions from a music performance

[46] This means that a single acoustic cue does not indicate a specific expression automatically. A fast tempo could indicate "happiness," "frantic," or even "anger."

2.5 Felt Versus Perceived Emotions by Performers

Communicating emotions through music is a subjective experience beyond compositional craft. The process of conveying emotions through performance shapes the different perspectives experienced through life by both the listener and performer. This area of study reveals how the performer's role affects the relationship between the listener's perceived and felt emotions. If the performer does not feel or sense the emotions outlined in the music, it is questioned whether they can transfer those emotions to the listener.

A performer has specific tasks related to conveying musical expression, and the combination of performers within an ensemble has the added responsibility of expressive collaboration. As part of the communication process from the performer to the listener in recognizing acoustic cues, the musicians also need to understand and acknowledge the expressive intentions presented by the composer.[47] There are different approaches to which musicians may convey emotion through musical expression.

Particularly in academia or formal music instruction, students are often asked to reflect on their emotions to convey an expressive performance. This has been presented as *mood induction*, asking the musician to reflect on personal memories and utilize that recall of experiencing emotions while performing.[48] The belief that musicians need to truly feel the emotions that are intended to be conveyed to achieve a more enhanced performance is debated amongst musicologists and psychologists. The capabilities of communicating expressivity based on the feelings truly felt by the musician could be accomplished, especially if the musician connects with the content of the music based on their personal experiences. This could help the performer

[47] Woody, Robert H., and Gary E. McPherson. "Emotion and Motivation in the Lives of Performers." *Handbook of Music and Emotion: Theory, Research, Applications* (2010): 411.
[48] Persson, Roland S. "The Subjective World of the Performer." In *Music and Emotion: Theory and Research* Patrik N. Juslin and John A. Sloboda (eds), Oxford: Oxford University Press (2001): 281.

avoid simulating or reenacting a previous performance of the same music. If the musician shifts most of their mental energy into conjuring felt emotions, they could alter their physical and psychological functioning to help shape the expressive character they want to achieve in sound.[49] For example, a jazz vocalist can emphasize their rhythm and blues style by singing with a chest voice and added sighs. The same vocalist can sing in a hip-hop style by distorting or amplifying natural speech patterns.

Realistically, the chances that a performer consistently relies on this approach to expressive musicianship are slim, mainly because they would constantly need to replicate the same felt emotions through every rehearsal and performance. A young musician's process in developing expressive communication skills will ultimately be different than when they are more experienced, and most of this knowledge is determined by the effective time and quality of their developmental practicing strategies.[50] This also assumes that the student musician consistently monitors their expressive process along with similar monitoring from their teacher.

Another approach a musician uses to convey musical expression is through symbolism or imagery. Performers often imagine a specific descriptive or emotional scenario, which researchers describe as *visualization*.[51] Part of what the performer gains from their knowledge of acoustic cues and manipulation of musical elements is how to apply that knowledge to illustrating the emotional context of the music through sound. Connected with "visualizing" the emotional content within the music, metaphors are another common tool performers and teachers utilize. Much like perceived emotional content, as described earlier, metaphors give us the

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[49] Woody, Robert H., and Gary E. McPherson. "Emotion and Motivation in the Lives of Performers." *Handbook of Music and Emotion: Theory, Research, Applications* (2010): 412.
[50] Sloboda, John A., Jane W. Davidson, Michael J. A. Howe, Derek G. Moore. "The Role of Practice in the Development of Performing Musicians." *British Journal of Psychology* 87 (1996): 306.
[51] Persson, Roland S. "The Subjective World of the Performer." In *Music and Emotion: Theory and Research* Patrik N. Juslin and John A. Sloboda (eds), Oxford: Oxford University Press (2001): 282.

necessary context of the portrayed expression, especially if those metaphors are connected to our previous experiences. Issues that may pertain to this strategy are the overall difference in interpretation, both from the musician or the formal musical training that the musician has experienced throughout their life.[52]

Whether the musician uses mood induction or visualization strategies, the listener cannot guarantee that they will feel the expressions transferred from the performer. Strong emphasis on either approach may add a layer of musical tension that increases the intended expression. Ultimately, the sound needs to be communicated to the listener. To do that, it is best for the musician to gain a higher level of aural awareness while performing and to have an appropriate concept of the basic factors of emotional expression that intertwine with music performance.[53]

[52] Woody, Robert H., and Gary E. McPherson. "Emotion and Motivation in the Lives of Performers." *Handbook of Music and Emotion: Theory, Research, Applications* (2010): 414.
[53] Juslin, Patrik N., and Renee Timmers. "Expression and Communication of Emotion in Music Performance." In *Handbook of Music and Emotion: Theory, Research, and Applications*, edited by Patrik N. Juslin and John A. Sloboda, 478. Oxford: Oxford University Press, 2010.

Chapter 3

Musical Narrative Analysis

The manipulation of compositional elements is a unique characteristic that contributes to the effective communication of emotions. Elements in music that create tension and resolution create emotional climaxes that connect with the listener, performer, and composer. While the perception of music is a unique cognitive process, it is important to understand musical structure's role in contributing to expressive narratives. This chapter will explore the relationship between musical construction and the transmission of emotional content, providing a comprehensive view of how composers utilize compositional traits to convey and communicate emotional representation. Composers and music theorists provide valuable insight into how compositional elements can evoke emotional responses. By examining the expressive functions of musical construction, we may find a deeper understanding of emotional transmission through music performance and listening.

3.1 Musical Narrative

Through various genres and mediums, music illustrates its unique quality and ability to communicate complex narratives that reflect imagination and emotional content. The source of this form of non-verbal communication draws from the various aspects of the compositional structure, such as the connections and relationships between the musical elements and their functions. These connections ultimately form a figurative narrative within the musical structure. Based on collaborative research and theories between music and literary scholars, a musical

narrative reflects how the listener perceives and interprets events based on the relationships between musical elements.[54]

A musical narrative is manifested through a series of tensions and interactions between musical elements. This is drawn from literary studies that focus on the interpretation and analysis of mythic narratives[55], suggesting that the recognition of narrative includes the recognition of different dimensions of signification. To connect literary and musical analysis studies, music theorist Byron Almén concludes that an important aspect of understanding musical narrative is recognizing that "meaning emerges through the reconfiguration of simultaneous and successive relationships between musical elements in the course of a temporal succession, as perceived or conceived by the listener."[56] Almén suggests that a musical work comprises elements whose interactions cause tension and resolution. This form of interaction supports the definitive theory of the narrative's presence within the musical structure.

For an effective analysis of musical narrative, gaining knowledge of certain components that transfer from the context presented by the musical elements is important. First, knowledge of the characteristics and values of the musical elements is a vital component of understanding the musical narrative. This provides a comprehensive view of their values and, more importantly, their relationships with each other. Understanding their characteristics and values helps identify how they mutually define and influence one another.

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[54] Almén, Byron. "Narrative Archetypes: A Critique, Theory, and Method of Narrative Analysis." *Journal of Music Theory* 47, no. 1 (2003): 1 – 39.
[55] Liszka, James Jakob. *The Semiotic of Myth: A Critical Study of the Symbol*. Bloomington: Indiana University Press, 1989.
[56] Almén, Byron, "Narrative Archetypes: a Critique, Theory, and Method of Narrative Analysis," 11 – 12.

Second, it is important to recognize how and when the musical elements construct a series of organized patterns called *narrative archetypes*.[57] Narrative archetypes[58] draw from literary studies that identify an idea, theme, or pattern within a story that contains consistent elements that reflect a universal recognition of the human experience. For example, the protagonist from a rags-to-riches story may reflect the human desire to achieve a better life and their journey to inspire hope.

In a musical context, these narrative archetypes are adapted to reflect the concept of acoustic cues (seen in Figure 2.5), representing patterns within music that consistently repeat musical elements depicting a type of expression. Quick rhythmic patterns, such as sixteenth-note groupings at a brisk tempo, may express a suspenseful or energetic reaction. These patterns allow for a deeper understanding of the overall framework of the musical structure.

[57] Almén, Byron. "Narrative Archetypes: A Critique, Theory, and Method of Narrative Analysis." *Journal of Music Theory* 47, no. 1 (2003): 11 - 12.
[58] See Figure 3.1.

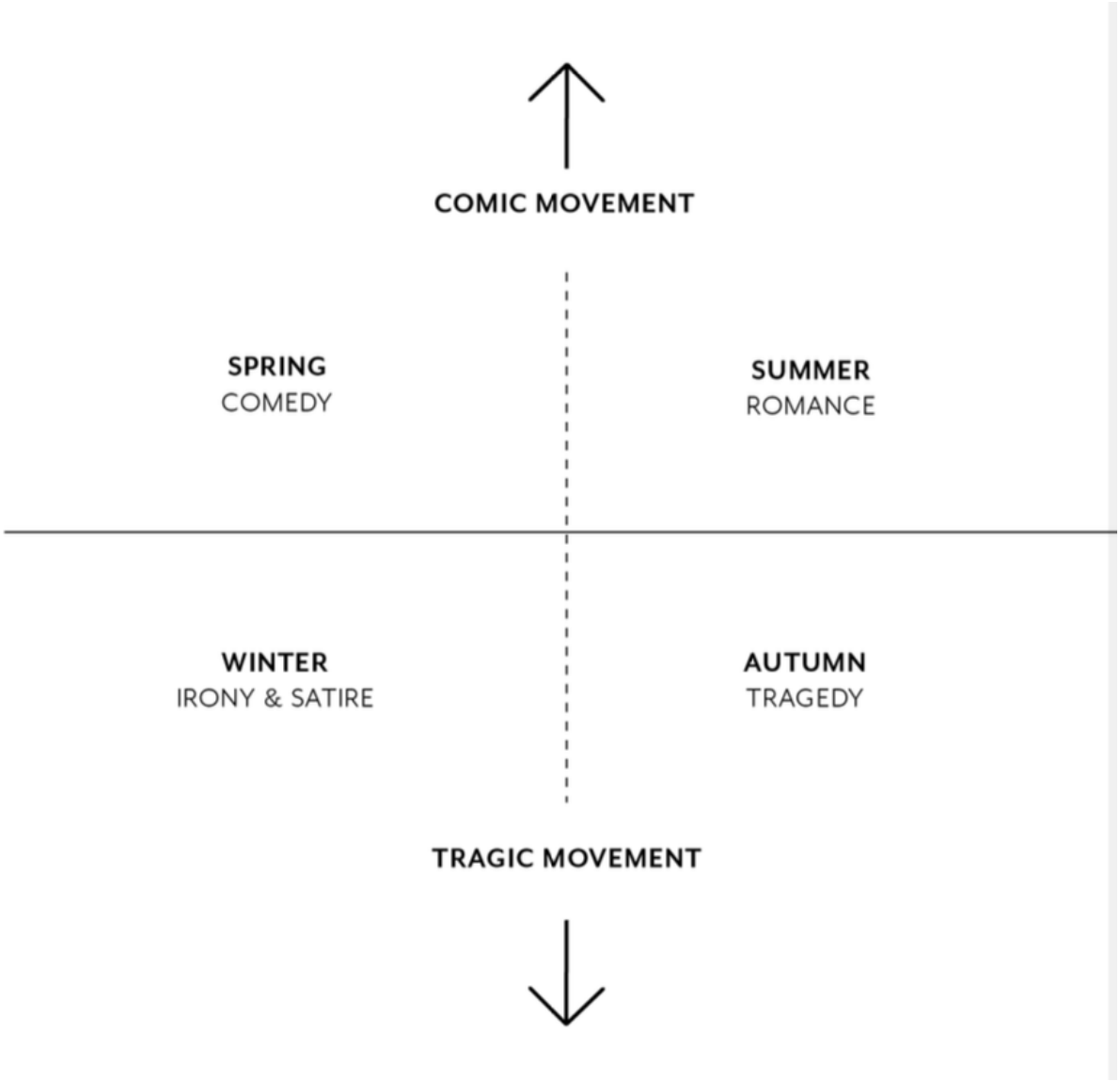

Figure 3.1 An adaptation of Northrop Frye's four narrative archetype categories[59]

[59] Denham, Robert D., *Northrop Frye, and Critical Method*. Pennsylvania, PA: Pennsylvania State University Press, 1978.

The final component closely associated with recognizing musical patterns is understanding and recognizing the significance of the identified organized patterns, particularly how they contribute to conveying the intended narrative. This degree of significance supports how performers and listeners feel or perceive emotions and may also reflect the changes and interruptions that reflect the musical tension and resolution. This helps define the musical narrative, and a comprehensive understanding of the presented concepts allows for a more supported approach to narrative analysis.

3.2 Narrative Analysis

Because instrumental music lacks textual elements that can construct a narrative, it allows performers or conductors to experiment with different emotional coding or cues to evoke the intended emotional outcome[60]. Spoken or sung text embedded within the musical structure can depict a form of imagery to the listener; instrumental compositions unfold expressive narratives through their musical elements. From the listener's perspective, musical events, such as interactions and successions between musical elements and patterns, can be associated with actions, behaviors, or characters in music.[61] Such actions or behaviors depicted by musical events are described through sequences and then interpreted by their interactions. The examination of this interplay of sequences shows different forms of data that can be used to process and interpret a narrative analysis.

