2012-12-05

Tektosyne Three Architectures for Orchestra

Alessandra Salvati

University of Miami, a.salvati@umiami.edu

Follow this and additional works at: https://scholarlyrepository.miami.edu/oa_dissertations

Recommended Citation
https://scholarlyrepository.miami.edu/oa_dissertations/889

This Open access is brought to you for free and open access by the Electronic Theses and Dissertations at Scholarly Repository. It has been accepted for inclusion in Open Access Dissertations by an authorized administrator of Scholarly Repository. For more information, please contact repository.library@miami.edu.
UNIVERSITY OF MIAMI

TEKTOSYNE
THREE ARCHITECTURES FOR ORCHESTRA

By
Alessandra Salvati

A DOCTORAL ESSAY

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Musical Arts

Coral Gables, Florida
December 2012
A doctoral essay submitted in partial fulfillment of
the requirements for the degree of
Doctor of Musical Arts

TEKTOSYNE
THREE ARCHITECTURES FOR ORCHESTRA

Alessandra Salvati

Approved:

Lansing McLoskey, Ph.D.
Associate Professor of
Music Theory and Composition

M. Brian Blake, Ph.D.
Dean of the Graduate School

Charles Mason, D.M.A.
Associate Professor of Music
Music Theory and Composition

Dennis Kam, D.M.A.
Professor of Music Theory
and Composition

Juan Chattah, Ph.D.
Associate Professor of
Music Theory and Composition

T. Michael Sleeper, M.M.
Professor of Instrumental
Performance
Tektosyne is a collection of three pieces for symphonic orchestra. This thesis provides an aesthetic and technical analysis of it, with particular emphasis on the constructive processes at basis of the individual and overall structures, and the generation and proliferation of materials. The title is an ancient Greek word, *τεκτοσυνη*, referring to the carpentry and, more generally, to any craftsman or workman, from gymnastics to poetry. The idea of using it as a title – and framing these pieces as “architectures” – came from a conversation I had with an architect, and my attempt to translate for him the basic ideas of my project: a dynamic system of contrasting forces and tensions. Far from any intention to provide a comparison between architecture and music – that would obviously result simplistic and forced - this analysis is the result of my personal dialogue with architecture, and particularly with Vitruvius’ treatise *De architectura*, through my specific point of view as a composer. *Tektosyne* incorporates materials and techniques belonging to past traditions, in continuity with Western composers like Ligeti, Penderecki and Sofia Gubaidulina, who offered, in their works, re-interpretations of traditional techniques. Even though, in *Tektosyne*, the genesis and elaboration of the materials are based on consistent mathematical procedures, the interpretative key of this work is in its dramaturgic and communicative strategies, meant to establish a contact with the audience and offer an emotional and spiritual journey.
ACKNOWLEDGEMENTS

I would like to thank the members of my committee for their valuable contribution to my work, starting with my mentor Lansing McLoskey. It’s difficult to express in a few words the joy of the artistic and human exchange I had with him in these years, and I am sure it will continue after my return to Europe. I am grateful to Thomas Sleeper and Sherri Tan for their precious contribution to my artistic growth and the profound nourishment their friendship has offered me. I thank Juan Chattah for his availability to help me on many occasions and for his invaluable good humor. Charles Mason showed me, through his works, approaches to music different from my personal point of view, and for this reason stimulating and precious. Dennis Kam has accompanied me in some phases of this project in the role of a new Socrates, and his questions and suggestions have opened my mind to new ways of thinking. I would also like to acknowledge Paul Wilson, who has been an important reference in these years, and Zoe Zeniodi, for her friendship and for believing in my music. I have been blessed with a special family, starting from Antonio Iornini, my grandfather – who was a lute-maker – to Pina, Attilio and Simonetta. They have always supported my dreams, despite the difficulties that created in their lives. I owe their love much of my creative energy and I constantly keep them in my thoughts. Heartfelt thanks to Maria Stampino for her generous help and her friendship. I thank my friends Fulvio Mesolella, Francesco Maggio, Renato Salvetti and all those who nourished my “temenos.” This work is dedicated to my husband Enzo, who believed in me and left our country and all our certainties to help me in my growth as a composer. I have no words to express to him my feelings, and I hope my music will do that for me.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF FIGURES</th>
<th>vii</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF EXAMPLES</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiv</td>
</tr>
<tr>
<td><strong>PART I. TEKTOSYNE</strong></td>
<td>1</td>
</tr>
<tr>
<td>Chapter 1. COMPOSITION AS TEKTOSYNE</td>
<td>2</td>
</tr>
<tr>
<td>Vitruvius and his Architecture of Imagination</td>
<td>2</td>
</tr>
<tr>
<td>Tektosyne</td>
<td>5</td>
</tr>
<tr>
<td>Chapter 2. TEMENOS, INTERCOLUMNIA, ENTASIS</td>
<td>7</td>
</tr>
<tr>
<td>Temenos as a Place of Transformation</td>
<td>7</td>
</tr>
<tr>
<td>A Dynamic System of Forces</td>
<td>10</td>
</tr>
<tr>
<td>Inter Columnia</td>
<td>13</td>
</tr>
<tr>
<td><strong>PART II. TEMENOS</strong></td>
<td>18</td>
</tr>
<tr>
<td>Chapter 3. THE MATERIALS</td>
<td>19</td>
</tr>
<tr>
<td>The “Tuba theme”</td>
<td>19</td>
</tr>
<tr>
<td>Chromaticism and its Implications</td>
<td>22</td>
</tr>
<tr>
<td>Chapter 4. DETAILED ANALYSIS</td>
<td>26</td>
</tr>
<tr>
<td>Melodic Structures</td>
<td>26</td>
</tr>
<tr>
<td>Lyricism and Chromaticism</td>
<td>32</td>
</tr>
<tr>
<td>Harmonic Structures</td>
<td>37</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 2.1. “Linee di fuga” in Piero della Francesca’s “Annunciazione” ………………14

Figure 5.1. Temenos: formal structure…………………………………………………….52

Figure 5.2. Overall structure …………………………………………………………….53

Figure 8.1. Static elements in mm. 21-34 ………………………………………………..82

Figure 8.2. Static elements in mm. 140-160……………………………………………..83

Figure 10.1. Matrix ……………………………………………………………………..93

Figure 10.2. Constellations …………………………………………………………….94

Figure 10.3. P7 arrays ……………………………………………………………………95

Figure 10.4. R7 arrays ……………………………………………………………………96
**LIST OF EXAMPLES**

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example 3.1</td>
<td>Tuba, mm. 4-11</td>
<td>19</td>
</tr>
<tr>
<td>Example 3.2</td>
<td>Tuba theme in its four forms</td>
<td>19</td>
</tr>
<tr>
<td>Example 3.3</td>
<td>The two layers of the “tuba theme”</td>
<td>20</td>
</tr>
<tr>
<td>Example 3.4</td>
<td>Projections (Pr) of the “tuba theme”</td>
<td>21</td>
</tr>
<tr>
<td>Example 3.5</td>
<td>Nucleus 2</td>
<td>21</td>
</tr>
<tr>
<td>Example 3.6</td>
<td>Minor 9th intervals in the harp part, m.8</td>
<td>22</td>
</tr>
<tr>
<td>Example 3.7</td>
<td>Double basses, mm. 11-15</td>
<td>22</td>
</tr>
<tr>
<td>Example 3.8</td>
<td>Violin I, mm. 110-116, minor 9th intervallic relations</td>
<td>23</td>
</tr>
<tr>
<td>Example 3.9</td>
<td>Vibraphone and glockenspiel, mm. 164-171</td>
<td>23</td>
</tr>
<tr>
<td>Example 3.10</td>
<td>Violins I and II and violas, mm. 24-28</td>
<td>24</td>
</tr>
<tr>
<td>Example 3.11</td>
<td>Celli, chord in mm. 25-35</td>
<td>24</td>
</tr>
<tr>
<td>Example 3.12</td>
<td>Polychord in the brass, m. 34</td>
<td>25</td>
</tr>
<tr>
<td>Example 3.13</td>
<td>Chromatic cluster span, violins I and II and violas, mm. 53-55</td>
<td>25</td>
</tr>
<tr>
<td>Example 4.1</td>
<td>Harp and vibraphone, mm. 8-10</td>
<td>26</td>
</tr>
<tr>
<td>Example 4.2</td>
<td>Permutation of the inversion of the “tuba theme” in mm. 11-16</td>
<td>27</td>
</tr>
<tr>
<td>Example 4.3</td>
<td>Pr2 transposed set the in vibraphone part, mm. 269-270</td>
<td>27</td>
</tr>
<tr>
<td>Example 4.4</td>
<td>Violins I (1) path in mm. 46-54</td>
<td>28</td>
</tr>
<tr>
<td>Example 4.5</td>
<td>Vibraphone, mm. 143-145</td>
<td>28</td>
</tr>
<tr>
<td>Example 4.6</td>
<td>Harp, melodic line using only 4th s, mm. 145-147</td>
<td>28</td>
</tr>
<tr>
<td>Example 4.7</td>
<td>String section, mm. 143-146</td>
<td>29</td>
</tr>
<tr>
<td>Example 4.8</td>
<td>Double basses featuring the “layer 1” succession, mm. 106-108</td>
<td>30</td>
</tr>
</tbody>
</table>
Example 4.9. Permutation of “layer 1” in mm. 160-163………………………………………..30
Example 4.10. “Nucleus 2”………………………………………………………………………..30
Example 4.11. “Nucleus 2,” double basses 2 and 3, m. 267…………………………………….31
Example 4.12. Motivic cells in the woodwinds, mm. 31-32……………………………………31
Example 4.13. Woodwinds mm. 31-32…………………………………………………………32
Example 4.14. Gradual building of a chromatic melody………………………………………..33
Example 4.15. Melodic line of violins I, mm. 91-99……………………………………………34
Example 4.16. Synthesis of the chromatic motion in the violins melody, mm. 91-99……….34
Example 4.17. Melodic line of violins I in mm. 106-128………………………………………..35
Example 4.18. Synthesis of the chromatic motion in the violins melody, mm. 106-128..35
Example 4.19. Resulting chromatic melody in mm. 332-335………………………………….36
Example 4.20. Brass, chord made of 3rd s and 4th s in mm. 15-16…………………………….37
Example 4.21. Woodwinds and brass, chord made of 3rd s and 4th s in mm. 141-142……..37
Example 4.22. Celli and double basses, m. 64…………………………………………………..38
Example 4.23. Harp, chord made of 4th s and 5th s, m. 64……………………………………….38
Example 4.24. Mixed structure, mm. 280-283…………………………………………………….38
Example 4.25. Strings, mm. 280-283……………………………………………………………..39
Example 4.26. Chord in mm. 106-110…………………………………………………………….40
Example 4.27. Chord in mm. 111-114…………………………………………………………….40
Example 4.28. Chord in mm. 118-119…………………………………………………………….41
Example 4.29. Chord in mm. 124-125…………………………………………………………….41
Example 4.30. Transposed inversion of the “Tuba theme” and brass chord, mm. 41-44 …42
Example 5.1. Addition of similar timbres in unison, mm. 28-29……………………………..45
Example 5.2. Addition of different timbres and attack techniques in unison ...........45
Example 5.3. Trumpets, mm. 24-26.................................................................46
Example 5.4. Temple blocks, mm. 39-40...........................................................46
Example 5.5. Brass, mm. 41-44.................................................................47
Example 5.6. Violins I and II, mm. 72-75...........................................................47
Example 5.7. “Landslide,” mm. 36-40.................................................................49
Example 5.8. Illusory motion and stasis, mm. 341-345.................................51
Example 5.9. Violins I, mm. 160-163.................................................................54
Example 6.1. Brahms’ and Bach’s names in mm. 1-4 of the Fugue....................58
Example 6.2. Measures 1-5 of Brahms’ Fugue for Organ in A♭ minor ..........59
Example 6.3. Repeated notes and chromatic spectrum in mm. 1-5...............59
Example 6.4. P₀ row ..................................................................................59
Example 6.5. Common intervalllic structures ...............................................60
Example 6.6. Chromatic motion passages in the P₀ row ...............................60
Example 6.7. Matrix ....................................................................................61
Example 6.8. Comparison of mm. 53-54 from Brahms’ Fugue and mm. 164-169 from Intercolumnia .................................................................62
Example 6.9. Episode drawn from the head of the subject, woodwinds, mm. 34-39......63
Example 6.10. Flutes part in mm. 221-224..........................................................63
Example 6.11. Common cell in the Fugue subject and in Intercolumnia (violas mm. 231-234).................................................................64
Example 6.12. Derivation of motivic cells from mm. 4-5.................................64
Example 6.13. Intercolumnia, violins I, m. 251................................................64
Example 6.14. Triplet of quarter notes in the Fugue, m. 7 .............................65

x
Example 6.15. Triplets of quarter notes in *Intercolumnia*, Violas, mm. 251-252

Example 7.1. Melodic displacement in two parts, mm. 26-39

Example 7.2. Melodic displacement in more than two parts, strings, mm. 98-103

Example 7.3. Extreme fragmentation and displacement of the series (mm. 174-177)

Example 7.4. Interlocking process in mm. 49-52 (string section)

Example 7.5. Change of interval in the head of the subject (tuba, mm. 69-75)

Example 7.6. Quartal chord at m. 22 and its rearrangement as a pentatonic scale

Example 7.7. Vibraphone, mm. 156-160

Example 7.8. Quartal chord including a tritone (m. 30)

Example 7.9. Distribution of parts in m. 40

Example 7.10. Triads rearranged as one horizontal line, and Fugue subject

Example 7.11. Polychord in m 4

Example 7.12. Chord in m. 7

Example 7.13. Brass, chords in mm. 79-87

Example 7.14. A♭ minor chord and pitches played by oboe and harp

Example 7.15. Harp passage from *Temenos* (mm. 60-61) and *Intercolumnia* (mm. 46-48)

Example 7.16. Oboe, mm. 234-236

Example 7.17. Chord structures generated by the series (woodwinds, mm. 107-111)

Example 7.18. Horizontal and vertical arrangement of a series, mm. 183-186

Example 7.19. Pitches 1-6 of the P₉ row in mm. 270-273

Example 7.20. Woodwinds, mm. 115-117, RI₁₀ series

Example 7.21. Brass, mm. 115-118, RI₁₀ series
Example 11.18. Pink constellation ................................................................. 111
Example 11.19. Metric structure of the pink constellation ......................... 112
Example 11.20. Pink constellation split in two parts ................................. 112
Example 11.21. Fluidification, mm. 152-155 ................................................. 113
Example 11.22. Orange constellation split in two parts ............................. 114
Example 11.23. Inversion of the pink constellation .................................. 114
Example 11.24. I₀ 5-8 X, Y and Z models .................................................. 115
Example 11.25. Scales .............................................................................. 116
Example 11.26. Use of scales A, B and C ..................................................... 116
Example 11.27. α and γ series in the string section at m. 243 ....................... 117
Example 12.1. Quadruplets as generative idea of the quintuplets .............. 120
Example 12.2. Quadruplet of thirty-second notes in the pink constellation .... 120
Example 12.3. Quadruplet of thirty-second notes in the opening cadenza ...... 120
Example 12.4. Static and dynamic interplay ................................................. 121
Example 12.5. Slipping motion of the strings, mm. 11-14 ............................ 122
Example 12.6. Blocks in the flow, strings, mm. 91-96 .................................. 123
Example 12.7. Four layers texture in mm. 65-72 ........................................ 126
Example 12.8. Use of the quintuplets in the Bubbling pad (mm. 73-77) ......... 130
LIST OF TABLES

Table 5.1. First sketches for Temenos .................................................................43
Table 9.1. Ternary structure .................................................................86
Table 9.2. Sections in part one and their function .............................87
Table 9.3. Main occurrences of the subject head in mm. 1-48 ..........88
Table 11.1. Fragments of series used in the Bubbling pad ..........115
Table 12.1. Formal structure .................................................................129
Chapter 1

COMPOSITION AS TEKTOSYNE

Vitruvius and his Architecture of Imagination

The *Ten Books on Architecture* were written by Marcus Vitruvius Pollio in the mid-20s B.C. They synthesize Greek treatises on Hellenistic architecture dating from 350 to 100 B.C., and Vitruvius’ personal experience in the field. The work was presented to the emperor Augustus with the audacious purpose of offering a thorough and exhaustive manual for his contemporaries, and even for future architects: “I have drawn up definite rules so that by observing them you might understand what previous works were like and what future works will be like.”¹

From the outset of his ten books, Vitruvius underlines the importance of a balance between theoretical and practical skills; he also talks about manual skills, and the importance for an architect to have a deep knowledge of the materials and the craft. In the first book, he mentions the fields the architect needs to study to achieve these skills. According to Vitruvius, architects should be “skillful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens” (Book 1, Chapter 1).²

Vitruvius systematizes his theoretical and practical method on the basis of six principles: *ordinatio, symmetria, dispositio, eurythmia, decor* and *distributio*. The first two concern the proportions of large and small scale elements in the design. An

² Ibid., 60.
interesting passage in this section is about the flexibility an architect requires to avoid rigid and predetermined geometries in pursuing symmetry, and his ability to change, when necessary, the proportions of his project. Symmetry is here a dynamic concept, interacting with all the other parameters.

