UNIVERSITY OF CALIFORNIA SAN DIEGO

Impermanence

A dissertation submitted in partial satisfaction of the requirements for the degree of Philosophy of Doctor

in

Music

by

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The Dissertation of Fernanda Aoki Navarro is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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Co-Chair

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University of California San Diego

2019

DEDICATION

para a minha *batian* Fuyuka Aoki,

que me disse para estudar, estudar e estudar.

to my *obachan* Fuyuka Aoki,

who told me to study, study and study.

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Studies in Music Composition

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ABSTRACT OF THE DISSERTATION

Impermanence

by

Fernanda Aoki Navarro

Doctor of Philosophy in Music

University of California San Diego, 2019

Professor Roger Reynolds, Co-Chair
Professor Rand Steiger, Co-Chair

This dissertation consists of an account of my processes in creating *Impermanence*, a modular work for flute, clarinet, piano, percussion, violin, violoncello, toy instruments, unconventional objects, electronic sounds and "wearable" portable speakers. Impermanence can be both a piece in three movements, or three stand-alone pieces: *Mestiça,* a solo piece for piano; *Uprooted*, a multi-channel electroacoustic fixed media piece (with or without live performers); and *Permanent Alien (and native friends),* for ensemble. The first chapter addresses issues related to corporeality, physicality, and collaborative works. The second chapter focuses on electroacoustic music, movement, sound spatialization, and the use of portable "wearable"

speakers. It also elaborates on the use of alternative objects and toys as musical instruments. The last chapter discusses strategies to overcome aesthetic limitations related to the socioeconomic reality of ensembles and orchestras, analyses the incorporation of pre-existing music from other artists into an original work, and explores the use of musical tropes and metaphors as a communicative tool.

INTRODUCTION

Impermanence is to me a constant source of anxiety and inspiration. This document is a brief account of my processes in creating *Impermanence*, a modular work for soloist, ensemble and/or electronics. I will also connect *Impermanence* with some of my previous compositions for soloists, for ensemble, and for intermedia environments.

In the first chapter, I explain some of the relevant aspects concerning my music for soloists. I talk about issues related to contemporary techniques for instruments and notation, corporeality and physicality, challenges and advantages of collaborative works, virtuosity, and the relationship between performance and the audience. I also draw parallels between my previous work for double bass, *Too Big for The Door,* and *Mestiça,* a solo piece for piano (which can also be the first movement of *Impermanence*).

In the second chapter, I discuss *Uprooted,* the second movement of Impermanence (which can also be performed as an independent multi-channel electroacoustic fixed media piece). I connect the idea of impermanence with movement and sound spatialization, and discuss my intention to make *visual* the idea of sound in movement, and make *sonic* the idea of bodies in movement. I explain how I used "wearable" portable speakers to diffuse sound around the audience and evaluate some issues and limitations I ran into with current available technology. Lastly, I talk

about the use of toy instruments and auxiliary instruments in combination with traditional instruments (such as flute, clarinet, violin etc.) and my motivation to combine unexpected objects in a musical setting.

The third chapter of this dissertation is dedicated to an analysis of my creative processes in writing music for ensemble, specially for the third movement of *Impermanence*, called *Permanent alien (and native friends).* I connect some of my previous works for ensemble and discuss strategies to overcome aesthetic limitations related to the socioeconomic reality of ensembles and orchestras. I also dissect my reasoning for incorporating, fragmenting, defacing and recontextualizing works of other artists in my own music.

CHAPTER 1

Music for soloists

My interest in writing music for soloists branches into five intertwined stems:

1. The possibility to explore the – sometimes complimentary, sometimes contradictory – relationship between "conservatorial" (or "traditional", "conventional") instrumental techniques and novel instrumental techniques, and the challenges that this relationship creates in music notation;
2. The creative and unique input that each performer can add to the music (in many levels: idealization, notation, improvisation, performance);
3. The intimate association between the performers' corporeality and the physicality of their instruments;
4. The virtuosity embedded in the history of solo music;
5. The more direct engagement between a soloist and the audience;

1. Technique and notation

The use of standardized notation carries a common understanding – among musicians trained in the "Western tradition"– on how musicians in the past organized/systematized/documented sonic ideas. The notation

would, usually, indicate the desired sonic result, but not necessarily how to produce the sound. Let's use the excerpt below as an example:

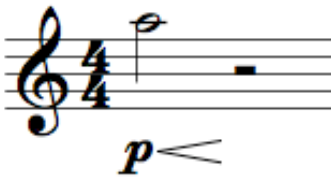


Figure 1. Example of traditional music notation

The type of corporeality that a flutist would exert to perform this excerpt is *dramatically* different from the type of corporeality exerted by a trombonist. Even among instruments with a similar range (for example: a flute, an oboe, a soprano, a violin, a flexatone), the specificity of the performer's corporeal behavior that goes into playing the excerpt is radically different: the amount of pressure, shape of lips, manipulation of air in the lungs and mouth, coordination between left hand and right hand, pressing, gliding etc.

From my point of view, traditional musical notation – which focuses primarily on the pitch-rhythm relationship and on describing the sound result, as in the example above – is incomplete, flawed, biased and restrictive. However, it is also very useful and powerful. It carries a lot of history, encapsulates a lot of information within symbols that are easily understood within a certain community (musicians trained in the Western musical tradition), and is capable enough to encompass constant re-valuation and expansion. Up to this moment, the music I write is heavily

embedded in traditional notation, but it is also constantly re-examining and re-writing traditional notation's limitations and historical weight.

Too Big For the Door[1] exemplifies more clearly my personal take on the relationship between instrumental technique and musical notation, as well as the usefulness, limitations and necessary expansion of traditional notation. Although percussive sounds on the body of the double bass are not uncommon in contemporary music, there are not many examples of pieces that intentionally explored most of the double bass' body in a systematic manner – not as an "effect", as "a timbral gesture", as a demonstration of extended techniques, nor as a theatrical component. For the creation of *Too Big For The Door*, I considered the body/wood part of the instrument not only as a passive resonator, but as a dynamic, complex feature of the bass, scrutinized with the same discipline and intentionality as the fingerboard and the strings were historically explored.

The initial process of creating *Too Big For The Door* included exploring the double bass with the same open mind of a small child: "naïve", untrained, curious, playful. This exploration lead me to play the bass in an improvisatory manner, which helped me identifying the areas and sounds of the instrument that interested me the most. From there, I mapped the body of the double bass and created a diagram (figure below – pardon the coffee

[1] *Too Big for The Door* is a piece for solo bass, composed in 2013 in close collaboration with bassist Matt Kline.

stain), exploring not only the usual areas (strings) but also, and specially, the wood parts of the instrument.

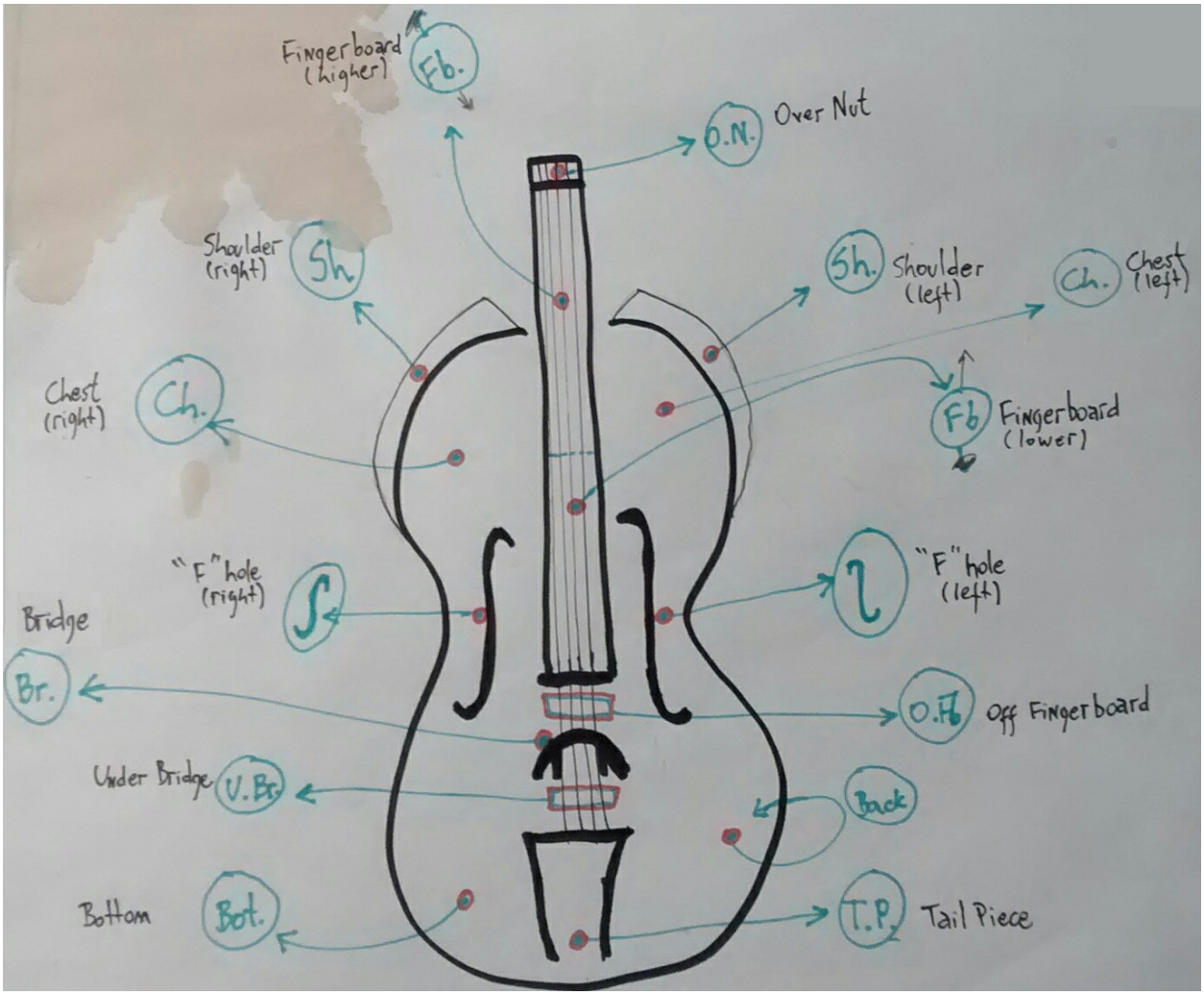


Figure 2. Map of the double bass

While playing the bass, I studied the types of movement that my body would "prefer", which moves were easy, difficult, comfortable, uncomfortable, necessary, unexpected etc. From there, I developed a series of corporeal "trajectories" that the performer's body would navigate in the

body of the bass. I went through several different (and unsatisfactory) attempts to transcribe that enterprise, so that a bassist versed in traditional and contemporary music notation could understand my intentions. The clearest, relatively uncomplicated and somehow intuitive notation I came up with looked like this:

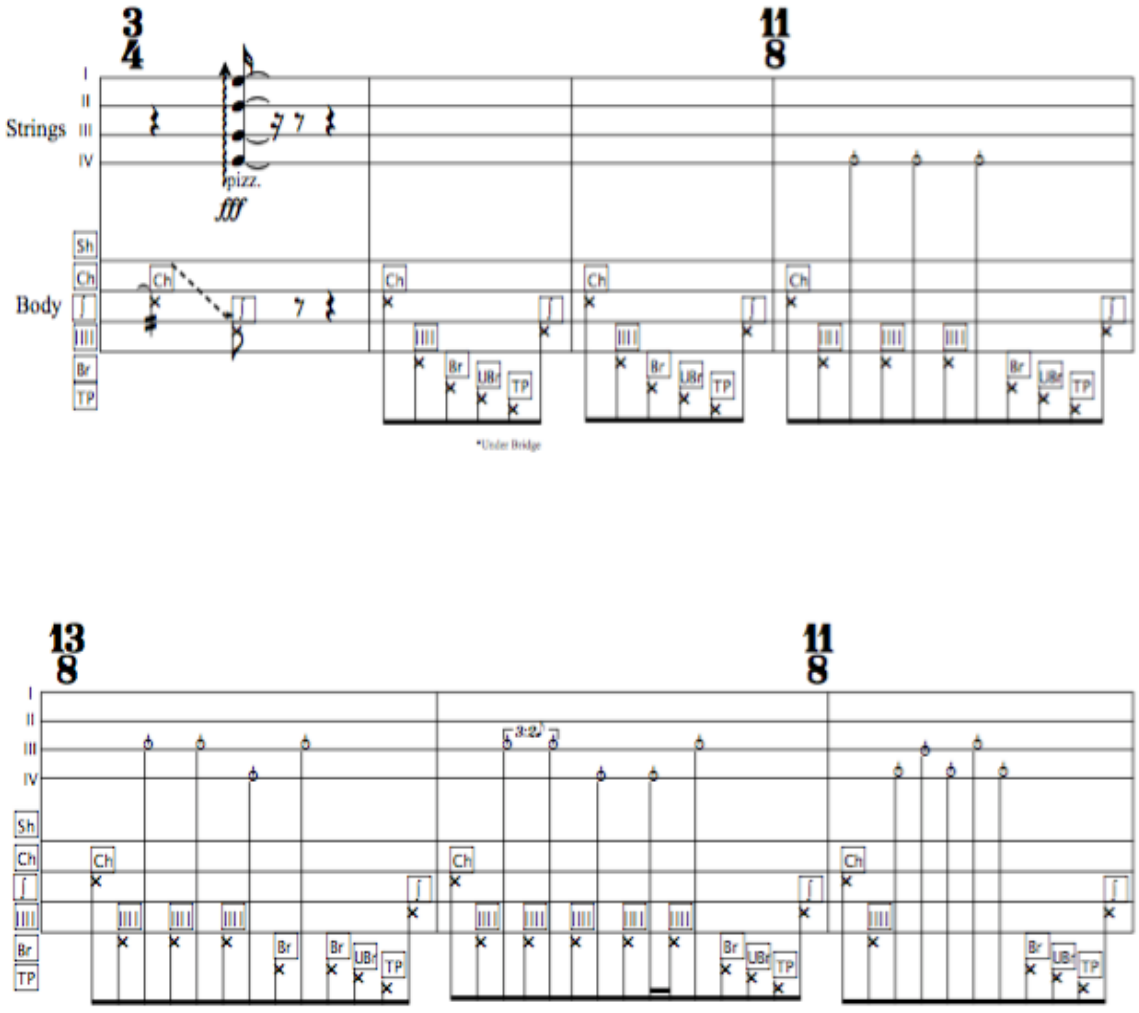


Figure 3. Example of music notation for double bass. *Too Big for The Door*, p.7

The top four lines represented the four strings; the bottom lines represented the different parts of the body of the double bass, more or less as it would be visualized:

- Top area of the double bass, and first two spaces of the bottom staff: Shoulder (Sh) and Chest (Ch);
- Middle area of the double bass, and third and fourth spaces of the bottom staff: "f" hole on the right side (*f)*, and the strings in the area adjacent to it (IIII);
- Bottom area of the double bass, and last two spaces of the bottom staff: Bridge (Br) and Tail Piece (TP).

Initially, I thought it would be sufficient to have the "x" note head (meaning: use the palm of the hand to produce a percussive sound) placed in the specific horizontal line so to indicate when and where to play that "note"; however, in consultation with Matt Kline, we decided that, although redundant, it would be better if the note heads included the location where the right hand should be when it had to produce the percussive sound (x).

In order to show where, on the fingerboard, certain movements should occur, I created another three-line staff, specifying the trajectory of the left hand on the strings/fingerboard: near the end of fingerboard, near the neck or near the nut (upper extreme of the fingerboard).

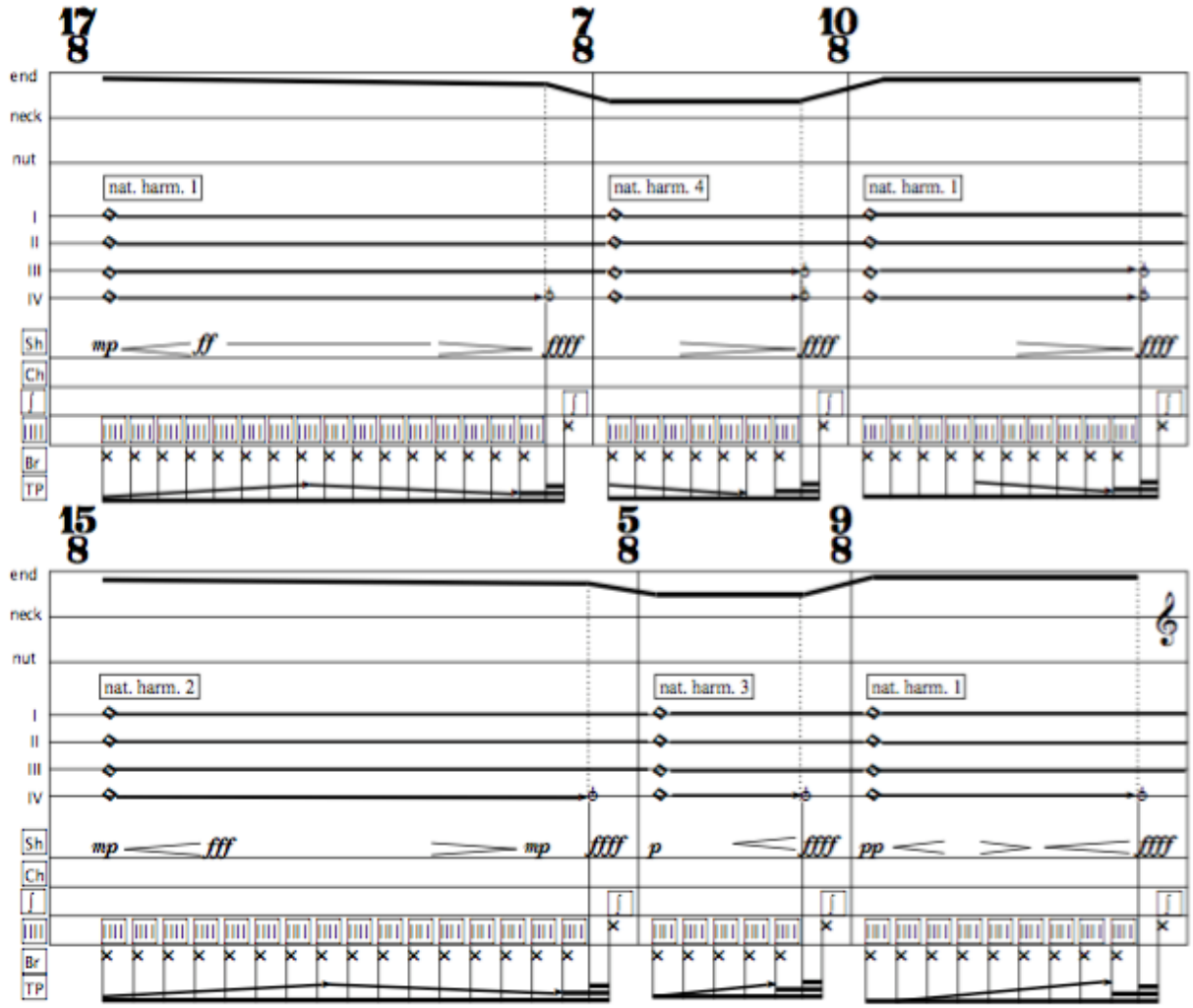


Figure 4. Example of music notation for double bass. *Too Big for The Door,* p.13

The previous two figures are examples of notation that tries to encompass the sound result, the corporeal movement, the physical parts of the double bass and how to perform certain tasks. Sometimes the notation used in *Too Big For The Door* leans toward prescriptive notation (means of execution) and sometimes it leans toward descriptive notation (sound result), considering a balance between convenience, clarity, necessity and expression.

2. Collaborative work

There is an important difference between writing music for solo instruments and writing music for a soloist. I am much more interested in writing music for the latter, than the former, and most of my solo has greatly benefited from working in close collaboration with performers.

If the point of departure is creating a piece for solo instrument, then I'm confronted with a passive *object*. Obviously, it isn't a trivial object: instruments have years or sometimes centuries of history and repertoire; there are very specific techniques developed so to build and play those objects; many people devote their lives to study a musical instrument… but ultimately, a musical instrument is a lifeless object.

If the point of departure is creating a piece for a soloist, then I'm confronted with a *person,* an active agent with the ability of thinking, feeling, reacting, acting, interacting, choosing, denying, adapting, confronting, making decisions etc.

One might argue that, regardless of the point of departure, the result would be the same: a "piece". However, the process of creating a piece for a person is very different from the process of creating a piece for a historical object, and interfacing with a person is extremely more nurturing (and difficult) than interfacing with a historical object. I am not saying that departing from the idea of creating music for an object rather than for a person is totally unappealing, or that this choice won't render interesting

outcomes, but to me, creating music *for people and with people*, now, for this time and for these people, teaches me more about who I am in relation to my time, who I am in relation to my community and to society, then if I were to write for an instrument, whose history was written by "genius composers", "great masters", mostly all white, privileged, bourgeois, European men. There is obviously important work left by these men, and the influence of their work is unescapable. We learned with them, but I don't need to revere, copy, extrapolate, perpetuate and benefit from emulating revamped versions of their revamped versions of the work of whichever "great master" they are referencing. By departing from the idea of creating music for and with people, rather than for instruments, I'm focusing in the present, rather than revering the past; I'm focusing in the people *now*, building with them the world as we need it to be, not as an emulation of a nostalgic, inequitable, decadent past that mostly benefitted a handful of privileged white male composers, concerned with very little other than perpetuating themselves and maintaining or augmenting their privileges.

Composing music with and for soloists allowed me to have a more in-depth experience, than if I were to work with an ensemble or with an orchestra. Collaborating with soloists propitiated an environment where many hours can be spent in discovering new sounds, techniques, ways of making music, practicing challenging passages, perfecting details, testing

different notation systems until finding the most adequate, among many other interpersonal, intellectual and artistic benefits. It created time and space to originate a fertile environment for exploration, dramatically different from the standard "3 rehearsal + performance" environment promoted by most ensembles and orchestras. Working with soloists provided an environment fertile for experimentation; in the opposite spectrum, working with big groups provided an environment suitable for the application of certainties that can only be as challenging as permitted by 3 rehearsals. Another extremely valuable aspect of collaborative works is the possibility to have an open dialogue regarding the performers' creative input towards aspects other than performance. Many performers are also great improvisers and composers, who would be willing to participate more actively in the compositional aspect of the piece, not only in the performative aspect of it.

In *Too Big for The* Door, Matt and I incorporated aspects of his improvisations and solidified those aspects in the score. One example was his particular use of "hammer on/pull off" technique, as seen in the figure below.

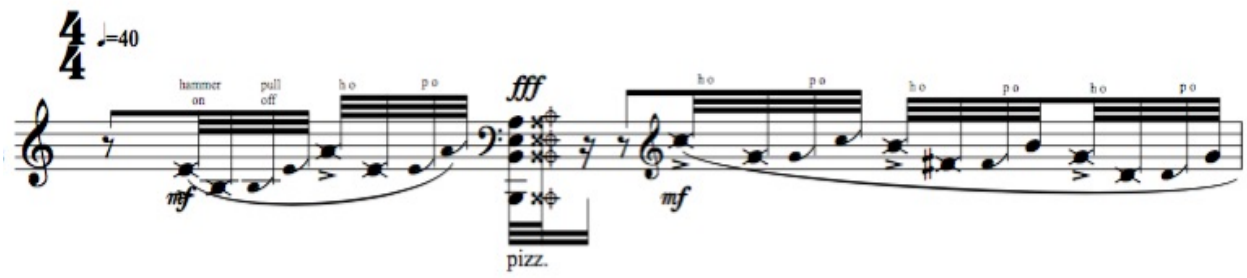


Figure 5. Example of hammer on/pull off. *Too Big for The Door,* p.14

Ine Vanoeveren is a talented and creative flutist, who developed some very particular and unique techniques on the flute. When we were working in the creation of *Through*[2] , we spoke about many different topics regarding the composition of a new piece in a collaborative manner. We talked about what it means to be a gendered body on stage, what would the flute represent to her (an object, a shield, a sword, a curtain, a mirror? etc.), but we also talked about the idea of "beauty" both in a generalized way and also in specific ways, such as "what are beautiful sounds for you?", "what is beauty in music to you?" or "what music do you think is 'beautiful'?". These conversations created the need in both of us to bring new ideas, every week, and test them. I proposed a few ideas to Ine, and she would play them, reject/accept/suggest changes or improvements; she would propose new ideas as well and would both show me short improvisations or specific sounds and techniques that were then rejected/accepted/questioned/altered/improved.