When conducting a narrative analysis of a musical work, the main task of the examiner is to correlate the details of musical activity that describe how the elements of music influence each other. Since the expressive content in instrumental music can generally be perceived in different

[60] See figures 2.4 and 2.5 in the previous chapter.
[61] Maus, Fred Everett. "Music as Narrative." *Indiana Theory Review* 12 (Fall 1991): 6.

ways, it's important to consider the findings of a narrative analysis subjective. While there may be no single way to interpret the expressive narrative in a musical work, the quantity and quality of the concluded evidence that aims to support the findings makes a more convincing analysis. To that end, a narrative analysis will ultimately have multiple interpretations. Significant musical features will likely be present even with multiple interpretations of a single piece. A convincing analysis will show as many relevant features as possible.[62] Ultimately, a convincing analysis will show how the narrative can be explained or characterized, and this is based on the significance of the elements and organized patterns that are examined.

The perception and interpretation of emotional content presented in instrumental music can be highly subjective, mainly because the contributing features in music create different reactions from the listener.[63] Since the listeners' reactions can be different from one another, there would not be a single "correct" process method when analyzing a musical narrative. However, a convincing analysis requires content relevant to the presented music. While there are different approaches to analyzing a musical narrative, three areas are important to identify: *order*, *transgression*, and *symbolism*.[64] Including these areas, regardless of the initial approach, assists in creating a more credible form of interpretation.

Order

The order represents the groupings of organized patterns found within the compositional structure, such as the same sequence of rhythmic note-groupings that continuously gets reintroduced. Depending on the expressive musical cues being examined, the formation of these

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[62] Almén, Byron. "Narrative Archetypes: A Critique, Theory, and Method of Narrative Analysis." *Journal of Music Theory* 47, no. 1 (2003): 27.
[63] Juslin, Patrik N., "Emotional Reactions to Music." *The Oxford Handbook of Music Psychology*, (2nd ed) Susan Hallam, Ian Cross, Michael Thaut, editors (March 2015): 197 – 214.
[64] libd.

groupings can range in musical texture. Overarching cues may include complex rhythmic features, the contour of the melodic material, or the overall progression of tonality. The examiner can also view the micro compositional features that show expressive qualities within the musical structure, such as features that highlight articulation, volume, and timbre.

Transgression

The point of transgression represents how the identified order of musical patterns is interrupted by changes within the composition, such as a section where new melodic material suddenly interjects the previous melody. This may also be the point where the examiner identifies a different set of organized patterns, and how the two interact with each other concludes an area of transgression. Depending on the music's complexity in expressive composition traits, there is potential that several forms of conflicting musical elements exist. When one analyzes a musical work to identify a musical narrative, it's important to keep this in mind to determine whether such activity is significant enough to be determined as part of order or transgression.

Symbolism

Symbolism reflects how the musical elements within the identified order and the point(s) of transgression represent significance to support the findings within a musical narrative analysis. The main function of this component is to show how the emotional content within the musical elements connects with the listener. In the same way as the functions of expressive communication in performance, the listener does not need to feel the direct symbolism, but there does need to be a degree of recognition. Identifying the symbolism is more significant when the

contrast of expressive music material is presented and is easily recognizable. This can be viewed as a fast, intensive rhythmic section that suddenly changes in tempo and complexity.[65]

Analyzing a musical narrative identifies the expressive activity within a musical structure and examines how and why the presented musical elements interact and influence each other. The analysis identifies each component in isolation and in relation to each other to examine their significance and impact on the music's expressive and emotional qualities that the listener perceives. A musical work has the potential to have variations in complexity that construct an expressive trajectory, which dramatizes the psychological journey of the listener.[66] The musician can benefit from a narrative analysis by utilizing it as a tool when producing the composition in a performance. This makes for an approachable attempt to understand how and why a listener perceives and perhaps feels an expressive quality from the music's structure. A musician's attempt to examine a musical work's narrative provides the necessary support in coordinating the relationships of the music's expressive components and presenting the significance of contrast to the listener.

3.3 Narrative Analysis: Carl Nielsen's Symphony No. 2, "The Four Temperaments" Op. 16

To show the inner workings and the significance of narrative within a musical structure and apply the research found in emotion and music studies, the following will present a narrative analysis of Carl Nielsen's Symphony No. 2, "The Four Temperaments," Op. 16. This analysis aims to reveal how expressive and emotional content is embedded within the compositional construction and how the musical elements interact to evoke expressive qualities through

[65] Almén, Byron. "Narrative Archetypes: A Critique, Theory, and Method of Narrative Analysis." *Journal of Music Theory* 47, no. 1 (2003): 20.
[66] Robinson, Jenefer and Robert S. Hatten. "Emotions in Music." *Music Theory Spectrum* 34, no. 2 (Fall 2012): 71.

performance. Additionally, this analysis will examine the tonality and construction of musical elements, focusing on their order, transgression, and symbolism to reflect the musical work's expressive nature and musical narrative.

The following narrative analysis will be presented in the following four areas of content:

1) An explanation of the background and context of Carl Nielsen's Symphony No. 2.
2) An examination of movement organization within the symphony, including their significance in emotional perception based on their organized structure.
3) An investigation of the progressive tonality throughout the work in an effort to reveal emotional significance.
4) An identification of specific musical elements[67] within each movement that depict expressive features and how they interact to develop musical narrative.

3.3.i Background and Context

Carl Nielsen (1865 – 1931) was a well-known Danish composer who was raised during a period of national pride and determination following Denmark's defeat in the war against Prussia (1863 – 1864). Like his compositional counterpart, Jean Sibelius, Nielsen had a strong interest in nationalistic music. This particular interest, combined with the conflicts within his personal life, contributed to his compositional style and general musical outlook.[68] Most of Nielsen's compositional traits reflect abstract ideas and vivid imagery, embedding musical statements within the dense orchestration.

[67] Musical elements will include the construction of rhythmic complexity, the use of articulation, and the expressive qualities of range and timbre.
[68] Philip, Robert. "Carl Nielsen: (1865 – 1931)." In *The Classical Music Lover's Companion to Orchestral Music*, 553. Yale University Press, 2018.

His second symphony was composed from 1901 to 1902 following the success of his first symphony, premiering eight years earlier. The subtitle *The Four Temperaments (De fir Temperamenter)* derives from the psychological theory developed during Ancient Greece. During his stay at a country inn on the island of Zealand, he noticed a satiric painting that depicted the four temperaments. He found the inspiration to use the theory of temperaments as the core idea of a new symphonic work. The temperaments theory presents four different personality types by which humans are categorized based on their characterizations. Split moods define each of the temperament categories and are also associated with one of the four basic elements[69]:

Choleric (Fire): irritable, angry, short-tempered

Phlegmatic (Water): Relaxed, peaceful, insipid

Melancholic (Earth): solitary, cautious, sorrowful

Sanguine (Air): joyful, optimistic, courageous

Part of this theory suggests that anyone can possess a combination of the temperaments listed, which is reflected in the compositional writing through each movement. Nielsen writes in part of his program notes, "The impetuous man can have his milder moments, the melancholy man his impetuous or brighter ones, and the boisterous, cheerful man can become a little contemplative, even quite serious—but only for a little while."[70]

[69] Doody, John A. and John Immerwahr. "The Persistence of the Four Temperaments." *Soundings: An Interdisciplinary Journal* Volume 66, no. 3 (Fall 1983): 349.
[70] Nielsen, Carl Symphony No. 2 "The Four Temperaments," Op. 16.

3.3.ii Layout and Organization

While the symphony is programmatic, it does not follow a specific plot or storyline, such as a tone poem. Rather, each movement represents a mood; the titles reference each of the four temperaments in the following order:

Movement 1: Allegro collerico (Choleric)

Movement 2: Allegro comodo e flemmatico (Phlegmatic)

Movement 3: Andante malincolico (Melancholic)

Movement 4: Allegro sanguineo – Marziale (Sanguine)

One way that Nielsen depicts moods is not only in the movement titles but also in their organization.

In a standard classical-era symphony, the order of the four movements would typically show a fast – slow – mid-tempo – fast structure. In a more traditional symphonic work, it would be common to find the second movement as the slow and dramatic feature. In contrast, the third movement is lively and bright, typically composed as a waltz or scherzo. In his second symphony, Nielsen reverses these movements, placing the slow feature as the third movement. In addition to this change in the traditional symphonic form, the movement that would typically be a fast scherzo is much calmer in acoustical nature. While the second movement is still dance-like and represents similar features in a waltz, the intensity and speed are very relaxed and reflect its title. The significance of how the movements are organized is directly correlated with their title descriptions.

If the order reflected a traditional classical-era symphony composition, the flow of the depicted temperaments would be unstable. The first movement reflects the restless and intense emotions connected to the choleric temperament. It is immediately followed by the phlegmatic

movement that calms the previous intense energy and brings the collective energy to a more peaceful state of emotions. Following the second movement comes the more powerful and moving temperament of melancholic. While beautiful in nature, the energy from this movement transitions the previously calm emotion into a suspenseful heartache due to its minor key, low timbre, and slower tempo. To conclude the full symphony, Nielsen ends with the final temperament of sanguine, bringing the previous suspenseful movement into a more uplifting and cheerful emotion that ends in an impactful mood.

If we were to compare these observations to an activity/valence progression, the entire symphony descends in mood until the uplifting final movement; Movement 1 = negative in valence – high in activity, Movement 2 = neutral in valence – neutral in activity, Movement 3 = negative in valence – low in activity, and Movement 4 = high in valence – high in activity. An argument may suggest that if the symphony were to be organized in a traditional form, there would still be a form of progression through the degrees of activity and valence. However, going from the high intensity of the Allegro collerico to a complete change of mood in the Andante malincolico could be more of an emotional shock to the listener than what was ultimately produced. Due to the intense musical elements in the first movement, a steady decrease in mood provides a more approachable shape in mood fluctuations. This makes the final movement more significant regarding its high valency.

3.3.iii Tonality and Form

If the progression of valence and activity based on the order of the movements is at all concerned with doubt, then viewing the tonal progression throughout the four movements would provide necessary support. Musical works written in either a major or minor key may be

connected to the result of a listener experiencing a happy or sad emotion.[71] The level of tonal stability may also contribute to the expressive tension and resolve.[72] The tonal progression from this symphony shows a descending order within the first three movements, each descending in thirds. The first movement presents a tonal center in B minor, corresponding with its more negative valency, while the second movement descends into G major. The change from the minor to the major key reflects a more positive valence degree, calming the tonal energy presented in the first movement. The final descent into the third movement adjusts the tonal center of the symphony into E-flat minor. This movement's tonal center is extended until the final statement, when a natural shift into B-flat major exists.

As witnessed in the activity/valence description in the previous section, the final movement is where the most noticeable shift is realized. As the tonality of the third movement changes subtly at the end, the fourth movement introduces the listener to a bright D major tonality. The expressive quality of the fourth movement's tonal center is extended even further, where the final musical statement of a march-like style (Marziale) is introduced and finishes the entire symphony in the key of A major.

This symphony's construction of form and tonality show characteristics of a traditional symphonic structure. However, examining each movement in isolation reveals noticeable differences from what would typically be viewed in early symphonic compositional writing. The respective fast/slow movements are composed in a traditional set of forms expected to be found in early 20th-century writing, creating a natural sense of order recognizable to the listener. From a listener's emotional perspective, this sense of recognition may suggest a closer connection

[72] Bullack, Antje, Niklas Büdenbender, Ingo Roden, and Gunter Kreutz. "Psychophysiological Responses to "Happy" and "Sad" Music." *Music Perception: An Interdisciplinary Journal* 35, no. 4 (April 2018): 502 – 04.
[72] Krumhansl, Carol L. "Music: A Link between Cognition and Emotion." *Current Directions in Psychological Science* 11, no. 2 (April 2002): 46.

based on the flow and style presented from each movement's form and overall tonality. However, changes to this sense of familiarity make the transgression of form and tonality much more noticeable and create unexpected new senses of expression.

The first movement presents a structure written in sonata form, a common approach to early symphonic writing. Within the exposition and recapitulation, the noticeable primary and secondary themes are presented and function through their respective progression in harmony: B minor (i) for the primary theme and D major (III) for the secondary theme. The development section is a large portion of this movement and is certainly the least conventional. Nielsen writes this section in a heavily chromatic style, which creates instability until the arrival of the recapitulation. In addition, an added coda concludes the movement. It brings the tonality back to B minor, but not until after a period of chromatic transitional material at the end of the recapitulation. This is not abnormal for a movement in this fashion, and in fact, compliments the mood that the movement signifies. This movement is intended to express the choleric temperament, and the transgression of the development, coda, and transitional sections adds to the expressive persona of irritability and aggressiveness.