The term *dispositio* contains both the idea of “laying out,” creating a drawing and preliminary sketches, and the conceptual connotation of a process that mainly takes place in the mind of an architect, rather than in his pencil. The Italian word “disegno,” has the same meanings and includes the word “segno,” sign, in its symbolic and physical sense. In his *Discorso sulla matematica* (*Speech on Mathematics*), Gabriele Lolli mentions the mathematician Jakob Steiner (1796-1863), who taught his students geometry in complete darkness, to enhance their ability to generate and define images just in their mind and cultivate abstract thinking.³ In the *dispositio*, reflection and imagination guide the architect in his *invention*, that is defined as “the explication of obscure problems and the discovery of the fundamental principles of unfamiliar things by means of versatility and lively mental energy.”⁴

When specific conditions of the site, or issues regarding visual perception, require a change in the symmetry, Vitruvius recommends that one clings to the principle of *eurythmia*. These changes and adjustments are exceptions to the general rules and their evaluation is based on the *auctoritas*, the experience and taste of the architect. Both in the Parthenon and in the Temple of Apollo at Didyma, architects achieved the visual perception of symmetry through a curvature that “swells toward the center on all four

sides of the platform perimeter.” As we will see in the next sections, the concept of entasis is an application of the principle of eurhythmia.

The meaning of decor involves the choice of appropriate types of columns and tablatures and also decisions about the orientation of the rooms, to create a healthy and pleasant environment. The term distributio concerns practical issues, like construction expenses, or the materials available on site. The synthesis of all these principles is expressed by Vitruvius in three, pregnant words: firmitas, utilitas and venustas (strength, function and beauty).

The connection of Vitruvius’ treatise with my composition Tektosyne should not be meant as a simplistic comparison between elements borrowed from architecture and from music. I consider these kinds of associations always forced and inappropriate. The relation of my work to these concepts is not meant to suggest any metaphorical sense or narrative that is not strictly inherent in the music. When I was working on Entasis – prior to having a title - I had the opportunity of explaining to an architect the interplay of contrasting forces and tensions I was creating in that score. That conversation was the starting point of this dialogue with Vitruvius and with architecture through my specific point of view as a composer. There are no meanings and intentions in my work that go beyond this compelling dialogue. In the score some elements symbolically express this relation with the past; in Intercolumnia, for instance, pitches drawn from the subject of a Brahms’ fugue are verticalized in chord structures, as if they had been petrified and fossilized by the action of time.
Tektosyne

The ancient Greek word τεκτοσύνη means “the art of a joiner,” the “carpentry,” and can be extended to the arts in general. The first part of this word, τεκτόν, means “carpenter” but refers to any craftsman or workman as well; it can also be used to signify a “master in any art,” from gymnastics to poetry, or sculpture. Used in a metaphorical sense, it means “a maker,” an “author.”

The idea of using this term as a title for my collection of three orchestra pieces came midway through the project. I had composed part of Temenos, the first piece, concluded the second – Intercolumnia – and I was working on Entasis, the most challenging of the three in terms of the amount and quality of the materials, and their interaction. A detailed analysis of these pieces will be the object of Parts II-IV of this thesis. What matters regarding the choice of the title - and the framing of this project as a collection of “architectures” for orchestra – is the control and the special attention given to constructive aspects in the composition process. In creating these pieces, I took detailed notes about the materials, their manipulation and proliferation, the relationships among the three environments represented by the three pieces, and the small and large scale design of their structures.

The most interesting part of this work has been dealing with a large amount of rational and consistent data, without giving up the freedom of intuition and experience, what Vitruvius calls auctoritas. In the analysis of the three pieces of Tektosyne, there are sections dedicated to the materials, where the use of rows and their forms – prime, retrograde, inverted and retrograde inverted – and the verticalization of segments of the rows, may suggest, at a first glance, twelve tone or serial procedures that have actually
not been used in this work. Also the generation of related materials, such as projections or permutations, is never “the key” to understanding the composition process. Rows, segments of rows, and derived materials have been freely used to build thematic and harmonic structures with the only purpose of creating a dynamic and expressive score, that offers listeners a human and spiritual journey and an interpretation of reality.

As a collection, *Tectosyne* features a cycle, that starts with the definition of the project space, the area where the architectures will be built, and ends with the massive constructive effort of *Entasis*. This first piece of the collection expresses a potentiality, a possibility that will fully unfold in the last part of the project. *Temenos* and *Entasis* are the two extremes of the dichotomy potentiality and power. That explains the communicative difference of the two pieces and the pronounced lyricism of the first. In *Temenos*, lyricism and large melodic arches suggest a process of research, while *Entasis* represents the point of arrival through the completion of a complex structure. But, in order to clarify these concepts, we need to comprehend the meaning of the Greek terms τέμενος (temenos) and ἐντασίς (entasis).
Temenos as Place of Transformation

The verb τέμνω, at the basis of the word τέμνος, in ancient Greek means “to cut” and it specifically relates to the idea of marking a piece of land to be officially assigned to kings or destined for the building of a sanctuary. The “temenos” was actually a sacred precinct, an area that could host several buildings reserved for worship. The function of temples in Greek culture was different from modern churches. They were the house of gods that only priests were permitted to access, whilst lay people remained outside. Temples were the “splendid focal point against which the elaborate rites could be enacted;” sacrifices, that represented the essence of worship, were offered at the altar located in front of the temple.

In his Memorabilia, Socrates explains that the area reserved for temples and altars had to be pleasant, with an open view to the landscape, to make people comfortable in their prayers. The dimension and the shape of the “temenos” greatly varied according to the number of buildings planned, and the conditions of the site. A careful consideration of the kinematic view of the spectator was at the basis of many choices regarding position, dimensions and orientation of the buildings. The complex of buildings had to offer a satisfying and interesting view from any perspective and distance. Architects had

---


6 Ibid., 104.
to find solutions, for instance, to make the processional way to the altar a crescendo of beauty and a progressive opening up culminating in a spectacular view.

In psychoanalysis the term “temenos” conceptualizes therapeutic containment and defines a symbolic space that is fundamental to protect the centre of the personality from being influenced or damaged from the outside. Jung associated this concept to one of the oldest religious symbols of mankind, the “mandala:”

The archetypal image of this coincidentia oppositorum, this transformation of the opposites into a third term, a higher synthesis, is expressed by the so-called UNITING SYMBOL […]

Symbols of this kind, representing a primordial image of psychic totality, always exhibit more or less abstract form, because their basic law and essence demand a symmetrical arrangement of the parts round a midpoint. Such symbolic figures have been fashioned from time immemorial in the orient; the most significant examples being the so-called MANDALAS, or ‘magic circles.’ […] The mandalas all show the same typical arrangement and symmetry of the pictorial elements. Their basic design is a circle or square (most often a square) symbolizing ‘wholeness,’ and in all of them the relation to a centre is accentuated.

Jung’s student and colleague Jacobi explains the function of these symbols as the human need of “drawing a magical furrow around the centre, the templum or temenos (sacred precincts) of the innermost personality, in order to prevent ‘emanation,’ or guard by apotropaic means against distraction by external influences.” In Jung’s interpretation, the “temenos” is a spellbinding, a mental space where the individual can operate in the freedom of his mind, a sacred place of spiritual, emotional and psychological

---


8 Ibid., 132.

9 Ibid., 135.
transformation. He also maintained that, if human beings don’t explore their unconscious, it will direct their lives and become what they call “fate.”

What I find fascinating in the different meanings of this word, is the idea of representing a potential space, loaded with energy, that already contains somehow the project and much more than the project. It contains all the possible projects, and represents a crucial aspect of the creative process: the selection of a possibility among infinite possibilities. The Nobel Prize writer Italo Calvino touches upon this in his *Six memos for the next millennium*. These six conferences were prepared for the Charles Eliot Norton Lectures and were finished in September 1985, at the moment of departure for the United States, but never delivered, since Calvino died before leaving. The passage proposed here is from the last lesson, “Multiplicity,” and expresses Calvino’s paradoxical attempt, as a writer, to escape the necessity of a selective process in composing a novel:

> These considerations are at the basis of what I call the “hyper-novel,” which I tried to exemplify in *If on a Winter’s Night a Traveler* (*Se una notte d’inverno un viaggiatore*). My aim was to give the essence of what a novel is by providing it in concentrated form, in ten beginnings; each beginning develops in very different ways from a common nucleus, and each acts within a framework that both determines and is determined. The same principle, to sample the potential multiplicity of what may be narrated, forms the basis of another of my books, *The Castle of Crossed Destinies*, which is intended to be a kind of machine for multiplying narratives that start from visual elements with many possible meanings, such as a tarot pack. My temperament prompts me to unite density of invention and expression with a sense of infinite possibilities.10

In *Tektosyne, Temenos* doesn’t have such an ambitious aim, but the idea of a potentiality is certainly present in this piece. In *Temenos* the concept of potentiality is interpreted as research of sense and as an attempt to give voice to the human need of transforming

---

reality through new architectures of thought. The first notes and sketches about this piece mainly concern ideas and relationships; for instance, the idea of the one, analogous with the unison, the beginning and the repetition of one note, is related to its opposite, the multiplicity. Multiplicity is expressed, for example, through the expansion of the unison into chromatic clusters. The ideas of stasis and space are contrasted by abrupt gestures, sudden landslides of sound, realized in the score with a massive intervention of percussion, in strong contrast with areas of suspension and stasis. There are processes involving the addition or subtraction of masses, and the isolation of a range of frequencies, meant to generate an emotional response in the audience. These concepts are manifested in a variety of ways in the piece, mainly through orchestration strategies. The idea is offering an emotional journey conceived as a circular itinerary, symbolically expressed in the score by the return to the starting pitch, the D3 given to horn 1.

Potentiality as research is also expressed through the use of large melodic arches, not present in the other two pieces of the collection – *Intercolumnia* and *Entasis* - that feature the realization, the building of different architectures. In *Intercolumnia*, these structures are either rarefied and transparent, or granitic blocks of sound. *Entasis* shows the maximum constructive effort through a multi-layering process, like in a sort of Tower of Babel.

**A Dynamic System of Forces**

The Greek word ἐντασίς means “tension,” “straining,” “exertion.” It was used in architecture to indicate the swelling in the outline of a column, and in music to describe the tension of the strings in a lyra. The verb ἐντείνω, that has the same root, refers to any operation performed with straps or cords. Broader meanings include “intensify,” “carry
on vigorously,” “exert oneself,” “be vehement.” The adjective εντατικός adds to these meanings the idea of something “stimulating,” “aphrodisiac,” “sexually vigorous.”

In the *De architectura*, Vitruvius explains the concept of “entasis” in his “Liber tertius,” Chapter 3:

> These proportional enlargements are made in the thickness of columns because of the different heights the eye has to climb, for the eye always seeks out beautiful things, and if we do not gratify its desire for pleasure through proportion and enlargements in these measures, and then compensate for tricks of the eye, we will present to the viewer a clumsy and unattractive appearance. With regard to the enlargement that is added to the middle of columns, which among the Greeks is called εντασίς, at the end of the book a figure and calculation will be added, showing how it can produce an agreeable and appropriate appearance.\(^{11}\)

The “entasis” counterbalances the perceived narrowing of the column and provides visual harmony. The Greeks used it to express strength, and to emphasize the effort of the columns, that support the weight of the trabeation. The swelling that characterizes the middle part of the columns symbolically expresses the pressure exerted by the trabeation.

If *Temenos* represents a process of research, *Entasis* offers the realization of a specific project, a high tower where layers apparently incompatible and different languages contribute to push this musical architecture in a vital attempt to *touch* the sky and *touch* the gods. In the analysis of *Entasis*, to which Part IV of this thesis is dedicated, you will find materials called *Constellations* and *Bubbling pad*. These elements, forced to work together in constant friction, evolve and change, passing through different *states of matter*, from rigid to fluid shapes. In planning this piece, what I had in mind was a dynamic system of forces, where masses of sound either undergo processes of erosion and crumbling, or are frozen in rigid structures; I thought of areas featuring chaos and molecular agitation, or slipping platforms that betray the expectations of the audience.

\(^{11}\) Smith, *Vitruvius on Architecture*, 99.
The use of sandpaper blocks and chains in crucial points of the score seems to summarize these concepts. The sand is the result of disintegration and crumbling of rock, and also represents the flowing of time in the evocative object of the hourglass. Chains, on the contrary, are a symbol of captivity and constriction of movement. Nevertheless, they have a timbral connection, like all the elements apparently unrelated of *Entasis*, which features rigorous procedures in the generation of all the materials used.

This way of thinking about music as a system of forces that is meant to lead the audience through an emotional experience, reminds me of Lutosławski’s conception of a “dramaturgy” of music, “a pure musical plot,”\(^\text{12}\) where pitch and rhythmic organization are used to establish a communicative contact with the audience. Contrasts – that are a fundamental dramaturgic element - play a crucial role in Lutosławski’s aesthetics, as explained by Charles Bodman Rae: “Contrasts of intervallic character and interval combination; contrast of harmonic density; contrasts between clarity and blurring; contrasts between the static and the motoric [...]; contrasts of gesture [...].”\(^\text{13}\) In Lutosławski, also the use of controlled aleatorism and extended techniques has a dramaturgic function, and in *Tektosyne* I adopted partially aleatoric techniques with the same communicative purpose.

In *Entasis* the performers are required, in some passages, to whisper or loudly pronounce some Latin words from the section of Vitruvius’ text where he explains the architectural concept of “entasis.” They comment on the action, like the Greek choir did.

---


in ancient tragedies, and therefore have a communicative function, as explained in Part IV, in the section “The Audience in the Score.”

Among the materials and the techniques adopted in Entasis, are some elements belonging to the past, like the Chorale layer, or the Grande canone and the clausola. Similar materials appear in Intercolumnia. The topic of the relation to the past deserves a specific treatment, to which the next section will be dedicated.

**Inter Columnia**

The Latin term “intercolumnium” can be defined as the “distance between column shafts, measured at the basal diameter.”\(^\text{14}\) In Book III of the De architectura, Vitruvius classifies five different design concepts and temple styles on the basis of the intercolumniations, that are a fundamental element of symmetry.

In Tektosyne, Intercolumnia occupies the middle position, along an arc that starts with the idea of a project space definition - a “temenos” - and ends with the construction of a multi-layered architecture, that expresses tension and dynamism. Intercolumnia features a texture characterized either by massive block chords, or areas of long suspended tones. The pitch materials are drawn from the A\(_{\#}\) minor Fugue for Organ by Johannes Brahms (Wo0 8). The reason of this choice, explained in Part III, is both a practical one (the request of Zoe Zeniodi, conductor of the Broward Symphony Orchestra, for a piece somehow related to Brahms) and technical one, since there is intervallic consistency between the subject of Brahms’ Fugue and the materials used in the other two pieces of Tektosyne. The subject has been serialized and used to build melodic and harmonic structures. Intercolumnia includes re-interpretations of contrapuntal procedures, such as the fugue stretto, and quotations from Brahms’ Fugue.

\(^{14}\) Smith, *Vitruvius on Architecture*, 216.
In Italian, the word “fuga” belongs to the fields of music and architecture, and in both cases it indicates a phenomenon characterized by rigorous mathematical procedures. In architecture, the “punti di fuga” are the points where all the parallel lines seem to converge in a perspective. Figure 2.1 shows the “linee di fuga” in the painting “L’annunciazione” by Piero della Francesca (ca.1415-1492). Our eyes, “running” along these lines, provide us with the perception of distance and deepness.

Figure 2.1. “Linee di fuga” in Piero della Francesca’s “Annunciazione”

Similarly, in a fugue, all the materials are strictly drawn from the subject, and the challenge of being creative within these restrictions has attracted composers of all times.

The title for the second piece of the collection came from the idea of “spacing” the other two with a panel featuring less density in the texture. I also liked the idea of suggesting the presence of elements from the past – like the subject of Brahms’ Fugue – through the metaphor of a background landscape against the columns of a temple. In this piece, as well as in *Entasis*, the relation to the past is expressed through the adoption and
reinterpretation of composition strategies and formulas from past traditions.

Paradoxically, the last piece, *Entasis*, that features the most advanced harmonic structures, uses the most ancient elements, such as the canon and the clausula, while *Temenos* borrows more recent historically codified gestures, like chromaticism, and a pronounced lyricism. But this is consistent with Western tradition, especially if we think of the way in which Ligeti used ancient polyphony or Penderecki’s interpretations of the orthodox chants in his sacred compositions. These two composers have represented a point of reference to me, and the study of scores such as *Passio secundum Lucam* by Penderecki, or Ligeti’s *Requiem* provided me with deep insights about the treatment of melodic lines and the use of counterpoint in contemporary works. But I was also thinking of Lutosławski and the way he dealt with traditional forms, like the symphony. His visionary *Symphony No. 4* is an example of intense lyricism and the use of chromaticism meant to express a metaphysical and transcendent dimension of life:

“Lutosławski’s music may be seen to enter the dimensions of the visionary, be that a mysterious evocation of the Unknown, a dreamlike vision, a vision of the night [...].”