I was very moved by some of the sonorities that she was capable of playing, which were very idiosyncratic to her body and to her instrument. She showed me this extremely delicate sound, similar to a whistle tone, which according to Ine:

> *"[it is produced by] …using a very large embouchure, with very slow, hot air to produce the root note in pppppppppp. At*

[2] *Through* is a piece composed in 2015, commissioned by flutist Ine Vanoeveren. The piece is divided into two movements: 1. *Watching* (for C flute) and 2. *About Beauty* (for bass flute).

the same time, since the embouchure is so large and a lot of air escapes, I search the right angle of the air stream, in order for the residue air to break against the edge of the flute, resulting in a whistle sound, since the airspeed is too low to produce a real sounding note. Then it is finding the right micro balance to fluctuate between the different harmonics on the whistle sound."[3]

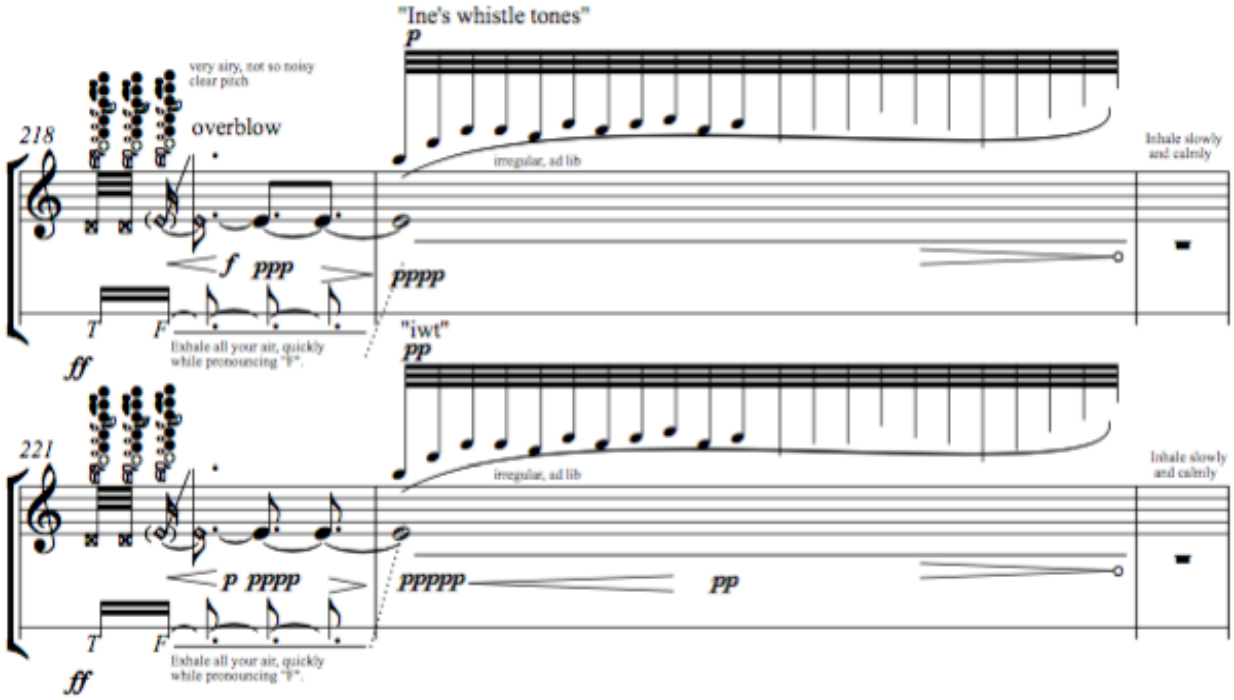


Figure 6. Example of "Ine whistle tone". About Beauty, m. 218

From the beginning of the process of creating *About Beauty,* I knew I wanted a continuous and frail, the quietest possible sound on the flute. In conversation with Ine, I asked if she could show me a very quiet whistle tone, which she did, but then she mentioned "*Ah! There's this one too..., but I'm not sure many people can play this thing…*", then took her breath, closed her eyes and played a very delicate, almost inaudible, rich, vulnerable,

[3] Ine Vanoevere, in a private conversation with me.

effortful and beautiful sound, which we called "Ine Whistle Tone (iwt)", and is also the closing gesture of the piece.

Working in collaboration with performers also pushes us to think more deeply and critically about music making and its relation to how we interface with our music community. What is the relevance of creating boundaries between composition, improvisation and performance? Why were those boundaries stablished to begin with? Who benefits from those boundaries and how? What is the relevance or irrelevance of authorship, considering our music community? How are we financially compensated for the labor that goes into creating music, and is it equitable? How is the veiled split between "intellectual labor" (stereotypically associated with a composer) and "physical labor" (stereotypically associated with a performer) obstructing our creativity? I don't yet have well supported answers for these questions, but the mere exercise of attempting to address them surely shapes how I relate to my own work and the work of others.

3. The corporeality of the performer, the physicality of the instrument

The terms *corporeality* and *physicality* represent different things to me: *corporeality* is related to the body of the performers, and *physicality* is

related to the physical aspects of their instrument. In summary: *corporeality* for people, *physicality* for objects.

As a child learning to play the piano, I remember being fascinated by very mundane things about the physicality of the piano. For example: I spent a long time observing that, contrary to what I was told, the piano had *five* different types of keys, not only two (black and white):

1. rectangle: black keys;
2. circle: D and G keys have the same shape;
3. elongated circle: A keys are similar to D and G;
4. square: C and F keys have the same "L" shape;
5. star: B and E keys have a "⌟ " shape.

Figure 7. Physical aspect of a piano keyboard: five different key shapes

This observation would influence the rules I would use to improvise using the piano. I would create rules such as: "only play 'rectangles' and 'stars' in all octaves; once reaching the 'end of the piano', go back and only play 'elongated circle'; once reaching 'the middle of the piano' only play

circles; once reaching the 'beginning of the piano' go back and only play 'squares' (one long and one short)" etc. I would create afternoon-long "games" like this and play them. I would rarely notate them, but when I did, it was because they were too complicated and I couldn't memorize the rules, or because I really liked them and wanted to remember how to play them again next day.

Other types of games based on the physicality of the piano would include *"1-2-3-4-Pedal",* i.e.: play four notes in sequence with left hand, then press pedal and play the next four notes with right hand, then release pedal and play next four notes with left hand, and so on, until the "end" or "beginning" of the piano, totaling 44 sustained notes and 44 non-sustained notes; *"Black keys versus white keys"*; *"si-dó, mi-fá contra dois-três"* ["*B-C, E-F versus two-three*"], i.e.: play keys B and C together with one hand, then C# and D# ("two") with the other, then E and F simultaneously with one hand, then F#, G#, A# ("three") with the other and so on.

Another aspect of my improvisations using the piano was related to my fascination in my (then recent) understanding that hands were identical, but mirrored, and that fingers had "numbers" associated with them (fingering). Those were happy times: a party of numbers, combinations, movement, sounds… a dance for my fingers! A little after that understanding, I started to get very annoyed, because I've noticed that playing sequences of "2-3-2-3-2-3" as fast as possible was a *very* different game from playing "3-4-3-4-

3-4” as fast as possible. The numbers and the beauty of logical structures were absolutely tainted for me once I realized that no matter how much I practiced “3-4-3-4-3-4” and neglected practicing “2-3-2-3-2-3”, I would *never* manage to get the same speed and the same sound using those different fingerings. After that I was ruined: I grew up to be a self-aware, scared, cranky and obsessed with scales young pianist, with “flawed, uneven, uncorrectable fingers”. Looking in retrospect, a few decades later, I think this is excessively dramatic and laughable, but I still remember the feeling of extreme frustration and self-disappointment, combined with the awareness that I was a fraud for still playing the piano while knowing that I had fingers that would never “sound the same”. I was particularly troubled by fast scales: how am I supposed to obtain an absolutely even sound for all notes, equally, if each of my fingers have a different weight, shape and “expertise”? How am I supposed to obtain the same sonority and speed playing the same trill with fingers 2-3 and 4-5? I felt like there was something very wrong and incorrigible with my fingers, that I was a bad musician, that I was “fooling” everyone when playing the piano etc. That feeling lasted for many years.

The first movement of *Impermanence* is also a stand-alone solo piece for piano. I named it *Mestiça*, and it is both a meditation on the physicality of the piano – as I saw it, when I was a little kid learning how to play the instrument – and also a metaphor of the concept “mestiça”. It was an

abstract way to relate music and physicality to the idea of race, multi-ethnicity and otherness. As a child growing up in Brazil, it took me a while to fully understand why people would call me and categorize me as "mestiça". As time passed, I understood not only the semantics of the term, but also its social implications: I wasn't considered Brazilian enough nor Japanese enough, even though I was born and raised in Brazil. The Japanese have a similar term, "hafu", adapted from English: *half*. This idea of being "half", too Brazilian for the Asians and too Asian for the Brazilians, permeated my perception of belonging: neither from here, nor from there. I was 6 years old when I heard one of the most remarkable questions of my life. A girl my age asked me: "do you see the way I do, or do you see everything like this?" [she put both index fingers at the outer corner of her eyelids and pulled them outwards, showing me what my eyes looked like to her eyes]. I stood at the same spot for a long time after she laughed at me and ran away to play with the other kids. I remember listening to my knees squeaking, tired of supporting my stillness, of waiting for my brain to satisfactorily answer that question. It never occurred to me, until that very moment, that people would (literally) see the world differently; I had no way to prove to her how I see and I had no way to see with her eyes. I asked my mom: "do people see the world the same way? do I see the world like this?" [I pulled my own eyelids and saw a distorted mom]. Her almond shaped eyes dropped a tear and no answer came out of her mouth. It was also around that age when I

first learned a piece that used only the black keys of the piano ("The Rickshaw Man", a rather stereotypical "oriental" pentatonic piece for children, composed by a white man who probably didn't see the borderline racist nature of his work). *Mestiça* combines simple fingering patterns used in children's piano music, interleaved with the difference, clash and mutual assimilation of the "black keys" and the "white keys" of the piano. This piece is very much inspired on the "black VS white key" game that I created as a kid.

Digging these stories from the dusty dungeons of my memory and exposing them so overtly, is embarrassing but also very revealing. The reasons for that childish "technical drama" (regarding fingerings and the understanding that each finger is different and thus have different difficulties and expertise while playing piano) I had decades ago is at the core of why considering the physicality of the instruments and the corporeality of the performer is so important to me. It is also at the core of why I am so skeptical of standardized "conservatorial" instrumental techniques based on producing "beautiful", homogeneous, identical, well-controlled, standardized *notes* at the expense of ignoring or suppressing physical and corporeal idiosyncrasies that are in reality unavoidable, beautiful and produce a fertile environment for a myriad of creative, novel and diverse artistic expression.

I'm not advocating against instrumental techniques that are focused on preparing musicians to sound alike, so as to blend together more

smoothly in an orchestra or in an ensemble; I'm also not advocating against techniques based on mastering scales played in all ranges, speed, dynamics and articulations, so to impress viewers and listeners on how dominant one is when it comes to dominating the idiosyncrasies of the body and of the instrument; I'm advocating for enlarging our view of instrumental techniques so to consider idiosyncratic behavior not as a flaw, but as an opportunity to expand our technical, artistic, corporeal and intellectual horizon towards music-making.

There are, however, many interesting issues that might arise while composing music that is so intrinsically and intimately corporeal. Issues related to consent, agency, and psychological/physical safety of the performers weren't commonly addressed in the music of the past, but as music-making evolves, the surrounding discussions should evolve.

When composing in collaboration with performers, I had to think a lot more about unique ways that people interface their unique bodies with their instruments, which directly affects their techniques, their preferences and difficulties toward certain sounds/gestures/techniques. I also had to think a lot more about *consent*[4]. What would or would not be acceptable to ask from

[4] Two recent articles, one by Amanda DeBoer Barlett (performer/soprano) and *The Failure of Music Composers, Performers and Consent* by Alex Temple (composer) interestingly address the issue of consent in Contemporary Music, considering the experience of several performers and their take on collaborative works.

a performer? Is there a limit, who defines the limits, how are the limits defined? Is "common sense" a good measure to gauge these limits? Are the limits the same for everyone, or does it vary from performer to performer? What is invasive, disrespectful, unacceptable? Is there a universal understanding or common ground regarding performing bodies? Is the body of a musician as emancipated as the body of a contemporary dancer? Could musicians relate to their bodies in a similar way that dancers, choreographers, directors and actors relate to their bodies and the bodies of their collaborators? If we could, should we?

?Corporel, a piece composed in 1985 by Vinko Globokar, explores the corporeality of the performer in a very explicit way, and they must use their own body as an instrument. The choreographic component of *?Corporel* seems to be as important as the sonic component; and the performer should not only aim to be convincing in a "theatrical" manner, but they also should investigate convincing sounds (given the constraints of the score), that their arms, hands, feet, teeth, skin and bones can produce. The composer specifies that the performer should not wear a shirt (*torse nu*[5]), which is a reasonable request, considering that the composer wanted to obtain sounds of the body, not of fabric against the body. If the performer were to wear a shirt to perform *?Corporel*, they would be performing their "instrument" with the cover on (now imagine playing a piano with its cover on!). The "nude

[5] *torse nu* (French): nude chest.

chest" request is also reasonable, considering that the composer had some sort of abstract narrative, highlighted by the body's movement / choreography that could be jeopardized if the performer were to wear clothes, since their clothes could be perceived as a "filter" between the audience and the performer. On top of that, clothes might also limit or impede certain movements by the performer. As of today, among all the performances of *?Corporel* available on the internet, none of them had female performers with a nude chest. If I were to say that Globokar composed a "gendered piece", perhaps one could argue that this is too much of a stretch, that any performer with a body, regardless of gender, could perform *?Corporel* with the same ease. But try to upload a video of *?Corporel,* on a popular video-sharing platform such as YouTube, being performed by a woman with her nipples exposed (*torse nu!*), and see what happens. Be prepared to witness your video being immediately censored or, if you're lucky, it will be uploaded – and taken down in minutes! There is a much safer space for men to present themselves with a nude chest, then there is for women. Given our societal norms, people see a male nude torso with a lot more naturalness than a female nude torso. Perhaps this example says more about society's harmful false-morality and ingrained misogyny than it says about *?Corporel* being a "gendered piece"; but I think the composer didn't think it through very carefully and probably didn't consider the body of a female artist publicly performing this piece. If he did, we see

no trace of those considerations on his very detailed score. I used ?*Corporel* as an example mostly because I truly admire this piece, but also because it's one of the first pieces of music to overtly bring the body of the performer as the main consideration to the compositional process. My argument here is just an example of how important it is to think very critically and very carefully about intentionality, meaning and the consequences of using someone else's body as a performative entity.

4. Virtuosity

A vicious aspect of virtuosity is that it elevates the concept of talent to a status of truth: a virtuoso becomes a living proof that talent exists. Talent, being defined as an "innate skill" is a very bothersome concept to me: it frequently takes some sort of super-natural twist, in which "things are as they are because of an unexplainable, innate, god-like reason". In reality, there are many interdependent components (such as financial status, exposure in early age, positive reinforcement, quality time to dedicate oneself to certain task, familial and societal support etc.) that explain why certain activities are easier for some people and certain activities are harder for some people. Another problem regarding how we relate to talent in music, is that it decreases diversity. Once a "talented hero" has been elected and his "mastery" has been elevated and well remunerated, the hero becomes the recipient of rare societal privileges, which is disingenuously

framed as something that can simply "happen" to anyone, regardless of gender, race, geographic location, social status: as long as you win the talent lottery, you can be privileged too! And because people know that they can't win the lottery, they get better and better at copying the hero, which becomes a mainstream reference, a disincentive to diversity.

It is all too common that a few talented musicians get elevated to a hero status, and deceitfully legitimize the whole system of gratifying "geniuses", jeopardizing society's transformative power and its ability to truly tackle on social injustice through music.

The history of classical music is marked by those talented "heroes" (and very rarely heroines). Talented musicians, such as Paganini, Vivaldi, Liszt, Chopin, Rubinstein, Rachmaninoff, Yo-Yo Ma, Martha Argerich and Yuja Wang (to name a few) are commonly called *virtuosi.* This virtuosity is almost always represented by soloists. There is a myriad of ways to define virtuosity, but perhaps the most common associations with virtuosity in musical performance are: outstanding skill and transcendence. Speculating on virtuosity: perhaps we could say that a virtuoso[6] is a musician who performs technically difficult passages without making mistakes and without

[6] I would like to point out that the Italian term virtuoso is listed in most English dictionaries. However, the term *virtuosa,* although existent in Italian, is not feature in hardly any English dictionary. When *virtuosa* is mentioned, it is defined as "*a woman virtuoso*" (The American Heritage Dictionary of the English Language, 5th Edition), pointing out the ingrained sexism in defining the word. We don't see in the dictionary "*Virtuoso: a man virtuosa".* The sexist, masculinized aspect of the word, however, goes back to its origin: in Latin, *vir* = man.

showing any signs of *debilitating* physical or intellectual struggle in doing so, as if playing something difficult is "easy", "natural", non-challenging, basically a "second nature" activity for him. The idea that the performer has absolute control over his body and thus can do what most people can't, is an aspect of virtuosity that both separates and unites a virtuoso and his audience. The audience's transcendental experience comes from being "lifted", "enlightened" by someone who unequivocally demonstrates a) how incapable they [members of audience] are, b) how capable they wish they could be, but also c) that fixing this inferiority is possible, that transcendence is within their reach: they can apprehend, consume, put a human-like, tangible and quantitative value in transcendence. The audience can have transcendence, if they can pay for it. The spectators buy their transcendental, "out-of-the body" experience, by consuming the very much "in-body" task that someone else (a *virtuoso*) is doing for them, similarly to someone feeling cathartic by watching a boxing match, but never feeling the pain of being punched in the face.

I'm interested in deconstructing virtuosity and recontextualizing its potential. In my music, virtuosity doesn't mean the illusion of effortless skill; on the contrary, to me, virtuosity arises through a great deal of effort: practice, repetition, exhaustion, struggle, intellectual and corporeal consolidation, and finally, catharsis.

The Latin origin of effort is very elucidating to me: *ex*=out + *fortis*=strong. I'm interested in actually externalizing and showing the audience how much corporeal, intellectual and emotional energy it takes to perform certain tasks. I want to unveil the effort of performing, which can reveal the audible and visible beauty of the performers corporeal *autonomy*, rather than show the performers' corporeal *obedience* to a score, or their conformity to an instrument.

I believe that this can be a powerful strategy to communicate something, without words, that is very visceral and universal. We all have bodies and we all can relate to the effort of maintaining one.

5. Connection with the audience

A soloist is a lot more "exposed" than a member of an ensemble or as a member of an orchestra, for example. In the case of conducted music, the members of an ensemble very often have their corporeal presence overshadowed by the corporeal presence of the conductor. The soloist vulnerability, their way of reacting to a more extreme individual responsibility, and the lack of "other people and other sounds" to play with and bounce against, pushes the connection between the performer and the audience to a more focused, more engaging, more personal, more visceral level.

I’m not saying that a visceral connection can’t be achieved between ensemble performers and their audience. However, I think that soloists take more risks and demanding responsibilities while performing alone; there’s no one else to hide behind, there’s no confusion in where the sound is coming from and who is producing it; there is a much more transparent relationship between the performer and the audience, which in my opinion creates more opportunities for empathy and a more direct connection.

CHAPTER 2

Movement, alternative instruments and electronic music

My main interests in composing *Uprooted* could be unfolded into 3 areas: movement, exploration of sounds that do not come from a traditional musical instrument, and creating a seamless hybrid sonic environment that draws from electronically produced sounds and acoustically produced sounds.

1. Movement

Uprooted could be performed in three different circumnstances:1. as the second movement for *Impermanence;* 2. as a stand-alone piece for four portable / wearable speakers and six performers; 3. as a stand-alone four-channel electronic piece. I will discuss the piece as an ensemble and electronics piece, rather than a four-channel electronic piece.

The main inspiration for *Uprooted* was the feeling of not belonging: not belonging to the place of departure (a home country, for example) and not fully belonging to the place of arrival either. Another important component is the idea of journey and impermanency – the joy and angst caused by this "to-from" route. This piece is intended to sound as if sound waves were adrift, uprooted, sometimes calm, sometimes violent. I wanted to explore and elicit the delicate physicality of microtonal beating patterns, to highlight

the friction and richness of contrasting notes working together*. Uprooted* was conceived as a semi-improvised structure in order to increase gestural flexibility, to facilitate simultaneity of different rhythmic patterns that don't share the same beat or the same metronome marks, and to use sonic (but non-verbal) communication between the performers. Every iteration of this movement should sound slightly different. Although there is a lot of room for improvisation, there are components that should be followed strictly: the instruments used, the duration of each section, the physical trajectory of the performers in the hall and the overall sonic environment. Movement is one of the most important aspects of this piece. I wanted to make visual the idea of sound in movement, and make sonic the idea of bodies in movement.

Four performers (flutist, clarinetist, violinist and percussionist) should walk around the audience in a coordinated manner, carrying small, portable, "wearable" wireless speakers while playing various portable instruments. The movements are somehow mirrored: the clarinetist and the flutist have a mirrored route, the clarinetist focuses on the left side of the hall and the flutist focuses on the right side of the hall. Similarly, the percussionist and the violinist have mirrored trajectories: the percussionist walks around the entire back and middle areas of the hall, starting from the left side, and the violinist walks around the entire back and middle areas of the hall, starting from the right side. The final destination for these four performers is on the

stage. The design of the trajectories was designed considering the hall where the piece was premiered[7].

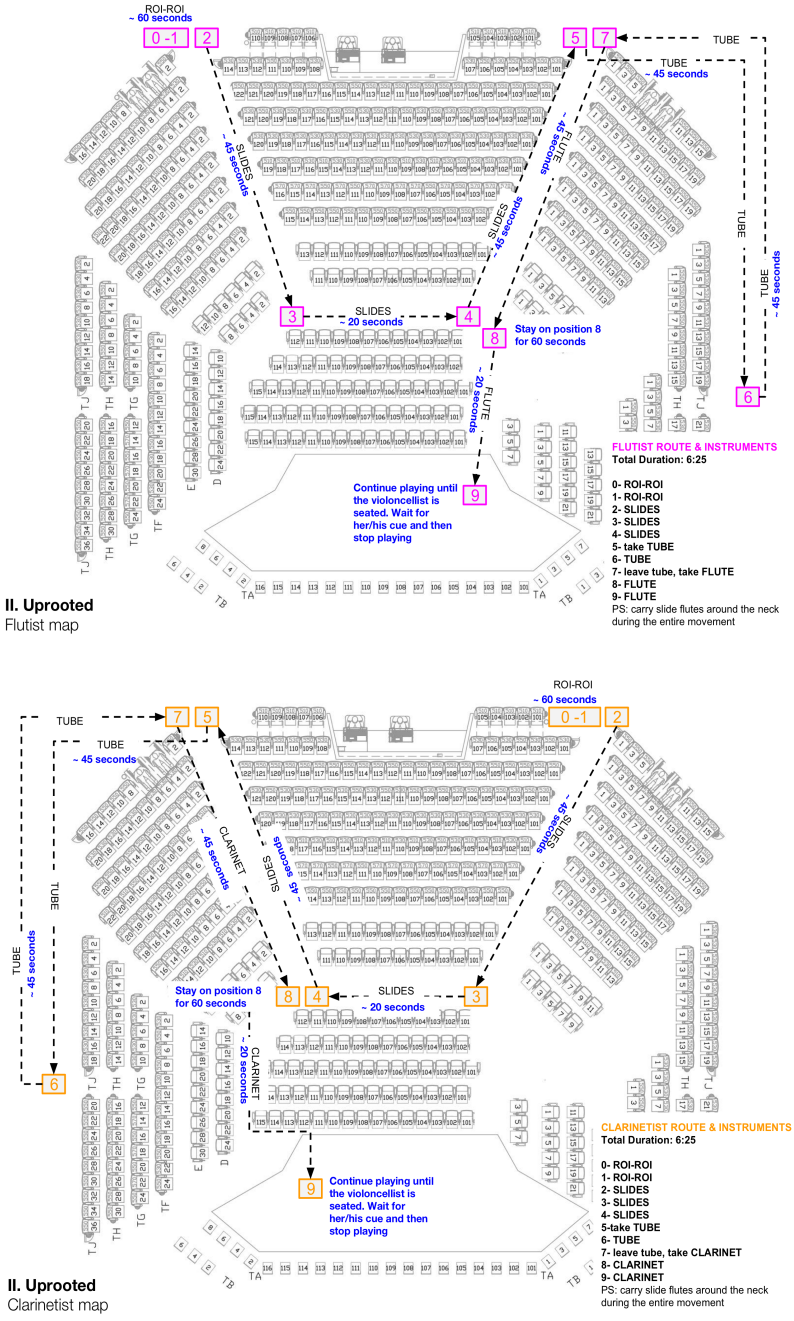


Figure 8. Diagram of flutist and clarinetist routes for *Uprooted (performers' score)*

[7] *Impermanence* was premiered by *San Francisco Contemporary Music Players* on May 10, 2019, at SFJazz, in San Francisco.