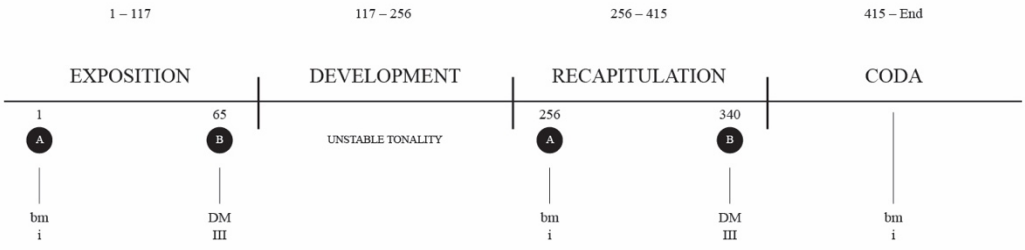

Figure 3.2 Movement I Form Diagram

The second movement, the shortest and most straightforward in structure, represents the phlegmatic temperament. The structure shows a very clear ternary form, highlighting two main thematic materials in a dance-like style closely associated with a waltz. The general tonality presented throughout this movement centers around G major, a third lower than the previous movement. This movement's tonality shifts from G to E-flat major as the secondary thematic material is presented. In the overall structural sense, these findings present a consistent order and reflect the peaceful nature of the depicted mood. That’s not to say that transgression within the tonality does not occur. Towards the end of the “B” section, new material is added that builds into what may be considered a pivotal moment within the movement. The ascending progression that begins in measure 63 is heavily chromatic and similar to the first movement; this section would best be considered a transitional period leading back into the main theme. The disruption to the structural pattern of tonality is still executed within the movement's style, which is of a calm and peaceful nature.

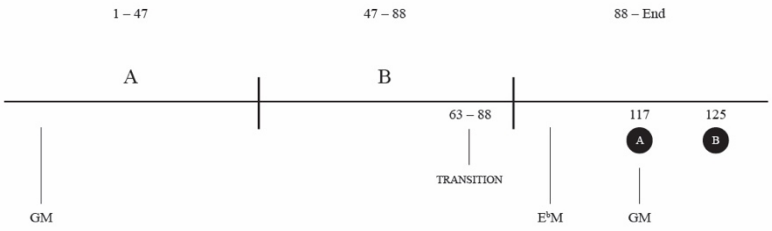

Figure 3.3 Movement II Form Diagram

It may be argued that the third movement most clearly depicts its respective temperament compared to the other three movements. The melancholic persona will be noticeably conveyed to the listener through its expanded tonal center and dramatic transgressions embedded with melodic material. The structure of this movement is a five-part rondo, presenting a primary "A" theme and a secondary "B" theme. The structure also includes a progressively unstable third "C" theme that is out of character from previous thematic statements. Aside from the "C" theme, the rest of the movement centers around E-flat minor and E-flat major, respectively illustrated in Figure 3.4.

The E-flat minor tonality in the "A" conveys a dark and mysterious setting to the listener, progressively building into the E-flat major "B" section that provides a new wave of emotional personas. The shift into major, in this case, is not so much an uplifting experience but more suspenseful and conveys expressions that resemble a sense of heartache. Nielsen's flow of proposed emotional settings can be supported by the outlying "C" section, which is not a transitional section but a new third statement that intensifies the expressive activity to the fullest. Following this climactic statement, the movement concludes in a calmer setting and shifts into the key of B-flat major.

Out of all this movement's dramatic elements, the harmonic shift at the end of the movement is a more notable surprise, and it could influence several interpretations based on expressiveness and narrative. One could argue that this tonal shift foreshadows the uplifting mood about to be presented in the final movement. Another reason could be an intentional statement regarding the movement's persona: even a depressive mood full of intense emotions and conflict could ultimately find a beautiful and positive resolution. Regardless of either

interpretation presented, this notable shift in tonality intentionally increases the degree of positive valency that is greatly needed from this movement's conflicting expressive values.

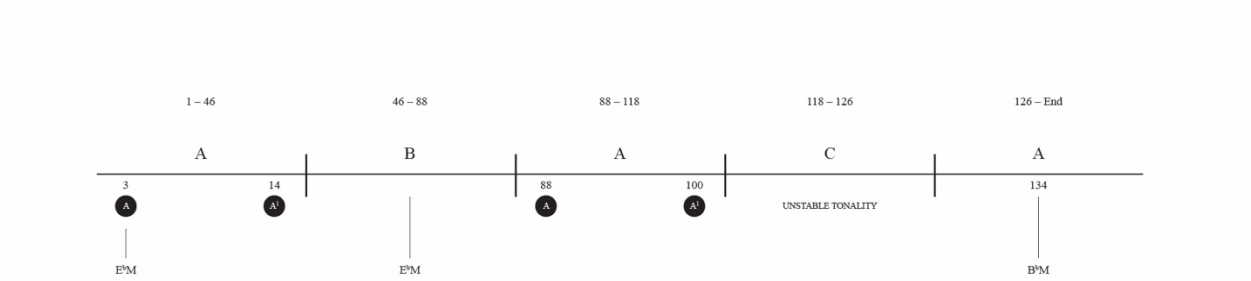

Figure 3.4 Movement III Form Diagram

The final movement, representing the sanguine temperament, prepares the listener for a cheerful and uplifting listening experience due to the structure of its form and tonal center. This brisk movement is constructed into a five-part rondo form, similar to the previous movement, and is mainly centered around D major. However, characteristics of the structure and tonality separate it from the rest of the movements.

First, the “C” theme is much more different from the rest of the material. This is where the tonality shifts from D major to a minor mode, mostly centered around C minor, and heavily uses chromaticism throughout the section. Second, the material following the “C” section does not completely reflect what was presented in the “A” sections. A transitional period from measures 266 to 283 is built upon material previously heard in the “B” section and is a chromatic progression leading into the established coda, presented as a marziale. At this point, the conclusive march modulates into the dominant A major that positively and actively impacts the listener. In his program notes, Nielsen reflects on the persona of the final movement,

"I have tried to sketch a man who storms thoughtlessly forward in the belief that the whole world belongs to him," he continues, *"though, a moment in which something scares him, and he gasps all at once for breath in rough syncopations: but this is soon forgotten, and even if the music turns to minor, his cheery, rather superficial nature still asserts itself."*

Figure 3.5 Movement IV Form Diagram

3.3.iv Applied Expressive Textures

After analyzing the different components and functions of structure and tonality, the most notable characteristics of expressive quality derive from the use of acoustic cues and varying compositional techniques presented throughout the symphony's movements. This analysis section will examine how Nielsen's usage of rhythmic complexity, articulation styles, and instrumental timbre affect the listener's perception of expressive characteristics and convey the persona of the respective movements.

Movement I

As previously stated, the first movement reflects the choleric temperament and intends to acoustically represent emotional characteristics that resemble short-tempered, aggressive, and angry behavior. From the introductory statement, the intertwining musical textures between the

string and wind instruments effectively reflect this temperament. In measures 1 through 4, the brass, woodwinds, and upper strings show an ascending progression with isolating rhythmic values, while the low strings, French horns, and bassoons immediately respond with a descending motion of fast and articulate sixteenth-note groupings. [73] The next eight measures extend this brief call and response. While the listener may expect a similar pattern of a musical arch between the high and low instrumental voices, the high strings and woodwinds take over the articulate sixteenth-note groupings and continue to ascend into what will become the main theme. This interplay between the aggressive low-range interludes and the upper-range instruments provides a wide range of textures that create high arousal.

[73] Figure 3.6 Mvt I m. 1 – 5.

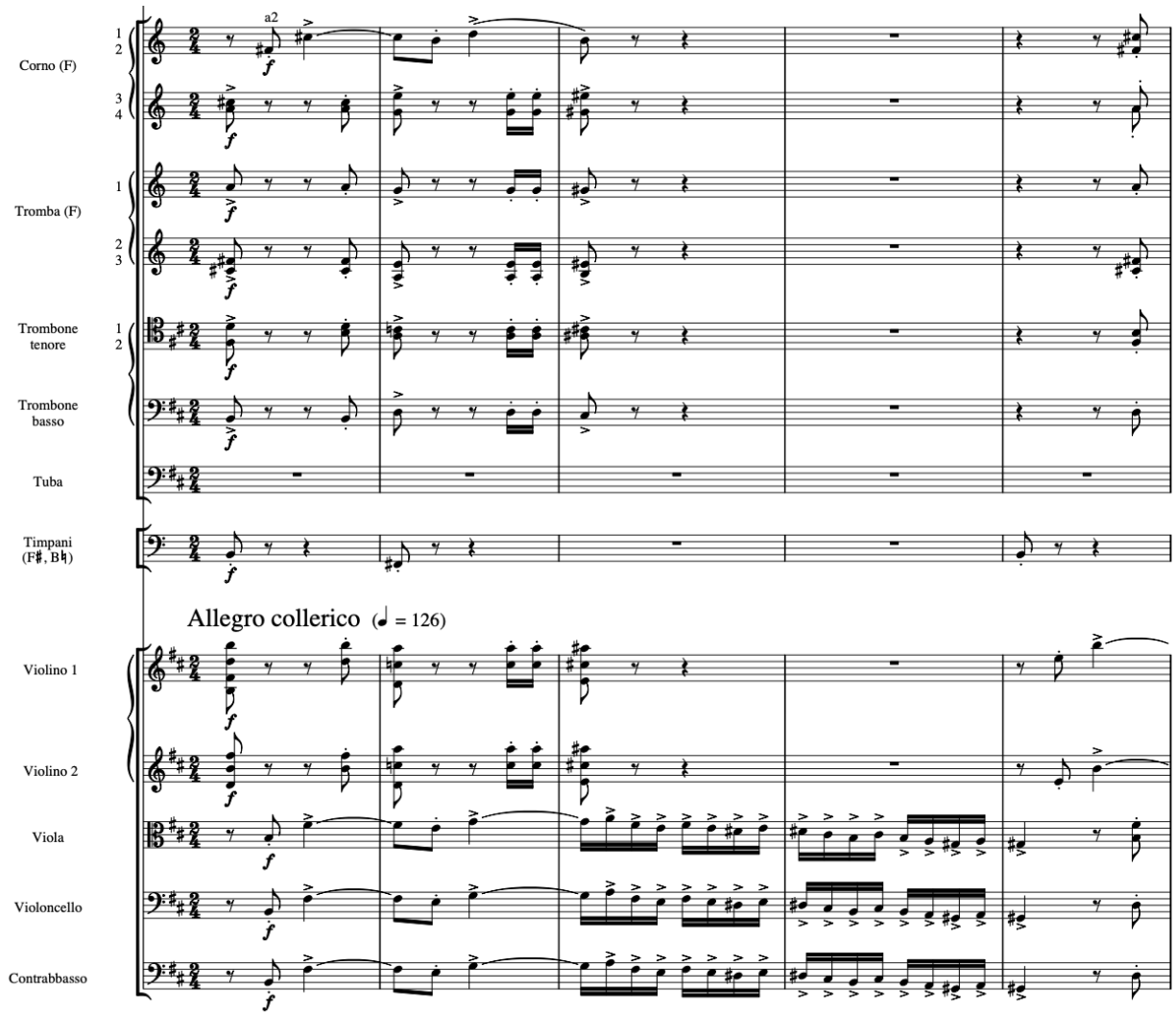

Figure 3.6 Movement I m. 1 – 5

The initial thematic material is not resolved until measure 33 when a transition into the new theme is presented. The textures presented before this moment include varying uses of staccato and accented articulations, rapid dynamic contrasts, and complex rhythmical features that symbolize the intense and energetic nature of the movement's persona. This material could be categorized as a large pattern based on the expressive techniques utilized in the structure

compared to the new material introduced by the clarinet in measure 41.[74] Within this moment, the tonality shifts from the minor to a major key, and the added textures of the elevated range and connected phrases by the written slurs provide a notable transgression that adds to the musical narrative.