Both Penderecki and also the Russian composer Sofia Gubaidulina express the need to re-establish a lost unity and connectivity through the use of elements from past traditions; the first has described the condition of contemporary artists with these words: “The contemporary artist, despite his longing for universality, is fragmented and alienated. For me, the conscious use of tradition became an opportunity for overcoming this dissonance between the artist and the audience.”

---


extraordinary re-interpretation of Bach’s theme from the *Musical Offering* in her concerto for violin and orchestra *Offertorium*. It opens with a citation of the theme of Bach’s *Musical Offering*, which recurs ten times in the first part of the work. On each successive statement it is reduced by two notes (the first and the last) until only one note remains. In the third part of the concerto the theme is recomposed, starting from the single note and culminating in an enunciation of the whole fifteen-note theme. She wrote the concerto for the violinist Gidon Kremer. What profoundly unites Kremer’s performing style with Gubaidulina’s approach to composition is the sense of the sacred and a total dedication to the task in hand, as if it were a “sacrificial act.” This is in fact the idea behind the treatment of the King’s theme from Bach, which is progressively “sacrificed” until it is reduced to a single note. As we know, the theme from the *Musical Offering* had already been re-elaborated by Webern, a composer she is very fond of. In illustrating her decision to use it, Gubaidulina speaks of “a modulation through history,”\(^{17}\) as if to confirm the possibility of this material being renewed in the course of history. In the particular case of Gubaidulina, there is also a strong religious component:

I am someone who belongs to the Orthodox faith and I consider religion as precisely *re-ligio*, the re-composition of a bond and of life’s legato. Life divides individuals up into lots of little pieces, and people have to re-establish their own integrity: this is what religion is. One could not find a more serious reason for composing music than the re-composition of spiritual integrity.\(^{18}\)

This is perhaps an extreme, mystic interpretation of the concept of variation, and it refers us to a deeper level of relation between the initial idea and its variation, where the variation involves the sacrifice of the theme and its reconstruction, but in the retrograde


\(^{18}\) Ibid., 264.
version: a powerful idea that expresses the courageous resistance of artists to the demolition of any individual form of expression by dictatorial regimes.

The theme of the re-composition of a unity is present in *Tektosyne* not only through the use of traditional elements, but it is also expressed with some basic ideas and gestures that characterize this collection. Part II begins by presenting the idea of “the one.” This idea is associated with other concepts, such as the unison, a repeated note, the minor 2\(^{\text{nd}}\) interval (consistent with the chromaticism that characterizes the melodic structures of *Temenos*). “The one” is opposed to “the multiplicity,” expressed in the gradual expansion of the unison into chromatic clusters. Unity and consistency also exist in the common intervallic relations of the three pieces of the collection and the deductive processes that generated related materials. In *Intercolumnia*, we will see how the verticalization of segments of the serialized fugue subject generates quartal harmonies, chords made of 3\(^{\text{rd}}\)s and 4\(^{\text{th}}\)s, and polychords, that are shared by the other pieces of *Tektosyne*.

A unique thread runs through the concept of unity as consistency and the idea of the re-composition of a lost connectivity with the past. Between the columns, “intercolumnia,” we can catch a glimpse of our roots and what will always belong to us, and elaborate deeper interpretations of our present.
PART II

TEMENOS
Chapter 3

THE MATERIALS

The “Tuba Theme”

A little melodic cell, that we will call “tuba theme,” synthesizes, in its intervallic structures, the main melodic and harmonic materials used in Temenos. After the introductive measures of the horn 1 (mm. 1-3), this melodic cell, played by the tuba, opens the piece. Example 3.1 shows the entire passage of the tuba (mm. 4-11).

Example 3.1. Tuba, mm. 4-11

By eliminating the repeated notes, A and D, we can analyze it as a set of five pitches, and observe its intervallic structure. Considering all the possible combinations of the five pitches, the main intervals used are the minor 2\(^{nd}\), the perfect 4\(^{th}\) and the tritone, and in fact chromaticism and quartal harmonies are constantly present in the piece. Example 3.2 shows the “tuba theme” without repeated notes, and its inversion and retrograde inversion.

Example 3.2. Tuba theme in its four forms
Two sub-sets are derived as shown in Example 3.3 by separating the top three notes from the bottom two notes. These layers will be used as thematic materials, in particular layer 1, that features a succession of a whole step up and half step down.

Example 3.3. The two layers of the “tuba theme”

In *Temenos*, the “tuba theme” is the generator of a set of projections as well. The interval resulting from the inversion of each dyad of adjacent notes of the theme, and calculated starting from the first note of the original dyad, creates smaller sub-sets. For instance, the first note of the $Pr_1$ series ($Pr =$ Projection) in Example 3.4, derives from the inversion of the first interval of the P series (A-D, a perfect 4th) that is a perfect 5th. In the P series, considering this interval from the first note of the dyad, A, the perfect 5th interval is E; E becomes the first pitch of the $Pr_1$ series. The same process is applied to the second dyad of P, D-A♭, whose inversion is a tritone, and starting from D – the first pitch of the second P dyad - a tritone gives A♭ again, that becomes the second pitch of the $Pr_1$ set. The entire process includes the subtraction of one pitch, culminating in a single-note set.
Example 3.4. Projections (Pr) of the “tuba theme”

A second manipulation of the “tuba theme” is at the basis of a four notes set that we will call “nucleus 2.” It is obtained by adding one new pitch to the first three pitches of the “tuba theme.” In Example 3.5, “nucleus 2” is presented in the form of two dyads – a major 3rd interval and a perfect 4th - whose roots are half step apart. This particular arrangement is useful to explain many harmonic structures made of 3rd s and 4th s that we will analyze in the next sections.

Example 3.5. Nucleus 2
Chromaticism and its Implications

In the previous section we mentioned the intervals that most characterize the “tuba theme,” the minor 2\textsuperscript{nd}, the perfect 4\textsuperscript{th} and the tritone. The minor 2\textsuperscript{nd} interval, in particular, deeply penetrates the weft of this work, in many different ways, involving melodic and harmonic structures, and also orchestration strategies.

In melodic structures, the minor 2\textsuperscript{nd} appears immediately in layer 2 of the “tuba theme,” (see Example 3.3) in mm. 4-5, and in the form of a minor 9\textsuperscript{th} in the harp, in m. 8, as shown in Example 3.6.

Example 3.6. Minor 9\textsuperscript{th} intervals in the harp part, m. 8

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{example3.6.png}
\caption{Example 3.6. Minor 9\textsuperscript{th} intervals in the harp part, m. 8}
\end{figure}

In just page 2 of the score, the half step, upward or downward, appears in the melodic lines of oboe, English horn, bassoons 1 and 2, contrabassoon, trumpet 1, harp and double bass. Example 3.7 shows the double bass passage.

Example 3.7. Double bass, mm. 11-15

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{example3.7.png}
\caption{Example 3.7. Double bass, mm. 11-15}
\end{figure}

The melodic path in violins I (mm. 106-120) is characterized by large leaps that include the minor 9\textsuperscript{th}. Example 3.8 shows the violin I part in mm. 110-116 and highlights this intervallic relation in the melody.
Example 3.8. Violin I, mm. 110-116, minor 9th intervallic relations

In the section “Misterioso” (mm.143-191), the minor 9th interval is obsessively repeated by vibraphone and harp, while the glockenspiel marks the minor 2nd interval, starting from m. 168. In Example 3.9 the vibraphone and the glockenspiel parts, in mm. 164-171, are shown isolated from the context.

Example 3.9. Vibraphone and glockenspiel, mm. 164-171

The minor 9th is also used as a pedal-interval in harmonic sequences. An example can be found in the passage given to violin I and II and violas in mm. 24-28. In Example 3.10 the pedal-interval of minor 9th is marked by the boxed measures.
Example 3.10. Violins I and II and violas, mm. 24-28

In chord structures made of 3\textsuperscript{rd}s and 4\textsuperscript{th}s, the outer voices often result in this interval.

Example 3.11 shows the chord played by the celli in mm. 26-35, where the outer parts are pitches A and B\textsubscript{b}.

Example 3.11. Celli, chord in mm. 26-35

The minor 2\textsuperscript{nd} interval is also present in the internal relationships of poly chords in all the pieces of *Tectosyne*. The specific use and the analysis of these structures in

*Intercolumnia* and *Entasis* will be treated in Part III and IV of this thesis. In *Temenos* we
can observe, as an example, the polychord in m. 34 played by the brass. As shown in Example 3.12, it includes the G₃ and the E minor triads, that feature the chromatic relation G₃-G.

Example 3.12. Polychord in the brass, m. 34

The systematic application of the minor 2nd interval to harmonic structures leads to chromatic clusters. In mm. 53-55, violins I and II and violas – together with the woodwinds – build a chromatic cluster starting from the highest pitch that gradually descends. The interval span that is covered is shown in Example 3.13.

Example 3.13. Chromatic cluster span, violins I and II and violas, mm. 53-55

The presence of passages with such a chromatic density has to be used with parsimony, since the effect can be heavy and lack directionality. Something similar happens when the visual perception of all the colors, painted on a wheel, results in only one color, the white, if the wheel rotates very fast. In mm. 53-58 the cluster forms note upon note, to make perceivable the gradual saturation of the chromatic spectrum and the filling in of the register span defined by the outer notes.
Chapter 4

DETAILED ANALYSIS

Melodic Structures

In the previous chapter we analyzed the “tuba theme” and manipulations of it as basic materials for horizontal and vertical structures. It is immediately stated by the tuba in mm.4-11 in a two-voice counterpoint with the contrabassoon. The key-interval of the “tuba theme” is also expressed in the distance of tritone between these two instruments in mm. 8-11. In the same measures, if we consider the passages of harp and vibraphone, we obtain again the “tuba theme,” with one change of pitch, the C# instead of E (Example 4.1).

Example 4.1. Harp and vibraphone, mm.8-10

The “tuba theme” appears also in inversion. The passage given to the double basses in mm. 11-16 (Example 4.2), is a permutation of the inversion of the “tuba theme” with the addition of two notes, D, and F.
Example 4.2. Permutation of the inversion of the “tuba theme” in mm.11-16

An example of use of the projections of the “tuba theme,” illustrated in the previous chapter, can be observed in the little melodic cell that appears in the vibraphone and the glockenspiel in mm. 269-270, where the Pr₂ set (see Example 3.4) – that features the C major triad – is transposed to F major. As one can see in Example 4.3, the Pr₂ set is given to the higher voice in a two-part texture.

Example 4.3. Pr₂ transposed set the in vibraphone part, mm. 269-270

In the previous chapter we have analyzed the different ways the minor 2\(^{nd}\) interval affects melodic structures. Now we will focus on the perfect 4\(^{th}\) interval and the tritone. In many cases, melodic lines unfold over the span – between the first and the last pitch – of a tritone. Example 4.4 shows the melodic path of violins I (1) in mm. 46-54, from F to B (the C that starts the quintuplet in m. 53 is not the point of arrival, but a sort of appoggiatura gesture).
Example 4.4. Violins I (1) path in mm. 46-54

![Image of musical notation](image)

Figure 4.5 provides an example of the same phenomenon in a descending melodic line.

The passage involves the vibraphone in mm. 143-145. This passage is reinforced two octaves higher by the glockenspiel.

Example 4.5 Vibraphone, mm. 143-145

![Image of musical notation](image)

There are passages built using only 4th s, like the harp melodic line in mm. 145-147 shown in Example 4.6.

Example 4.6. Harp, melodic line using only 4th s, mm. 145-147

![Image of musical notation](image)

The entire section “Misterioso” (143-191) is built with perfect 4th s and tritones, in particular the glissando of harmonics in the string section. The first measures (mm. 143-146) are shown in Example 4.7. I enjoyed thinking of this section as a “devil’s dance,” for the angular sonorities and the extensive use of the “diabolus,” the tritone. The absence of low frequencies makes the sonorities even more disquieting and suspended,
like in the representation of the devil in the first pages of my favorite book, *The Master and Margarita* by Mikhail Bulgakov:

Berlioz’s life was so arranged that he was not accustomed to seeing unusual phenomena. Paling even more, he stared and thought in consternation: ‘It can’t be!’ But alas it was, and the tall, transparent gentleman was swaying from left to right in front of him without touching the ground.\(^\text{19}\)

Example 4.7. String section, mm. 143-146

We will now focus on instances of the sub-set “layer 1” of the “tuba theme” analyzed in the previous chapter (see Example 3.3). In the first measures of the section “Stesso tempo, fluído” (mm. 106-113) the double basses are given a melodic cell made of

---

a whole step up and a half step down, that is exactly the “layer 1” intervallic succession.

Example 4.8 shows the first two measures of the double basses (mm. 106-108).

Example 4.8. Double basses featuring the “layer 1” succession, mm. 106-108

A permutation of the “layer 1” (the pitches in order are F#, G#, G) becomes a strong thematic element in mm. 160-163, where it is played by vibraphone, glockenspiel and harp. The passage is shown in Example 4.9.

Example 4.9. Permutation of “layer 1” in mm. 160-163

In Chapter 3, dedicated to the composing materials used in Temenos, besides the “tuba theme,” its two layers, its inversions and permutations, we also mentioned a further derivation, the “nucleus 2,” that includes the first three pitches of the “tuba theme” plus a new one. Example 4.10 shows the four pitches of “nucleus 2.”

Example 4.10. “Nucleus 2”
This motivic cell is at the basis, for instance, of the pizzicato parts of celli and double basses that starts in m. 265. Example 4.11 shows “nucleus 2” transposed in double basses 2 and 3, m. 267.

Example 4.11. “Nucleus 2,” double basses 2 and 3, m. 267

All the quintuplets of eighth notes played by the woodwinds in mm. 31-32 are transposed permutations of “nucleus 2.” Example 4.12 synthesizes this process, by re-arrranging the motivic cells in form of transposed “nucleus 2” and providing the level of transposition. The passage from the score is shown in Example 4.13.

Example 4.12. Motivic cells in the woodwinds, mm. 31-32
Lyricism and Chromaticism

_Temenos_ is the piece in which lyricism is more present. A closer view to the melodic arch of selected passages will reveal a connection between lyricism and chromaticism. In this section, we will analyze three phenomena to clarify this concept:

1. Gradual building of a chromatic melodic line
2. Synthesis of melodic structures in a chromatic descending line
3. Resulting chromatic structures
The first point concerns the opening section of the piece, where we can observe the gradual *birth* of chromatic lines (either ascending or descending), starting from a single pitch, and adding one pitch at a time in the following melodic lines. The piece starts with the D played by horn 1. In m. 17 the oboe features a two-note chromatic line; the first trumpet has a three-note line in m. 19. In mm. 24-25 the first violins have a four-note chromatic line, and the double basses have a chromatic passage of five notes in m. 26.

This process will be continued in vertical arrangements, like chromatic clusters (see next section, Example 4.25). Example 4.14 shows the mentioned passages.

Example 4.14. Gradual building of a chromatic melody

```
horn 1, m.1
```

```
ob.1, m.17
```

```
tpt.1, m.19
```

```
vln.1, mm.24-25
```

```
Db., m.26
```
We will now analyze two melodic structures, and reduce them in a graph that shows their descending chromatic progression. The first one, shown in Example 4.15, is played by vln. I in mm. 91-99.

Example 4.15. Melodic line of violins I, mm. 91-99

In the overall motion of this melodic line, the change of octave, marked in Example 4.15 with an arrow, doesn’t really interrupt the chromatic descent from the E of m.91 to the A♭ of m. 97. The entire passage can be therefore reduced in the way shown in Example 4.16.

Example 4.16. Synthesis of the chromatic motion in the violins melody, mm. 91-99

This process can be observed on a larger scale in the melodic line of violins I in mm. 106-128. We propose again first the excerpt from the score (Example 4.17), where the gradual chromatic descent is highlighted by the circled notes. The final G♭ is in a squared box, because, even though it represents the arrival point of the melodic line, it is a whole step apart (not a half step) from the A♭, the last note that is in chromatic progression in this line.
Example 4.17. Melodic line of violins I in mm. 106-128

The entire passage is again proposed in synthesis in Example 4.18.

Example 4.18. Synthesis of the chromatic motion in the violins melody, mm. 106-128

Besides the chromatic clusters, that will be analyzed in the next section,

*Temenos* presents passages where the chromatic line results from the entrances of different instruments which can be clearly perceived by the listeners. As an example, we can observe the passage in mm. 332-335. Example 4.19 shows the instruments involved
in this process; the arrows mark the ascending chromatic motion that starts in violins II and ends in the piccolo part in m. 335.