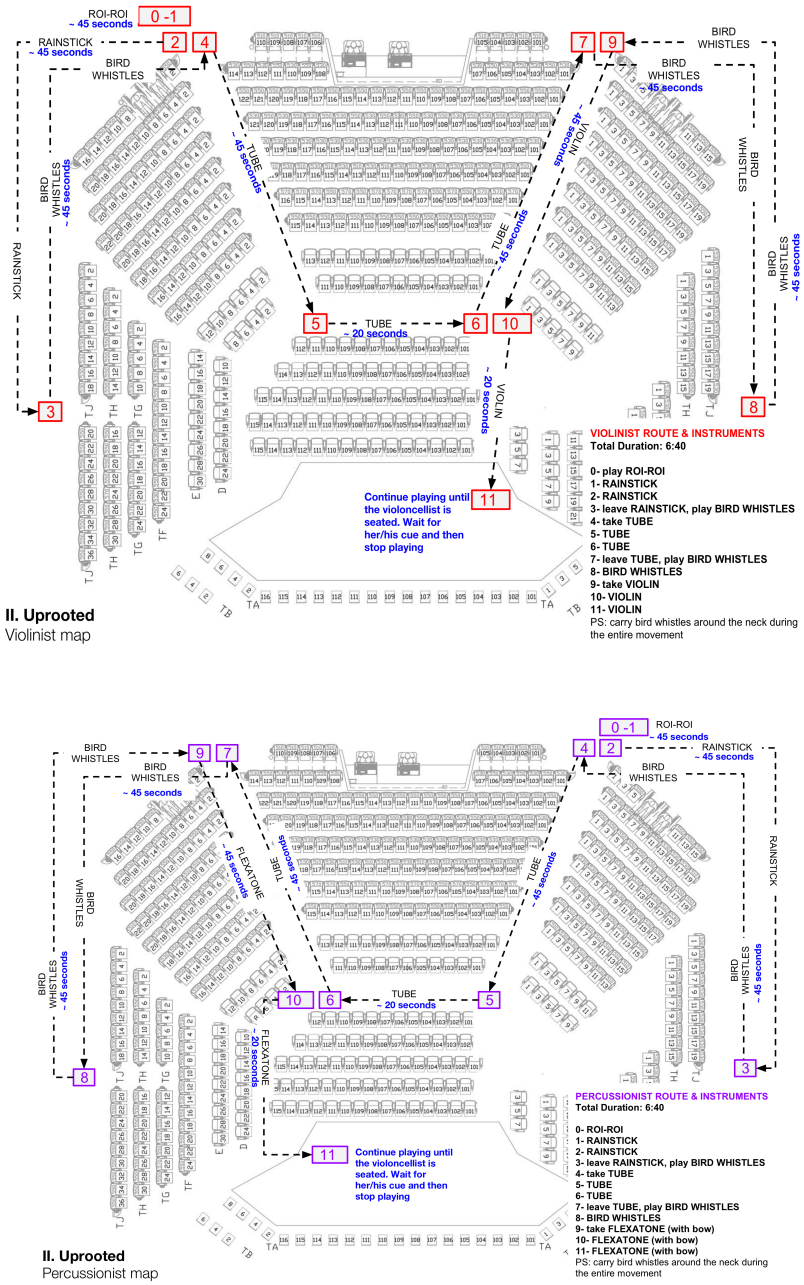


Figure 9. Diagram of violinist and percussionist routes for *Uprooted (performers' score).*

The idea of having the performers uprooted from their usual performative space (i.e.: on stage, sitting down and facing the audience) and placing them in the back of the hall was meant as a metaphor for the

migratory displacements that many of us go through. The performers have to walk around the audience, playing (for most of the piece) unfamiliar objects / toys / instruments, which are constantly changing, according to their routes, symbolizing the idea of impermanence, and the necessary adaptation required from us to deal with uncertainties, new challenges, new directions.

I was interested in creating visual and sonic opportunities to meditate on the concept of impermanence and uprooted-ness, but I was also interested in creating alternative points-of-view for the audience: in order to follow the sounds and the performers, they have to move their heads, look around the hall (not only to the stage), choose certain trajectories, sounds or performers; by doing that, they end up observing each other, making "accidental" eye contact with other members of the audience and are also displaced from the comfort of being passive "consumers" of that music, and have to take more active roles in choosing where to look or not look, which performer / instrument/ speaker or route to focus on, and are incentivized to define their experience more actively and more intentionally.

2. Alternative instruments

In *Uprooted*, the flutist, clarinetist, violinist and percussionist have to play "alternative" instruments: a Brazilian toy instrument called rói-rói, rain sticks, slide flutes, ceramic water-bird whistles and corrugated tubes pipes.

The violoncellist plays two e-bows inside the piano, while the pianist quietly manipulates the hammers by silently depressing or releasing specific keys.

Uprooted was not the first piece in which I used the rói-rói; I used these toys in a similar situation, in another piece for large ensemble called *Glotogony*[8]*.* In both pieces, I used the unusual and initially incomprehensible sound of this Brazilian toy instrument coming from the back of the hall as a metaphor for neglected voices, kept oppressed in the background, and their emancipation and ascension to the front of the stage, where they are featured with the same importance of any conventional instrument.

My interest in using toys and objects that are not regarded as music instruments comes from the idea of *relatability*. I imagined that these toys and objects are easier to relate to than a complicated, expensive, intimidating instrument, such as the violin, for example. Anyone can relate to the simplicity of producing bird sounds by blowing bubbles into a ceramic bird-whistle filled with water; children and adults can relate to the corporeal fun involved in spinning a corrugated pipe to produce pretty sounds; most people would feel inclined to twirl a rói-rói to experiment with its different sounds; similarly, most people can imagine the tangibility of producing fun sounds by playing two slide flutes simultaneously. I wanted the audience to imagine that that music, those instruments, those sounds, those movements

[8] *Glotogony* was written as a companion piece for Gerhard Grisey's *Partiels* and has a similar instrumentation. The piece was premiered in 2018 by RENGA, conducted by Steven Schick, at University of California San Diego.

were also possible for them, that it is not necessary to be a "specialist", or to have an expensive and conventional instrument in order to make appealing sounds. This was obviously not a crusade against conventional instruments – it was rather an exercise on my end to imagine what would be both true to my musical sensitivity and hopefully more immediately relatable to any audience member, while subtly conveying a message related to migratory currents and displacement.

Working with these alternative instruments required a special care regarding visual and sonic orchestration. In order to organize the duration of sounds, the sequence of instruments, and the displacement of the performers in the hall, I created a diagram, which also served as a guide to create the electronic music for this movement.

The following diagrams show:

- the duration of each movement (scale on the left side, in seconds);
- the different instruments (each instrument is marked with a specific color);
- the numbers correspondent to the positions of the performers, as seen in their scores: 0-8 for flutist and clarinetist, 0-11 for violinist and clarinetist (in fig. 8 and 9, marked with a number followed by an arrow and the subsequent number, i.e.: 0 → 1),
- the path that the performers need to walk in the hall (marked by initial point, followed by an arrow, followed by final point, i.e.: ○→●)

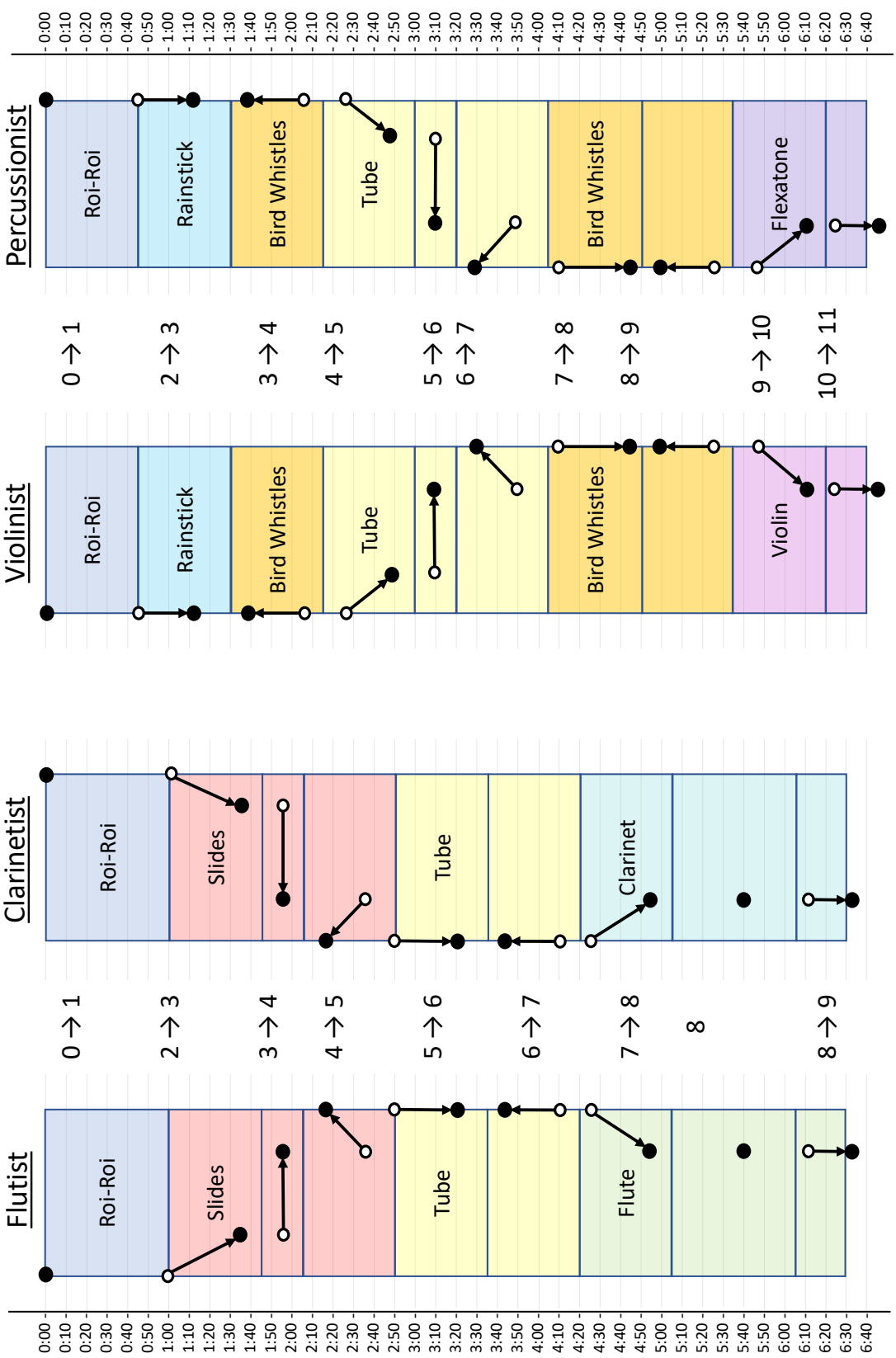


Figure 10. Performers' trajectories diagram for *Uprooted (composers' score)*

3. Electronic music

The electronic music component of *Uprooted* was mostly based on pre-recorded sounds of the alternative instruments and conventional instruments used in the piece. I recorded approximately 250 samples of sounds from rói-róis, slide flutes, corrugated pipes, birds whistle, bowed flexatone, violin, clarinet and flute. I also used sounds of real birds from different areas of the planet (birds from the United States, from Brazil, from DR Congo etc.). I then manipulated those samples (simple manipulations such as time stretch, pitch shift, delay, reverb) and created a library of approximately 700 sounds that were suitable to be used with the alternative instruments being performed live.

Using that library of sounds, I created four different tracks, that were composed according to the orchestration of the instrumental part. The tracks were carefully coordinated with the duration of the performers' trajectories in the hall and their changes of instruments. The flutist, violinist, percussionist and clarinetist were each assigned a different sound track, corresponding to the sounds of the alternative instruments that they were playing. Each one of these four performers wore a portable speaker around their neck, while they were playing their instruments and walking around the hall. The electronic music part was meant to both conceal and enhance the sounds coming from the acoustic instruments, visible to the audience while the performers walked around it. The intention was to create ambiguity

regarding the origin of the sound source. The natural assumption would be that the sounds were coming solely from their toys and instruments, but the sounds coming from the speakers and the sounds coming from the acoustic source were similar/related, creating the impression that either those toys were "super instruments", or that there is another source of sounds. Since the portable speakers are small and discrete (and the lighting in the hall is dark and ambiguous enough so to not make it obvious that the performers are carrying a speaker around their neck), the audience might not be entirely sure if those sounds were acoustically or electronically produced. Usually we seek for the location of the loudspeakers in the hall in order to better orient our perception of sound, and situate our ears geographically, but in this case, the speakers were not visible and were moving *with* the performers.

Although technology has allowed us to amplify and spatialize electronically produced or electronically processed sounds in many interesting and unconventional ways, it bothers me that the sounds move in such an obvious manner from one speaker to another, and that our perception of space is dictated by a rather standardized positioning of speakers in the hall. In the case of music that combines live (processed or unprocessed) acoustic instruments and electronically generated sounds, the body of the human performer is usually stagnant in a fixed position, and although the electronic sounds can be spatialized in a more customized

manner, the fixedness of the loudspeakers make it difficult to enjoy a seamless, immersive sonic spatialization, without being reminded of or distracted by the physical location of the loudspeaker. I wanted to create a piece in which there was no separation between the location of sounds coming from the performer playing acoustic instruments and of sounds coming from electronic sources, but I also wanted movement from both sources. To resolve that, I used portable, wearable, waterproof speakers (the ceramic bird whistles were filled with water and some of it ended up splashing on the speakers).

In an ideal world, I would have access to speakers that are high-quality, high definition, light weight, small, wireless, connectable with innumerous simultaneous platforms and devices, interference-proof, waterproof and inexpensive. Meanwhile, in the real world, I had to deal with some technological limitations. I used four small/medium sized portable Bluetooth speakers, hoping that I could use a computer to trigger sounds in all of them simultaneously. The plan didn't work: even though it is possible to pair virtually an unlimited amount of Bluetooth devices to a computer, it is only possible to connect 8 of them at once, which would not be a problem, if only they were also capable of being *transmitted* simultaneously. However, it is only possible to transmit to *one* at a time. Each Bluetooth device has its

own PAN[9]: it is possible to connect 7 Bluetooth devices, but not if they share the same PAN. For example, cellphones have a type of PAN, speakers have their own PAN, TV screens have a different PAN and so on. So, it would be possible to connect and transmit through one phone, one TV, one speaker, one wireless bike/workout device, but it would not be possible to transmit through 4 speakers using the same computer. There was yet another limitation: Bluetooth has a "weak signal", about 1 miliwatt, which limits the range to approximately 10 meters (as a comparison, cellphones have a "strong signal", 3000 times stronger than Bluetooth). The other alternative I tried was to pair the Bluetooth speakers with cellphones, which would solve the problem with range limitation. However, there were several times when the speakers would randomly receive electromagnetic interference from cellphones and produce an idiosyncratic and annoying unintended noise. So, back to the reliable technology of 1990s… I connected the Bluetooth speakers to a Digital Audio Player via auxiliary cable, taped and velcroed them together and had to compromise: the electronic part of the piece would function as 4 fixed media parts (no live electronic manipulations), completely pre-recorded and triggered by the performers with a fair amount of unescapable human imprecision.

[9] PAN: Personal Area Network, also called piconet. A piconet is a network of devices connected using wireless (Bluetooth) technology. The network ranges from 2 to 8 connected devices, in which one device acts as the "master" and the other act as "slaves"

Figure 11. Portable speaker, neck strap, auxiliary cable, sound player.

Figure 12. Sound player and portable speakers taped with Velcro

Figure 13a. Final configuration of speaker and player (facing the audience).

Figure 13b. Final configuration of speaker and player (facing the performer).

CHAPTER 3

"Ensemble"

I like how in the United States we say "music for ensemble" or "ensemble music" to describe music created for/by a group of musicians. I like it particularly because of the use of the French word *ensemble*, which means *together.*

Permanent Alien (and native friends), is an ensemble piece that can be performed in two different circumstances: as the third movement of *Impermanence*, or as a stand-alone piece for flute, clarinet, piano, percussion, violin and violoncello. All the performers (except the percussionist) play additional auxiliary instruments: a bullhorn (flutist), a pair of wood chimes and wind chimes (clarinetist), a melodica (pianist), a slapstick (violinist) and a police whistle (violoncellist).

The current *modus operandi* of most ensembles and orchestras can be a very deceiving influence on how composers compose music for these groups. Guided by financial constraints and conservatism, most ensembles and orchestras work on a "3-rehearsal -> performance" schedule. On very rare occasions there is an incentive for exploration, experimentation and collaborations with the performers. The schedule is very tight and there is not enough time for performers to work on pieces that demand more than the time allocated for a few rehearsals. In short: pieces that are more

challenging or that rely on experimentation do not find a good home amongst larger instrumental groups, which play challenging pieces poorly, or only play pieces that are easy enough to fit in their restricted rehearsal schedule. This pragmatism not only affects how composers will plan their compositions (leaning towards the "non-challenging" side of the aesthetic scale) but it also might disincentivize aesthetic diversity, favoring pieces that can be successfully performed in front of an audience with a very limited amount of rehearsals.

Confronted with this reality, and considering my work with soloists, my solution was to create pieces that *were* challenging, but not for the whole ensemble, and not for too long: within the group, I created soloist-like parts, in which individual performers at times carried the weight of dealing with challenging parts, while others had less challenging parts; then I would invert that logic and have the performers who played solo-like parts playing less demanding parts, creating a mosaic of several "foregrounds" over a mosaic of "backgrounds". That was one of the main strategies in composing *Otherness*[10], in which I created soloist-like parts for all instruments, but some of them had to incorporate atypical behaviors regarding their historical techniques / idiosyncratic patterns. For example, the flute, who might be used to carrying melodies and having a foreground role in orchestral music,

[10] *Otherness* is an ensemble piece for amplified instruments: flute, bass clarinet, percussion, piano, violin, viola and violoncello. The piece was premiered in 2014 by Talea ensemble, at Harvard University.

would take on the behavior of a percussion instrument; the violin, who is also used to taking a soloist, foreground role, would lose its privilege to bow the strings and could only use a guitar pick, fully incorporating the behavior of a cheap, precarious, bohemian guitar; the snare drum would be granted a long, overwhelming and idiosyncratic solo, etc.

In *Otherness*, I wanted to create a musical metaphor for ideas related to otherness (thus the title) and togetherness, empathy, cultural assimilation, cultural appropriation, and the feeling of being socially disempowered and artistically overlooked. I worked with materials that were radically different and tried to manipulate them to find points of similarities, either via physical gesture, timbre, melodic shape and/or rhythmic patterns. The idea of being in someone else's shoes, as a way of understanding different perspectives and later on being able to incorporate and/or transform these perspectives, colored the way I treated the instruments in this piece, as well as some decisions about form.

The idea of otherness also permeates *Permanent Alien (and native friends),* which is supported by two main pillars: the use of a pre-existing song (for its allegorical potential) as a compositional "scaffolding", and the use of sonic tropes in order to (potentially) elicit certain affects.

Fernando, is a pop song released in 1976 by the Swedish pop band ABBA. The song is one of the most best-selling songs of all times, with over 6 million copies sold in 1976 alone. However, the first version (1975) of the

lyrics was not very successful. The lyrics were written by Benny Andersson and Bjorn Ulvaeus, in Swedish, and were unrelated to the top-hit song:

> *[…] The sorrow can be hard to bear, but the fact that friends let us down is something we all have to cope with.*
> *[Chorus] Long live love, our best friend, Fernando. Raise your glass and propose a toast to it; to love, Fernando. Play the melody and sing a song of happiness. Long live love, Fernando*

The most famous version of the song, with English lyrics, [probably] speaks of the Mexican-American War (1846-1848), an armed conflict between Mexico and the United States, which resulted in the conquest of what now is the State of Texas. The lyrics are:

[Verse 1]
Can you hear the drums, Fernando?
I remember long ago another starry night like this
In the firelight, Fernando
You were humming to yourself and softly strumming your guitar
I could hear the distant drums
And sounds of bugle calls were coming from afar

[Verse2]
They were closer now, Fernando
Every hour, every minute, seemed to last eternally
I was so afraid, Fernando
We were young and full of life and none of us prepared to die
And I'm not ashamed to say
The roar of guns and cannons almost made me cry

[Chorus]
There was something in the air that night
The stars were bright, Fernando
They were shining there for you and me
For liberty, Fernando
Though I never thought that we could lose
There's no regret
If I had to do the same again
I would, my friend, Fernando
If I had to do the same again
I would, my friend, Fernando

[Verse 3]
Now we're old and grey, Fernando
Since many years I haven't seen a rifle in your hand
Can you hear the drums, Fernando?
Do you still recall the fateful night we crossed the Rio Grande?
I can see it in your eyes
How proud you were to fight for freedom in this land

[Chorus, 2 times]

I thought it was intriguing that the fact that the exact same melodic, harmonic and rhythmic structure of *Fernando* could be used to express dramatically different contexts, from a broken heart to war. Bjorn Ulvaeus said:

> *That lyric is so banal and I didn't like it. It was a love lyric, someone who loved Fernando, but I inherited the word 'Fernando' and I thought long and hard, what does Fernando tell me? I was in my summerhouse one starry evening and the words came, 'There was something in the air that night' and I thought of two old comrades from some guerrilla war in Mexico who would be sitting in the porch and reminiscing about what happened to them back then and this is what it is all about. Total fiction.*[11]

The fact that a Swedish band profited by millions of dollars over a song that talks about *"some guerrilla war in Mexico"*, a war that led the United States to take the land away from Mexico, is, at least, peculiar. It is peculiar too that Texas is still now (in 2019) a focus of contention, with a shameful migratory crisis obscuring its starry sky.

Another peculiar aspect of *Fernando* is the use of stereotypes in order to convey a message. The motif in the introduction features a Caucasian interpretation of how native people in South America play the pan-flute. That motif is an incorporation of stereotypical sonorities so to represent "Mexican-ness". The video-clip of the song shows the four performers around a fire, singing and playing guitar, wearing white shirts with "Mexican-like" embroidery (a fake, stereotypical version of the embroidery from Otomi people, predominantly located in Hidalgo, Mexico).

[11] in *1000 UK Number 1 Hits, by Jon Kutner.*

However, my relationship with the song is not related to combating cultural appropriation, nor emphasizing how privileged European folks trivialize the hardships that underprivileged folks undergo – and heavily profit out it. My relationship with the song is: we share the same name.

It's been eight years since I became an alien. In 2011, when I moved to the United States, I learned that I was an alien – more specifically, a resident alien for taxes purposes (that's how foreigners who pay taxes in the US are identified). I tried to take the "breaking news" with lightness – which isn't my strongest characteristic. Although I felt alienated by bureaucratic processes, my American friends and most of my American colleagues made me feel welcomed. We learned about idiosyncrasies regarding our cultural backgrounds, we learned how to overwrite harmful stereotypes, we learned about similarities and differences between our countries and we learned how the idea of "the other" was more of a construct than a reality. However, I never got over the fact that I had to sonically "deface" my name in order to make my name understood in the US. When I said my name with my Brazilian accent, people would *never* get it. So, I started saying "it's *Fer-nan-da*, like the ABBA song (but the feminine version)". Those who did not know the song would keep looking at me with a blank face, those who knew the song would usually laugh. Latinx folks knew exactly what I was talking about, regardless of their awareness of that pop tune.

My grandfather was a Fernando. My progenitor is a Fernando. And as the praxis in Brazil, the oldest son of a couple should carry on the tradition and perpetuate the all-so-often violent patriarchy. But oops*… it's a girl*!

Permanent Alien (and native friends) is completely based on the ABBA song *Fernando*. The pop tune serves as a scaffolding for the rhythmic, melodic and harmonic structures of *Permanent Alien*, and it gets gradually deconstructed towards the end of the piece.

The flute and the clarinet carry the melodic line, using the same 3rds and 6ths intervals used in the pop song. At times, the melodica and the violin also join the wind instruments in that task. My intention was to create a semi-recognizable structure, by either removing certain notes from the original song, or by considerably shortening their duration. I "tweaked" the different octaves and displaced them so to reveal or conceal the similarity with the original song. Towards the end of the piece, the original pitches are lowered in an almost chromatic manner.

The percussion, violin and violoncello's roles are varied, but their main task is to disrupt the main melody by highlighting certain words of the lyrics. I created three different categories of gestures, which were associated with the words "I", "Fernando" and with passages related to violence (for example "roar of guns and canons", or "afraid"). Figures 14a-f show these three gestures separated by color (pink, blue, red).