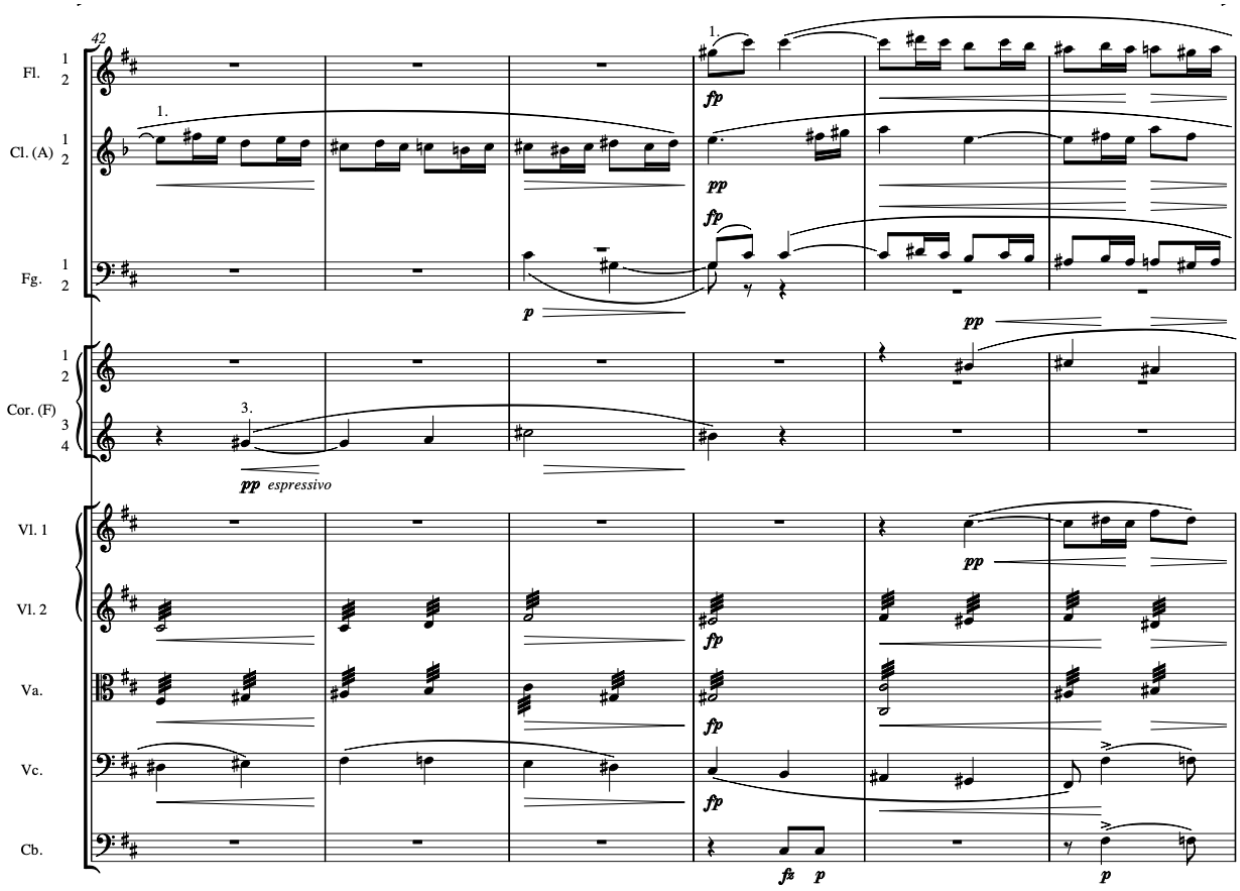

Figure 3.7 Movement I m. 41 – 47

Once this sense of relaxed energy seemingly resolves into a distant conclusion of the "B" section, a sudden disruption from the timpani and low strings is added, transporting the listener into a new and harmonically unstable development.[75]

[74] Figure 3.7 mvt I m. 41 – 47.
[75] Figure 3.8 mvt I m. 114 – 121.

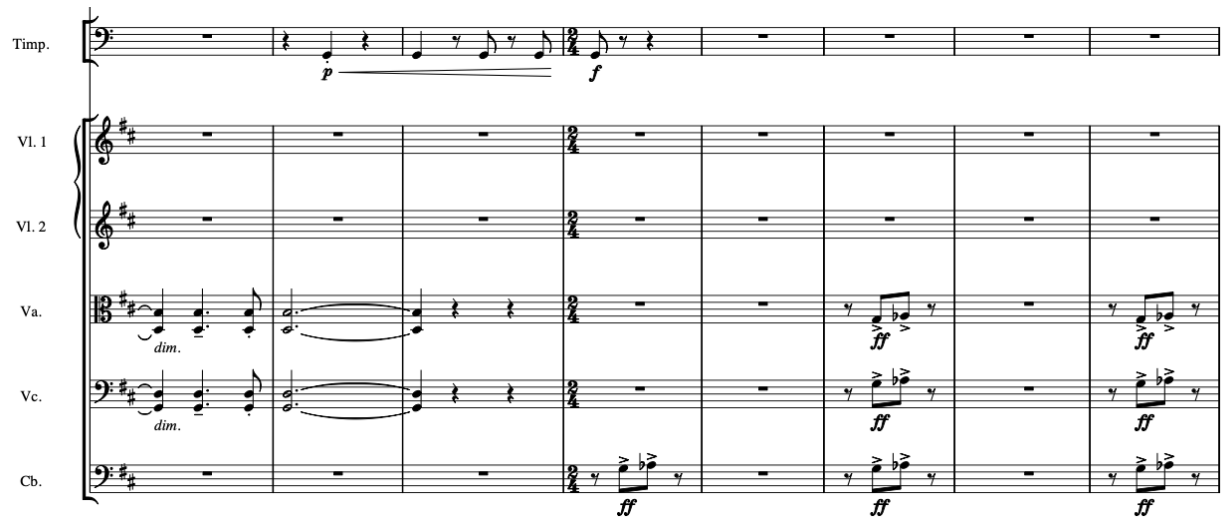

Figure 3.8 Movement I m. 114 – 121

The new call-and-response between the low strings and upper woodwinds and brass at the beginning of the development shows another use of open harmonies and an expansion of timbre. The high versus low timbre frequencies may suggest to the listener a new sensation of suspense and anxiety, reflecting the persona of conflict and tension provided, symbolizing the theme of this temperament. The functions of the call-and-response interplay between the high and low instrumental voices continue to expand throughout the remainder of this movement, ultimately concluding in an intense finale. The conclusion of this movement is compiled of duple and triple rhythmic values, intense accented articulations, and rapid dynamic contrasts that add to the driving motion.[76]

[76] Figure 3.9 mvt I m. 435 – 445.

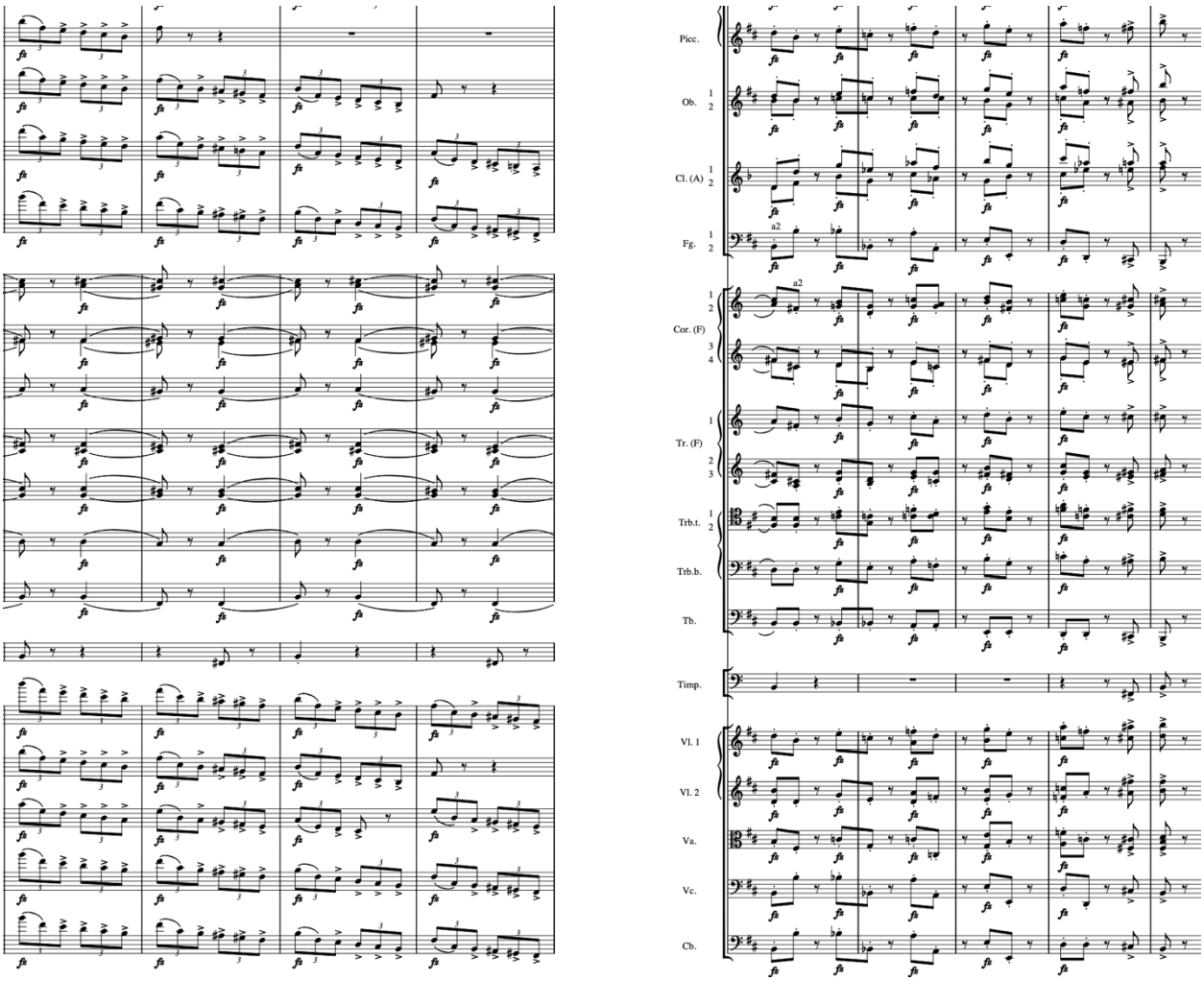

Figure 3.9 Movement I m. 435 – 445

The first movement generally comprises contrasting musical elements that symbolize conflict and aggression. The varying usage of compositional call-and-response techniques between the high/low instrumental ranges illustrates a complex flow of emotions combined with contrasting acoustic timbres. The added juxtaposition of rhythmic complexity layered amongst the instrumental groupings can be found throughout the movement. Combined with their

energetic articulation styles lies the supportive notion of the conflicted emotional persona that is being portrayed.

Movement II

As the title indicates, the second movement's compositional writing portrays a phlegmatic characteristic through its straightforward structure and delicate nature. The tonal center and structural format reflect a relaxed persona compared to the first movement, and the texture within the movement complements the portrayal by its waltz-like motion and delicate connection between slurred and softly articulated note groups.

Figure 3.10 shows the opening statement introduced by the strings. While the printed articulation shows the combination of accents and staccatos, the tempo and style marking interpret the style execution as more delicate than the similar combination found in the previous movement. The support for this assumption also comes from the overall dynamic markings, showing a subtle shape from *piano* to *mezzo piano*.[77] This similar motion slowly builds upon the full orchestra, introducing the wind instruments one at a time and shaping the phrases based on slurred groupings.

[77] Figure 3.10 mvt II m. 1 – 6.

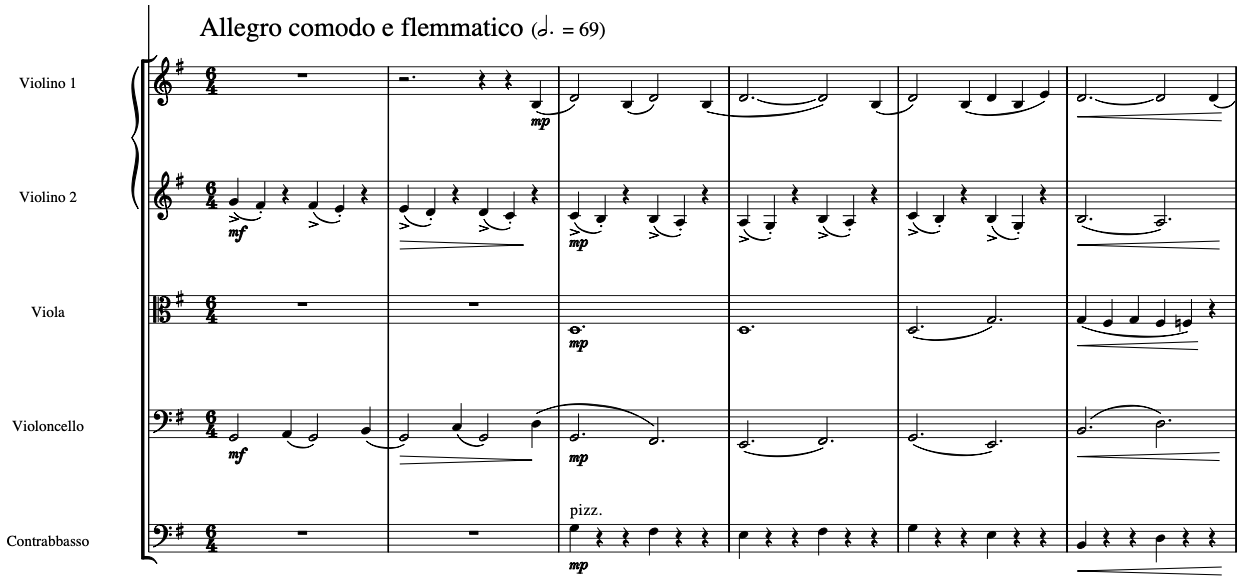

Figure 3.10 Movement II m. 1 – 6

Once the secondary theme is introduced in measure 47, the delicate nature of the persona is still intact, but it seems more mischievous than the previous theme. Based on the texture in this section, the change in character is due to the underlying repeated notes and staccato articulation beneath the main ascending melody that is slurred and connected.[78] Both musical ideas happen throughout the "B" section, and while they resemble contrasting material separately, they complement each other and provide a continuously positive expression.