Example 4.19. Resulting chromatic melody in mm. 332-335
Harmonic Structures

Some chords have already been mentioned in the section on chromaticism, in the previous chapter: the polychord in m. 34, the chord made of 3rd's and 4th's given to the celli in mm. 26-36, and the chromatic cluster of m. 56. They have been analyzed in terms of the significance the chromatic relationship has in these structures. We will now enlarge our view to the genesis of these and other chords in relation with the “tuba theme” and the materials drawn from it.

Besides the minor 2nd, perfect 4th and augmented 4th intervals, the “tuba theme” includes an instance of major 3rd, which explains the presence of chords made of 3rd's and 4th's. These two intervals are further emphasized in the related set of “nucleus 2.” The chord given to the brass in mm. 15-16 is an example of these structures. It can be also interpreted as the first inversion of a M7th chord, but the context is not tonal. It is shown in Example 4.20.

Example 4.20. Brass, chord made of 3rd's and 4th's in mm. 15-16

A second example is in m. 141-142 in the woodwind and brass sections (Example 4.21).

Example 4.21. Woodwinds and brass, chord made of 3rd's and 4th's in mm. 141-142
The chord in Example 4.22 is made of a tritone over a perfect 4\(^{th}\) separated by a major 2\(^{nd}\), which results in the interval of minor 9\(^{th}\) between the outer parts. It is played by celli and double basses, and doubled by some woodwinds in m. 64.

Example 4.22. Celli and double basses, m. 64

Other chords are mixed structures that include 4\(^{th}\)s and its inversion, the 5\(^{th}\)s. The chord in Example 4.23 shows one of these harmonies, in the harp (m. 64).

Example 4.23. Harp, chord made of 4\(^{th}\)s and 5\(^{th}\)s, m. 64

Another example can be found in mm. 280-283, where violins II, violas and celli 1-2 gradually unfold a descending chromatic cluster, while double basses and celli 3-4 build an ascending mixed structure, as shown in Example 4.24. Example 4.25 shows the excerpt from the score.

Example 4.24. Mixed structure, mm. 280-283
The succession of harmonies that we find in the section “Stesso tempo, fluído,” (mm. 106-135) consists of chords that we may describe as “added note chords.” They are 7th and 11th chords and the added notes include the 3rd, that makes these chords major and minor at the same time and expresses the chromatic relationship in a new form. The
examples below will clarify this concept. Example 4.26 shows the chord in mm. 107-110.
The voicing of the chord may imply D as the fundamental, but it can be also interpreted as a major 7th with major-minor 3rd. The double basses line – already analyzed in the previous section (see Example 4.8) – is not included. Example 4.26 first shows the chord as it appears arranged in the score, and then synthesized in the proposed interpretation. Some pitches have been considered in their enharmonic equivalents.

Example 4.26. Chord in mm. 106-110

The chord in mm. 111-114 has the major-minor 3rd and also an added 6th (Example 4.27).

Example 4.27. Chord in mm. 111-114

In mm. 118-119 the chord can be interpreted as an 11th chord with chromatic alteration of the 7th and the 13th. The chord is shown in Example 4.28.
At last, the chord in mm. 124-125 is a BmM 7th chord. In the cataloguing of the seven kinds of 7th chords in Persichetti’s study on twentieth century harmony, this chord is the number 5. Example 4.29 shows the chord in mm. 124-125.

Considering the constant presence of the M7th sonority, the entire sequence of harmonies in mm. 105-125 can be substantially interpreted as a progression of M7th chords.

The last chord structure we will focus on is obtained from the vertical arrangement of the first four pitches of inverted “tuba theme.” Example 4.30 shows first the transposed inversion of the theme, and then its use in the brass chord in mm. 41-44.

---

Example 4.30. Transposed inversion of the “tuba theme” and brass chord, mm. 41-44
Orchestration and Formal Structure

Orchestrating a Piece not yet Written

In starting a new composition, my first ideas generally concern orchestration strategies. I usually have somewhat of a perception of the entire piece before I define the very first materials in terms of pitches and rhythms. I trust these images of my mind and I translate them first in the form of associations. Afterwards, when I have focused on the expressive gesture that I want to create, I start looking for the materials that can render it. The first notes and thoughts I wrote about this piece were simple concepts. Table 5.1 shows these first sketches in the form of five objects and related associations.

Table 5.1. First sketches for Temenos

<table>
<thead>
<tr>
<th>SECTION</th>
<th>OBJECT</th>
<th>ASSOCIATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Unison</td>
<td>One - Beginning – A repeated note</td>
</tr>
<tr>
<td>B</td>
<td>Emerging panels</td>
<td>Addition and subtraction of masses</td>
</tr>
<tr>
<td>C</td>
<td>Abrupt intervention of percussions</td>
<td>Contrast</td>
</tr>
<tr>
<td>D</td>
<td>Steady areas of the brass section</td>
<td>Space - Suspension</td>
</tr>
<tr>
<td>E</td>
<td>Clusters</td>
<td>Opening - Saturation</td>
</tr>
</tbody>
</table>

I was attracted to the interplay of colors and meaning of passages in unison and the expansion of the unison into a cluster. I like the idea of creating panels that gradually emerge in the texture, gaining the attention of listeners. An example can be a group of instruments that play a chord in crescendo within a context featuring a vivacious rhythmic structure. The panel can gradually gain all of the attention of the listeners, like a
big iceberg rising unexpectedly in front of a boat. Also the subtraction of orchestral masses can be a powerful expressive means. A sudden loss of the support of the basses can provide interesting physical and psychological reactions. Contrasts represent the anti-hero. As the wolf in fairy tales, they are the salt of music.

The idea of space and directionality is associated with the brass; I was planning to give the brass static passages, where the instruments enter one at a time gradually producing chords.

In my sketches the overall plan included the alternation of sections A B C D C D E for the first part of the piece, and its retrograde, E D C D C B A, for the second part. During the composition, other itineraries prevailed, and I eventually abandoned this structure, but not its basic concepts, and now that the work is complete, I think it is interesting using them as guidelines in the analysis of the orchestration strategies.

The One and the Multiplicity

There are three points in Temenos where the solo horn 1 plays the note D and keeps it for three measures: m. 1, m. 189 and m. 331. These points mark the beginning of the introduction, the lyrical expansion and the conclusive section of the piece, that returns again and again to its starting point. On a symbolic level, Temenos expresses a potentiality that will be fully unfolded only in the last piece of the collection, Entasis. It is like drawing a circle - a temenos, in the Greek meaning of a circumscribed area – and going back to the starting point.
The concept of unison, associated to “the one,” is interpreted in the score not only as a passage in unison, but also in a broader sense: as a repeated note, or as the starting note of a process that features a *refraction* and flourishing of “the one” into “the multiplicity.” Examples of passages in unison can be observed in mm. 28-29 and 36-37. In both cases the passage, showing the gradual addition of instruments, concerns the woodwind section. In Example 5.1, the addition of similar timbres changes the quality of the crescendo, thickening the sound through timbral layering.

**Example 5.1. Addition of similar timbres in unison, mm. 28-29**

In Example 5.2, the process involves more instruments.

**Example 5.2. Addition of different timbres, mm. 36-39**
The idea of “unison/one,” is also expressed in the repetition of a single note. These passages are given to the trumpets, that are particularly effective for the triple tonguing technique. Example 5.3 shows the brass in mm. 24-26.

Example 5.3. Trumpets, mm. 24-26

The same gesture is used in Entasis, in a longer section of the score (mm. 171-185). In Temenos it is also given to the temple blocks (mm. 39-40), in a passage where the only other instrument playing is the first trumpet, that keeps the note F for six measures. Example 5.4 shows the temple blocks part in mm. 39-40.

Example 5.4. Temple blocks, mm. 39-40

There are many passages where one note, kept for several measures, becomes the starting point of a vertical arrangement that gradually unfolds. We already analyzed a chromatic cluster built in this way (see Example 4.25). The brass in mm. 41-44 offer a good example of this structure, that I associated to the physical phenomenon of the refraction of light.
A similar procedure is in the string section (violins I and II) in mm. 72-75 (Example 5.6).
Static and Dynamic

In the first 50 measures of *Temenos*, dynamism and contrasts are expressed in two abrupt episodes, characterized by a massive intervention of the percussion, by the use of the low register in the brass, and by a dynamic level moving back and forth from *f* to *fff*, in a rapid crescendo and diminuendo (mm. 36-38 and mm. 45-47). I had in my notes a drawing, where a straight line was interrupted twice by two landslides into unexpected crevasses. These passages express contrast, since, before and after them, we find steady chords or even a single thread, a thin point of support that *saves* the listeners from the perception of an irreparable falling. Example 5.7 shows mm. 36-40 of the score, including “the landslide” and the single thread of trumpet 1, playing with the temple blocks. There is an intentional imbalance between the registers; the woodwinds, during the “landslide” given to the low register, play a single note for almost three measures in the high register (in unison or in octaves). The middle register is eliminated to enhance the perception of a sudden and substantial plummet.
Example 5.7. “Landslide,” mm. 36-40
The idea of a single, suspended thread, runs throughout the entire collection of *Tektosyne*. In *Temenos* we find it again, for instance, at the end of the section “Misterioso,” in mm. 178-189, where violins I (1) keep the A - played as artificial harmonic – as a single, suspended line. In the part dedicated to *Intercolumnia*, the section “Invisible threads” gathers and expands this concept with further examples. In *Entasis*, the *constellations* played in unison in the high register can be considered as an expansion of this idea (see Chapter 11).

An example of an emerging steady panel is in mm. 26-35. We already analyzed the chord played by the celli in this passage (see Example 3.11) in its intervallic features. The celli start playing this chord $p$, and gradually emerge to the surface through a crescendo of 9 measures. In mm. 31-35, woodwinds and brass propose other materials, drawn from “nucleus 2,” while the celli reach the dynamic level of $f$.

A different kind of stasis – that we will call “internally dynamic” – is in mm. 331-348, where the triplets of sixteenth notes do not create a real motion, but the illusion of a motion, a sort of vibration of a static image. The piece is arriving to its conclusion, and the feel of motion rapidly disappears, since the instruments playing the triplets stop, one by one, on one note and keep it until the end. Example 5.8 shows the final part of this process, focusing on the string section (mm. 341-345).
Example 5.8. Illusory motion and stasis, mm. 341-345

Formal Structure

The graphic representation of Temenos’ formal structure, in Figure 5.1, will guide us in the analysis of the three main sections of the piece. The graphic is divided into three drawings that identify Part I (mm.1-142), Part II (mm.143-257) and Part III (mm. 258-348). It highlights the starting and ending points of the main gestures, indicating highest and lowest pitches reached in specific measures, and in parenthesis instruments playing these pitches are indicated as well.
Figure 5.1. Temenos: formal structure
A first look - before starting an analytic description – points out the presence of two big melodic arches in Part I and II; the second arch (mm. 189-254) reaches the highest pitch in the piece, the C8. Part III presents three decreasing peaks, that gradually lead to the silence, as in a *fade out* process. Figure 5.2 shows, with fewer details, the overall structure, including the three parts. We can clearly observe the larger arch that characterizes the entire piece.

Figure 5.2. Overall structure

We will now analyze each part in detail. In Part I, mm. 1-61 have an introductory function, and this section starts and ends in the low register. The two “landslides” in mm. 36-47 are the most characterizing gestures of this section. After the first “landslide” (mm. 36-38) there are four measures of “re-climbing” (brass, mm. 41-44) where the highest pitch is given to trumpet 1 (F5). After the second “landslide” (mm. 45-47), the ascension reaches a higher level, the B6 of violins I. This point is the first peak of Part I; the second peak is reached in m. 124, and represents the climax of a big melodic arch, that takes 38 measures (mm. 91-129). This melodic arch concludes Part I, and mm. 129-142 are a transition to the middle section.

In the graph of Figure 5.1, the use of a dashed line expresses the main character of the first section of Part II (“Misterioso,” mm. 143-191): the reduction of low frequencies that produces the effect of “a floating section.” The intensive use of
harmonics glissandi in the strings - mainly covering a tritone - contributes to provide the feeling of “a lack of focus,” as in a hallucinatory status of mind. The maximum tension in this process is marked by the swaying melody of violins I in mm. 160-166. This passage is shown in Example 5.9.

Example 5.9. Violins I, mm. 160-163

The “floating section” ends with a process of crumbling, that we can clearly recognize in the pizzicato passage played by violins II (1), violas, celli and double basses in mm. 172-179. When the crumbling process is almost completed, in m. 177, only one, thin thread remains suspended: the harmonic A7 of violins I (1).

A drastic change of register marks the beginning of the second section of Part II, “Ampio, con sentimento.” This is a lyrical section, that gradually builds up to an expressive climax, in m. 234. The conclusion of Part II is a short, stylized valzer, “Danzando” (mm. 236-257), that rapidly disappears “in the clouds,” becoming almost inaudible in the high pitch C8 (string harmonics, mm. 254-256).

Part III presents a short, first initial rise in mm. 258-284, and prepares a gradual descent through two more peaks, that reach their highest points in m. 312 and 327 respectively. We already analyzed the section in mm. 331-348 from the point of view of the relationship between stasis and dynamism (see Example 5.8). This section begins with the initial gesture of the piece, the D3 played by horn 1 for three measures.
Measure 331 is the point where the outline of the “temenos” has been completed, and in the following measures a *fade out*, a withdrawal of the tools used to define its perimeter, prepare the appearance of the colonnades and the architectures of *Intercolumnia*. 
PART III

INTERCOLUMNIA
Chapter 6

THE MATERIALS

Brahms’ Fugue for Organ in A♭ minor

The row at the basis of Intercolumnia derives from the serialization of materials from Brahms’ A♭ minor Fugue for Organ (Wo0 8). The idea of using a work of the great composer came first from the request of conductor Zoe Zeniodi – who commissioned this piece – to have a composition in some way connected to Brahms’ music, which was featured on that particular concert. Brahms composed several works for organ that reveal the influence of Bach. He was not only a scholar, but also a formidable performer of Bach’s music, which he regularly included in his piano recitals. The passion for Bach’s music was also one of the mutual interests Brahms had with his beloved friend Clara Schumann, and he was certainly stimulated by his exposure to Robert Schumann’s library.

The A♭ minor Fugue was completed in the summer 1856. It first appeared in the Allgemeine musikalische Zeitung, neue Folge 2/29, without an opus number. The editor was Selmar Bagge, who expressed perplexity about its unusual key. Brahms refused to change it, replying that “true friends would not be put off by a few bees.” The A♭ minor Fugue was officially published in 1883 by Breitkopf & Härtel. In order to explain Brahms’ use of this key signature, Barbara Owen mentions Beethoven’s “Funeral March on the Death of a Hero” from the piano sonata n.12 op. 26, and the fact that “young


23 Ibid., 57.
Brahms’ hero – Robert Schumann – was still living when the Fugue was composed.”

Besides, a copy of the Fugue was given to Clara Schumann on Robert’s birthday in the June 1856.

This work was greatly appreciated by Brahms’ friend Joachim, who described it as “wonderfully deep,” and Brahms himself particularly loved this extraordinary complex work, as we can deduce from the unusual amount of detailed notations about the sonorities and the slurring found in Clara’s manuscript.

An interesting interpretation of the source of the subject comes from John Daverio, who sees in the first four pitches the letters of Brahms’ name (B=B♭; A=B♭; H=C♮; S=E♭, in German “es”) rearranged as H-B-S-A. More interestingly, in mm. 3 and 4, twice we hear the familiar intervallic succession half step down, minor third up, half step down “B-A-C-H.” The “Bach theme” is here transposed. Example 6.1 shows both Brahms’ and Bach’s names in mm. 1-4 of the Fugue.

Example 6.1. Brahms’ and Bach’s names in mm. 1-4 of the Fugue

This Fugue is an example of a counterfugue, in that the answer to the subject, starting in m. 3, is an inversion of it, instead of an imitation at a fifth above (or a fourth below). Example 6.2 shows the first five measures of the Fugue.

---

24 Ibid., 57.

25 Ibid., 57.
Example 6.2. Measures 1-5 of Brahms’ *Fugue for Organ in A♭ minor*

If all the repetitions are omitted, the pitches in mm. 1-5 appear as a twelve-tone row. In Example 6.3, the repeated notes are circled, and the numbers from 0 to 11 indicate the pitch class of the 12 sounds of the chromatic scale, according to the semitone content.

Example 6.3. Repeated notes and chromatic spectrum in mm. 1-5

Example 6.4 shows the twelve-tone series at 0 level of transposition, $P_0$

Example 6.4. $P_0$ row

But there is also a close connection of this subject with the “tuba theme” we analyzed in *Temenos*. As shown in Example 6.5, the intervallic relations of the order numbers 2-4 of the subject are the same of order numbers 1-3 of the “tuba theme.” The same can be said about pitches 8-10 of the inverted form of the series and 5-7 of the “tuba theme.”
Example 6.5. Common intervallic structures

The $P_0$ row presents four instances of chromatic motion, upward or downward. The minor 2\textsuperscript{nd} is the interval that most characterizes the series.