Fernando

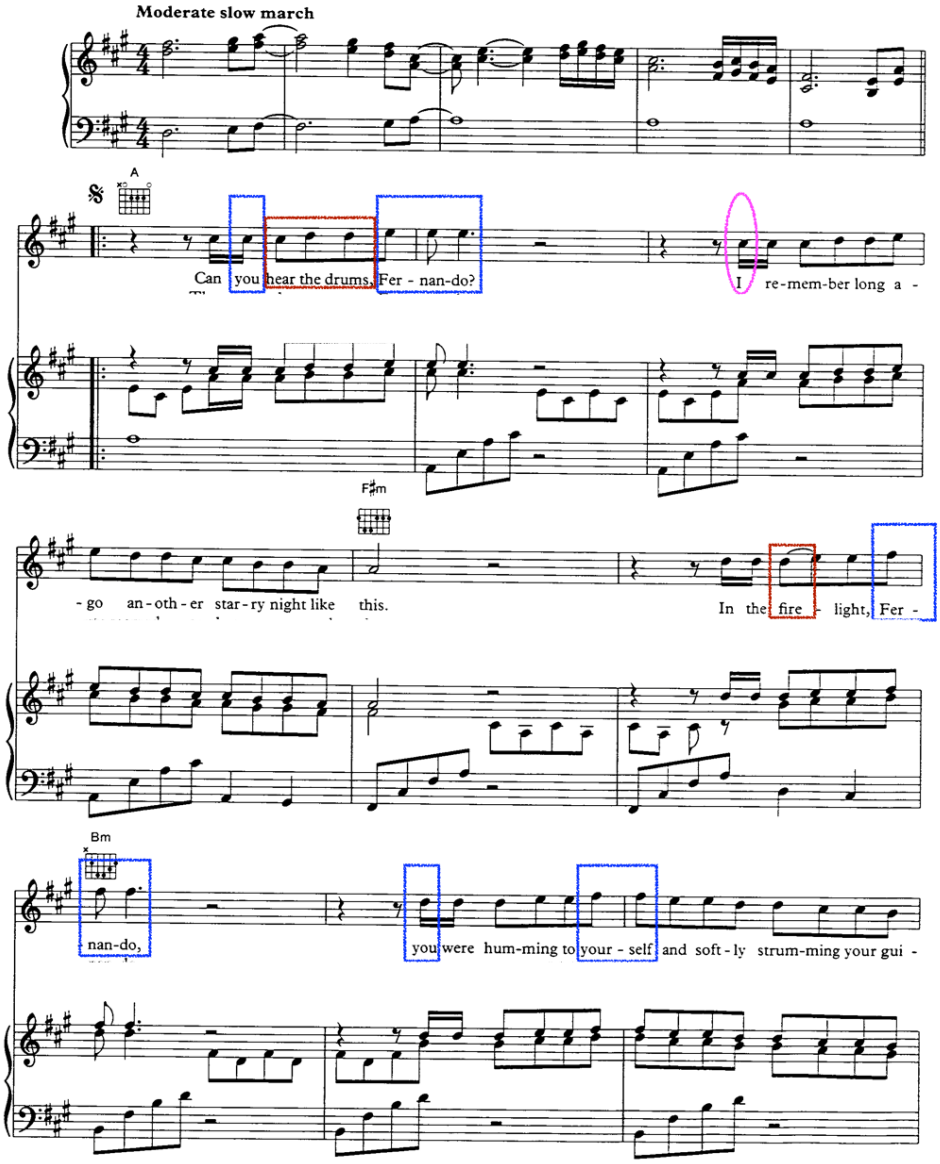


Figure 14. 3 categories of disruptive gestures, marked in the original song

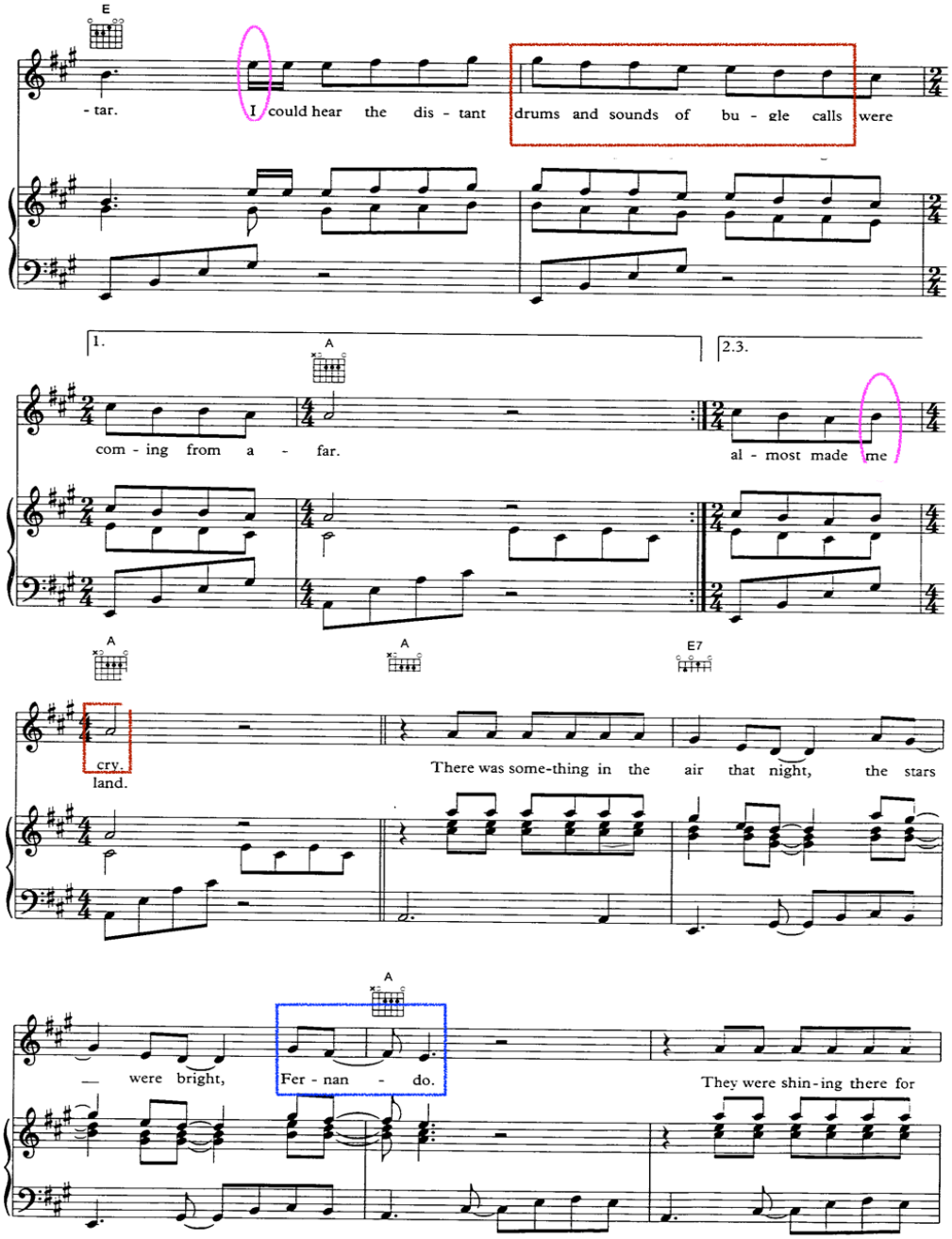


Figure 14b. 3 categories of disruptive gestures, marked in the original song

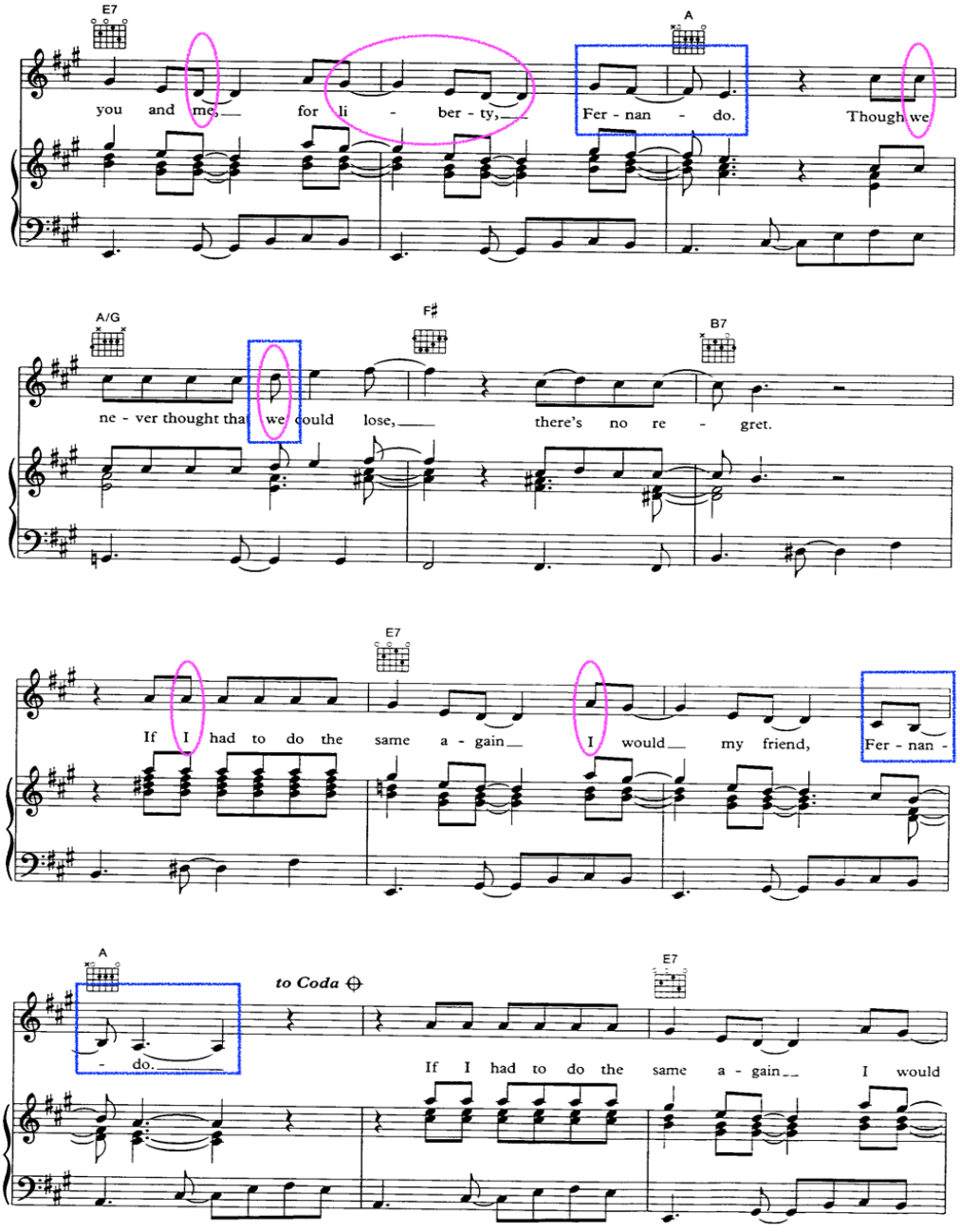


Figure 14c. 3 categories of disruptive gestures, marked in the original song)

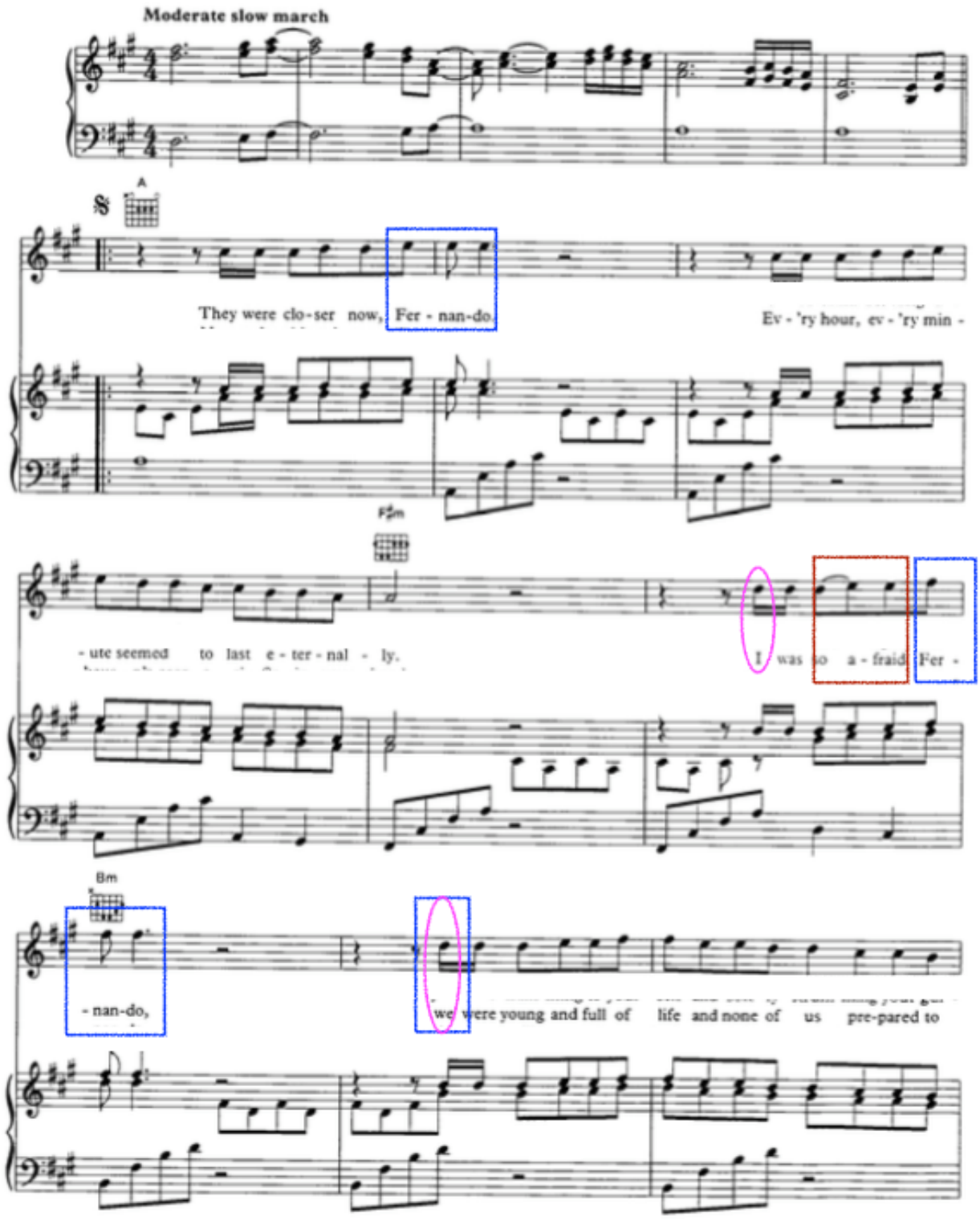


Figure 14d. 3 categories of disruptive gestures, marked in the original song

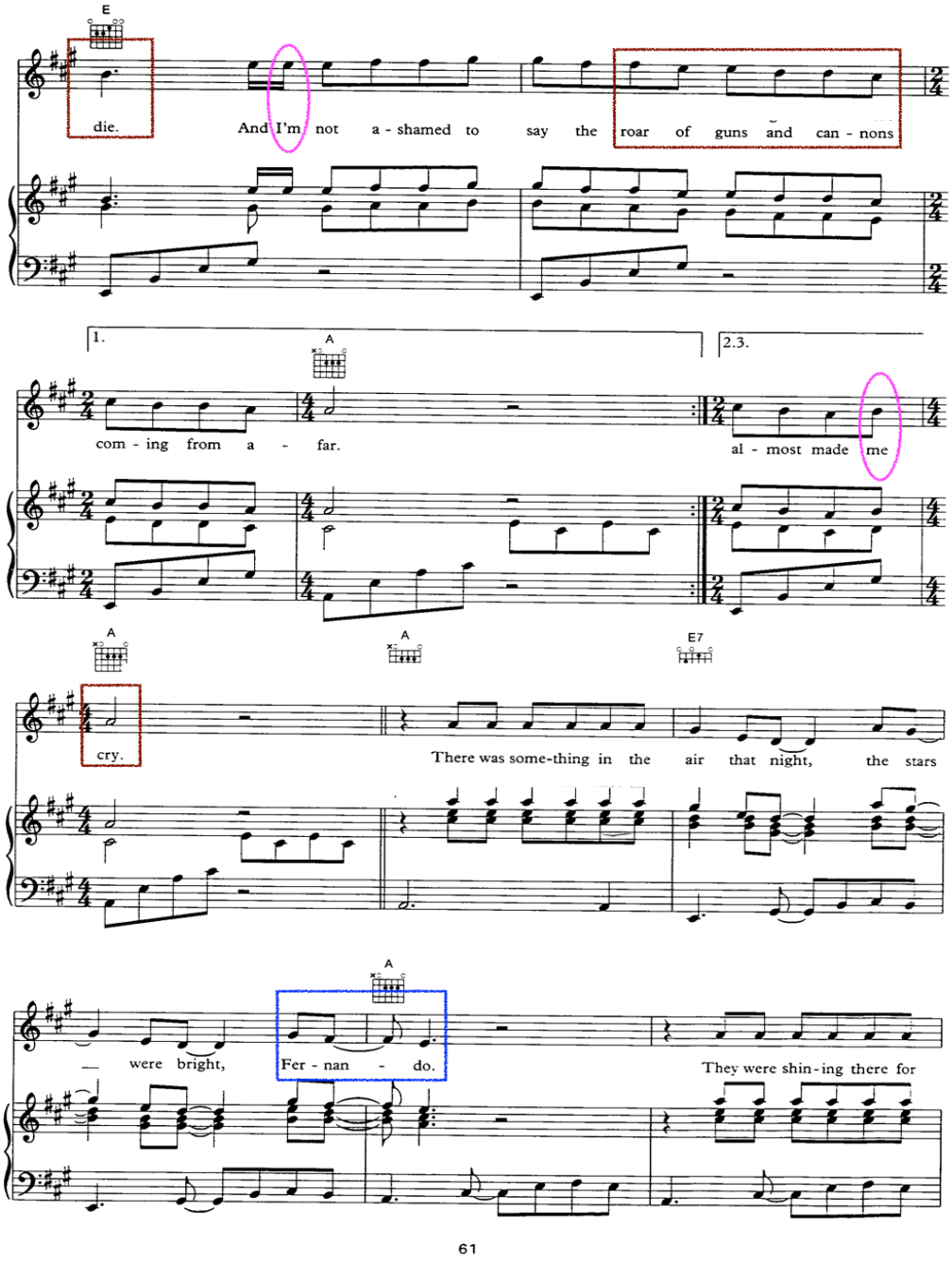


Figure 14e. 3 categories of disruptive gestures, marked in the original song

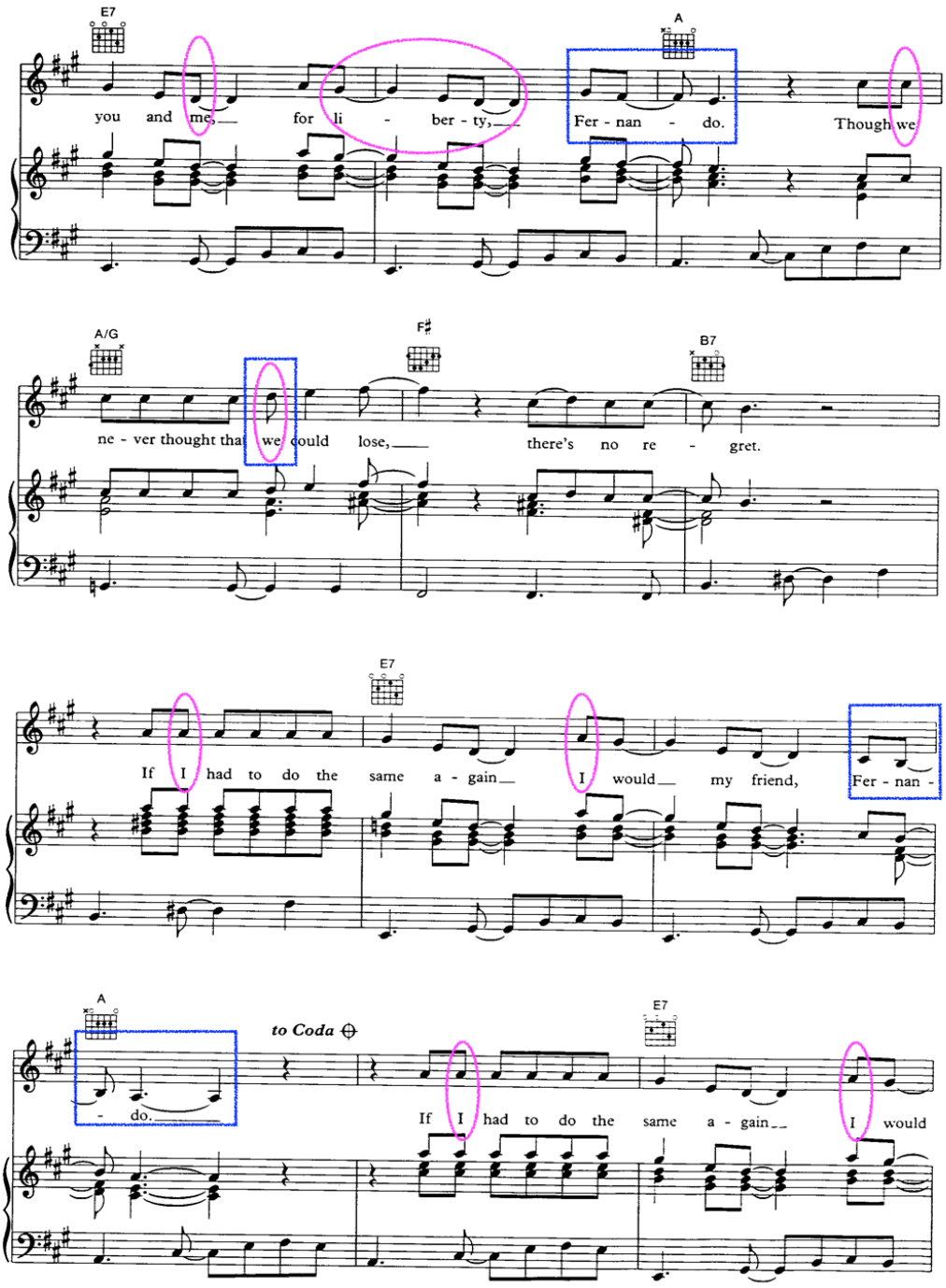


Figure 14f. 3 categories of disruptive gestures, marked in the original song

These disruptive gestures were then assigned to the instruments of the ensemble, as seen in the example below.

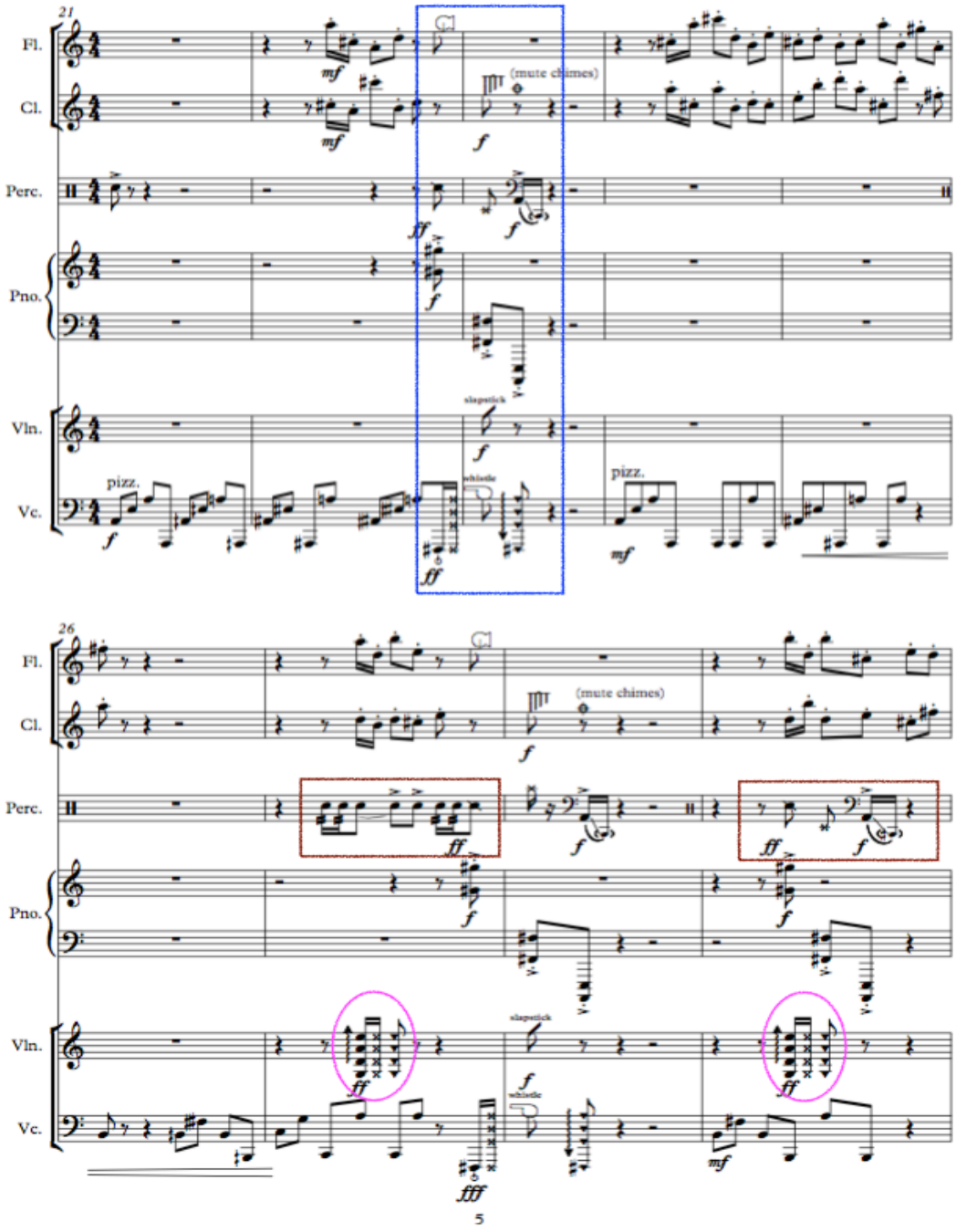


Figure 15. *Permanent Alien* (m. 21-25): 3 categories of disruptive gestures

The overall instrumental gesture associated with the word *Fernando* is covered by all instrumentalists of the ensemble, who play auxiliary instruments rather than their original instruments. These sounds were orchestrated in an almost allegorical manner: a brief and loud ambulance siren sound played in the bullhorn by the flutist, a fast "slap" in the wind and wood chimes played by the clarinetist, another abrupt slap with the slapstick played by the violinist and a sharp whistle with a police whistle played by the cellist. The pianist is the only performer who does not play an auxiliary instrument in this context.