[78] Figure 3.11 mvt II m. 55 – 60.

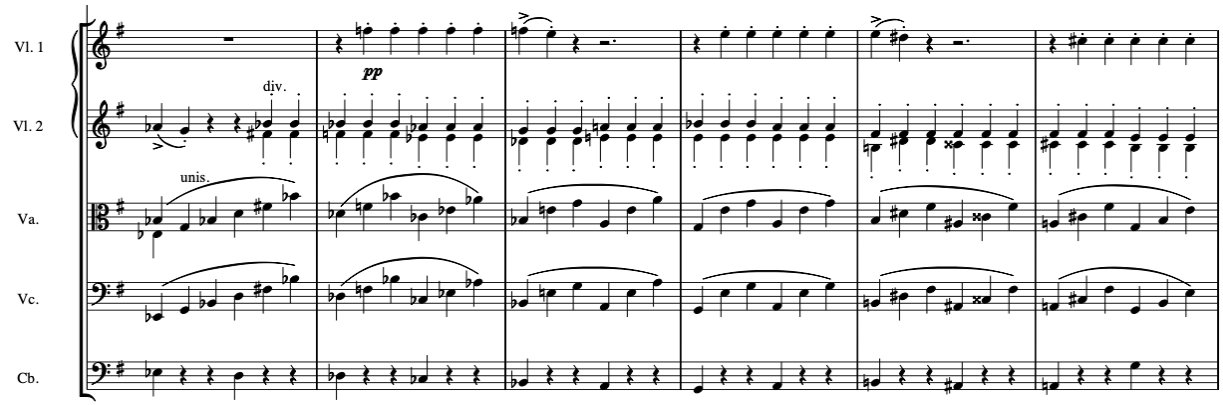

Figure 3.11 Movement II m. 55 – 60

The most notable point of transgression within this movement occurs from measures 63 to 88.[79] This section has a consistent progression of rhythmic suspension between the staccato and slurred quarter notes, passed throughout the strings and woodwinds. Suddenly, this pattern is interrupted by the timpani's fortissimo entrance, followed by a descending rhythmic pattern by the woodwinds and French horns. This sudden departure from the calm and pleasant setting happens briefly before the main theme is reintroduced.

[79] Figure 3.12 mvt II m. 79 – 82.

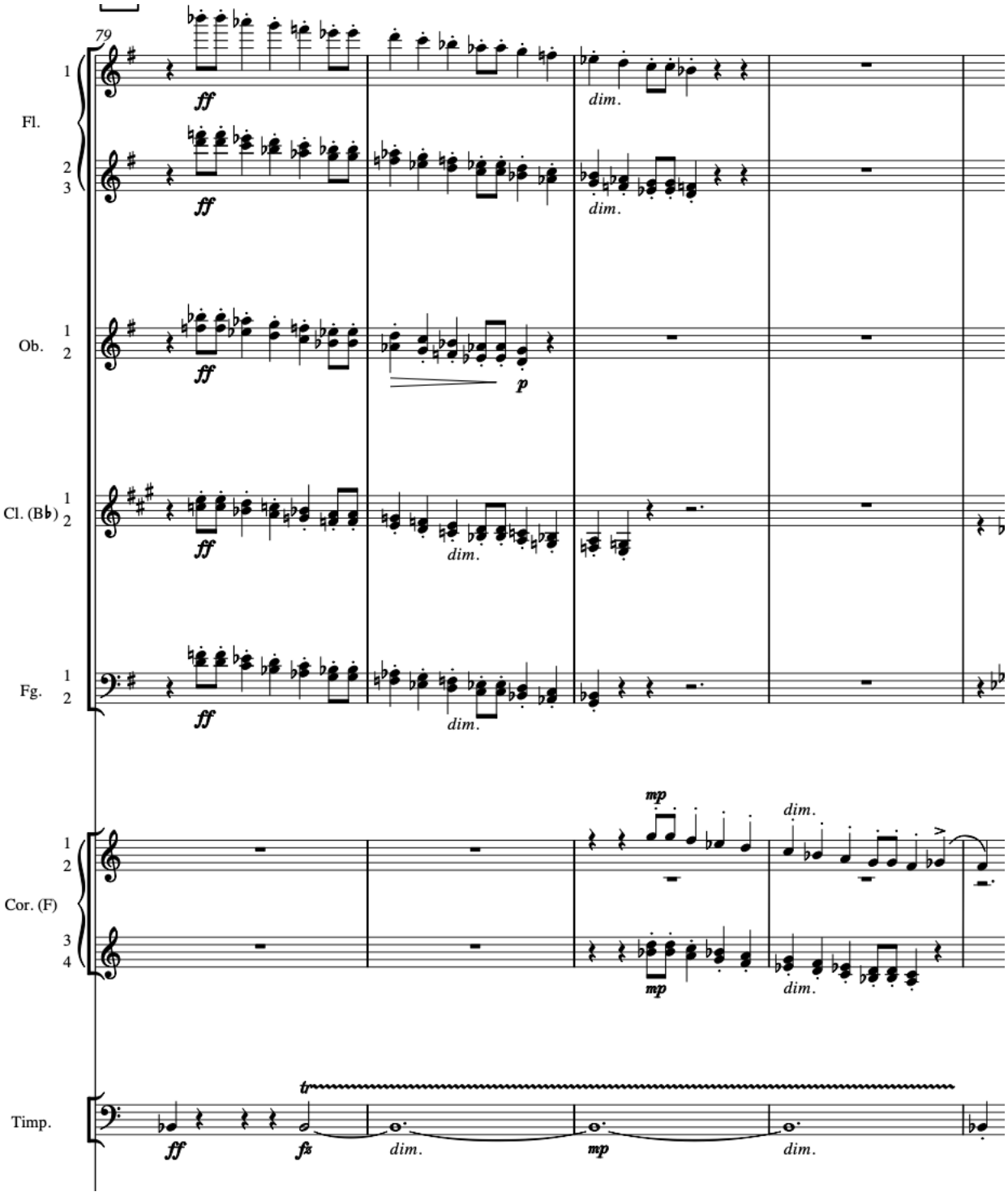

Figure 3.12 Movement II m. 79 – 82

The narrative interpretation of this point of transgression could be viewed in multiple ways. One could suggest that this symbolizes a sudden conflict that lingers from the previous movement, particularly due to the sudden percussive addition. Another suggestion is that this simply symbolizes a comical expression meant to surprise the listener, similar to a youth-like humor. The motivic direction throughout the rest of the movement may grant more support for the latter, though either could make for a supportive narrative interpretation.

Movement III

The dramatic texture of timbre and low registers in the third movement, combined with its harmonic and rondo structure, presents an effective expressive compositional technique that conveys the melancholic persona. The phrases throughout this movement show a natural ascending and descending motion. However, the ends of these phrases are extended more throughout, leading the melodic material lower in range and generally executed by the lower instrumental voices throughout the orchestra.[80] The timbre presented throughout this movement shows lower and dark tones throughout the brass, woodwinds, and strings. The movement title indicates a general sense of mourning and heartache, and the low ranges and dark timbre present that indication through acoustical frequency cues.

[80] Figure 3.13 mvt III m. 3 – 13.

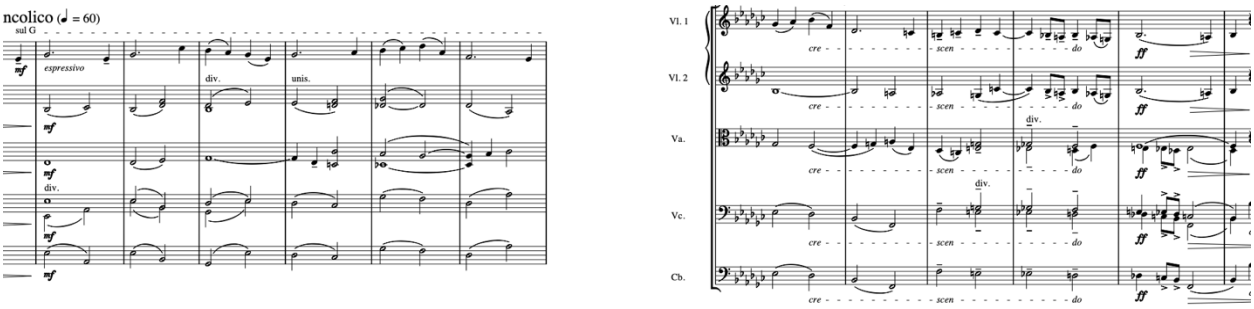

Figure 3.13 Movement III, m. 3 – 13

Moments of transgression happen through this movement, but two areas are most significant to the musical narrative. The first occurs when the main theme is reintroduced in measure 88.[81] The solo timpani, sounding incredibly distant due to the soft dynamic marking, suggests a possible conclusion to the entire movement. Suddenly, a *fortissimo* pickup, powered mostly by the French horns, leads the full orchestra to a dramatic reinstatement of the opening melody. This makes the previous timpani solo incredibly deceptive and extends the dramatic mourning into a peak expressive experience.

[81] Figure 3.14 mvt III m. 86 – 91.

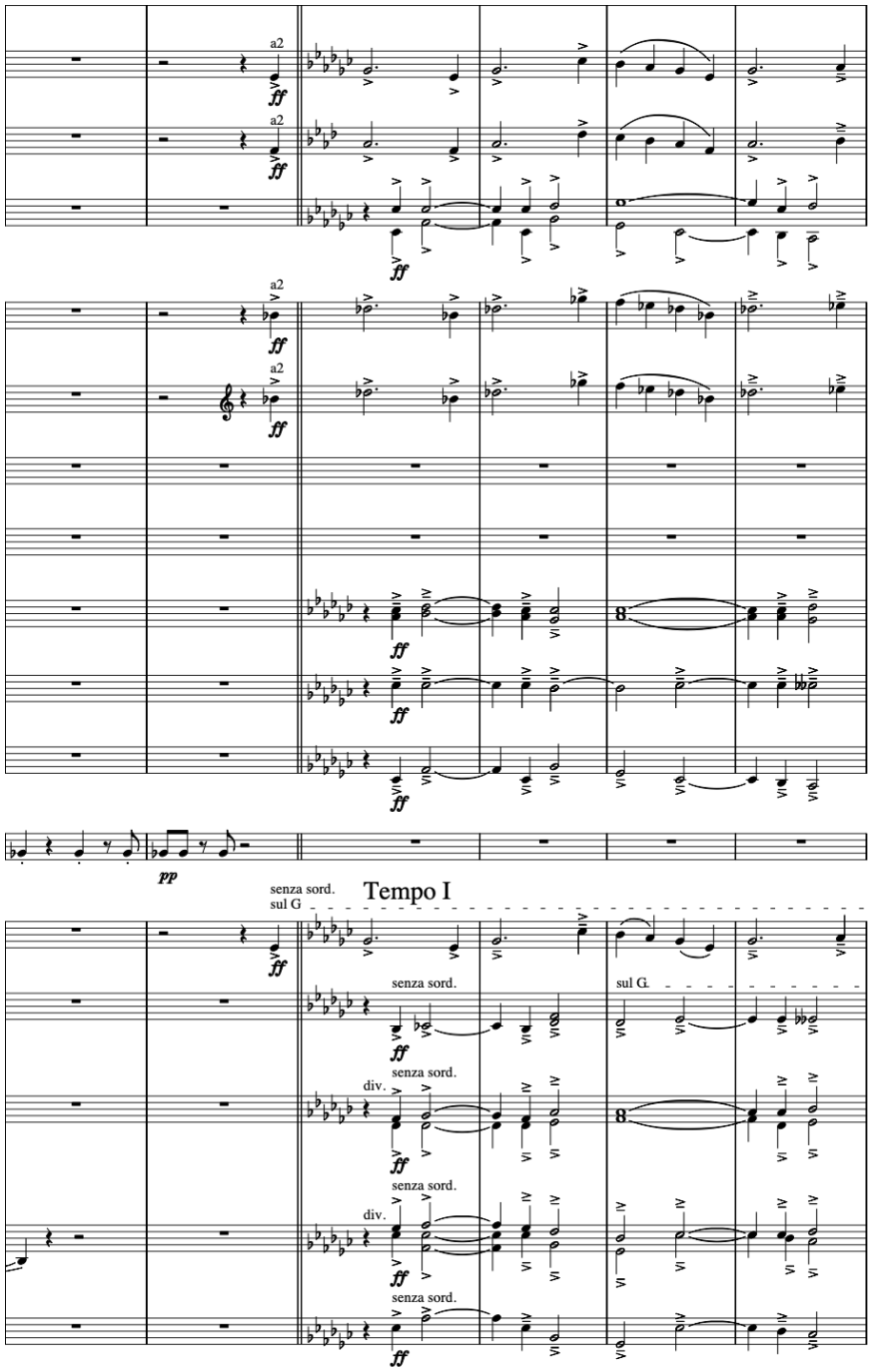

Figure 3.14 Movement III, m. 86 – 91

The other significant transgression occurs at the "C" section of the Rondo, beginning in measure 118.[82] As the orchestra builds in instrumentation and rhythmic juxtaposition leading into measure 118, the melodic material presents a conclusion of a previously indicated theme, perhaps one previously heard in either the "A" or "B" sections. Instead, Nielsen creates a new thematic material that dramatizes the low brass and low strings. After hearing the same or similar thematic patterns through the movement, the listener may be surprised with no previous knowledge of what is expected. This final intense statement for the movement creates an expressive element of suspense and intensified activity, though not due to fast, energetic complexities. This level of suspense is built upon timbre and sheer volume throughout the entire orchestra and is extended through its pivotal moment in measures 124 through 125.