Example 6.6. Chromatic motion passages in the $P_0$ row

The matrix for this row is shown in Example 6.7. The forms of the row – or segments of it - have been freely used to generate melodic and harmonic structures. Further materials are drawn from other parts of Brahms’ Fugue and there is also a quotation of a passage from it, as shown in the next section.
**Example 6.7. Matrix**

<table>
<thead>
<tr>
<th></th>
<th>I₀</th>
<th>I₁₀</th>
<th>I₁</th>
<th>I₉</th>
<th>I₈</th>
<th>I₇</th>
<th>I₆</th>
<th>I₅</th>
<th>I₄</th>
<th>I₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₀</td>
<td>C</td>
<td>B</td>
<td>E</td>
<td>B_b</td>
<td>A</td>
<td>D</td>
<td>A_b</td>
<td>G</td>
<td>F</td>
<td>F_b</td>
</tr>
<tr>
<td>P₁</td>
<td>D_b</td>
<td>C</td>
<td>F</td>
<td>B</td>
<td>B_b</td>
<td>E_b</td>
<td>A</td>
<td>A_b</td>
<td>G_b</td>
<td>G</td>
</tr>
<tr>
<td>P₂</td>
<td>A_b</td>
<td>G</td>
<td>C</td>
<td>F</td>
<td>F</td>
<td>B_b</td>
<td>E</td>
<td>D_b</td>
<td>C_b</td>
<td>D</td>
</tr>
<tr>
<td>P₃</td>
<td>D</td>
<td>C_b</td>
<td>F</td>
<td>C</td>
<td>B</td>
<td>E</td>
<td>B_b</td>
<td>A</td>
<td>G</td>
<td>A_b</td>
</tr>
<tr>
<td>P₄</td>
<td>E_b</td>
<td>D</td>
<td>G</td>
<td>C</td>
<td>F</td>
<td>B_b</td>
<td>B_b</td>
<td>A_b</td>
<td>A</td>
<td>E</td>
</tr>
<tr>
<td>P₅</td>
<td>B_b</td>
<td>A</td>
<td>D</td>
<td>A_b</td>
<td>G</td>
<td>C</td>
<td>F</td>
<td>F</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>P₆</td>
<td>E</td>
<td>E_b</td>
<td>A_b</td>
<td>D</td>
<td>C</td>
<td>F</td>
<td>C</td>
<td>B</td>
<td>A</td>
<td>B_b</td>
</tr>
<tr>
<td>P₇</td>
<td>F</td>
<td>E</td>
<td>A_e</td>
<td>E_b</td>
<td>D</td>
<td>G</td>
<td>C</td>
<td>C</td>
<td>B_b</td>
<td>B</td>
</tr>
<tr>
<td>P₈</td>
<td>G</td>
<td>F</td>
<td>B</td>
<td>F</td>
<td>E</td>
<td>A</td>
<td>E_b</td>
<td>D</td>
<td>C</td>
<td>D_b</td>
</tr>
<tr>
<td>P₉</td>
<td>F</td>
<td>F_b</td>
<td>E</td>
<td>E_b</td>
<td>A_b</td>
<td>D</td>
<td>C_b</td>
<td>B</td>
<td>C</td>
<td>G</td>
</tr>
<tr>
<td>P₁₀</td>
<td>B</td>
<td>B_b</td>
<td>E_b</td>
<td>A</td>
<td>A_b</td>
<td>D_b</td>
<td>G</td>
<td>F</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

**Quotations and Re-contextualization**

The passage given to the glockenspiel in mm. 164-169 is a transposition of mm. 53-54 of Brahms’ Fugue (upper voices). A comparison of the two passages is illustrated in Example 6.8.
Example 6.8. Comparison of mm. 53-54 from Brahms’ Fugue and mm. 164-169 from *Intercolumnia*

Even for those who know this Fugue, it is very unlikely that the passage in mm. 164-169 will be associated with the final section of Brahms’ work. *Intercolumnia* borrows all its materials from the *A₃ minor Fugue*, but there is no explicit reference to Brahms’ music and style.

Other quotations do not concern entire passages, but only melodic and rhythmic cells. The episode in mm. 34-43, in the woodwinds, re-echoes the head of the Fugue subject, while the double basses play pitches 4-6 of the P₀ row. Example 6.9 shows the first part of this passage played by the woodwinds.
Example 6.9. Episode drawn from the head of the subject, woodwinds, mm. 34-39

A similar passage is in mm. 221-224, always in the woodwinds; the intervals come from the head of the subject, but the rhythmic articulation is different. Example 6.10 shows the part of the flutes of mm. 221-224.

Example 6.10. Flutes part in mm. 221-224

The viola part in mm. 231-234 offers another example of the use of melodic and rhythmic cells borrowed from the Fugue. The cell of four quarter notes is derived from a fragment of the subject, as shown in Example 6.11, where the two cells – first in the Fugue subject and then in the violas – are circled.
Example 6.11. Common cell in the Fugue subject and in *Intercolumnia* (violas mm. 231-234)

*Langsam*

The passage in mm. 251-252 of *Intercolumnia* (violins I) is borrowed from m. 11 of the Fugue. The cell – made of a quarter note tied to two eighth notes - is a transformation of materials from mm. 4-5 of the Fugue. Example 6.12 shows this derivation.

Example 6.12. Derivation of motivic cells from mm. 4-5

Example 6.13 shows the same cell in *Intercolumnia* (mm. 251-252, violin I).

Example 6.13. *Intercolumnia*, violins I, m. 251
The rhythmic cell of the quarter-note triplet, that in *Intercolumnnia* appears in mm. 251-252 in the violas, in Brahms’ Fugue is present in m. 7. This is actually the only point of the Fugue where it is used. Examples 6.14 and 6.15 show the two excerpts, the first is from the Fugue and the second from *Intercolumnnia*. We already saw this rhythmic structure in mm. 221-224, played by the woodwinds (Example 6.10).

Example 6.14. Quarter-note triplet in the Fugue, m. 7

Example 6.15. Quarter-note triplets in *Intercolumnnia*, violas, mm. 251-252
Chapter 7

DETAILED ANALYSIS

Melodic Structures

One of the melodic strategies used in Intercolumnia is the displacement of the series (or part of it) in different instruments and registers. In mm. 27-32, the solo trumpet is given the order numbers 1-3 of the $P_0$ form of the subject. Its continuation (order numbers 4-6) appears in mm. 34-39, in the double basses. The durations are either whole notes or two tied whole notes. Here the subject is not only displaced, but augmented (x8), and interrupted by a vertical structure of string harmonics and harp. In Example 7.1 the trumpet and the double basses are shown.

Example 7.1. Melodic displacement in two parts, mm. 27-39

In the “Più animato” section, there is an example of the line displaced over multiple instruments (string section, mm. 98-103). The row used is $I_{10}$, as shown in Example 7.2.
Example 7.2. Melodic displacement in more than two parts, strings, mm. 98-103

An extreme example of fragmentation and displacement is in mm. 174-177. Example 7.3 shows this passage, focusing on the instruments involved.

Example 7.3. Extreme fragmentation and displacement of the series (mm. 174-177)

A technique that can be considered a revisiting of the fugue stretto is the interlocking of parts we find in mm. 49-68 of Intercolumnnia (string section). This passage presents close iterations of the head of the subject. The pitches used are order numbers 1-
3 of the P and the I rows, at different levels of transposition. Only pitches 1 and 2 are played by the same instrument, whilst pitch 3 migrating to a different instrument and becomes the first pitch of a new iteration of the subject head. The beginning of this interlocking process is shown in Example 7.4, where pitches 1-3 of different rows are connected by lines in different colors.

Example 7.4. Interlocking process in mm. 49-52 (string section)

The head of the subject can be modified by the change of an interval, as in the solo of the tuba in mm. 69-75. The function of this modification is to mark the end of a section and prepare the entrance of the brass chords in pp in the new section “Un poco stringendo” (m. 79). The passage is shown in Example 7.5 The second interval of the head of the subject is a minor 6th down, instead of a perfect 5th.

Example 7.5. Change of interval in the head of the subject (tuba, mm. 69-75)
**Harmonic Structures**

The harmonic structure of *Intercolumnnia* includes polychords, quartal chords, chords derived from symmetrical scales – like the whole tone scale - and other structures drawn by the verticalization of the series. The choice of these kind of chords has been determined by the need to create areas of suspension in the piece. The lack of a pitch center in the harmonic structures helps to achieve that. An example of this idea of “suspension” is the passage in mm. 18-34, where the quartal chords and the dynamic levels from *ppp* to *p*, generate a quasi “oriental” sonority. The chord in m. 22, if rearranged as a horizontal line, is a pentatonic scale, an anhemitonic structure that, having no tendency notes, can be used with the purpose of creating areas that are static and tonally ambiguous. Example 7.6 shows this chord and its new arrangement in the form of a pentatonic scale.

**Example 7.6.** Quartal chord at m. 22 and its rearrangement as a pentatonic scale

The same structure can be found in the vibraphone part, in m. 156. Here the orchestration is rarefied and doesn’t feature any change, yet is nourished by the warm timbre of the vibraphone with its motor on. Example 7.7 shows this passage.
Example 7.7. Vibraphone, mm. 156-160

Not all the chords played by the vibraphone in this passage are made of perfect 4\textsuperscript{th}s; the second and third chords include tritones as well. A similar chord can be observed in m. 30. If we do not consider the doublings of the B and the E in the outer parts, it includes three perfect 4\textsuperscript{th}s, a tritone and a minor 3\textsuperscript{rd}.

Example 7.8. Quartal chord including a tritone (m. 30)

As a general rule, stuck 4\textsuperscript{th}s and their inversions (5\textsuperscript{th}s) tend to appear in one family of instruments if the chord is a mixed structure. As an example, we can analyze the distribution of the chord in m. 40. Example 7.9 shows first the chord and then the parts given to the string section.
Example 7.9. Distribution of parts in m. 40

Examples of polychords appear at the beginning of the piece. Their presence is motivated by their connection to the subject of Brahms’ fugue. The opening chord of Intercolumnia is made of two major triads, whose roots are a half step apart: F♯ major and G major. The half step interval is not only the first of the subject, but it is present four times in the series of Intercolumnia. If we consider the components of these two triads rearranged in one horizontal line, we will find a strong connection with the Fugue subject, that is actually contained in the two triads. Example 7.10 illustrates the obtained horizontal line and the presence of the head of the subject in it.

Example 7.10. Triads rearranged as one horizontal line, and Fugue subject

There is a strong connection between this polychord and the harmonic structures at the basis of Entasis, that are made of empty fifths half step apart. These quintal harmonies will be analyzed in detail in Part IV.
A second example of a polychord is in m. 4, where we have a similar structure (F major and F♯ major triads) with an added 6th, the D. Example 7.11 shows the distribution of parts of this chord in m.4.

Example 7.11. Polychord in m. 4

The chord in m. 7 is close to the vertical arrangement of a whole tone scale, even though there is no A♯ and a D♯ is added in the high register (piccolo and flutes).

Example 7.12. Chord in m. 7

Other chord structures include overlapping 3rd’s and 4th’s. The slow passage of the brass in mm. 79-97 offers examples of these chords. Example 7.13 shows the first three chords of this section (mm. 79-87).

Example 7.13. Brass, chords in mm. 79-87
I wanted to include in *Intercolumnia* the A\(\flat\) minor triad, the key of Brahms’ Fugue, as a sort of *harmonic quotation*. The chord appears in the string section, in mm. 45-48 and accompanies the solo oboe part and a short passage given to the harp, that is itself a quotation from *Temenos*. But let us first analyze the harmonic quotation and its connection with the other materials of the piece. While the strings play the A\(\flat\) minor triad (mm. 45-48), the oboe plays only one note, the G, in two different octaves; the harp plays G\(\sharp\) (\(=\)A\(\flat\)) and A. Both the G and the A are respectively a half step apart from A\(\flat\), the root of the triad. The A\(\flat\) minor triad is *stained* by two notes not belonging to the chord and that are a half step apart from its root. The half step is the interval that characterizes the head of the subject, and, as we know, it is present four times in the prime form of the row of *Intercolumnia*. Figure 7.14 shows the chord played by the strings and the oboe and harp parts in mm. 45-48.

**Example 7.14. A\(\flat\) minor chord and pitches played by oboe and harp**

This is not the only place in the score where we find a triad. Another example is the B\(\flat\) minor triad in first inversion, played by the woodwinds in m. 190.

The harp passage in mm. 46-48 is the same as the one found in *Temenos* in mm. 60-61 with a different rhythm. Example 7.15 shows both passages, first from *Temenos* and then from *Intercolumnia* (mm. 46-48).
Example 7.15. Harp passage from Temenos (mm. 60-61) and Intercolumnia (mm. 46-48)

This melodic idea returns in mm. 234-236, in the solo oboe part. Example 7.16 illustrates this passage.

Example 7.16. Oboe, mm. 234-236

In Intercolumnia there are also passages where the harmonies are determined by the superimposition of series or segments of the series. In Example 7.18, we see, for instance, how the gradual unfolding of the $I_0$ series creates vertical structures (Woodwinds, mm. 107-111).
Example 7.17. Chord structures generated by the series (woodwinds, mm. 107-111)

In other passages the series is presented first as a melodic line and then it builds up to a harmonic structure. The passage of the strings in mm. 183-186, shown in Example 7.18, is an instance of this procedure. The row used is R₆.

Example 7.18. Horizontal and vertical arrangement of a series, mm. 183-186

When the end of the piece is approaching, in mm. 270-273, piccolo, flutes and harp play a chord in pp three times. This chord is made of pitches 1-6 of the P₉ series and symbolically represents Brahms’ signature. In the Fugue the signature appears in the first four pitches of the P₁₁ row (refer to example 6.1). In mm. 270-273 of *Intercolumnia*
they are transposed, and the row used is P₉. The pitches are verticalized in a chord structure as fossilized by the action of time (Example 7.19).

Example 7.19. Pitches 1-6 of the P₉ row in mm. 270-273

The harmonic structures in the middle section of *Intercolumnia* - “Tempo giusto” (mm.115-140) - resulting from the gradual overlapping of cells that add up in different instruments, have been created using the 12 pitches of the RI₁₀ series. Each new entrance starts on a pitch of this series, in numerical order. Example 7.20 shows the beginning of this process (first three pitches) in the woodwinds (mm. 115-117). The pitches 1-3 of the RI₁₀ series are circled.

Example 7.20. Woodwinds, mm. 115-117, RI₁₀ series

At the same time, the pitches of the RI₁₀ series mark all the passages that introduce the rhythmic cell of a triplet of quarter notes tied with a quarter note. Example 7.21 shows
the brass part in the same measures (mm.115-118). The first three pitches of the series are played respectively by the first and second trombones, and by horns 2-4. In Example 7.21 pitches 1-3 are enclosed in a square.

Example 7.21. Brass, mm. 115-118, RI₁₀ series
Chapter 8

ORCHESTRATION

An Orchestra that Plays like an Organ

In Chapter 6, we analyzed the ways Intercolumnia refers to Brahms’ Fugue in the materials, but there are references to the Fugue also in the choices adopted to orchestrate the piece. The A♭ minor Fugue is a composition for organ, the instrument of infinite contrasts and colors. Intercolumnia starts with a “organ cadenza” that imitates the timbre of an organ by eliminating the string section (mm. 1-8). There are two more instances of block chords in a dynamic level from *f* to *fff* (mm. 208-214 and 253-259) but they have a different color; they include the strings, and are conceived for a real *orchestra* rather than an organ. In the passage in mm. 208-214 the strings have a strong melodic presence that fills in what is missing in the opening chords of the piece, where the subject of the Fugue has still to be disclosed.

The quasi organ sound is present in the abrupt changes of timbre as well. After the cadenza in *ff* (mm.1-8), the solo oboe, and then the flute, interweave the thin contrapuntal weft that presents the first pitches of subject for the first time (mm. 9-12). The contrapuntal web continues in mm. 13-17 with a new change of register including “the basses:” bass clarinet, bassoons and contrabassoon. Example 8.1 shows these two passages in the woodwind section. The rows used (P₉, I₁₁, I₁, I₇) are identified by different font numbers and connected by either solid or dashed lines.
Example 8.1. Woodwinds, mm.9-16

In *Intercolumnia* there is a continuous interplay between masses and passages where the orchestration is thinner. The block chord passages mentioned above are examples of masses. The rarefied areas are contrapuntal passages based on the series, or static areas characterized by a sort of *absence of weight*, realized through the reduction of the lower frequencies and the use of symmetrical structures devoid of a pitch center. We will here analyze examples of contrapuntal passages; the rarefied areas are also treated in the next section, “Invisible Threads.”