Permanent Alien is not a "new version" of *Fernando*; it is also not an homage, nor a parody. *Permanent Alien* utilizes the resources from *Fernando* as a scaffolding, and uses its tropes as a metaphors to indicate affect and meaning through music, without relying on words.

CONCLUSION

Composing this modular work allowed me to explore different challenges related to creating music with and for people, and forced me to think about solutions for problems that were new to me. How to create a piece of music in which the whole and its parts can be of equal artistic value? How to compose a compelling and impactful piece that could work both as a single, longer piece, and also as 3 different shorter pieces? How to bridge those three pieces, in order to achieve cohesion, and how to separate these pieces in order to achieve distinction? How to develop a piece for ensemble that can encompass the challenges of collectiveness and also of individual virtuosity? How to make a piece that is flexible enough, but also robust enough so to facilitate the performers expertise not only as interpreters, but also as *creators*, who compose in real time and have a lot more agency over the creative input? How to blur the lines between electronically and acoustically produced sounds, while dealing with sound spatialization? How to create uncompromising music, in an environment that could be more relatable for those who are not "specialists", who are not trained musicians? I sense that *Impermanence* found a few temporary answers to these questions, and I would like to conclude this work with this temporary permanence, which, for now, is my favorite definition of impermanence.

APPENDIX

Score of *Impermanence.*

Impermanence

for flute, clarinet, violin, violoncello, piano,
percussion and electronics

Fernanda Aoki Navarro

March 2019

Impermanence

Commissioned by Steven Schick and

San Francisco Contemporary Music Players

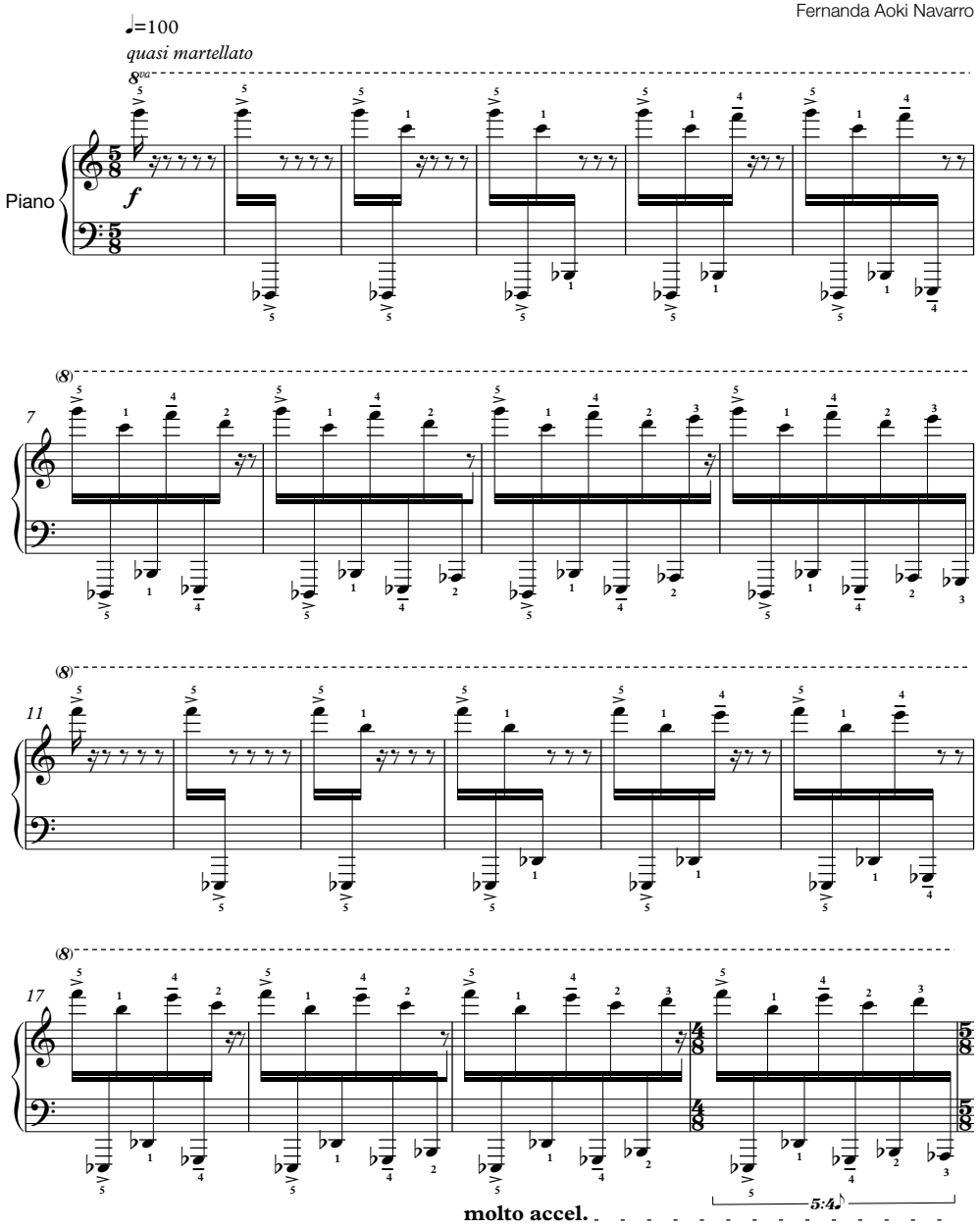
I. Mestiça

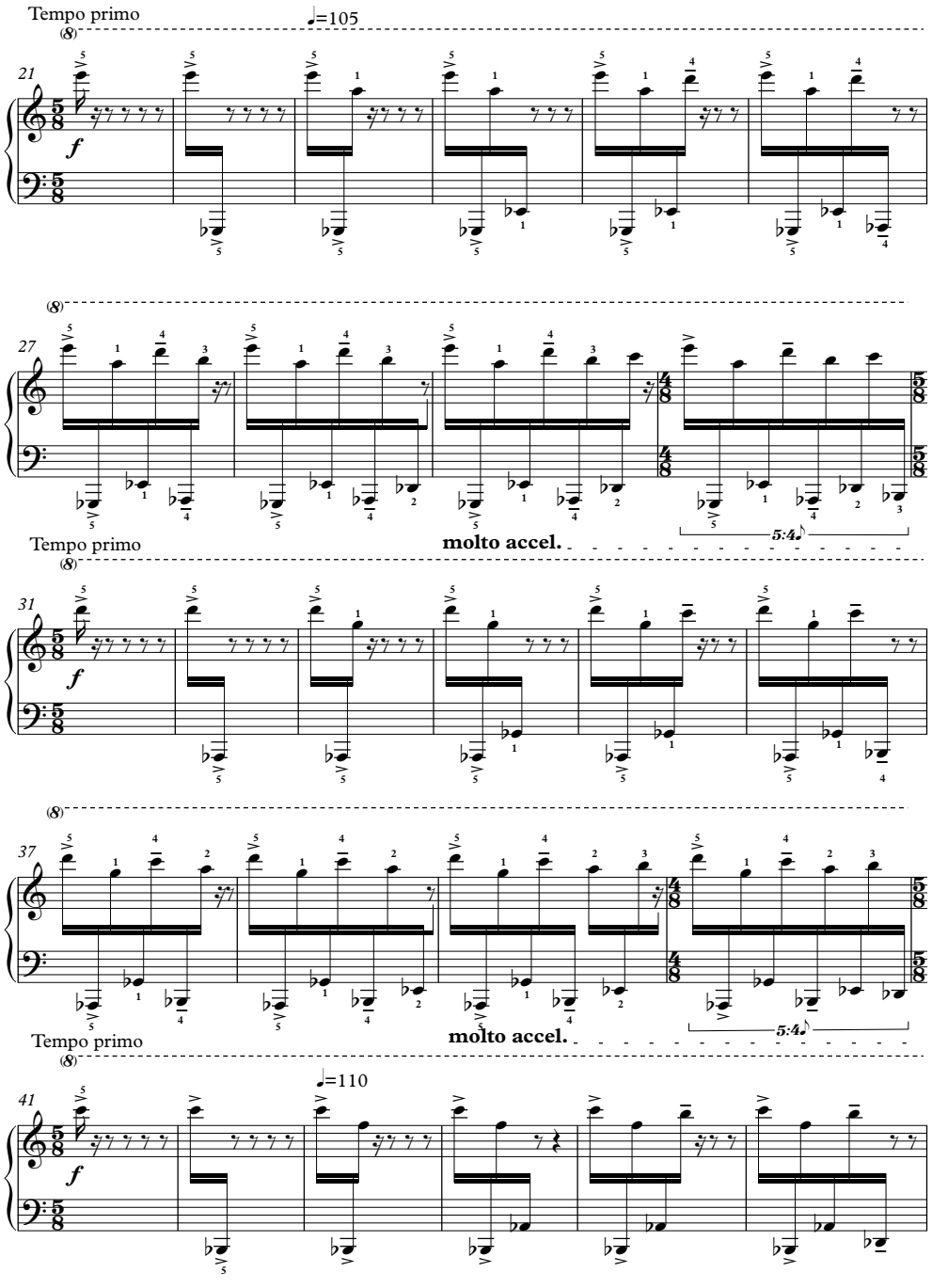
for piano

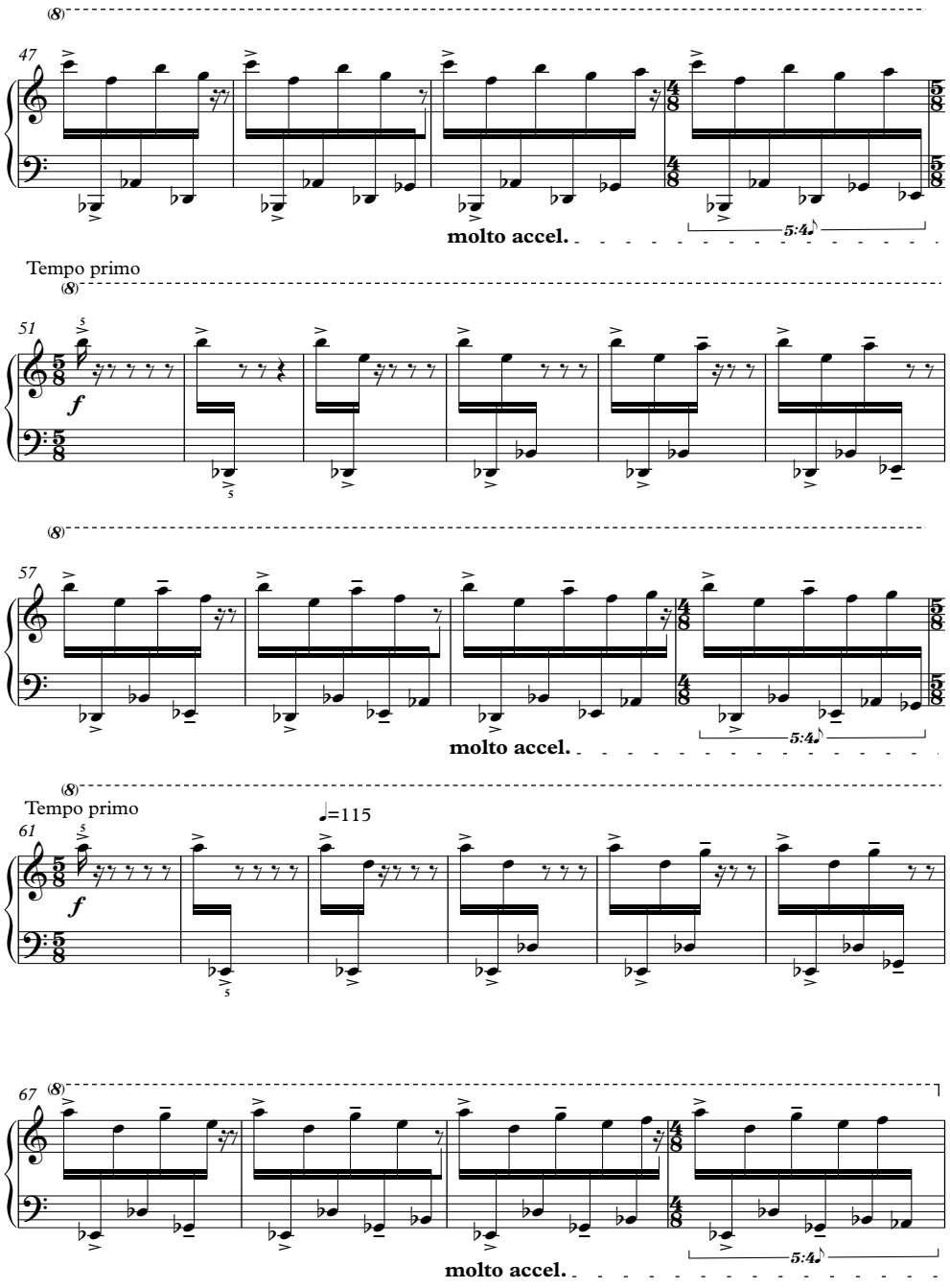
Impermanence

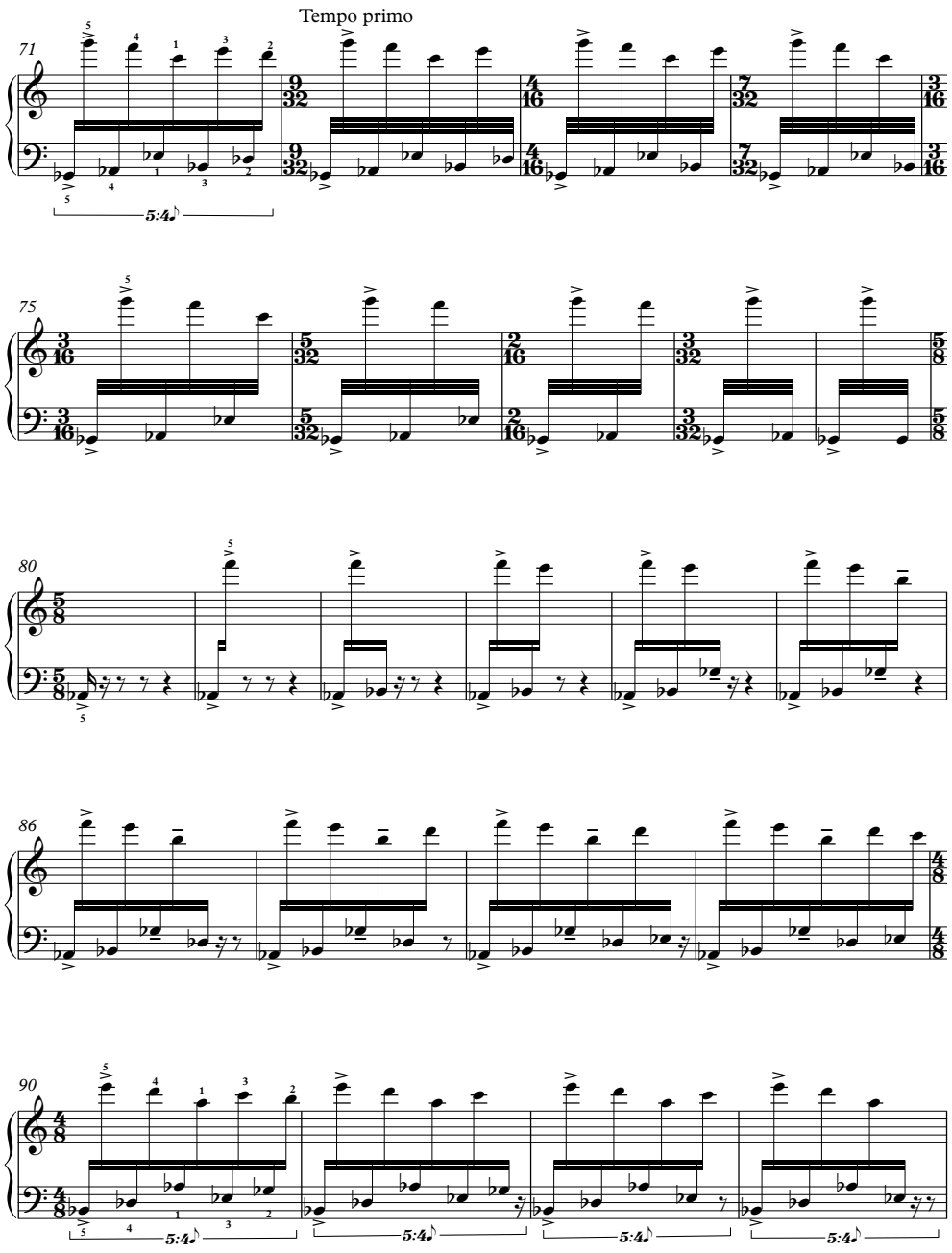
I. Mestiça

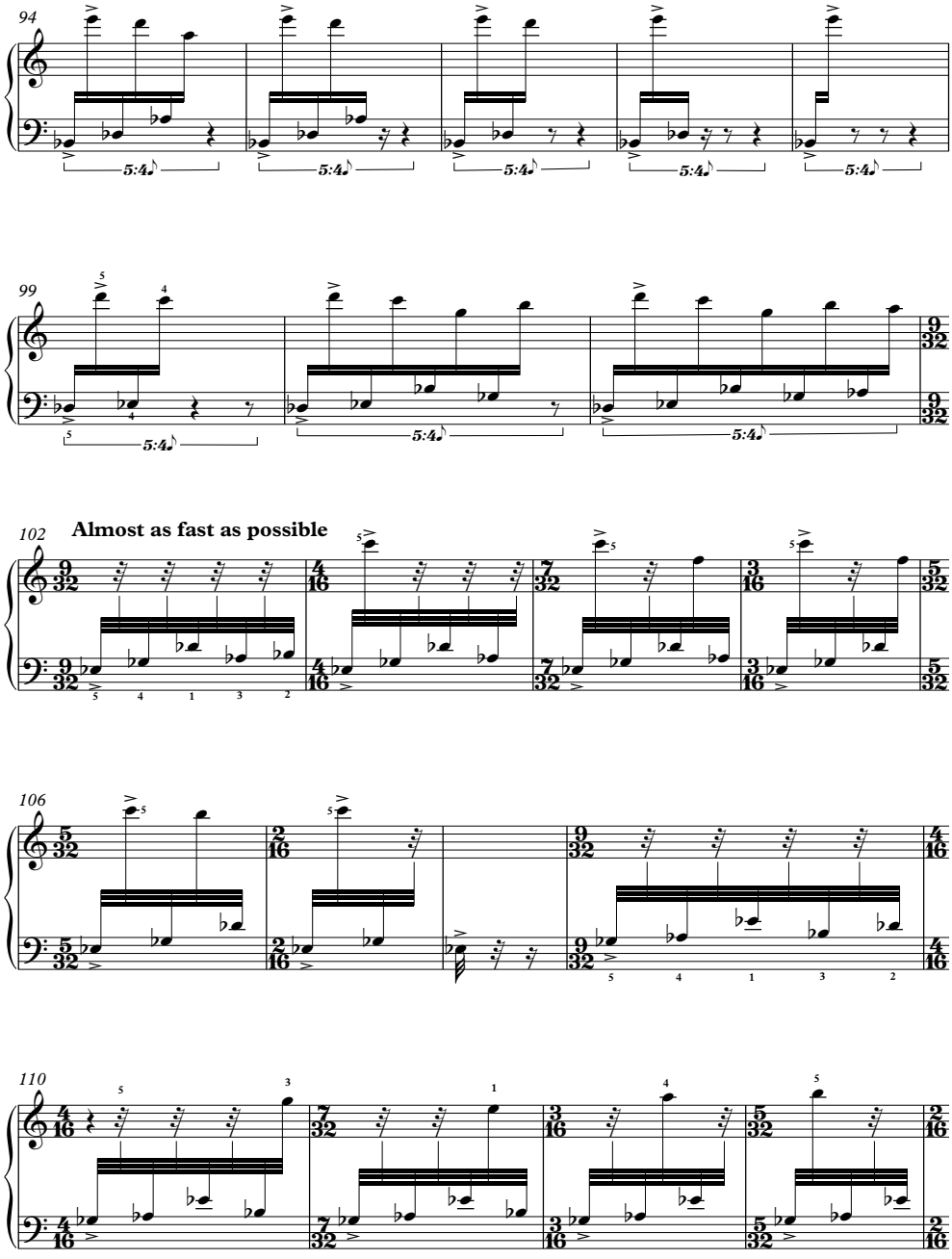
Fernanda Aoki Navarro

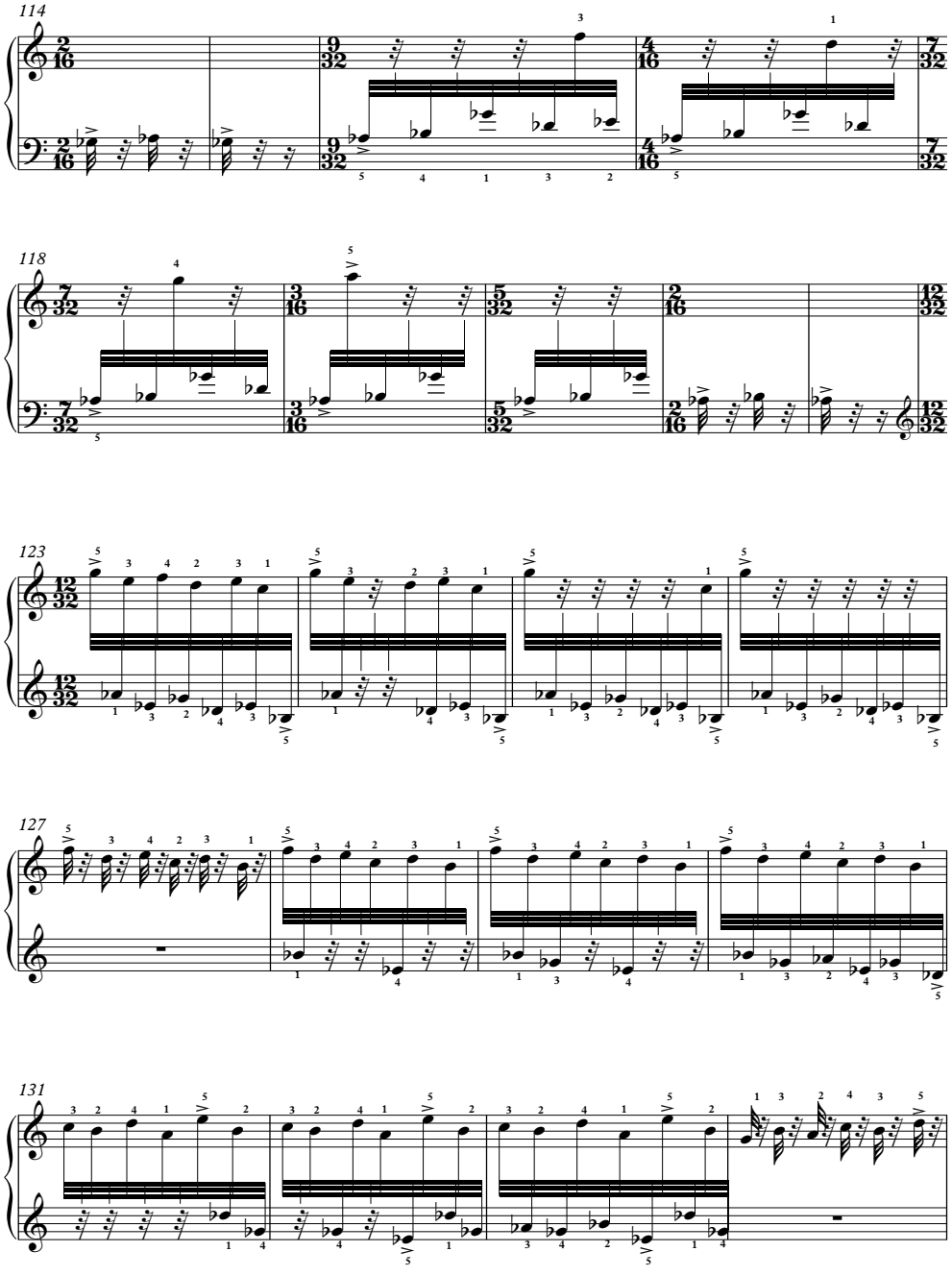


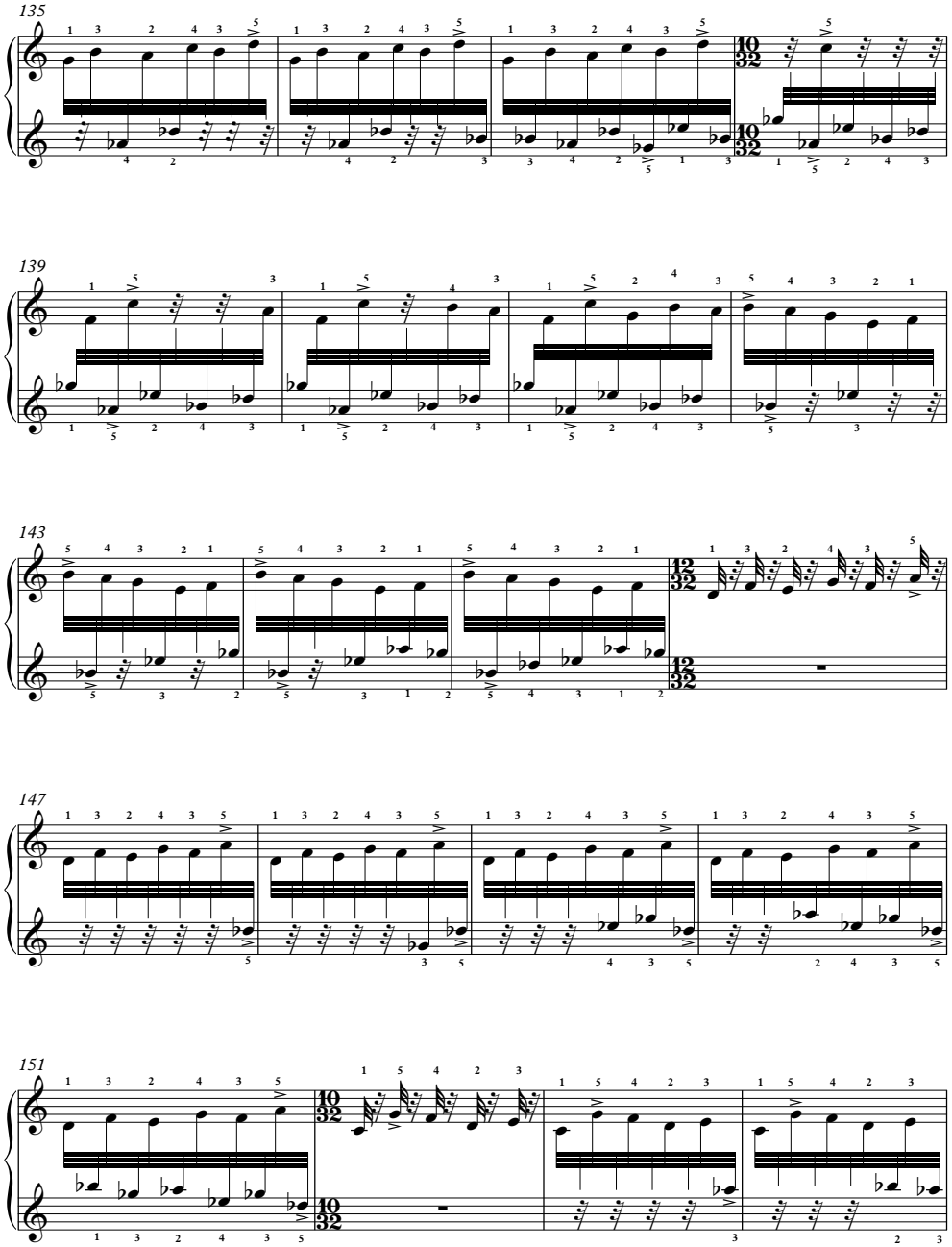

Tempo primo
♩=105
21
f
27
molto accel.
5:4
Tempo primo
31
f
37
molto accel.
5:4
Tempo primo
♩=110
41
f

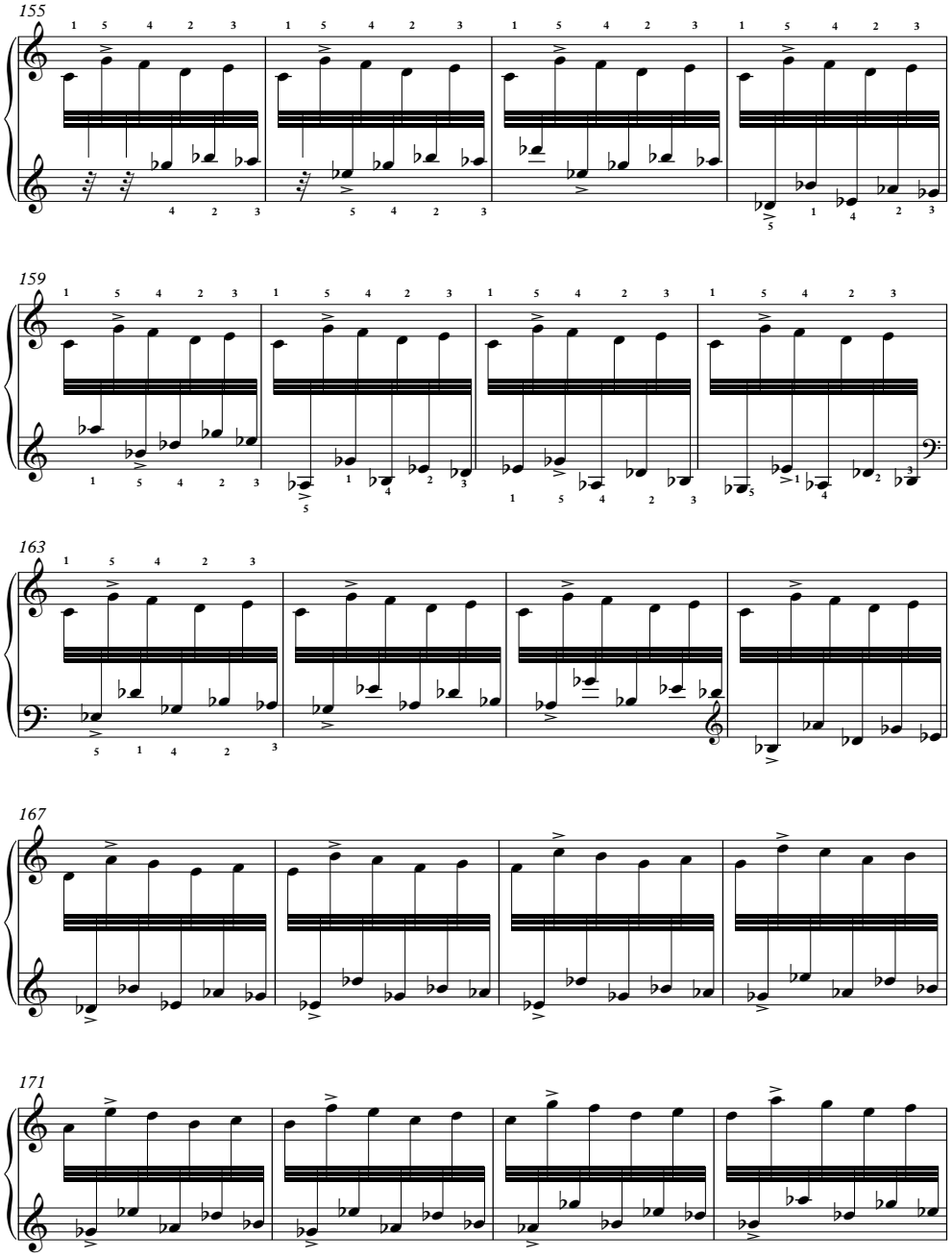

47
molto accel.
5:4
Tempo primo
51
f
57
molto accel.
5:4
Tempo primo
61
f
♩=115
67
molto accel.
5:4

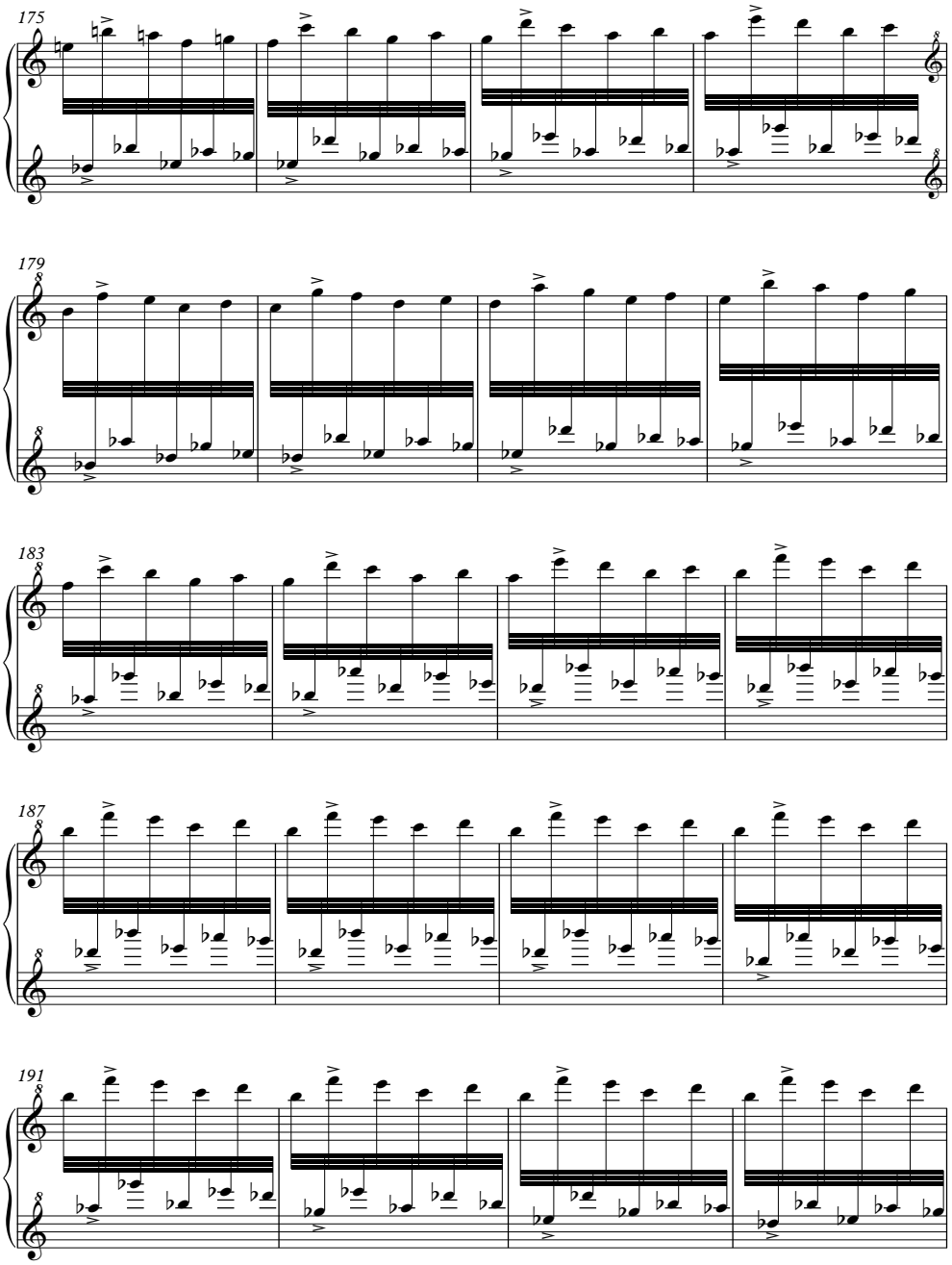

Tempo primo
71
5:4
75
80
86
90
5:4
5:4
5:4
5:4

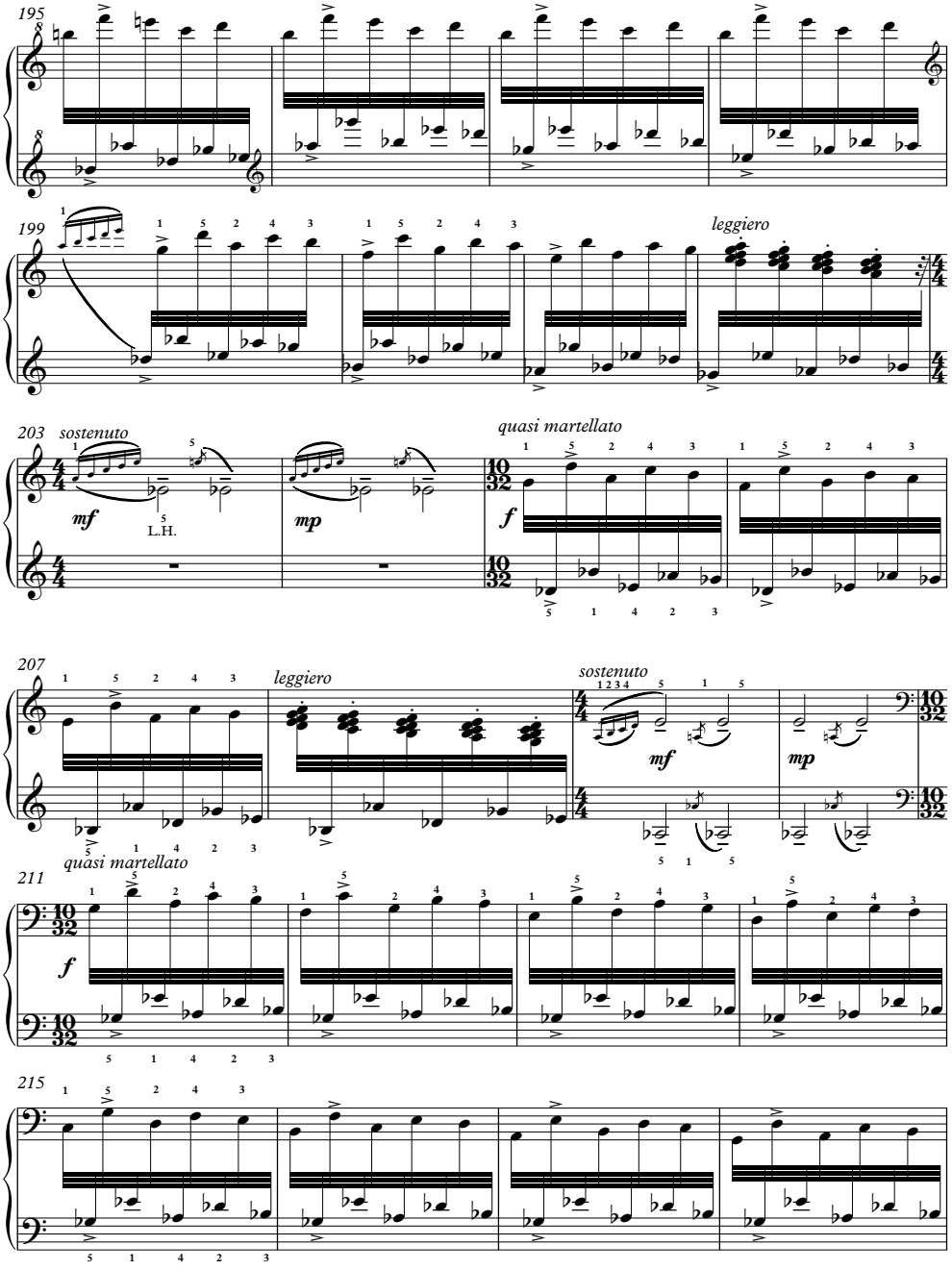

94
5:4
99
5:4
102
Almost as fast as possible
106
110


114
118
123
127
131

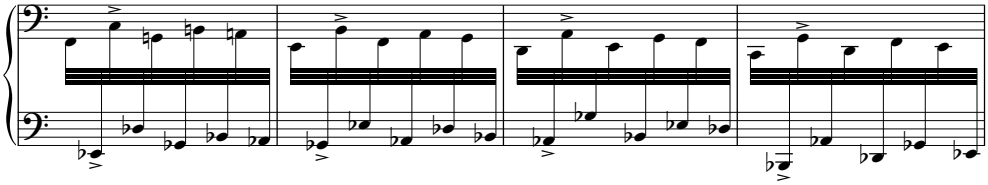

135
139
143
147
151


155
159
163
167
171

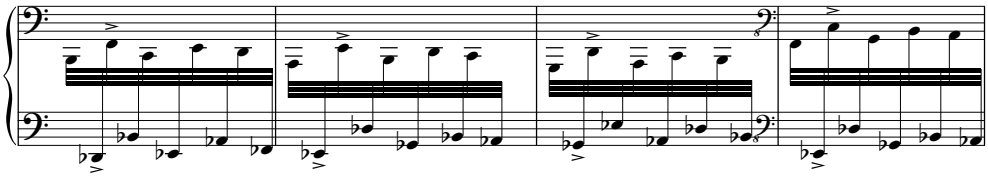

175
179
183
187
191


195
199
leggiero
203
sostenuto
quasi martellato
mf
L.H.
mp
f
207
leggiero
sostenuto
mf
mp
quasi martellato
211
f
215

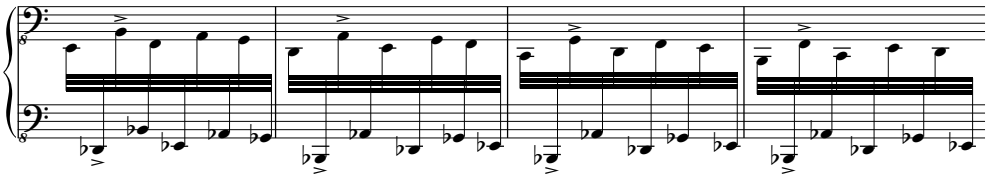
219



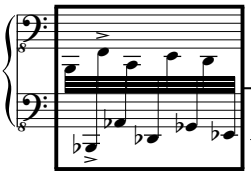
223



227

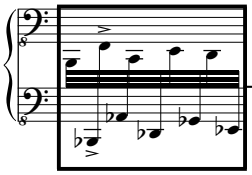


231



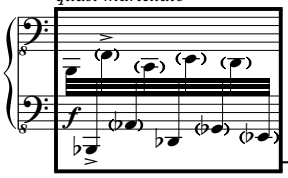
Repeat 4 to 7 times. Intention: Build-up.
Speed up and increase dynamic level (from *f* to *con tutta la forza*), gradually.
If desirable, use sustain pedal (no more than half pedal) to control timbre.

232



Repeat 3 to 5 times. Intention: Fog up.
Slow down and decrease dynamic level (from *tutta la forza* to *ppp)*.
If desirable, use half sustain pedal and/or *sordina* pedal to control timbre.

233 *quasi martellato*



Discreetly CUE flutist, clarinetist, violinist and percussionist (in the back of the hall) so they will start the second movement (*II. Uprooted*).
Keep playing, regardless of what they are doing.
Repeat 7 to 14 times. Intention: Rarefication and fragmentation.
Dramatically slow down, slower and slower at each note. Stabilize the dynamic level to *f.*
No pedal.
Randomly play or omit notes in parenthesis, with a tendency to have fewer and fewer notes, but notes must maintain the same characteristics from bars 1-230 (short, *quasi martellato, f)*

II. Uprooted

for flute, clarinet, violin, violoncello, piano, percussion and electronics
(+ 4 wireless speakers, 2 e-bows, 4 roi-rois, 4 corrugated tubes,
4 bird whistles, 4 slide flutes, 2 rain sticks, bowed flexatone)

II. Uprooted

Performance Instructions

Concept:

This movement is intended to sound as if the sound waves were adrift, uprooted, as if lost in oceanic waves, sometimes calm, sometimes violent. It is desirable to *avoid sharp attacks and abrupt endings*, so to conceal the origin and destination of the sound. The overall sound quality of the ensemble should be continuous, with almost no silences and great variability regarding dynamic timbre and texture. Although the pitch content is limited, this movement should widely rely, broadly, on the subtle differences between microtonal sounds. ***Explore and elicit as much as possible the delicate physicality of microtonal beating patterns.***