[82] Figure 3.15 mvt III m. 116 – 121.

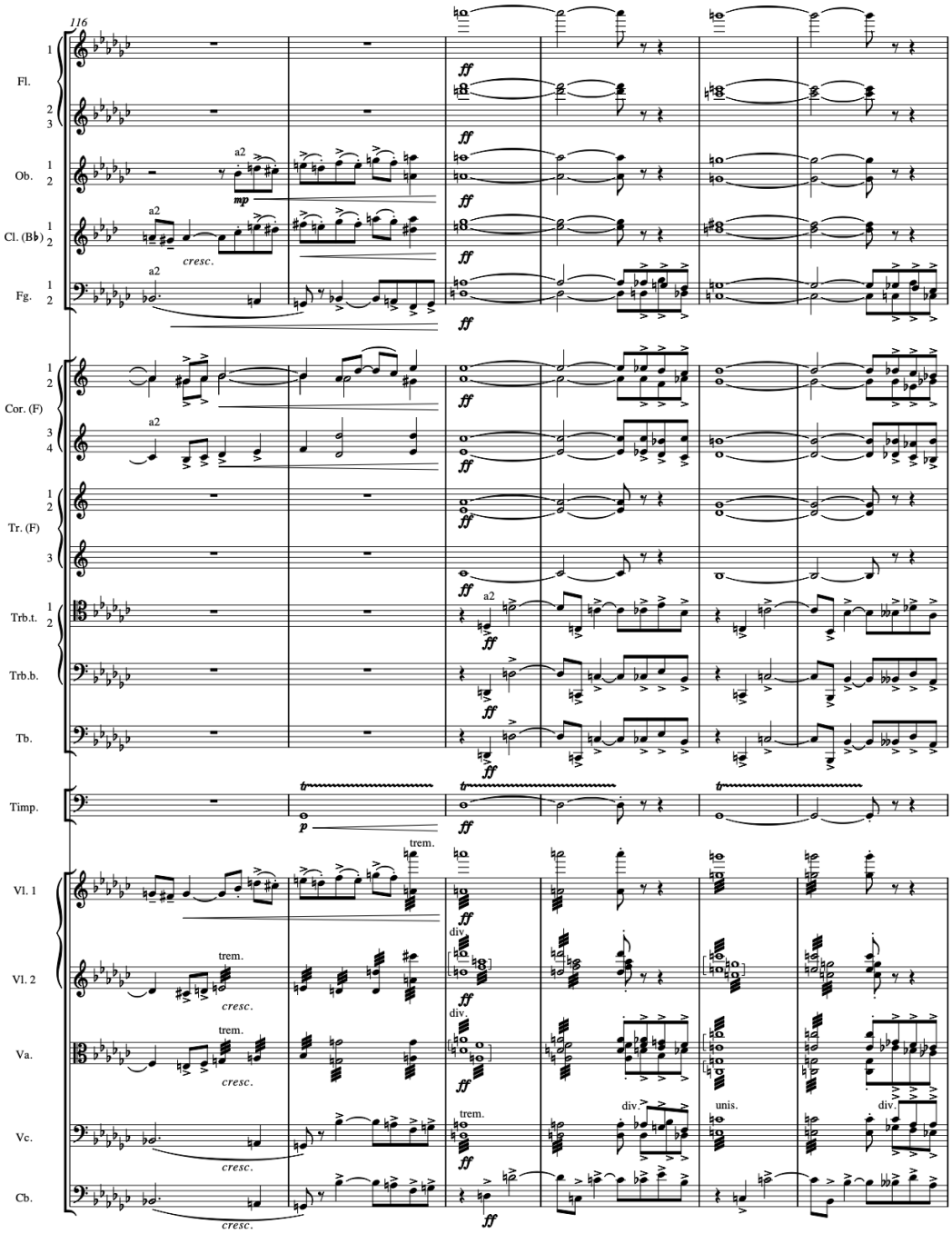

Figure 3.15 Movement III, m. 116 – 121

Movement IV

In the symphony's final movement, Nielsen returns the complete work to the expressive energies last seen in the first movement. However, the material's emotion is livelier and creates a sense of positive activity. The title of this movement presents a setting of optimism following the previous movement, and a significant portion of that is represented through the consistent rhythmic juxtaposition and short articulation values.

Beginning in measure 33, the full orchestra extends and complements the main theme first introduced by the violins at the very beginning.[83] At this point, the theme is scattered throughout the orchestra, led primarily by the low brass, strings, and woodwinds. Having the low-range instruments repeat a melody first presented by a high-range and delicate timbre instrument group, such as the violins, may suggest a new form of forward-driving motion because of the difference in the presented organized pattern. To add to this intensified driving motion, the violins play a repetitive descending motion of staccato eighth notes to establish the tonal structure and create a lively listening experience. The listener may perceive this as a positive valency and highly active emotion due to the established major key, short and consistent rhythmic activity, and the balanced extension of the main melody led by the low instrumental timbre.

[83] Figure 3.16, mvt IV m 33 – 41.

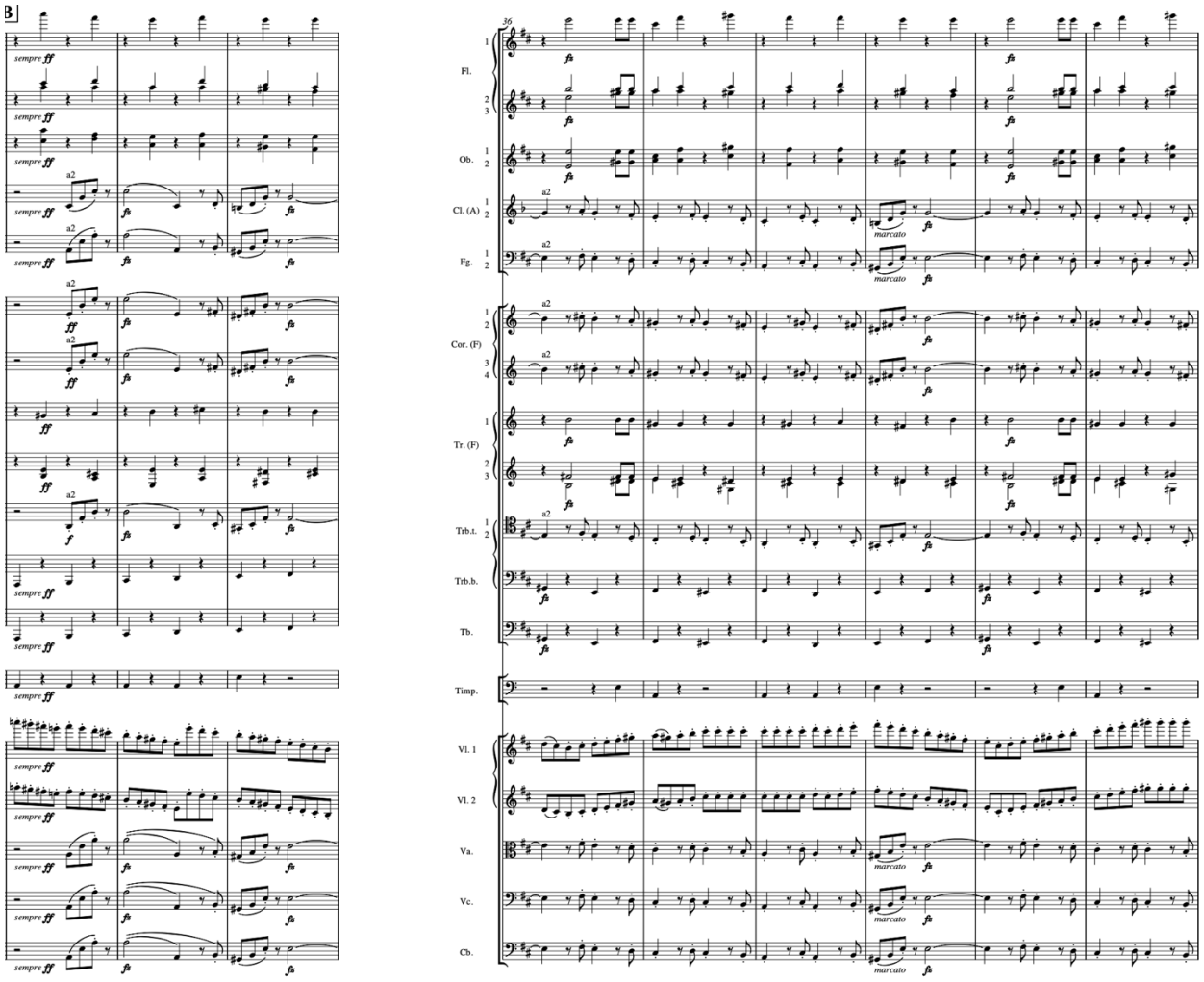

Figure 3.16 Movement IV, m. 33 – 41

The introduction of the secondary theme found in measure 84 provides a notable area of transgression.[84] As the preceding patterns of the previous theme resolve, the lively expression is extended into the "B" section that starts with the delicate instrumentation of upper woodwinds and strings. The first violins lead the new melody descendingly, utilizing two expressive articulation styles, accents and staccatos. The use of these articulation markings, in relation to added timbre from the flutes and oboes, continues the movement's dance-like expression and compliments the previous melodic material.

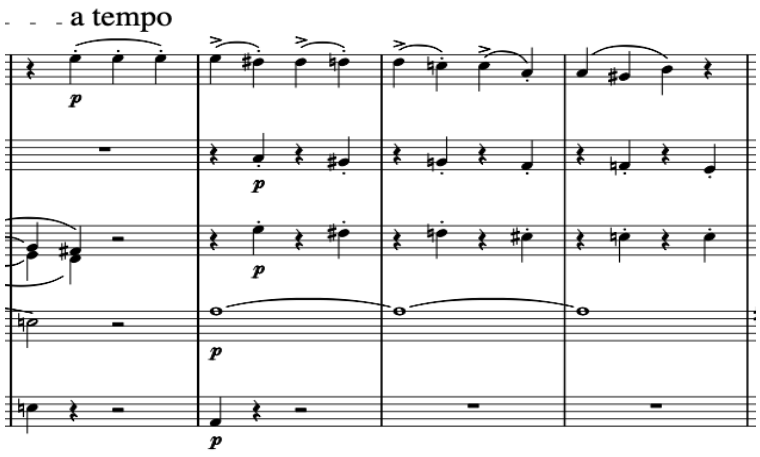

Figure 3.17 Movement IV, m. 84 – 87

This expressive material is extended throughout this movement until the main "A" section is reintroduced in measure 177. As Nielsen brings back the previously stated material, he creates a conclusive cadence that could easily be interpreted as the finale. However, Nielsen presents another form of deception similar to the third movement: an extended use of silence at the end of the second "A" section in measure 245. Here, the listener would expect the previously

[84] Figure 3.17 mvt IV, m. 84 – 87.

stated cadence to resolve. Still, Nielsen collects the anticipated energy and transforms it into a slow, distant sounding "C" section played only by the strings. This section also changes to Adagio Molto,[85], allowing this narrative to be interpreted as a callback to the expression and emotion of the previous movement while still presenting an element of optimism based on the shaping of the strings.