Besides the passages in Example 8.1 and in mm. 107-111 (Example 7.17), that involve only one family of instruments, there are sections where the series span different families in horizontal and vertical structures. In Example 8.2, a segment of the $P_{10}$ row is played by the oboe and echoed by the English horn, while the strings are given the $I_{10}$ row first, and then share the $R_5$ row with French horn and woodwinds.
Example 8.2. Use of series in different families of instruments, mm. 97-105

There is a gradual process of contrapuntal unfolding of the series. The first time it is confined in the higher and then the lower instruments of one family, the woodwinds (mm. 9-17). The second time it appears in the entire family of the strings in the passage that interlocks the first pitches of the series (mm. 49-68). In mm. 97-114 woodwinds, brass and strings are all involved. The same happens in mm. 174-177 and 194-197. At the
end of the piece the contrapuntal texture disappears in the fossilized structure played by piccolo, flutes and harp, already described in the section on the harmonic structure (see mm. 270-273 in Example 7.19). The last measures (275-281) offer a final iteration of the subject head in the triplets played by violas and celli, as shown in Example 8.3.

Example 8.3. Violas and celli part in mm. 275-281

Invisible threads

A feature common to the areas described in the previous section as suspended or rarefied is the presence of a static element that is transformed, and changed in its position, but that remains constant in the entire passage. By “static element” I mean a steady sonority played by one instrument or a group of instruments. The first passage where this element can be observed is in mm. 20-44. Figure 8.1 indicates the presence of this invisible but continuous thread and when it shifts from one group of instruments to another. The numbers on top indicate the measures.
This section is characterized by quartal harmonies, dynamic levels ranging from $ppp$ to $p$ and the substantial absence of the lower register. While the thread of steady passages provides a sense of floating and lack of movement, different episodes occur. The most important of them is the solo trumpet passage in mm. 27-30 (continued by the double basses in mm. 34-39) playing the first three pitches of the $P_0$ row.

The same kind of analysis can be proposed for the section in mm. 140-161. Here the process starts with a single thread, the C$\sharp$ that passes – with a sudden dynamic change
from *fff* to *p* – from the clarinet 1 to the oboe 1; in m. 143 it is picked up by piccolo and flutes, then by the first violin (m. 147), the woodwinds (m. 154), the vibraphone (m. 156), and eventually by the harp (m. 159). With the harp, that is less able to keep the sound in a static chord, the process ends. Figure 8.2 synthesizes all the occurrences of a static element in mm. 140-160.

Figure 8.2. Static elements in mm. 140-160
In this section the stasis is almost total and brings about a sort of disintegration of the chords in the tinkling of the chimes and the bells and the non-measured pizzicato of the violins. When this section has almost reached a complete stop, Brahms’ Fugue reappears, quoted in mm. 164-169, and after that, for the first time the Fugue subject stands out without any chord or contrapuntal accompaniment (mm. 174-176).

“Depth and tenderness”

The Fugue in A♭ minor greatly impressed Brahms’ friends - and, in general, the musicians of his time - not only for its extraordinary complexity, but also for its unusual color. In a letter dated June 1856, Joachim wrote to Gisela Von Arnim, “You ask for news of Brahms…Just lately he has sent me some work, among which was a fugue for organ that combines depth and tenderness of feeling with a wealth of musical art so nobly that Bach and Beethoven have scarcely excelled it.” 26 He also commented: “From the beginning to end, it is wonderfully deep; I know few pieces that have made such an impression of unity, beauty, and blissful peace on me as this fugue.” 27

In its first version, the Fugue had a parenthetical “Dark” – in German “Trübe”- following the tempo indication “Langsam,” and Joachim objected to this term “since the mood of sadness and oppression is so greatly dissolved in consolation and hope that it uplifts at the same time.” 28 It was eliminated in later versions.

In Joachim’s comments, the originality of this work clearly emerges through the use of expressions that underline its deep spirituality and profound humanity and “tenderness.” More than the intervallic materials, these aspects of the Fugue secretly

---

27 Ibid., 57.
28 Ibid., 58.
affected my composition, and only after composing it, did I realize why I adopted orchestral strategies that could express them, even in a piece so distant in time and intentions. There are two sections of *Intercolumnia* that particularly express the relationship between darkness (let’s use Brahms’ words!) and light, “consolation.” The first is the section in mm. 49-97; the second is the final part of the piece, “Calmo e limpido.” Measures 49-97 feature a process of gradual descent of register in the strings, accompanied by interruptions of woodwinds and brass. A “cold wind” is the image that I tried to translate in music through the use of tremolos *sempre pp*, with the purpose of providing the feeling of a tension destined to be suffocated and die (see the celli and double basses glissandi of m. 75). The “darkness” is also expressed by the low notes of the tuba in mm.69-75. After this descent, and the silence of m. 78, a sudden light appears, in the “golden sound” of brass and bells. The chromatic descent of the harp in mm. 84-85, compared to the string passage in mm. 49-76, has a less dramatic meaning and is a calm meditation on the Fugue subject.

“Tenderness” and “consolation” are expressed in the section “Calmo e limpido,” where harmonies are less dissonant. A strong tension is then built starting from m. 236 up to the three block chords in *fff* of mm. 253-260. There are three different and well characterized gestures that are repeated three times each: the block chords (mm. 253, 256 and 259); the four quarter notes “al tallone” of violas, celli and double basses (mm. 262, 264 and 266); and the chord of piccolo, flutes and harp (mm. 270, 271 and 272). The first two gestures are in *fff* and the third in *ppp*. These contrasting gestures re-propose the relationship deepness/darkness-light and also the possibility of musical materials to resist the aggression of time and survive in our memory.
Chapter 9

FORMAL STRUCTURE

Overview

The audience will clearly perceive three areas in *Intercolumnia*, marked by the central section “Tempo giusto,” (mm. 115-140) that presents gestures, dynamics and rhythmic features very different from the other two parts. In a first overview, we will identify these three parts, according to their function in the interplay of tensions and distensions in the piece. Each part will be then analyzed in its sub-sections and internal functions. Table 9.1 shows this ternary structure.

<table>
<thead>
<tr>
<th>PART 1</th>
<th>PART 2</th>
<th>PART 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm.1-114</td>
<td>mm.115-140</td>
<td>mm.141-281</td>
</tr>
</tbody>
</table>

Table 9.1. Ternary structure

The first part includes mm. 1-114 and is characterized by a gradual increase of the speed, that prepares the arrival of the middle section “Tempo giusto.” This section, that lasts only 25 measures (mm. 115-140), is marked by the constant presence of the quintuplets of sixteenth notes, that work like an internal-combustion engine, to carry on the entire passage as one big crescendo. The climax point in *ff* arrives exactly at the half of the piece, in m. 140; the overall number of measures is 281.

The third part (mm. 141-281) starts with a zeroing of the rhythmic activity and brings the tempo back to its initial setting, \( \downarrow = 108 \). Then it presents a new building up of tension in the section “Largamente” (mm. 208-224), and a resolution of it in mm. 225-235, “Calmo e limpido.”
Part One (mm.1-114)

In the first part of the piece there are four tempo changes, that mark four different sections. Table 9.2 shows these sections and their structural and communicative function.

Table 9.2. Sections in part one and their function

<table>
<thead>
<tr>
<th>Section</th>
<th>Measures</th>
<th>Structural function</th>
<th>Communicative function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampio e maestoso: cadenza d’organo</td>
<td>1-48</td>
<td>Introduction</td>
<td>Expository section</td>
</tr>
<tr>
<td>Poco più mosso</td>
<td>49-97</td>
<td>Tension increase</td>
<td>Repressed feelings</td>
</tr>
<tr>
<td>Un poco stringendo</td>
<td>79-97</td>
<td>Arrival point</td>
<td>Discovery/surprise/light</td>
</tr>
<tr>
<td>Più animato</td>
<td>98-114</td>
<td>Preparation to the second part</td>
<td>“Going towards”</td>
</tr>
</tbody>
</table>

The section “Ampio e maestoso” (1-48) functions as an introduction. It starts and ends with two symbolic gestures that refer to Brahms’ Fugue: the “organ cadenza” in mm. 1-8, and the A♭ minor triad that appears in mm. 45-48. The materials drawn from the fugue are gradually introduced starting from m. 9, after the “organ cadenza.” The first series used is the P₉ form of the row, followed by a contrapuntal passage of the woodwinds utilizing three transpositions of the I row (mm. 13-17). Like in a fugue, the subject is stated again and again in the exposition. Table 9.3 shows the main occurrences of the subject head, that is also hidden in the initial chord, as we saw in the section on the harmonic structures.
Table 9.3. Main occurrences of the subject head in mm. 1-48

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>oboe</td>
<td>2</td>
</tr>
<tr>
<td>bassoon</td>
<td>1</td>
</tr>
<tr>
<td>English horn</td>
<td>19</td>
</tr>
<tr>
<td>trumpet</td>
<td>1</td>
</tr>
<tr>
<td>piccolo and flutes</td>
<td>34-42</td>
</tr>
<tr>
<td>Vibraphone</td>
<td>41</td>
</tr>
</tbody>
</table>

With the exception of the “organ cadenza,” this section is characterized by soft dynamics, from ppp to p. The presence of quartal chords contributes to the sense of stasis of this section, where “nothing happens yet.” The suspended atmosphere is then broken in m. 45 by the A, minor chord, which presents its well grounded tonal structure in opposition to the ambiguous sonority of the quartal harmonies.

The two next sections – “Poco più mosso” and “Un poco stringendo” – have been conceived as one journey, that after a gradual and inexorable descent to the underworld (mm. 49-77), has an unexpected, positive outcome in the bright, yet quiet intervention of the brass, the bells and the harp. In this section the presence of the subject head is less explicit, as a result of the interlocking technique adopted in the strings texture, and there is an intervallic change in the enunciation of the subject given to the tuba in mm. 69-75.

The following section, “Più animato,” presents a more complex use of the series, in horizontal and vertical arrangements and restates the subject. A gradual increase of the tension is realized through the use of tremolos and trills and a shifting towards the high register.
Parts Two and Three (mm. 115-281)

A sudden return to the low register, and the rhythmic activity generated by the quintuplets of sixteenth notes, mark the beginning of the second part of the piece. The quarter-note triplet is a unifying element that stands out from the beginning of this section (m. 115).

Example 9.1. Triplet in the trombone part, m. 115

Its first occurrence is in the trombone 1; the dynamic indication \(fp<\) gives this cell the possibility to pierce the overall orchestral texture. It passes to different instruments, marking in each new entrance the pitches of the RI\(_{10}\) row, until the entire series has been unfolded. The rhythmic cell of the triplet shown in example 9.1. derives from a synthesis of two ideas: the rhythmic articulation of the first chord \(\updownarrow\), and the quarter-note triplet present in m. 7 of Brahms’ Fugue. Example 9.2 shows these rhythmic derivations.

Example 9.2. Rhythmic derivations
The climax is reached in m. 140, where the entire orchestra suddenly stops, and only the first clarinet keeps the C# in *fff* in its higher register. In m. 142 this note is taken by the first oboe, but with a drastic dynamic change.

Measure 140 marks the point of maximum motion in the piece; the following part, “Tempo primo,” features instead the maximum stasis. Besides the presence of the “invisible threads” analyzed in Chapter 8, the tinkling of wind chimes, bells and glockenspiel suddenly leads to a dreamlike atmosphere, where the quotation from Brahms’ Fugue sounds like a music box tune. In mm. 174-177 the Fugue subject is heard for the first time without any accompaniment of counterpoints or chords. This is the point where the piece re-starts and brings about a new climax in the tutti of mm. 208-214. The resolution of tensions – the “consolation and hope” Joachim mentioned in his notes – is reached in the section “Calmo e limpido.” The reason for the presence of three chords in *fff* and three in *pp* in this final part (mm. 253-260) can be explained on a symbolic level.

The entire piece plays with the idea of a *transparency* of our present that makes the ancient past still visible, like a faraway landscape between the columns of a temple. The massive chords, present in many parts of *Intercolumnia*, work as large columns which stand out against a distant background. The flattening of the first six pitches of the subject in the chords of piccolo, flutes and harp (m. 270-273) and all the transformations of the series featured in this piece talk to us about possibilities of interacting with the past.
PART IV

ENTASIS
Chapter 10

THE MATERIALS

The Row and the Drawn Materials

The series at the basis of Entasis’ harmonic and melodic materials is almost completely made of thematic fragments of the other two pieces of the collection, Temenos and Intercolumnia. It is actually a synthesis of the materials previously used, even though their elaboration is radically different. In Entasis, the series undergoes several processes of transformation that generate the additional sub-materials used in the piece. While the elements shared with the other two pieces of the collection provide a connection and common ground that contribute to make Tektosyne a consistent project, the sub-materials give this piece its uniqueness and originality.

Example 10.1. Entasis’ P₀ series

The series used is a twelve-tone row, but Entasis is not a twelve-tone piece. Figure 10.1 shows the matrix with all the transpositions of the four forms of the row, prime, inversion, retrograde and retrograde inversion. These materials have been freely used – often putting together fragments belonging to different rows - and constitute the basis of thematic and harmonic ideas.
Besides the four basic forms of the series and their transpositions, further melodic materials are drawn by five concentric rings, called *constellations*. In Figure 10.2, they are identified by five different colors. They have been used considering only successions of pitches of their clockwise progression.
A sixth constellation, the diagonal constellation, comes from the pitches generated by one of the diagonals of the matrix, from the lower left corner to the right corner on top, as shown in Figure 10.3 by the red arrow.

Entasis’ series has also been explored as a generator of rotational arrays. This process is shown in Figure 10.3 The series is divided in two hexachords. In the first step, each hexachord of the α and the β columns is rotated in a way that every new hexachord starts from the second pitch of the previous one. In this way five new series are
generated. They are identified with a roman numeral, from I to V. The arrays \( \gamma \) and \( \delta \) include each \( \alpha \) and \( \beta \) rotations, starting from the first pitch of \( \gamma \) and \( \delta \) untransposed hexachords. This procedure can be found in a majority of Stravinsky’s serial works, from the *Cantata* (1952) to the *Requiem Canticles* (1966).\(^\text{29}\) In *Entasis*, only the two rotational arrays derived from \( P_7 \) and \( R_7 \) are used. Figures 10.3 and 10.4 illustrate these two arrays.

Figure 10.3. \( P_7 \) arrays

A multi-layered composition

Entasis has been conceived as a multi-layered piece, where three main ideas are superimposed. The character and the quality of these ideas are different and contrasting, and they are “forced” to work together, while preserving their independence, through the use of different gestures and tempi. The compositional and emotional purpose of Entasis is to produce a sort of organized chaos, that puts together incompatible elements and forces, bringing their friction and contrast to the most extreme consequences.

The three layers can be defined as:

1. Bubbling pad
2. Chorale
3. Constellations
The idea of a multi-layered piece comes in part from the study of two scores by Stockhausen, *Gruppen* for three orchestras and *Carrè*, for four orchestras and choir, however the concept of multiple layers in *Entasis* has been applied in a different way, compared to Stockhausen. In fact there are not masses of colors and sounds conceived in a specific spatial displacement, but well characterized events that have also a historical connotation. The chorale layer, for instance, clearly refers to the ancient practice of the chorale style, and to techniques of traditional counterpoint, including the canon and techniques of augmentation and diminution (The term “chorale” is not used here only in its strict technical meaning). This historical connotation conflicts with that of other layers, because the overall result is not consistent with the individual historical references of any specific layer, therefore the chorale resounds as the ghost of a colossal extinct dinosaur, witness of a past that today has no sense anymore.

The bubbling pad is characterized by rhythmic variety and the continuous changes of modes of attack and dynamic levels. The materials are taken both from the series and from a process of permutations and repetitions of fragments of the series. This process will be analyzed later in detail. The bubbling pad represents the Dionysiac aspect of this score, though its pitch content is arranged according to strict rational procedures.

When the constellations appear for the first time in the score, at m. 70, they are highly recognizable. They stand out in the high register of piccolo and flutes and every note has a duration of nine quarter notes. They are bright, yet distant and incomprehensible, like stars, and move at their own pace, heedless of what is happening on earth to human beings. The constellation materials are mainly used in two ways. They are either move very slowly and follow a regular rhythmic pattern - as in their first
appearance - or very fast, and articulated in irregular groupings, as we can observe in the section from m. 140 to m. 170. They are also used at the end of the work, in the “Cadenza finale a due,” as a conclusive and intimate clausola. The piece ends re-winding in itself, in its spiral of concentric rings, after a difficult journey.
Chapter 11

DETAILED ANALYSIS

The Cadenzas

*Entasis* starts with a cadence in the bass clarinet. The first five notes are pitches 1-5 of the P₉ series. From m. 5, the theme continues with a chromatic passage. Chromaticism characterizes the second half of the Prime form of the series, since the pitches are taken from a fragment of Brahms’ fugue subject, at the basis of *Intercolumnia*.