Uprooted was conceived as a semi-improvised structure in order to increase *gestural flexibility*, to facilitate *simultaneity of different rhythmic patterns that don't share the same beat or the same metronome marks, tempi* and to use sonic (but non-verbal) *communication between the performers.* Every iteration of this movement should sound slightly different.

Although there is a lot of room for improvisation, there are components that should be followed strictly: the instruments used; the duration of each section (numbered from 0 to 11); the trajectory of the performers; the overall sonic environment.

Movement is one of the most important aspects of this piece. I wanted to make visual the idea of sound in movement, and make sonic the idea of bodies in movement. The main inspiration for *"Uprooted"* was the feeling of not belonging: not belonging to the place of departure (a home country, for example) and not fully belonging to the place of arrival either. Another important component is the idea of journey and impermanency – the joy and angst caused by this "to-from" trajectory.

Four performers (flutist, clarinetist, violinist and percussionist) should walk among the audience in a *coordinated manner*, carrying small, portable, "wearable" wireless speakers while playing various portable instruments. These performers start the piece in

the back of the hall, and each one of them should follow their individual trajectory throughout the hall, walking around the audience. The final destination for these four performers is on the stage.

Trajectories:

The flutist and clarinetist's trajectories are mirrored and last 6 minutes and 25 seconds. The violinist and percussionist's trajectories are mirrored and last 6 minutes and 40 seconds.

The pianist and violoncellist don't walk outside of the stage. They start playing approximately 1 minute after the other 4 performers start walking in the back of the hall. The performers should be mindful of the way they move and play their instruments, as well as how they relate to each other (specially the pairs that are being "mirrored"). The performers should walk at the same general speed; it is also important to be alert regarding the sound production: the walking should not compromise the sound quality. The sounds and movements should be continuous and smooth, fluid and "natural" (as opposed to mechanical or "excessively theatrical" or "forced"). Please refer to the maps in the next pages for more information.

Initial position:

- The PIANIST should remain on stage during the second movement.
- The VIOLONCELLIST should enter the stage immediately after the pianist finishes the first movement
- The FLUTIST and the VIOLINIST should start the second movement at the **Back Left** corner (see map). They should be sitting there since the beginning of the piece, blending in with the audience.
- The CLARINETIST and the PERCUSSIONIST should start the second movement at **the Back Right** corner (see map). They should be sitting there since the beginning of the piece, blending in with the audience.
- The PIANIST will **discreetly cue** the four performers in the back of the hall (flutist, violinist, clarinetist and the percussionist) so to start the second

movement. The performers in the back of the hall should start *II. Uprooted* while the pianist is still finishing *I. Mestiça*.

List of “mobile” instruments:

- 4 Portable, wireless, “wearable” small speakers (one for each: flutist, clarinetist, violinist, percussionist)
- 4 Roi-rois (one for each: flutist, clarinetist, violinist, percussionist)
- 4 Mid-size slide flutes (2 for the flutist, 2 for the clarinetist)
- 4 Corrugated Tubes, different sizes / pitches (one for each: flutist, clarinetist, violinist, percussionist)
- 2 Large Rain sticks (one for the violinist, one for the percussionist)
- 4 Ceramic bird whistles (2 for the violinist, 2 for the percussionist)
- Flexatone, played with a bow (for the percussionist)
- Flute
- Clarinet
- Violin

List of “fixed” instruments:

- 2 E-bows
- Piano
- Violoncello

Instrumental Techniques:

- **Roi-Roi [Vln + Fl + Cl + Perc]:** is a hand-held Brazilian instrument. With your dominant hand, hold the wood stick vertically (the string and the resonator should be in a resting position). While holding the stick, make the resonator spin, producing a continuous sound. It is possible to control the speed of the roi-roi by controlling how fast or slow the resonator is spinning.
  Flutist and Clarinetist:
  0:00 - 0:15 - play roi-roi as fast as possible
  0:15 - 0:50 - randomly vary speed between fast and medium

0:50 - 1:00 - hold at the slowest speed blending in with Violinist and Percussionist.
Violinist and Percussionist:
0:00 - 0:15 - play roi-roi as fast as possible
0:15 - 0:40 - slow down very gradually and continuously, from as fast as possible to slow
0:40 - 0:45 - hold at the slowest speed, blending in with the Violinist and Percussionist. While Flutist and Clarinetists are playing, take rain stick and immediately start playing-walking.

- **Rain sticks [Vln + Perc]:** Vertically rotate rain sticks in a slow and continuous movement.
  Violinist and Percussionist: Coordinate the movements with each other so to create a continuous sound, with no silences in between. Choreograph the movements in an almost mirrored behavior.