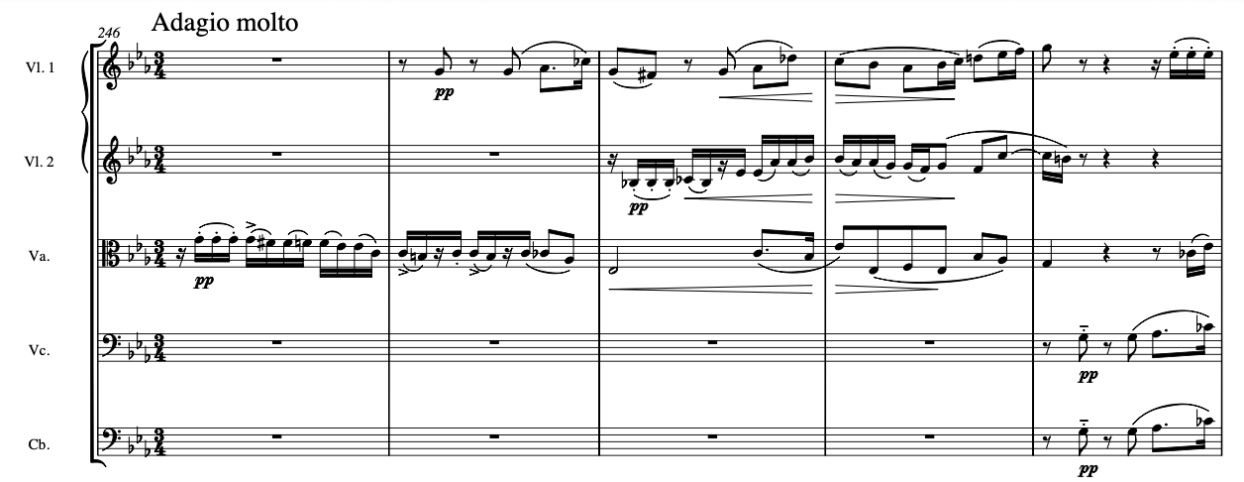

Figure 3.18 Movement IV, m. 246 – 250

The movement, and ultimately the full symphony, concludes with a new active theme in a march style. The marziale section, beginning at measure 283, is presented by a brief transitional period from the adagio "C" section and establishes a new key in A major and a new common time signature. The thematic material within this finale does not reinstate previously established musical elements from the other sections and seemingly departs from the dance-like motion. The

[85] Figure 3.18 mvt IV, m. 246 – 250.

marziale presents a very stately energetic drive supported by the quick sixteenth notes in the main melody and the addition of tenuto markings within the countermelody.[86]

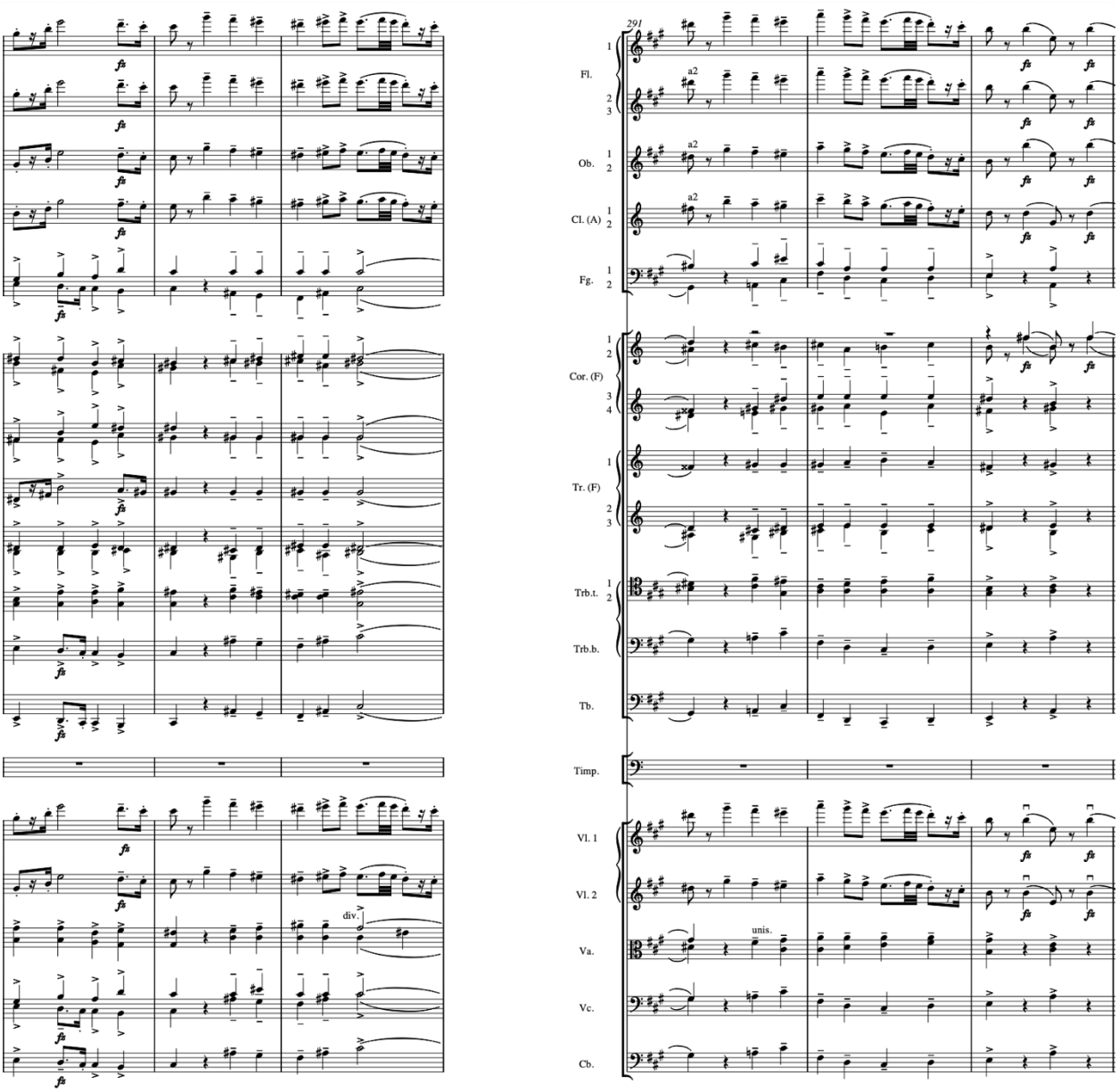

Figure 3.19 Movement IV, m. 288 – 293

[86] Figure 3.19 mvt IV, m. 288 – 293.

The different utilizations of textures presented throughout this analysis help provide a comprehensive view of how the musical elements complement and enhance the emotional context intended by the composer. The combinations of specific acoustical cues, including rhythmic complexity, articulation styles, and the extended use of timbre, signify the various ways in which properties of musical elements can convey expressive qualities in both isolation and in combination with each other. Along with recognizing the significance of expressive elements within the compositional structure, recognizing established musical patterns and the identified transgressions provides the necessary support for the suggested expressive qualities. Analyzing a piece of music while emphasizing the expressive characteristics within the composition provides a supportive interpretation of musical narrative that the musicians can execute through performance.

Chapter 4

Impacts on the Performer and Conductor

The ability to internalize and communicate the emotional properties within a musical composition is not just a theoretical concept but a practical skill that can significantly enhance a conductor or educator's work. By understanding how compositional elements evoke emotion and analyzing these aspects, we can make more informed interpretative decisions. This, in turn, leads to a more cohesive and expressive performance that resonates with both the performers and the music listeners.

This chapter demonstrates how integrating emotional understanding into the score study process can enrich our understanding of phrase structure. By examining how emotional properties within phrases can influence our approach to score study, this section highlights how emotional awareness can enhance the artistic process of the performer and conductor, making expressive interpretations more compelling.

4.1 Analytical Phrase Structures

Emotional studies benefit music educators and conductors in many ways, including interpreting musical structure. A conductor’s approach to score study is not just about understanding the technical aspects of the music but also about deciphering the composer’s intent in their emotional journey. Understanding the functions within the musical structure is important to fully understanding music's expressive development.

As discussed in Chapter 2, musical elements such as tempo, rhythm, volume, harmony, and timbre directly impact the emotional response to a musical work. Understanding how these elements interact with each other is important to understanding the emotional journey of a

musical composition. By identifying these different interaction points, we can find moments within a score that reflect melodic peaks or climatic points representing a composition's musical shape. Viewing how such elements interact illustrates different points of musical tension and resolution, which outlines the overall structure of phrases and the motion presented throughout the compositional structure.

Each microphrase within a score analysis reflects a rise and fall, or points of tension and resolve, that create small arcs of motion. Each of these small arcs ultimately combines to create larger arcs, which captures how musical elements work and interact. This depicts a series of complete motions within the expressive progression of the phrase structure.[87] Figure 4.1 shows how the rise and fall of each arc within a composition can reflect the overall shape of the phrase structure, illustrating the different points of tension and resolve based on the departure and return to tonality in relation to the melodic motion.

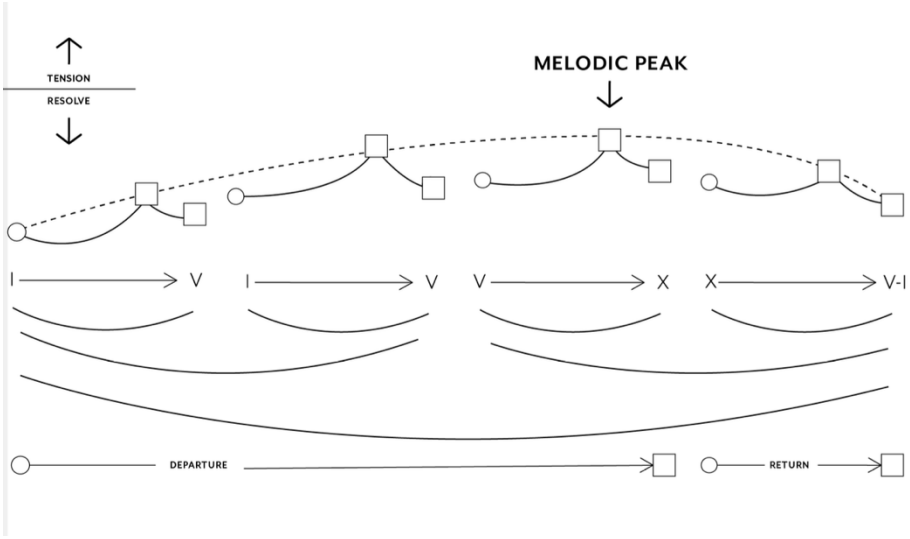

Figure 4.1 Adapted from Candace Brower's shaping of phrase structure

[87] Brower, Candace. "A Cognitive Theory of Musical Meaning." *Journal of Music Theory* 44, no. 2 (Autumn, 2000): 350.

Throughout the music-making process, the conductor analyzes the different components of the musical elements within a musical structure. These are areas that evoke emotional qualities. Interpreting a musical structure relevant to its expressivity can take several forms, one of which is analyzing the architecture of music and examining the music's expression through the motion of sound. This leads to examining the structure of musical phrases or overarching musical thoughts constructed by compositional elements.

An aspect of examining the motion of sound is identifying a concept referred to as "note grouping."[88] Note grouping effectively allows conductors to utilize and show expressive shaping within phrases.[89] This is an approach musicians use to interpret phrases and their significance to create a fluid motion between rhythmic and melodic groupings of notes. Note grouping is executed by manipulating the emphasis of notes that ultimately lead to a musical resolution, creating a more forward direction of motion rather than becoming stagnant.

An example can be found at the beginning of Figure 3.18, Movement IV of Nielsen's Second Symphony. The violas begin their melodic statement directly after the downbeat of measure 246, where the sixteenth subdivisions lead into the second beat marked with an accent. The three sixteenth notes before this accent could be played more detached from each other, creating a stagnant flow in the introduction. To create a more fluid motion, the performer can build the intensity into the accent by recognizing the sixteenth rest as part of the phrase, naturally emphasizing the accent as a form of resolution.

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[88] "Note Grouping" is credited to the pedagogical work of Marcel Tabuteau, principal oboist with the Philadelphia Orchestra from 1915 to 1954. Tabuteau constructed a unique numbering system that assists in interpreting musical phrases.

[89] McGill, David. *Sound in Motion: A Performer's Guide to Greater Musical Expression*. Chicago: GIA Publications, 2007.

Additionally, performers can sustain energy through longer-valued notes that precede an emphasis marking. At the end of the same movement, once the marziale is introduced, the main melody presents a series of "peak" points of tension with a half note on beat two that leads to a sforzando on beat four.[90] If the performers were to play those half notes without considering that they are leading to the sforzando, the melody would lack momentum and may be interpreted as starting a new phrase on beat four of measure 288. However, if the performer were to drive the momentum through that half-note by building that note value into the sforzando, they could create a clearer consequent phrase that resolves at the downbeat of measure 293.

Applying such strategies in music instruction and focusing on shaping musical phrases allows the musician to sustain energy throughout the phrases and create engagement and suspense that is recognizable to the listener. At the same time, analyzing a composition's phrase structure and the underlying interactions that create tension and resolve provides a conductor with the necessary foundations for communicating the emotional properties of a musical work. This knowledge assists in making informed decisions about expressive interpretation, ultimately leading to a more holistic approach to music-making. A conductor can recognize the thematic development throughout a piece of music while applying appropriate stylistic choices that complement or enhance the various acoustical cues.

4.2 Creating Effective Communication

A deeper understanding of emotional content allows the conductor to construct emotional arcs throughout the performance within the context of the music's structure. This involves mapping out the emotional trajectory that the performers convey. When a conductor

[90] See the beginning of Figure 3.19 in the previous chapter.

communicates the emotional intent behind the music to the performers, they foster a deeper connection that the performers can apply to their music-making. This collective awareness ultimately can lead to a unified and expressive performance. When the performers understand the expressive nature of the music's structure, they are likelier to play with greater conviction and sensitivity.