Example 11.1. Bass clarinet opening cadence

The bass clarinet is given two more solo passages, at m. 194, “Cadenza a due,” and m. 274, “Cadenza finale a due.” In both cases it engages in a dialogue, the first time with the solo violoncello, and the second with the solo double bass. In the “Cadenza a due” at m. 194 (see Example 11.2) the solo clarinet uses both the *pink constellation* (see Fig. 10.2) and fragments of the I₂ series, plus a free chromatic passage derived from the opening cadence. The cello part is based on the RI₄ and the I₉ series.
Example 11.2. “Cadenza a due,” m. 194

The “Cadenza finale a due” (Example 11.3) is built with the complete ring of the pink constellation.

Example 11.3. “Cadenza finale a due,” m. 274

The cadences are the meditative areas of this score and constitute the frame of the piece. There is a gradual lowering of the overall range from the opening to the final cadence and a similar process with the dynamic levels, moving from $f$ to $ppp$. The pink constellation, in particular, presents – in its final four pitches - a melodic contour that in
our tonal memory suggests a 3-2-1-7 motion, implying a half cadence. It has been used to generate a sense of suspension and leave the audience with an unresolved, dreamlike feeling.

The Harmonic Structures

A feature that is common to all the pieces of Tektosyne is chromaticism. The “tuba theme” in Temenos ends going half step down. The serialized materials of Brahms’ Fugue start in the same way and include three more descending chromatic steps in the dyads 4-5, 7-8, 10-11 of the series. Since the series used in Entasis borrows its pitches 7-11 from the Brahms’ fugue subject, it has the same intervallic features. The chromatic relationship is also expressed in chord structures.

The first chord, given to the double bass in m. 14, is made of two notes, D and D♯. The second chord, in m. 17, is a quintal chord, and the pitches are RI7 1-6. They have been arranged so that every note of the chord is in chromatic collision with the same note flattened by half step. At m. 24 the same chord is expanded (Example 11.4).

Example 11.4. Chord structures in mm. 17 and 24

At m. 37 the chord given to the brass section and the bass clarinet is made of pitches RI0 7-12. It is the ideal continuation of the chord at m. 17 – that uses the first six pitches of the RI series and concludes the introductive section “Moderato.”
Quintal chords are mainly used as steady panels of color, that create a feeling of suspension of time. There are three main sections where these panels stand out: the introductory section (mm. 1-39), the beginning of the middle section “Più calmo,” (mm. 137-143), and mm. 291-297. The quality of these panels is always modified by the intervention of the voices of the performers, by a repetitive rhythmic pattern, or by the presence in the chord of an instrument that uses a particular technique. In the chord at m. 24, for instance, the trombone freely alternates open and close sounds, giving the chord a sense of vibration. In the section dedicated to the orchestration strategies all these elements and their function will be analyzed in detail.

Quintal chords can be doubled in a different register by other instruments. Figure 11.5 shows the chord given to the string section at m. 62. It is doubled an octave below in the same measure by woodwinds and brass.

Example 11.5. Quintal chord, strings, m. 62

![Quintal Chord Example](image)

There are passages where both the horizontal and the vertical structures are drawn from segments of the series. This happens, for instance, at m. 45, where the piccolo plays pitches $P_0 12-4$, and the starting vertical arrangement of the measure is made of pitches $I_0 2-5$. 
The starting chord of the partially aleatoric section, from m. 240, covers the entire chromatic spectrum, arranged in the position shown in Figure 11.7.

Example 11.7. Chromatic spectrum

There is one more instance of a vertical arrangement made of all the 12 sounds of the series, in mm. 186-189, where the complete $R_0$ row gradually unfolds.

Chords can undergo a process of gradual contraction. Starting from a chord made of overlapping fifths, the parts gradually create a chord made of thirds, and then the
process continues up to a more compact chord made of seconds and thirds. This process can be observed in mm. 211-221 in woodwinds and brasses. Figure 11.8 shows the entire sequence.

Example 11.8. Process of gradual contraction of the chord

In the third part of the piece “Risoluto,” starting from m. 221, the idea of the gradual compression of chords was the impetus to create an alternation of 12 agglomerates of pitches, given to individual families of instruments. They are all characterized by the same dynamic gesture - a fast crescendo from pp to ff - and their expressive function is preparing the arrival of the partially aleatoric section that starts at m. 240. These agglomerates, that we will call groups, are made of fragments of the series. In some cases, as for instance in group 3, part of the chord is doubled above or below in a different register. Figure 11.9 shows in detail the derivation of the pitch content of each group.
Other harmonic structures, mostly in the choral layer and the bubbling pad, result from contrapuntal procedures, nevertheless there are passages where quintal chords appear in strata of these layers. As an example, at m. 62, the strings start by playing a quintal chord that is gradually crumbled through a process of shifting of the voices.
A chord can be made of all the pitches of a series, as in mm. 186-189, where the 12 pitches of \( R_0 \) are superimposed. The series is played by woodwinds, brass, celli and double basses.

**The Chorale Layer**

Example 11.10 shows the basic thematic idea of the chorale layer and its relation with the chromaticism, present in all the thematic materials of *Tektosyne*. The vertical arrangement of the notes constituting the theme produces dyads half step apart.

Example 11.10. Chorale theme and its verticalization

The chorale layer also includes contrapuntal passages, where the distance among the voices is on purpose very big. As an example, we can analyze the string section at mm. 27-31 (see Example 11.11), where there is a distance of more than two octaves between violins I and II. This “incorrect” distance of the voices is present in my string quartet *Per motus* as well. The partial modification and displacement of familiar elements is a way to express a new order, where the old still shines through.
In this passage the choice of the first pitches reminds the “tuba theme” of *Temenos*, for the chromatic distance between the first and the third note, and for the first interval, that in *Entasis* is a perfect 5<sup>th</sup>, and in *Temenos* its inversion, a perfect 4<sup>th</sup> (Example 11.12).

Example 11.12. Comparison with the “Tuba theme” in *Temenos*

The chorale theme appears for the first time at m.66 - played by celli I – together with its augmentation, transposed a tritone below and played by celli II.
It is immediately re-proposed with some modifications and embellishments. Example 11.14 shows the continuation of the celli I part, from m. 70 to m.73.

The theme can appear inverted, as in mm. 86-90.

It can be rhythmically modified, like in the trombones passage at mm. 146-150.
Example 11.16. Chorale theme rhythmically modified

From m. 155 to m. 185, the string section is built as a long canon, based on irregular augmentations and diminutions of the RI series. We will call it *grande canone*.

The note durations are irregular, since each voice has passages where it lingers for a while on one note, before moving to the next. Voices are like long overlapped ribbons, and their flowing has not rhythmic regularity, as if all the players were playing improvising their part by listening to each other. All the strings play *p sul tasto*.

Sometimes the distance between string instruments of the same family is very big, like in the opening section of the piece (m.27). The grande canone is accompanied by the echo of the obsessive repetition of the same notes in the brass section, and it flows into the chord made of the 12 pitches of R₀ at mm. 186-189. Example 11.17. shows in detail the use of the RI series in the string section and the “stops” that create rhythmic irregularity in the canon.
Example 11.17. Grande canon, strings, mm. 155-188
The Constellations

In the section dedicated to the materials, we already mentioned the five constellations identified by the green, pink, blue, orange and yellow colors, and the diagonal constellation, resulting from the pitches that appear in the diagonal of the matrix (from the lowest left to the upper right corner).

The pink constellation is the most important among them. We already analyzed its role in the cadences, particularly the one that concludes the piece. Figure 11.18 shows the pitches of its complete ring, starting from the C in the upper left corner, and moving clockwise.

Example 11.18. Pink constellation
In its first appearance, at m. 70 (piccolo and flutes), it is transposed up a 5th, and the attack of each note is ornamented by a sort of quick neighbor group or other embellishments. In contrast with the metric structure of all the other parts, the duration of each note is 9 quarter notes. The high register and the metric displacement contribute to isolate this layer in the perception of the listeners.

Example 11.19. Metric structure of the pink constellation

In mm.81-90 the violins continue the pink constellation from pitch 4 to 7, at a different level of transposition - a major 3rd below – and maintain the same duration of 9 quarter notes.

In the fast section from m. 269 to 280, the pitches 1-8 of the pink constellation are transposed and split in the parts of couples of instruments. Example 11.20 shows the beginning of this process.

Example 11.20. Pink constellation distributed in two instruments
In the middle section “Più calmo” (m. 137), the constellations are presented in overlapped, irregular and fast groups, in a process that can be defined as *fluidification*, in contrast with the first part of the piece, where the texture is more dense and includes block chord structures.

The constellations can start from any pitch of the ring, they can be used in part, be transposed and inverted. The excerpt shown in Example 11.21 bears annotations about the constellations used. The letter T indicates that a constellation - or a fragment of it - has been transposed.

Example 11.21. Fluidification, mm. 152-155
The solo parts of bass clarinet, oboe and horn I, in mm. 157-166, are also drawn by constellations. For instance, the orange constellation, in a transposed form, is at the basis of the solo oboe part, at m. 162, that involves also the English horn.

Example 11.22. Orange constellation split in two parts

The constellations can be inverted as well, as in the piccolo, at m. 144, that plays an inversion of the pink constellation.

Example 11.23. Inversion of the pink constellation

The Bubbling Pad

The creation of a “good” chaos requires an extremely rational planning. A possible option can be giving the performers instructions for improvised passages, but the result cannot be really controlled and sometimes players feel uncomfortable with improvisation techniques and lose energy and interpretative intention. This is the reason why in *Entasis* the bubbling pad has been meticulously planned.

The bubbling pad layer starts in the double basses, in m. 55. Up to m. 62 the double basses play short passages moving around two pivot notes, D and D♯. These notes work as magnetic poles and keep the instruments “trapped,” until they free themselves by playing other notes. This happens in m. 62. This layer is characterized by abrupt dynamic
changes and by changes in the bowing techniques. The fragments used, at different level of transposition are shown in Table 11.1.

Table 11.1. Fragments of series used in the bubbling pad

<table>
<thead>
<tr>
<th></th>
<th>I 5-8</th>
<th>R 3-6</th>
<th>RI 3-8</th>
<th>I 7-10</th>
</tr>
</thead>
</table>

Each fragment can undergo a process of alteration and permutation, according to the following criteria:

1. The second half of the cell is transposed half step up → x cell
2. Starting from the new cell obtained (x cell), the order of pitches 3 and 4 is inverted → y cell
3. The y cell undergoes a new permutation of pitches 2, 3 and 4 → z cell

Example 11.24 illustrates these modifications applied to the first fragment I₀ 5-8.

Example 11.24. I₀ 5-8 X, Y and Z models
Three scales are constructed through the repetition of a segment at a particular level of transposition (Example 11.25).

Example 11.25. Scales

![Scales Diagram]

Figure 11.26 shows an example of use of these scales in the bubbling pad (mm. 70-75).

The double basses IV play the three scales in the order they are shown above, with the exception of the first note of Scale A, that is omitted.

Example 11.26. Use of scales A, B and C

![Double basses IV, mm.70-75]

The $P_7$ and $R_7$ arrays are mainly used in the section that starts at m. 254 and ends on the fermata of m. 268. All the instruments (except the brass from m. 254 to m. 261) play series $\alpha$, $\beta$, $\gamma$ or $\delta$. Example 11.27 shows these series in the string section at m. 254.
Example 11.27. $R_7 \alpha$ and $\gamma$ series in the string section at m. 254
Chapter 12

ORCHESTRATION STRATEGIES

Sand, Bells, Chains

The sandpaper blocks appear four times in the score (mm. 14, 37, 51, 295). In all these passages they are played in the same way, with a slow and continuous motion, and the same dynamic level of *pp*. They are part of a precise “color” of the orchestra, that also includes a steady sonority, one of the chords analyzed in the previous chapter. In thinking about the dynamics of time in this score, the element of sand naturally came to my mind, both for the specific sound the sandpaper blocks can produce, and for some broader associations. The sand is the result of a process of erosion and crumbling, and *Entasis* shows similar procedures at different levels. The constellations undergo a process of fluidification, the bubbling pad is made of a centripetal projection of splinters of materials; the entire piece is conceived as a friction of forces, and there are techniques of “slipping” of the materials, that will be analyzed in the next paragraph. Lastly, from ancient times, the sand represents time – and its crumbling - in the evocative object of the hourglass.

Chains, in their metaphorical meaning, are the opposite element of sand. Chains represent captivity, overwhelming. They determine the abrupt interruption of motion, and provide a kind of warning about the inevitable end. Nonetheless, there is a timbral connection between the sound of a chain and sand. The intervention of the chains closes the piece, and the audience is merged in the total dark of the concert hall. *Entasis* disappears like a dream.
In *Intercolumnia*, one of the sections where the tubular bells are used is in mm. 79-97. They accompany the static chords of the brasses. The entire passage uses a dynamic range from *pp* to *p*, and the bells are given three notes, F, G and E. In *Entasis*, after the big climax reached in m. 125, there are four measures (mm. 127-130) conceived to “shock” and “awake” the audience with a single note, played by vibraphone, glockenspiel and tubular bells. All the performers play in *ff*: in my mind I had the image of a bell-ringer gone mad and hung from the rope of a bell tower. In many Italian villages, still nowadays, the bells mark time for the inhabitants. They resound in specific hours of the day, and on the occasions of births, deaths and other celebrations. The people who grew up with the sound of bells in their daily life, experience a strong disorientation if they move to cities where this tradition is lost. We are again dealing with time and its flowing. The bells in mm. 127-130 mark the end of the first part of the piece, and announce the introduction of a new element, the fluidification of the materials, and the way they are used is idiomatic.

**Static and Dynamic**

The key concept of the relationship between stasis and dynamism is immediately introduced in the piece by the cadenza of the solo clarinet. It alternates quick gestures and long fermatas. The quadruplets of thirty-second notes are the generative idea of the quintuplets that will appear in the bubbling pad, with the same abrupt gesture. Example 12.1 shows the occurrence of the quadruplets in the solo clarinet cadenza, and the first appearance of the quintuplets in the bubbling pad.
Example 12.1. Quadruplets as generative idea of the quintuplets

The same idea marks the beginning of the pink constellation, that always starts with a quadruplet of thirty-second notes, as shown in Example 12.2.

Example 12.2. Quadruplet of thirty-second notes in the pink constellation

In the opening cadenza of the bass clarinet, m. 4 starts with the same rhythmic cell (Example 12.3).

Example 12.3. Quadruplet of thirty-second notes in the opening cadenza

In *Entasis* there is a continuous interplay of static and dynamic areas and there are passages where the two aspects coexist, in a system where the flow itself includes static blocks that hinder the process of flowing. A first example of this dichotomy is in
the string section at mm. 27-37. Violins, violas and celli play a very slow contrapuntal passage, whilst the double basses show a gradual slipping motion, ending on the fundamental dyad D-D). Example 12.4 illustrates the first part of this passage.

Example 12.4. Static and dynamic interplay

This process of slipping is present in many passages of this score. It appears, for instance, in m. 12, when the solo clarinet has concluded its cadenza on the D in the lower register. The idea here is contrasting the sense of repose offered by the conclusion of the cadenza, by providing “an unreliable floor” that slips beneath our feet, until it finds a new balance, in one of the basic chords of this score. A similar process can be observed in mm. 62-66, 135-136, 190-192, 208-210. It always concerns the string section, where the use of glissandi can reinforce the feeling of a slipping motion. The first occurrence of this process, at the end of the bass clarinet opening cadenza (mm. 11-13), is shown in Example 12.5.
Example 12.5. Slipping motion of the strings, mm. 11-14

In the string section, from m.62 to m. 111, the blocks that temporarily resist the flow are, for instance, the abrupt gestures of the quintuplets given to the first violins, followed by two or more measures of whole notes. If we observe in particular mm. 91-96, we will notice that, while all the other parts move, the violins I work as braking elements in the overall motion of the entire string section. Example 12.6 shows this passage.
The main static areas are the long chords in \textit{pp} or \textit{ppp} that start in mm. 14 and gradually expand in mm. 17-21 and mm. 24-32. These areas are characterized by the slight transformation of their timbral quality and are mostly played by woodwinds and brass (Examples can be found in mm. 17-21, 24-32, 37-45, 137-140 etc.).