- **Slide Flutes [Fl + Cl]:** Tape the 4 slide flutes together in 2 pairs. One pair of slides should be played by the flutist, the other by the clarinetist. It is more convenient if they are tied to a necklace or some sort of strap around the neck.
  Play both slides simultaneously. Glissandi should be very smooth, continuous and the changes between notes should be almost imperceptible. Carefully listen to the microtonal beating patterns between the notes produced by the slides and remain with a particular pattern for a little while. Then, move on to a different pattern.
  Listen to the bird whistles and tubes from the other performers and play as if in a dialogue with them.
  Try as much as possible to create beating patterns with the sounds from the speaker you are carrying around your neck.
  Feel free to modulate pitches more rapidly at times, but avoid “comical”/ “cartoonish” sounds with the slide.

- **Ceramic Bird Whistles [Vln + Perc]:** Fill the 4 birds with water so to modulate the pitch. It is preferable that all 4 birds are tuned approximately to the same pitch, but

with small variations in order to cause beating patterns when played simultaneously. These unassuming bird whistles are actually quite powerful and it is desirable to use these whistles outside of the “bird-like” sounds (for example: blowing it very hard for a prolonged period of time, while slightly changing the position in the lips creates an awesome sound!)
Hang 2 bird whistles around your neck; play both of them simultaneously.
Play birds continuously, only stop if you need to retake air.
With the whistles between your lips, gradually move them up and down, in opposite directions to modulate the pitch. Don’t be shy regarding air-pressure! It is also desirable to have sharp, continuous and loud moments. Vary air pressure to modulate the speed and intensity. Cover and uncover the hole on the head of the bird to create different rhythmic patterns.
When you find a microtonal beating pattern, stay there for a little longer. Then, move on to a different pattern.
Listen to the bird whistles, slide flutes, clarinet and flute from the other performers and play as if in dialogue with them.
Try as much as possible to create beating patterns with the sounds from the speaker you are carrying around your neck.
Feel free to modulate pitches more rapidly at times, but avoid “comical”/ “cartoonish” sounds with the whistle.

- **Corrugated Tubes [Vln + Fl+ Cl + Perc]:** hold the tube at one end and spin it above your head. Don’t stop spinning the tube until you need to play another instrument. Vary the pitch and the intensity of the sound by increasing or decreasing the speed of the spinning. Another technique (for thinner tubes): blow the tube in one end and spin the other end with your hand. The pitch can be modulated by controlling the amount of air being blown inside the tube. Listen to the other tubes from the other performers and play as if in dialogue with them. Try to create interesting phrases with the tubes and take into consideration the sounds from the speakers you’re carrying around your neck.

- **Flexatone [Perc]**: Bow the flexatone and vary the different pitches and partials by changing the tension of the metal plate. The pressure of the bow will also elicit different partials. Aim for continuous and smooth sounds and allow the resonance to die out before starting a new sound. Listen to the violinist and play as if in a dialogue with them.

- **Violin:** Explore mostly **bichords** or **trichords** relying on continuous microtonal beating patterns and timbral variation. Switch pitch relationships mostly through **glissandi**. Focus on unison, octaves and microtonal beating patterns around **D**. Suggestions:
    - Simultaneously play 2 or three notes, located at:
      - G string: spectrum of notes between Db4 and D#4
      - D string: open string
      - A string: spectrum of notes between Db5 and D#5
    - Left hand: Explore differences between normal pressure, half-harmonic pressure and harmonic pressure; Fast trills; very fast short glissandi; very slow long glissandi, left hand pizzicati.
    - Right hand: Explore differences between bow pressure *(flautando, ordinario,* overpressure, etc.), bow placement (*sul tasto, ord, sul ponticello* etc.) and pizzicati.

- **Flute:** Explore the various possibilities surrounding **D**, for example:
    - Slight glissandi from and/or to D; sustain D for a little longer
    - Different octaves;
    - Whistle tones, harmonic, harmonic series;
    - Multiphonics that feature D, bichords using your voice (maybe singing a glissando to/from D) and the flute simultaneously;
    - Tongue pizzicati
    - Sustained pitch with different fingerings etc.

- **Clarinet:** Explore the various possibilities surrounding **A** (sounding pitch), for example:
    - Glissandi that depart from and/or to A; sustain A for a little longer
    - Different octaves
    - Multiphonics that feature A and different harmonics
    - Tongue Pizzicati
    - Sustained pitch with different fingerings and/or other variations in timbre etc.

- **Violoncellist on Piano + E-bows:** The violoncellist should enter the stage immediately after the pianist finishes the first movement. Then the violoncellist should go towards the piano and put the e-bows on the strings, as defined in the score. The cellist should be mindful of the pianist part and constantly cue once the e-bows have been securely placed on the strings and firmly pressed against them, so to avoid a “buzzing” sound. Both performers should play in a very coordinated manner, constantly cueing each other, since they have co-dependent parts. Carefully change the placement of the e-bows producing a continuous, smooth sound.

- **Pianist:** the violoncellist will enter the stage right after the pianist finishes the first movement. Both performers should play in a very coordinated manner, constantly cueing each other, since they have co-dependent parts. There are 3 different note heads in the piano part:
  - Regular note head: just play the notes as usual. These notes should “trigger” the e-bow in most cases;
  - Diamond note head: carefully press the keys without producing sounds. These notes will be excited by the resonance caused by the e-bow and the regular staccato notes. The goal is to modulate resonance / partials;
  - X note head: quickly release the note that was previously been held.

  Do not use the pedal during this movement.

Final position:

Flutist, Clarinetist, Violinist and Percussionist should continue playing their semi-improvised part while they walk towards the stage. They should keep playing while walking and while sitting on their chairs, not letting these activities interfere with their improvisation. The transition between walking and sitting should be smooth and almost imperceptible. Once seated, continue playing until the violoncellist goes to her/his spot and cues the ensemble. Once the violoncellist cues the ensemble, stop playing, abruptly.

Pianist: once the violoncellist leaves the piano, keep holding the chord you're at. Abruptly release the chord when the cellist cues the ensemble.

Violoncellist: once all performers are on stage and settled in their spots, turn off the e-bows and put them away. The ensemble should keep playing. Calmly walk behind the ensemble, towards your violoncello. Once you are seated, with your instrument in hand, cue the ensemble. *Attaca* to third movement *(III. Permanent Alien -- and native friends).*

Speakers:

There are 4 different audio files, each one of them should be played by a different player+portable speaker. Flutist, Clarinetist, Violinist and Percussionist should carry these portable speakers around their necks throughout the entire movement.
Use the photos below as a reference on how to assemble the speakers.

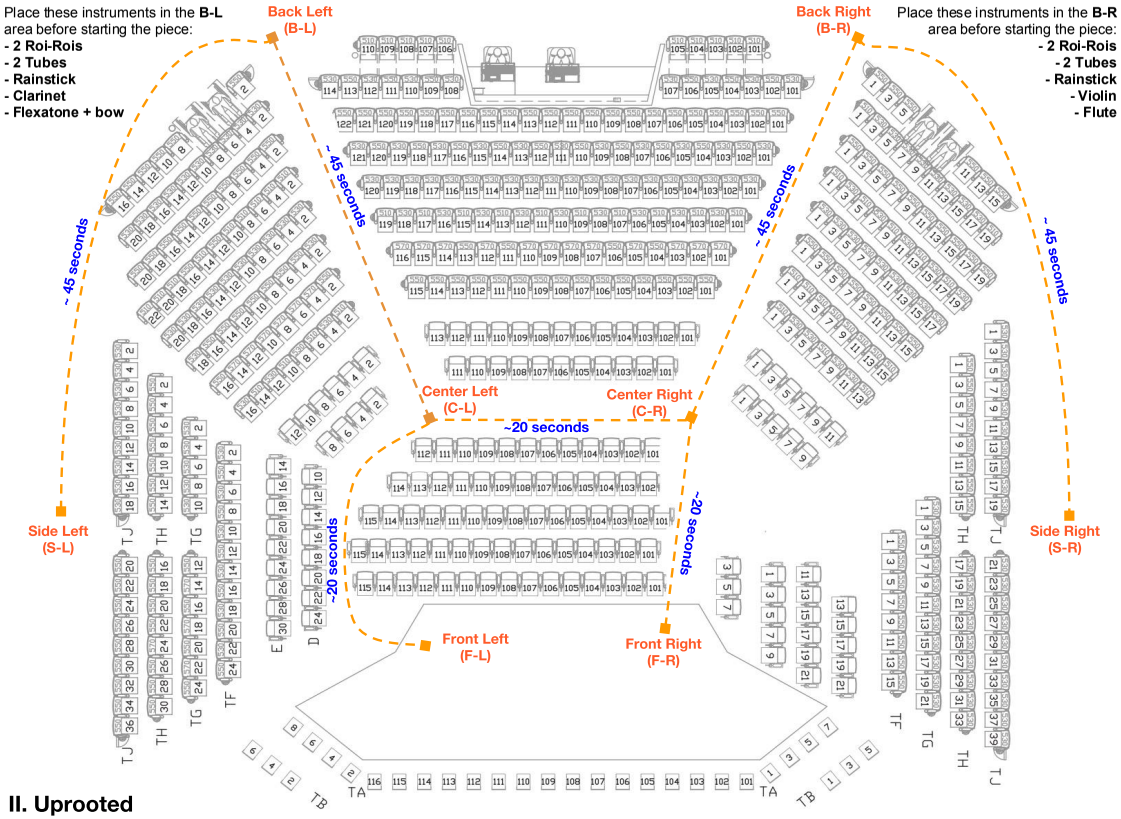
Portable speaker + aux cable + neck strap + audio player

(remember to cover the brand of the speaker, so it is visually as discreet as possible)

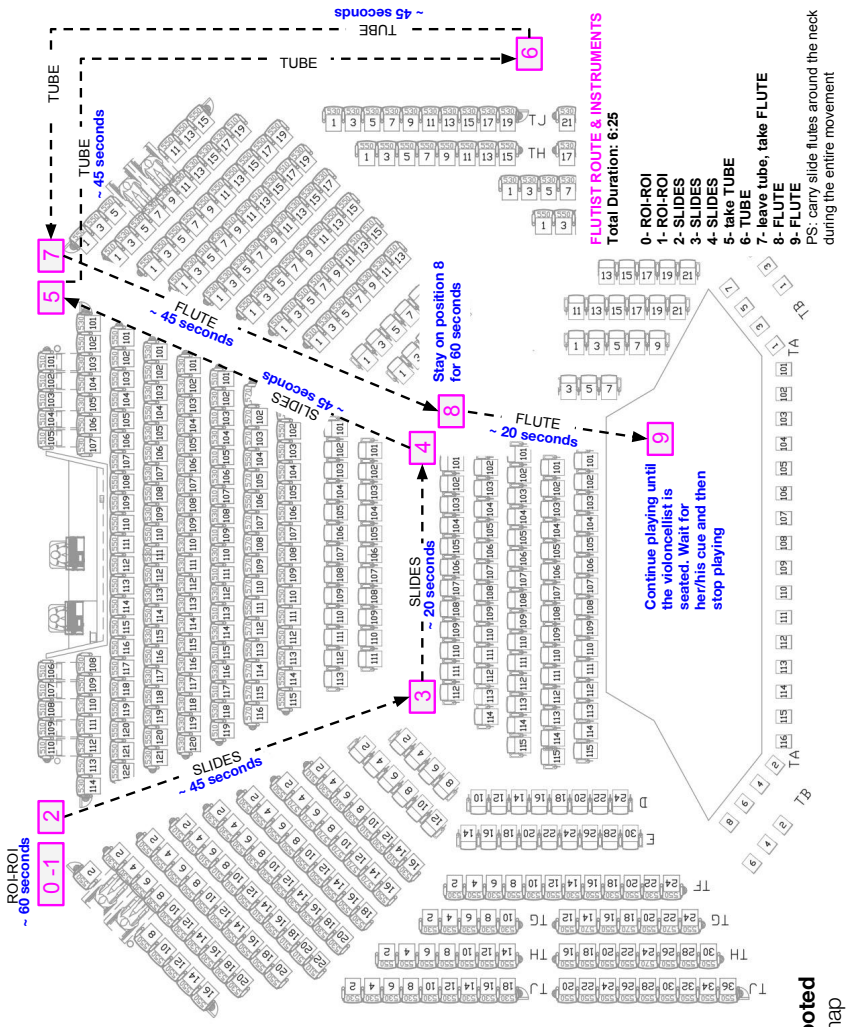
Use Velcro + tape to hold speaker and player together

All parts connected and ready to go. This part facing the chest of the performer

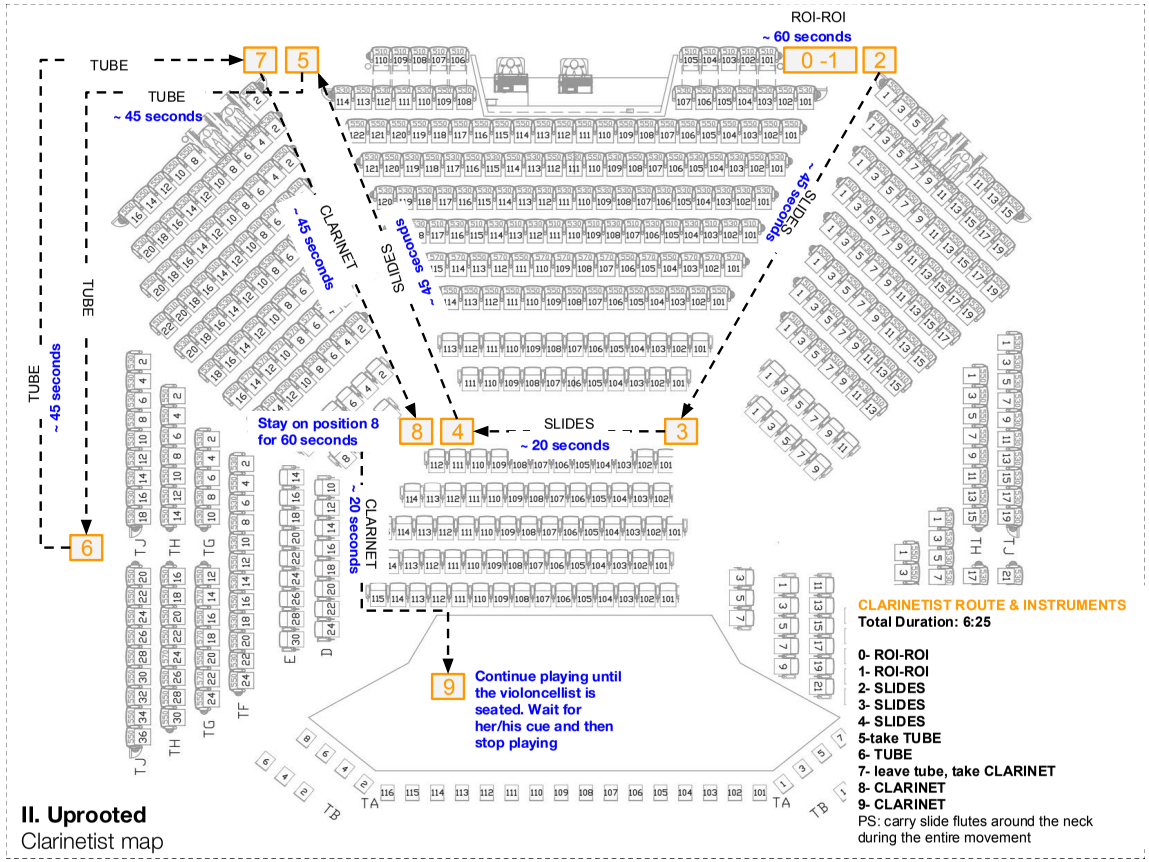
Turn on the speaker and the player. Make sure both are at set at their max “volume”. This part facing the audience



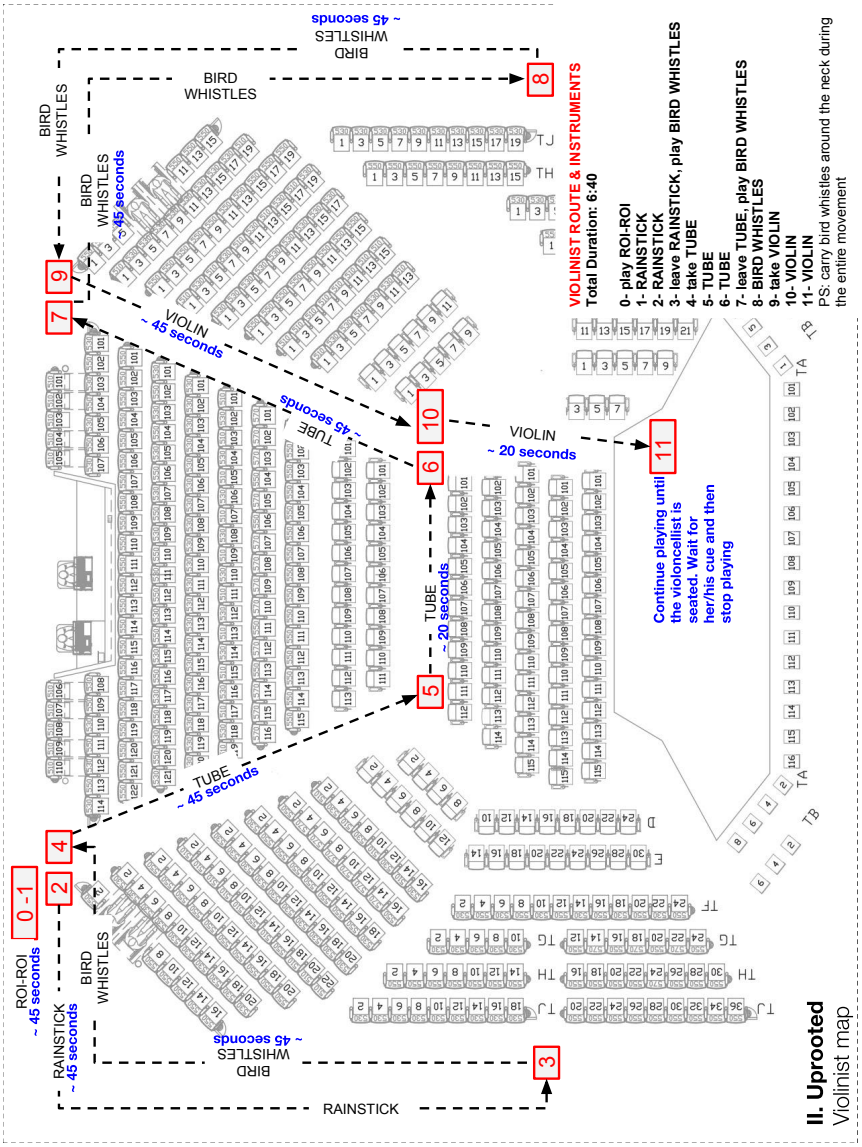
II. Uprooted
General map

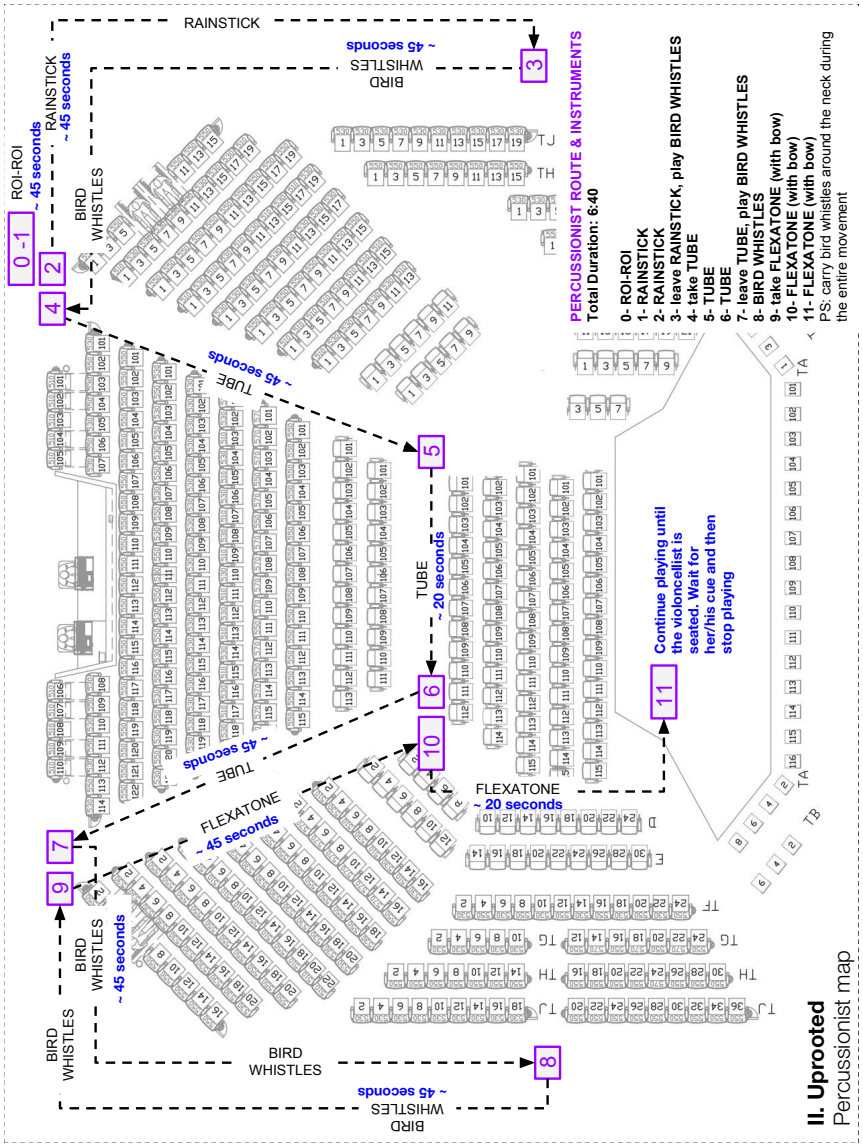


II. Uprooted
Flutist map



II. Uprooted
Clarinetist map


VIOLINIST ROUTE & INSTRUMENTS
Total Duration: 6:40
0- play ROI-ROI
1- RAINSTICK
2- RAINSTICK
3- leave RAINSTICK, play BIRD WHISTLES
4- take TUBE
5- TUBE
6- TUBE
7- leave TUBE, play BIRD WHISTLES
8- BIRD WHISTLES
9- take VIOLIN
10- VIOLIN
11- VIOLIN
PS: carry bird whistles around the neck during the entire movement
II. Uprooted
Violinist map
ROI-ROI ~ 45 seconds
RAINSTICK ~ 45 seconds
BIRD WHISTLES
~ 45 seconds
RAINSTICK
BIRD WHISTLES ~ 45 seconds
TUBE ~ 45 seconds
VIOLIN ~ 45 seconds
BIRD WHISTLES ~ 45 seconds
BIRD WHISTLES
BIRD WHISTLES ~ 45 seconds
TUBE ~ 20 seconds
VIOLIN ~ 20 seconds
Continue playing until the violoncellist is seated. Wait for her/his cue and then stop playing
0-1
2
4
3
5
6
7
9
8
10
11