The performer and conductor's work involves influencing connections from the sounds of the musical context.[91] When considering the expressive context within the music, it would be most beneficial for the performer and conductor to begin by referencing the GERMS model (outlined in Chapter 2) and asking themselves how the interpretations from both the musical structure and expressive mood can be applied into their rehearsal process. Communicating expression through performance can be obtained through a combination of technical skills and interpretive choices, and to assist with explaining this further, I will highlight specific musical elements (tempo, articulation, dynamics, and timbre) that I focused on through a cycle of rehearsals I directed through a performance of Carl Nielsen's Second Symphony.

Tempo

The speed at which a musical work is played can significantly affect the emotional impact. A sense of excitement or urgency may be conveyed through a faster tempo, while a slower tempo could represent a more solemn mood. It is common for a composer to indicate a specific tempo to represent the emotional intent, but it is not necessarily a guarantee. A lot of times, composers will either give a narrow tempo range (i.e., 90 – 100 BPM) or a descriptive marking that indicates a wider tempo range, such as Allegro (120 – 168 BPM) or Grave (20 – 40

[91] Kauschke, Christina, Daniela Bahn, Michael Vesker, and Gudrun Schwarzer. "The Role of Emotional Valence for the Processing of Facial and Verbal Stimuli-Positivity of Negativty Bias?" *Frontiers in Psychology* 10 (July 2019). 36.

BPM). A conductor takes this information, considers their ensemble's performative limitations, and applies their expressive interpretation.

The first movement of Nielsen's Second Symphony is marked Allegro (brisk tempo) with the added description used as a movement title *collerico*, defined as "irritable, angry, and short-tempered."[92] When surveying professional recordings for reference, I noticed several interpretations of what specific tempi *Allegro collerico* could be interpreted. Some would range from 115 – 120 BPM, while others performed closer to 150 BPM. Even though there was a wide spread of tempo interpretations, it was clear that a faster tempo was needed to represent a choleric temperament. Having the performers identify the descriptive tempo was the first step in understanding how to convey the short-tempered mood, and providing a range of tempi aligned within Allegro gave them the necessary parameters that led to more effective rehearsals. This was because they knew that the expressive characteristics of choleric could only be conveyed at a faster tempo and playing it too slow would not be as effective.

Articulation

As discussed in section 2.3 in Chapter 2, the variations of attack, duration, and decay of notes can convey a range of emotions, depending on how they are performed. Short and detached notes, such as staccato articulations, may express jollity or urgency, while smooth and connected articulations marked legato can evoke a sense of flow or tranquility. Performers apply different articulation techniques based on what is required within the music, and the conductor ensures the necessary degree of clarity and consistency within the ensemble. The style in which articulations are executed can change the expressive intent dramatically. For instance, an accented note in the

[92] See section 3.3.ii in Chapter 3 for reference.

symphony's first movement is much different than an accent in the second movement, and the wind instruments needed to apply a certain technique to match the string instruments.

In rehearsals, the wind performers were instructed to play their accented notes within the first movement with a “ta” articulation (using the tip of their tongue) with a faster airspeed. To match the same intensity, the strings needed to press down their string before starting the note and use a fast bow speed, making the beginning of their note the loudest part.[93] Performing the accents with this technique helped the performers convey the choleric temperament necessary for the first movement, but the second movement required different techniques. Since the second movement represents a phlegmatic temperament, the performers needed to apply more delicate and relaxed articulation techniques than those in the first movement. The winds executed this by using a “da” articulation (using more of the center area of their tongue) with a slightly slower airspeed, and the strings gave just enough weight at the start of their note, then suddenly relaxed their weight and letting the strings vibrate, giving a more resonant sound.[94]

Dynamic Balance and Timbre

Volume is an important element for a performer to consider when interpreting expressive qualities, as contrasts in dynamics within the music can highlight various emotional peaks. Increasing the volume (crescendo) can build emotional tension and excitement within the music, while decreasing the volume (decrescendo) can portray a sense of calm or resolution. Furthermore, focusing on the balance of volume within the instrumentation allows the performer and conductor to emphasize different expressive qualities based on the tendencies of instrumental timbre. The effects of instrumental timbre and focusing on dynamic balance within

[93] See Figure 3.9 in Chapter 3.
[94] See Figure 3.10 in Chapter 3.

the ensemble allow the listener to immerse themselves in aesthetic imagery, depicting different personas of emotion.[95]

Coordinating the balance in volume in the context of the music is an aspect that a conductor should not ignore within a rehearsal because it can have a lasting impact on performance, both on a technical and expressive degree. In measure 118 of the symphony's third movement, the composer writes the same dynamic level for all the instruments in the orchestra.[96] Most of the orchestra sustains a long note value in their high register, including those instruments with a naturally higher frequency (i.e., flutes, upper strings). In comparison, the main melody in the low brass and basses is outnumbered and naturally performs with a lower frequency. Knowing that it would be more difficult for the listener to hear the main melody, I felt it was important for the entire orchestra to balance down to the lower instruments in this section, explaining how their parts were the main voices conveying the emotional tension. The performers adjusted their printed dynamic that complimented the melody in the low brass and basses, making this particular section a true climatic peak within the movement.

While understanding the emotional subtext of a musical phrase allows the conductor to bring out the nuances embedded within the score, focusing on the elements within a musical structure enables the conductor and performer to interpret emotional content with greater sensitivity and depth. For instance, a passage can be marked “espressivo,” yet this can have various meanings. The stylistic marking can take on a greater meaning when the conductor grasps the underlying sentiment about the musical elements within the phrase structure, whether it means tenderness, sorrow, or joy. Recognizing the emotional intent behind a score enriches the

[95] Dibben, Nicola. “Subjectivity and the Construction of Emotion in the Music of Björk.” *Music Analysis* 25, no. 1 (2006): 178.
[96] See Figure 3.15 in Chapter 3.

conductor and performer’s interpretative approach and transforms the technical execution into a more profound artistic expression. This emotional insight informs every aspect a conductor utilizes through their rehearsal process, resulting in a final performance that is both technically polished and expressively engaging. By connecting with the music's emotional core, conductors can lead their ensembles to deliver performances that resonate with the listeners, creating a more engaging musical experience.

Chapter 5

Conclusion and Discussion

Studies and research on emotion and music conducted over the past decades have provided significant conclusive results, building an understanding of the intricate process music performance has on human cognition. Early theories on the subject resulted in musical expression becoming nothing more than a phenomenon that couldn't be quantified. Collaborative efforts in research have shaped the emphasis and need for exploring this field of study. As researchers continue to do significant groundwork in emotional and music performance studies, scholars in all areas of study continue to benefit from the conclusions.

5.1 Impacts of Emotional Understanding

Part of the continued research in this area includes the collaboration between music and narrative studies. Utilizing a theoretical analysis partnered with an analysis based on expressive narrative has shown the relative benefits of connecting narrative with the actions within music. Studies in music cognition and narrative have revealed that the connection between narrative and action sparks peak experiences in music listeners and allows them to engage more with the musical content. Variables within the compositional structure can impact the listener's engagement, and the manipulation of musical elements combined with the process of expressive communication can enhance the listener's cognition and sensitivity to the music that is being presented.[97]

Exploring the possibilities of expressive narrative in music reveals the multilevel functions of imagination and play with the compositional elements in music. This type of

[97] Hash, Philip M., "Undergraduate Non-Music Major Preferences for Western Art Music." *Contributions to Music Education* 36, no. 1 (2009): 11.

exploration helps develop the foundations of cognitive emotion.[98] Continued exploration in analyzing expressive qualities in musical structure reveals that imagined narratives associated with music are not separate actions for making sense of the music construction. Instead, the imagined narratives are embodied within the music, enhancing the music-listening experience.[99] Exploratory studies have revealed that specific musical features developed by the musical structure are associated with particular emotions based on previous studies examining the functions of compositional traits.[100] By recognizing the different effects and uses of actions within music, we can identify how music can possess different emotional states and be perceived by human cognition.

Examining the relationship between emotion and music has provided various impacts in the psychological sciences and music performance fields, as well as the field of education. The benefits of teaching and exploring expression in music are expanding, and educators witness the growth and advancement in their student's musicianship and aural awareness. Teaching performers about expression and emotion in music facilitates social and emotional learning and expands their musical virtuosity. Musicians who become more emotionally educated can build more self-awareness of their emotions and understand how they impact thoughts, behaviors, and interactions with others.

They are also able to manage and self-regulate emotions related to overcoming insecurities, such as performance anxiety.[101] This reveals the importance of recognizing empathy

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[98] Reichling, Mary J. "Music, Imagination, and Play." *The Journal of Aesthetic Education*, 31, no. 1 (Spring 1997): 51

[99] Margulis, Elizabeth Hellmuth. "An Exploratory Study of Narrative Experiences of Music." *Music Perception: An Interdisciplinary Journal* 35, no. 2 (December 2017): 235.

[100] Juslin, Patrik N., and Erik Lindström. "Musical Expression of Emotions: Modelling Listeners' Judgements of Composed and Performed Features." *Music Analysis* 29, no. 1(October 2010): 335.

[101] Stambaugh, Laura A. *Music and the brain for musicians understanding the research and getting involved*. Tecumseh, MI: Conway Publications, 2022.

and vulnerability within music performance and education and learning how to respond to emotional reactions effectively.[102] Students build emotional intelligence by becoming more knowledgeable in expressive communication through music. We can perceive different emotions, facilitate different cognitive activities, comprehend emotional and expressive language, and ultimately know how to manage emotions around us and within ourselves.

5.2 Examining Limitations

Emotional studies and research have significantly expanded the previous understanding of the connection with expressive communication through music. The context of music and music performance plays a significant role in understanding the cognitive process. Though research continues to develop in this study area, certain aspects limit our understanding.

- Studies that have examined the connection between emotion and music mainly focus on Western music. While it is important to examine this performative art, more research is required to examine aspects of music found in other cultures. The benefits of emotional learning affect cognitive understanding and shape our perspective and understanding of cultural influences.
- Most studies have been self-reported, where participants record their emotional reactions after listening to a musical excerpt. Arguments emphasize whether the listening experience changed during the process, and if so, how much it has affected emotional recognition is questioned. Advancements in examinations measuring the emotional reaction perceived in the brain, such as fMRI, have been able to map isolated spikes in

[102] Richerme, Lauren Kapalka. "Vulnerable Experiences in Music Education: Possibilities and Problems for Growth and Connectivity." *Bulletin of the Council for Research in Music Education* No. 209 (Summer 2016): 36.

music listening and show the connections between the isolated areas of the brain.[103] Utilizing this study method would greatly benefit emotion and music studies and could expand the research into the music performer's perspective.

- Much more attention has been geared towards the music listener than the music maker. As studies in emotion in music have not been examined until the last twenty years, it is logical that researchers would focus on the cognitive process of experiencing music by listening. Now that significant groundwork has been done on this front, the exploration of the musician's cognitive perspective would benefit the field of music performance and music education.

Studying the intricate process of emotions reveals the key functions of how humans perceive and process expressive communication. Human cognition processes emotional qualities based on the positive and negative degrees of valency combined with the strength of the emotion's activity. Emotions act as a vessel to communicate the internal states of the human mind, which allows for the need for expression through gestures and reactions. Emotions also play an important role in adapting to behavior and challenges that occur within our environment. This leads to valuable insights into personal decision-making and the attempt to maximize one's overall well-being.

5.3 Conclusion

Musicians (conductor/performer/composer/educator) play an important role in interpreting and expressing the emotional intent of music through expressive communication in performance. They can communicate the expressive content by engaging with their own

[103] Hodges, Donald A., and Robin W. Wilkins. "How and Why Does Music Move Us? Answers from Psychology and Neuroscience." *Music Educators Journal* 101, no. 4 (2015): 42.

emotions or utilizing symbolic gestures through their knowledge of emotional values in the musical structure. In music, the functions of emotions are perceived and conveyed through the sources of musical elements within a musical structure. Compositional traits contain a variety of expressive qualities that allow the music listener to engage and interpret the emotional content shared through performance. The various acoustic cues evoke emotional responses based on the content applied.

The exploration of emotion in music has revealed comprehensive insights into the complex interplay between sound, feeling, and human cognition. Through an interdisciplinary viewpoint, this dissertation has revealed music's role in emotional expression, expressive communication, and understanding the process of expressive perception. By examining the collaborative research between music, literary, psychology, and neurological studies, musicians gain a deeper understanding and appreciation for emotion's role in shaping the listener's musical experience.

The findings of this research reflect the importance of integrating emotional and expressive content into the curricula of music education in an attempt to foster a deeper connection between the music performer and the music listener. Knowledge of the research on emotions in music also enhances musicians' overall cognitive and socio-emotional development. By acknowledging the relationship and processes between emotion and music, educators can engage in a positive and enriching learning environment that can resonate with their students more personably and meaningfully. Comprehensive knowledge within this study area offers insights into the development of expressive performance skills, emotional awareness, expressive communication, and a more advanced level of musicianship. Deepening our understanding of the

musician's perspective of emotion in music provides a comprehensive path toward understanding the power of emotion in music and its significance for the human experience.

Figure Table

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