A further synthesis of the opposite concepts of stasis and dynamism is realized in the partially aleatoric section (mm. 240-267); in particular mm. 254-261. In this section, the only element that really \textit{moves} is the brass section, that plays very loudly the pink constellation. The constant repetition of formulas of all the other parts - and the consequent “molecular agitation” produced - is only an illusory motion that can be described as static rather than dynamic. It is indeed a different quality of stasis, but it doesn’t really differ from the steady chords in \textit{ppp} described above.
The Function of the Groups

In the section dedicated to the harmonic structures, the groups have been analyzed in their pitch content and as a result of the gradual compression of chords. In the groups, the parts are very close to each other and they present strong dissonances. They have been also described as a preparation to the partially aleatoric section, as a way to increase the tension before the free expansion and liberation of the materials that characterizes that section. But where do these new elements, the groups, really come from? If we observe the gestures used in the bubbling pad, we will notice that the main idea is a crescendo, that follows a sudden dynamic gap. Example 12.6, in the previous section, clearly shows this idea. But in the bubbling pad there are contrasting gestures in different strata (in mm.91-94, for instance, only the violins and the first violas are given this gesture). In contrast, the section exclusively based on the groups (“Risoluto,” from m. 221 to m. 239) shows a single dynamic gesture, a big crescendo from *pp* to *ff*, repeated by the different families of instruments. This section shows a process of re-composition of the bubbling pad in a single, consistent gesture, and represents a way out from chaos. Groups are also an extreme synthesis of the relationship static-dynamic, in that they alternate long duration notes with a very fast rhythmic cell of two sixteenth notes.
Overlappings and their Meaning

The partially aleatoric section is the only one in the piece where all the materials look really systematized and organically organized. It offers a possible solution to the discomfort generated by the stiffness of each layer of materials and the consequent difficult interaction with the others. Starting from m. 240 there is a big release of the tension, and there are no blocks or interruptions in the flow, up to the fermata at m. 268. Before this section, different overlappings of layers serve different expressive purposes.

A passage that shows the three layers superimposed is the section from m. 66 to m. 125. In this section, the independent intention and path of each layer is planned to generate the feeling that different works are played at the same time. Actually, there are four layers, at least in the beginning, as the analysis of the section from m. 66 to m. 72 will clarify. The chorale layer starts at m. 66 in celli and tuba, while the violas stop on a long quintal chord. The bubbling pad is in the double basses, and at m. 70 the flutes and the piccolo start playing the pink constellation’s materials.
Example 12.7. Four layer texture in mm. 65-72
A different expressive purpose generates the overlappings in the section “Più calmo,” (from m. 137 to m. 193). The long canon played by the strings from m. 155, though independent, is not in contrast with the other elements, quintal chords and solo passages built with constellations materials. The layers are integrated and work together to create a warmer and more expressive area in the piece. But even in this less conflicting section, while the grande canone slowly unfolds and grows in intensity, the trumpets and trombones obsessively echo the same passage of repeated notes, that sounds as the warning of a conflict not yet resolved.

The Audience in the Score

In *Entasis* we hear three times the voice of the performers (mm. 19, 225, 281), either whispering or loudly pronouncing fragments of phrases in Latin from the *De architectura* by Vitruvius: this technique has a communicative and a representative function. The intervention of the voices is meant to represent the internal reaction of the audience to the most mysterious and obscure passages of this score.

The first whispering comes at m. 19. From m. 14 we have the dyad D-D, of the double basses, the sandpaper blocks, the sudden resounding of the chains, and a steady panel of color in the woodwind section. The first whispering expresses astonishment and perplexity. The voices work like the choir in ancient Greek tragedy, as if the commentary could actually become part of the action.

The second time, at m. 225, the voices intervene in the section of the groups. The strong dissonances and the displacement of the same gesture in different sections of the orchestra generate a more violent reaction, expressed by the voices, loudly pronouncing the Latin words.
In m. 281 the end of the piece is approaching. The orchestra has just reached the silence but something tells the audience that the piece is not concluded. This last whispering expresses again perplexity and a sort of fear of a possible, close end. The “Cadenza finale a due,” with its softer, quasi tonal identity is a partial answer to this fear, a half-answer, like the half cadence disguised in the last pitches of the pink constellation. Of course these “potential reactions” are only supposed, and in a real performance the audience may provide a different feedback, but they reveal an important aspect of my work as a composer, a careful consideration of the emotional journey I am trying to propose to the audience.

**Formal Structure**

Even though the precise subdivision of a work in different sections is always somewhat arbitrary, in *Entasis* it is possible to identify three sections on the basis of the same criteria used in the analysis of the materials and the orchestral solutions. In other words, the best way to distinguish different sections is here focusing again on the dynamic tension-distention and the relationship of opposite forces and gestures, that characterize this piece at different levels. As shown in Table 12.1, section A is made of an introductory part (mm. 1-51) and a long process of increase of the tension, up to the climax at m. 125. The B section is instead characterized by the opposite process, a widening and a distention of the materials. Section C includes the partially aleatoric section (mm. 240-268), that finally resolves the dichotomy through a freer circulation of the materials. Every section includes a cadenza.
Table 12.1. Formal structure

<table>
<thead>
<tr>
<th>SECTION A (mm. 1-125)</th>
<th>SECTION B (mm. 126-220)</th>
<th>SECTION C (mm. 221-297)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction + Building up of tension</td>
<td>Distension</td>
<td>Synthesis and conflagration</td>
</tr>
</tbody>
</table>

The introductive section (mm. 1-51) is mainly characterized by the quintal chords in *ppp*, and presents some basic ideas and gestures of the piece. Not considering the opening cadenza, this section actually starts and ends with the same passage: same notes D and D♮ (given to different instruments) and accompanied by the sandpaper blocks (compare mm. 14-16 and 51-55).

After the opening cadenza, for two times (in mm. 12-13 and 31-37) the double basses undergo the “slipping” motion that in the previous chapter has been described as a landing on “an unreliable floor.” The chords are accompanied by a light rhythmic punctuation, involving first sandpaper blocks and chains (mm. 14-16), and then bass drum and the pizzicato secco of the double basses (mm. 21-23). This rhythmic formula is repeated in mm. 37-39.

The contrapuntal style of the strings in mm. 27-38 (except the double basses) anticipates the presence of a composition technique that relates to the past and prepares the introduction of the chorale layer. The quintuplets played by the woodwinds in mm. 45-47 are a basic element of the bubbling pad, where they always stand out for a sudden dynamic change. Example 12.8 (violas, mm. 73-77) shows the use of quintuplets in this layer.
Starting from m. 55, section A has been conceived as a long crescendo of tension: 75 measures of crescendo! It starts with the dyad D-D₃, in the low register of contrabassoon and tuba (mm. 51-55). The layers gradually add up. In m. 55 the bubbling pad shows its first abrupt gesture of quintuplets in ff, followed by long notes in pp. In m. 66 the chorale theme is played for the first time by celli and tuba. Four measures later, in m. 70, the new ribbon of the pink constellation starts its independent path in flutes and piccolo. The flow proceeds like gigantic machinery, whose work is heavily hindered by braking forces. The resolution and release of the dramatic tension accumulated in this section is in mm. 116-126, where eventually all these forces push in the same direction at the same speed, and cooperate to build up the big climax of m. 125.

Section B includes mm. 127-220 and expresses the opposite idea of section A. Instead of building a more and more compact mass, here all the materials become fluid and the gestures are less extreme and dramatic. All the series derived from the constellations freely overlap, without a rigid metric scheme (see, for instance, the woodwind section of mm. 144-145). In mm. 146-150 trumpets, trombones and tuba play a rhythmically varied version of the chorale theme. The grande canone (mm. 155-189) significantly widens the durations of the notes in the string section, creating a feeling of distension and repose.
After the meditative area of the “Cadenza a due,” mm. 211-220 prepare the arrival of section C, through the process of gradual contraction of the chords we already analyzed in the chapter on the harmonic structures. Mm. 221-239, at the beginning of section C, show the maximum level of compression of the chord structures, to enhance the feeling of liberation created by the partially aleatoric section (mm. 240-268) that leads the piece to its conclusion. In this section, the only element that remains clearly recognizable is the pink constellation. It stands out in the brass (mm. 254-263), until it merges, in m. 264, with the sound mass of the entire orchestra. The process of saturation of the materials is here fully unfolded. The fermata of m.268 marks a moment of *apnea* in the performance, and the gradual distension of the passage in mm. 269-280 is the consequential *exhalation* after this breath-held moment. The sound gradually disappears in the diminuendo from *pp* to *niente*. The “Cadenza finale a due” brings the piece back to the initial chord. This time there is no “slipping motion,” no shifting in the landing. The journey is finished, and time is finished.
DIMENSIONS OF TIME AND CREATIVITY

My personal relationship with time – and with creativity – is affected by suggestions coming from modern physics. Even though I love planning my work, in doing that, I always feel a latent uneasiness of “suppressing,” through an imposed order, possibilities that may be better than the one I am going to develop. In planning a musical architecture I am immediately tempted by de-construction and disintegration, and this ambivalent aspect can be recognized in some sections of Tektosyne, where disrupting forces prevail in the treatment of materials. It is like feeling that the careful observation and analysis of materials, boosted in a research project, may act as the observer does in quantum physics, where the particles exist as waves, loaded with infinite possibilities, only when nobody watches them. That’s why in this work I mentioned Calvino’s hyper-novel The Castle of Crossed Destinies and his attempt to avoid interfering with the infinite potentiality of materials.

In his The Garden of Forking Paths Jorge Luis Borges brought this idea to the most extreme consequences, since the protagonist, who is a spy, believes that “if he commits this crime here and now, in other universes he and his victim will be able to hail each other as friends and brothers.” That is analogous to the latest evolutions of the String Theory and the hypothesis of parallel universes. Borges not only emphasizes a notion of time as a dimension that exists only “here and now,” but also the subjectivity of the experience of time; this passage, from The Garden of Forking Paths is quoted in Calvino’s Six Memos for the next Millennium:

I reflected that everything, to everyone, happens precisely, precisely now. Century after century, and only in the present, do things happen. There are innumerable men in the air, on land and on sea, and everything that really happens, happens to me.
Creativity is not a progressive and linear process, where it is possible to discern what comes first, what comes next. Many composers express in early works what will be understood and conceptualized much later, in a sort of Big Bang phenomenon. In the M-Theory, formulated in theoretical physics during the last decade of the twentieth century, all the matter is connected in one membrane of energy, and the letter M can be interpreted as membrane, magic, mother, matrix. This all-embracing theory adds up 7 dimensions to the four formulated by Einstein – the fourth dimension is time. If the M-Theory will be proved, what is going to be the role of time? In order to discover new particles and study the matter, scientists are proceeding by going backward and trying to understand what happened in the Big Bang. Thus a regression can be the only way to take a step forward, and going back and forward can signify creating new dimensions, not just travelling over a known path again.

In contemplating a final section for this thesis - a “looking forward” - I felt unable to do it. My effort to “be” in the present is cultivated in the daily practice of Qi-gong, and any attempt to “look forward” brings me inevitably back to the uneasiness of losing the pleasure (and the only truth) to be in the present. After all, the present is already the vector resultant of other dimensions of time. Nevertheless, there are some considerations that can be made about future projects.

The experience matured in the years spent in this university threw a new light on my past and helped me focus and clarify some simple, but important ideas of my music. The communicative aspect, for instance, present also in Tektosyne, found in previous works natural expression in forms where the “dramaturgy” of music is supported by the use of a text. There is a work I composed in 2005 I am very fond of. It is a cantata on the
life a saint – *Lu Santu Bello (The beautiful saint)* – for which I elaborated a libretto in four languages, including Latin and the Neapolitan vernacular. It is a baroque-contemporary work, where the same materials transit through different styles and gestures. Part of the texts are from *The Master and Margherita* by Bulgakov, others from anonymous popular tunes, and some sections adopt an ancient text Clemente Filomarino wrote in 1794 for Cimarosa’s *Il Trionfo della Fede (The Triumph of Faith)*. This cantata is unperformed and now I am thinking to review it with this new consciousness of the “dramaturgic rhythm” and the “structural rhythm,” and I want to propose it here in America.

But there is also a new project, already started, to compose an opera buffa of opposite tone. I am attracted to Friedrich Dürrenmatt’s piece *The Physicists*, and I already started to work on a libretto and take notes about the music for a chamber ensemble. The main characters of this comedy of grotesque and tragic tone, are three scientists shut up in a luxury home for the mentally ill. They maintain they are respectively Johann Wilhelm Möbius, Isaac Newton and Albert Einstein and a sequence of murders of female nurses makes the plot mysterious and entertaining at the same time, since, until the very end, the audience doesn’t understand if the three physicists are really mad. What Möbius tells his colleagues, “only in a sanatorium we are still free,” expresses Dürrenmatt’s interest in the theme of the relation between science and ethics. In the notes at the end of his work Dürrenmatt wrote: “If the content of physics concerns only physicists, its consequences affect everybody.” Such a project would liberate the most joyful aspects of my personality and my constant desire to play and lighten reality. Calvino opens his conferences for the *Six Memos* with a lecture called “Lighteness” and talks about his
purpose to exorcise the “slow petrification”\textsuperscript{30} of the world and “remove weight from the structure of stories and from language.” This is the idea that will lead my project as well: removing weight without removing meaning, and singing, together with Giuseppe Verdi that “Tutto nel mondo e’ burla” (All in the world’s but folly).\textsuperscript{31}

\textsuperscript{30} Calvino \textit{Six Memos for the next Millennium}, 2.

\textsuperscript{31} Arrigo Boito \textit{Falstaff} trans. Andrew Porter (New York: Riverrun Press, 1982),125.
BIBLIOGRAPHY

Books


Scores


APPENDIX A

Fuge für die Orgel
(As-moll)

Johannes Brahms
(Veröffentlicht 1884)

J. B. 86

138
APPENDIX B

ALESSANDRA SALVATI

TEKTOŚUNE

THREE ARCHITECTURES FOR ORCHESTRA
Alessandra Salvati

**TEKTOSYNE**
Three Architectures for Orchestra

1. Temenos
2. Intercolumnia
3. Entasis

**INSTRUMENTATION**

- Piccolo
- 2 Flutes
- 2 Oboes
- English Horn
- 2 B♭ Clarinets
- Bass Clarinet
- 2 Bassoons
- Contrabassoon

- 4 F Horns
- 3 B♭ Trumpets
- 3 Trombones
- Tuba
- Timpani

Percussion I: vibraphone, tam tam, pair cymbals, suspended cymbal, sandpaper blocks,

- 5 tom toms, wooden whip

Percussion II: tam tam, pair cymbals, suspended cymbal, bass drum, 4 temple blocks, maracas, chains (a length of chain should be dropped on a block of wood covered by a cloth), tubular bells

Percussion III: glockenspiel, metal wind chimes, tubular bells, tam tam, xylophone, maracas, 2 bongos, bass drum

Harp

Strings [minimum 16/16/12/8/4]

**APPROXIMATE DURATION:** 28 minutes
To Enzo,

to our journey
Poco più mosso

\[ \text{\( \frac{11}{17} \)} \]

\( \text{\( \frac{3}{2} \)} \)

\( \text{\( \frac{2}{2} \)} \)

\( \text{\( \frac{11}{17} \)} \)

\( \text{\( \frac{3}{2} \)} \)

\( \text{\( \frac{2}{2} \)} \)

\( \text{\( e = 66 \)} \)

1. Violino I
2. Violino II
3. Violoncello
4. Violoncello II
5. Contrabasso
6. Oboe
7. Cor. I
8. Cor. II
9. Basso
10. Basso I
11. Basso II
12. Tromba I
13. Tromba II
14. Tuba
15. Posaune
16. Timpani
17. Susp. cymbals
18. Arpa
19. Pianoforte
20. Harp
21. Violino III
22. Violino IV
23. Vivaldi
24. Orchestra

\( \text{\( p \)} \)

\( \text{\( pp \)} \)

\( \text{\( molto legato \)} \)
Stesso tempo, fluido
Misterioso \( \frac{4}{4} = 60 \)
Tempo giusto \( \frac{3}{4} \) - 92

258

\[ \frac{2}{2} \]

Perc.

E. Hn.

Bb Cl.

B. Cl.

Bsn.

C. Bsn.

Temp.

Perc.1

Perc.2

Perc.3

Hp.

Vln.1

Vln.2

Vc.

Db.
\begin{music}
\begin{notation}
\end{notation}
\end{music}
Tutti cresc. da P..
Picc. 2-4
Ob. 2
E. Hn. 2
Bb Cl. 2
Bsn. 2
1,2
Hr.F 2-4
Hr. 2

\[ \text{Picc. 2-4} \quad \text{Ob. 2} \quad \text{E. Hn. 2} \quad \text{Bb Cl. 2} \quad \text{Bsn. 2} \quad 1,2 \quad \text{Hr.F 2-4} \quad \text{Hr. 2} \]

All woodwinds breathing ad libitum

326 22 331

Vln.1
Vln.2
Vla.
Vc.
Db.

\[ \text{Vln.1} \quad \text{Vln.2} \quad \text{Vla.} \quad \text{Vc.} \quad \text{Db.} \]
Tutti diminuendo da P
Un poco stringendo
Tutti cresc. poco a poco da P.
Piu' mosso \( \cdot \) = 120

Solo

Breathing ad libitum

Breathing ad libitum

PP

Bass drum (with knuckles, dead stroke)

Pizz.

Piu' mosso
262 crescendo 264
**Cadenza finale a due** $\text{\textit{\`{p} legatissimo ed espressivo}}$

**Cadenza finale a due**

*Note:* if the concert hall is equipped with a lighting system that allows a sudden and complete switching off of lights, the hall must be merged in the darkness in synchrony with the chains sound, and kept in the dark for 9-10 seconds.