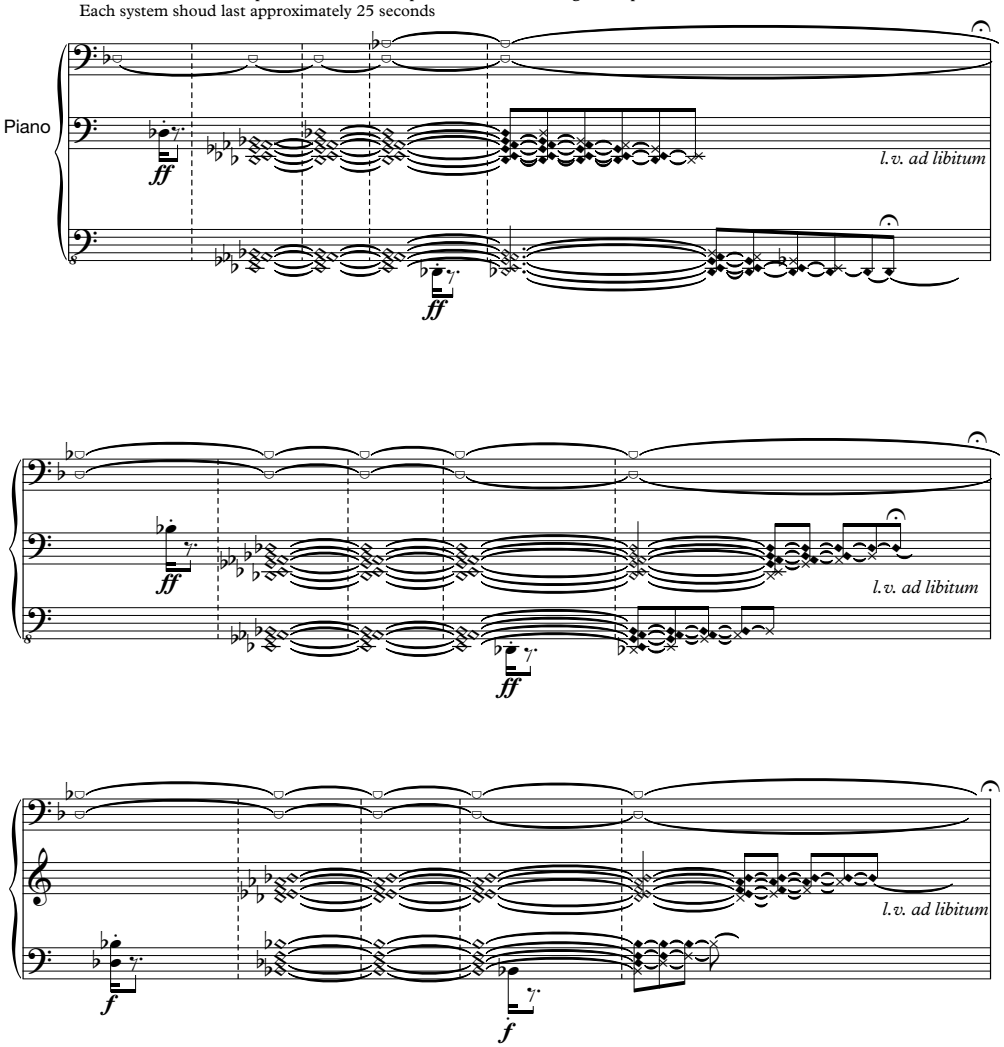

RAINSTICK
~ 45 seconds
BIRD WHISTLES
3
ROI-ROI
~ 45 seconds
RAINSTICK
~ 45 seconds
0 -1
2
BIRD WHISTLES
4
TUBE
~ 45 seconds
5
TUBE
~ 20 seconds
6
TUBE
~ 45 seconds
10
FLEXATONE
~ 20 seconds
11
FLEXATONE
~ 45 seconds
7
9
BIRD WHISTLES
~ 45 seconds
BIRD WHISTLES
BIRD WHISTLES
8
BIRD WHISTLES
~ 45 seconds
PERCUSSIONIST ROUTE & INSTRUMENTS
Total Duration: 6:40
0- ROI-ROI
1- RAINSTICK
2- RAINSTICK
3- leave RAINSTICK, play BIRD WHISTLES
4- take TUBE
5- TUBE
6- TUBE
7- leave TUBE, play BIRD WHISTLES
8- BIRD WHISTLES
9- take FLEXATONE (with bow)
10- FLEXATONE (with bow)
11- FLEXATONE (with bow)
PS: carry bird whistles around the neck during the entire movement
Continue playing until the violoncellist is seated. Wait for her/his cue and then stop playing
TA
TB
TD
TE
TF
TG
TH
TJ
II. Uprooted
Percussionist map

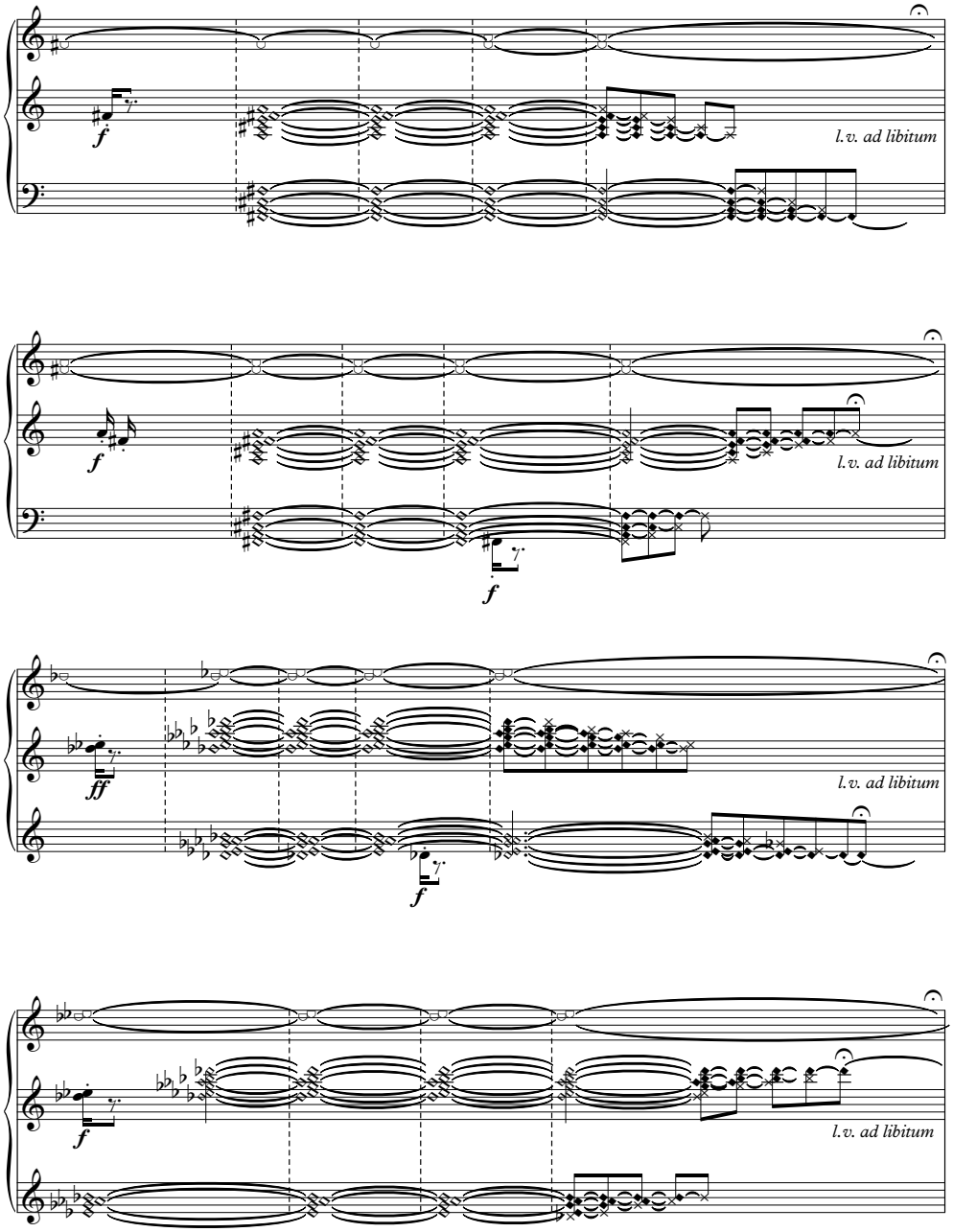
Impermanence

II. Uprooted

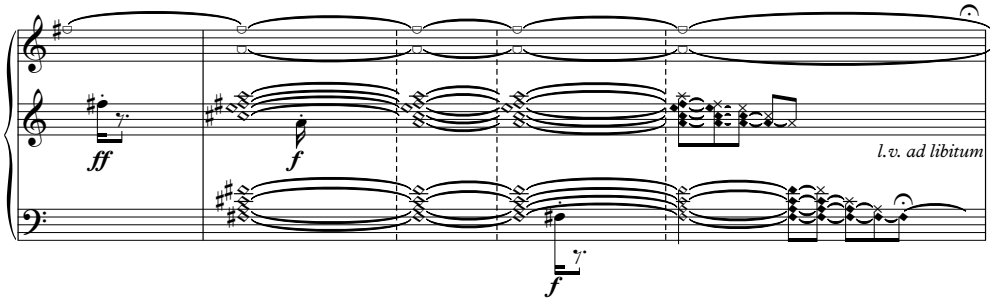
Pianist + Violoncellist part

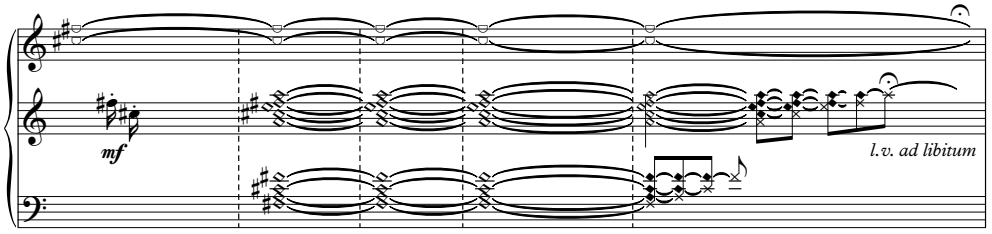
◇ Diamond head: press key quietly, without producing a note.
× X head: release the key
⌓ Half-round head: place e-bow on the string of the piano
The top staff should be played by the violoncellist, the mid and bottom staves should be played by the pianist.
The violoncellist should place the ebows on top of the indicated string of the piano.
Each system shoud last approximately 25 seconds

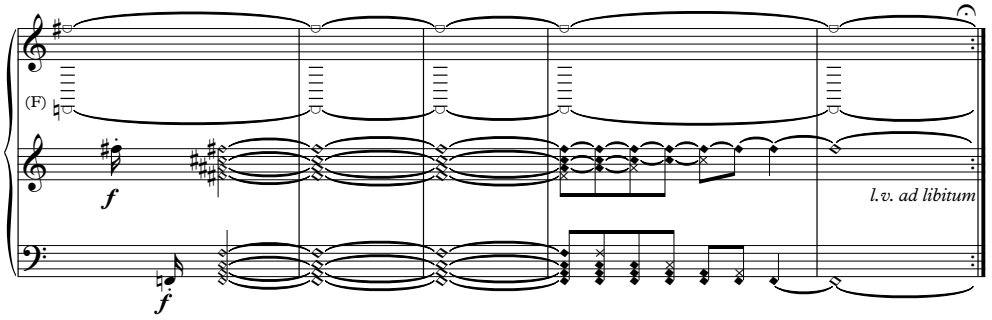



f
l.v. ad libitum
f
l.v. ad libitum
f
ff
l.v. ad libitum
f
f
l.v. ad libitum

2







Repeat from the beginning until Flutist, Clarinetist, Violinist and Percussionist are on stage.
Once all of them are seated, repeat the last system 2 times.

III. Permanent Alien (and native friends)

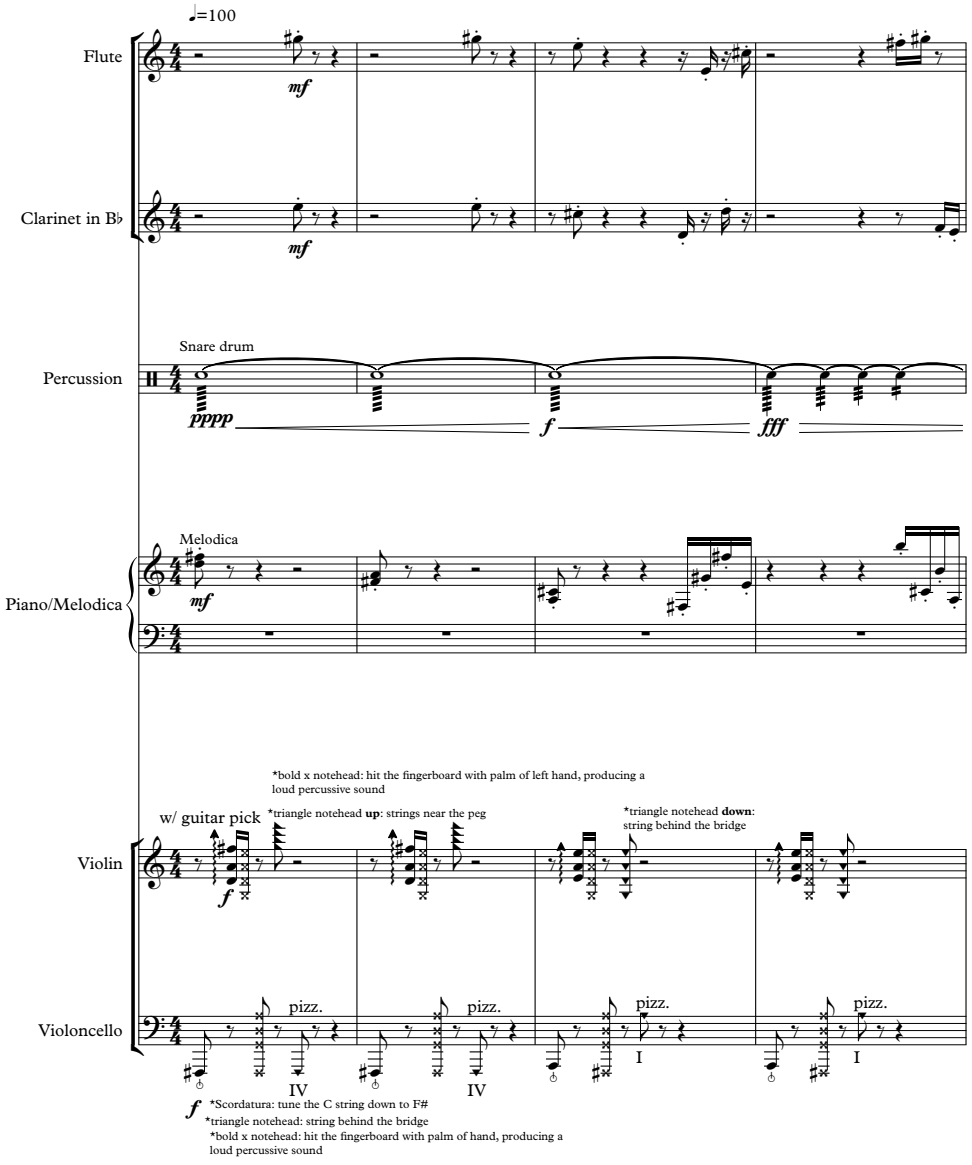
for flute, clarinet, violin, violoncello, piano and percussion

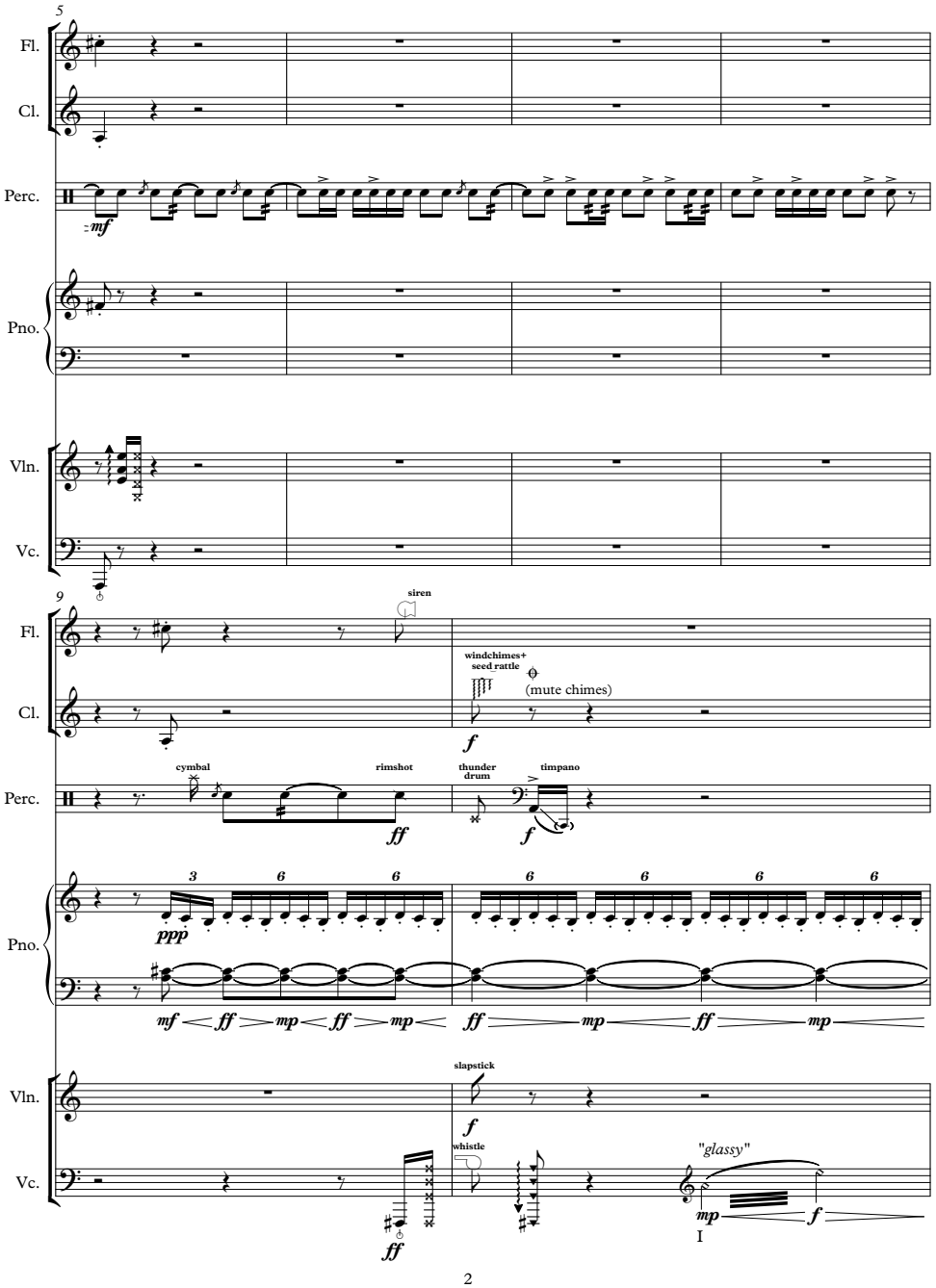
List of instruments:

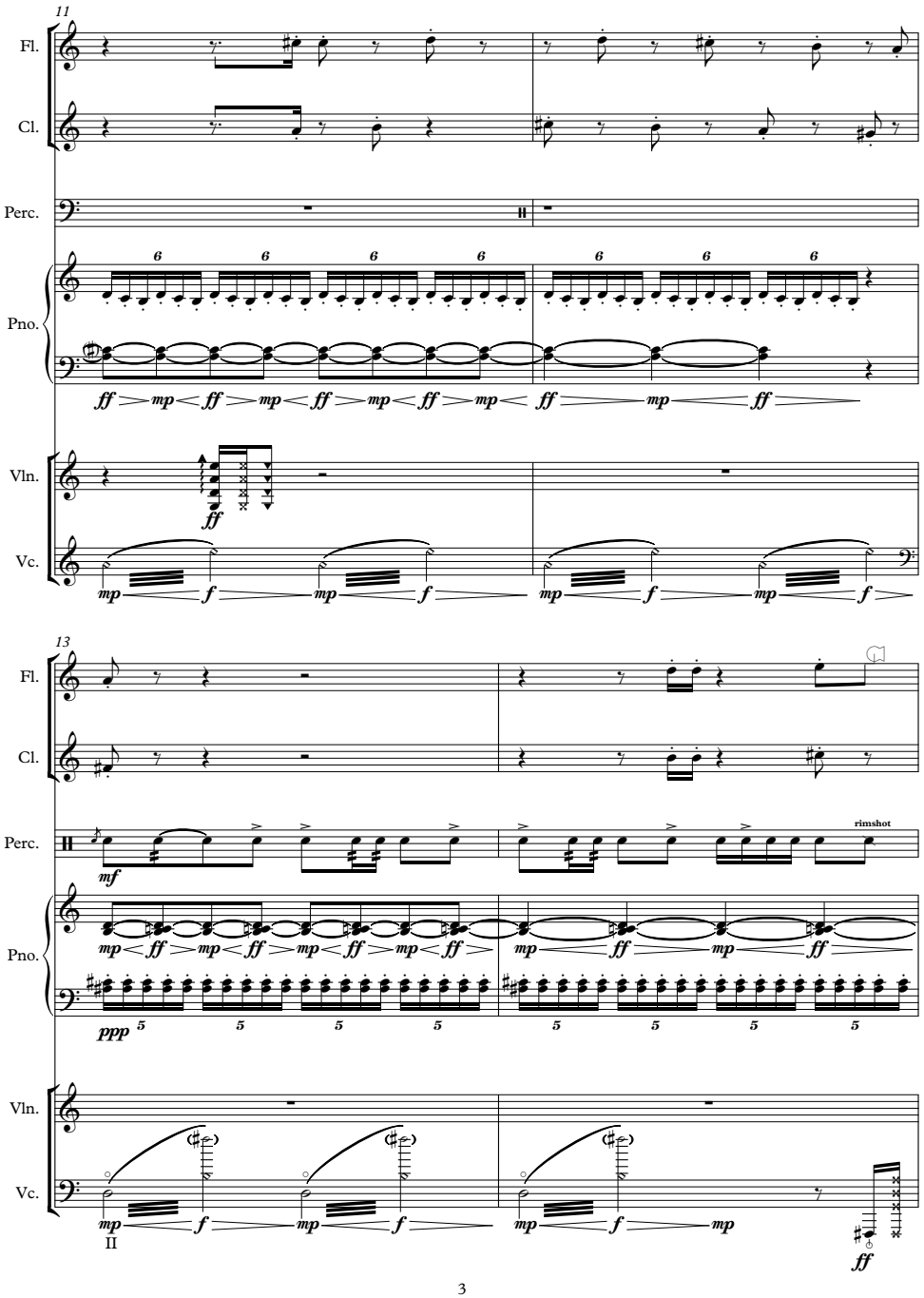
- **Flutist**: Flute, siren (from bullhorn)
- **Clarinetist:** Bb Clarinet, wind chimes, seed rattle
- **Violinist:** Violin, guitar pick, large slapstick
- **Violoncellist:** Violoncello, police whistle
- **Pianist:** Piano and Melodica
- **Percussionist:** snare drum, 32-30 in. timpano, medium Tibetan bowl, thunder drum, cymbal

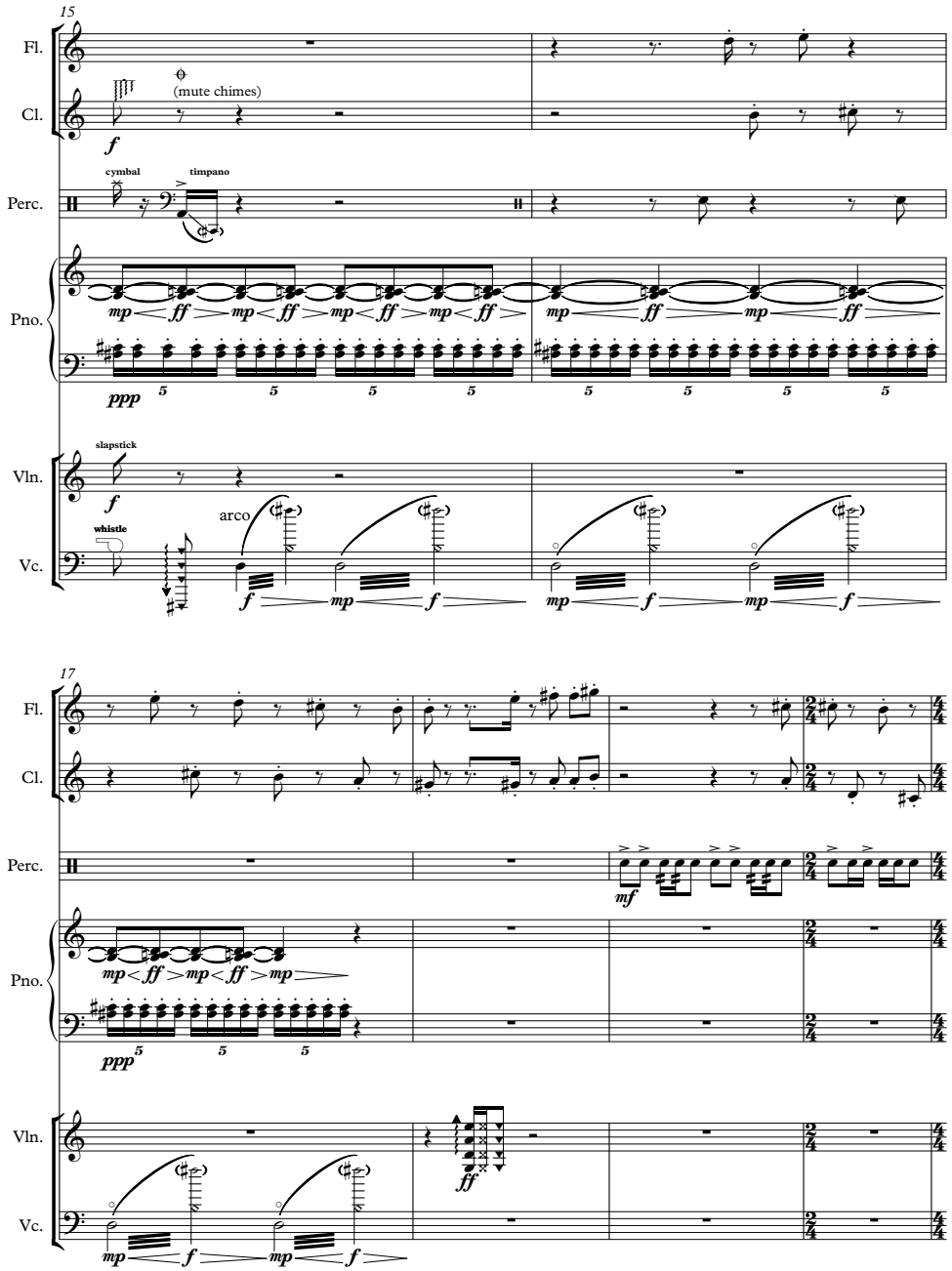
Impermanence

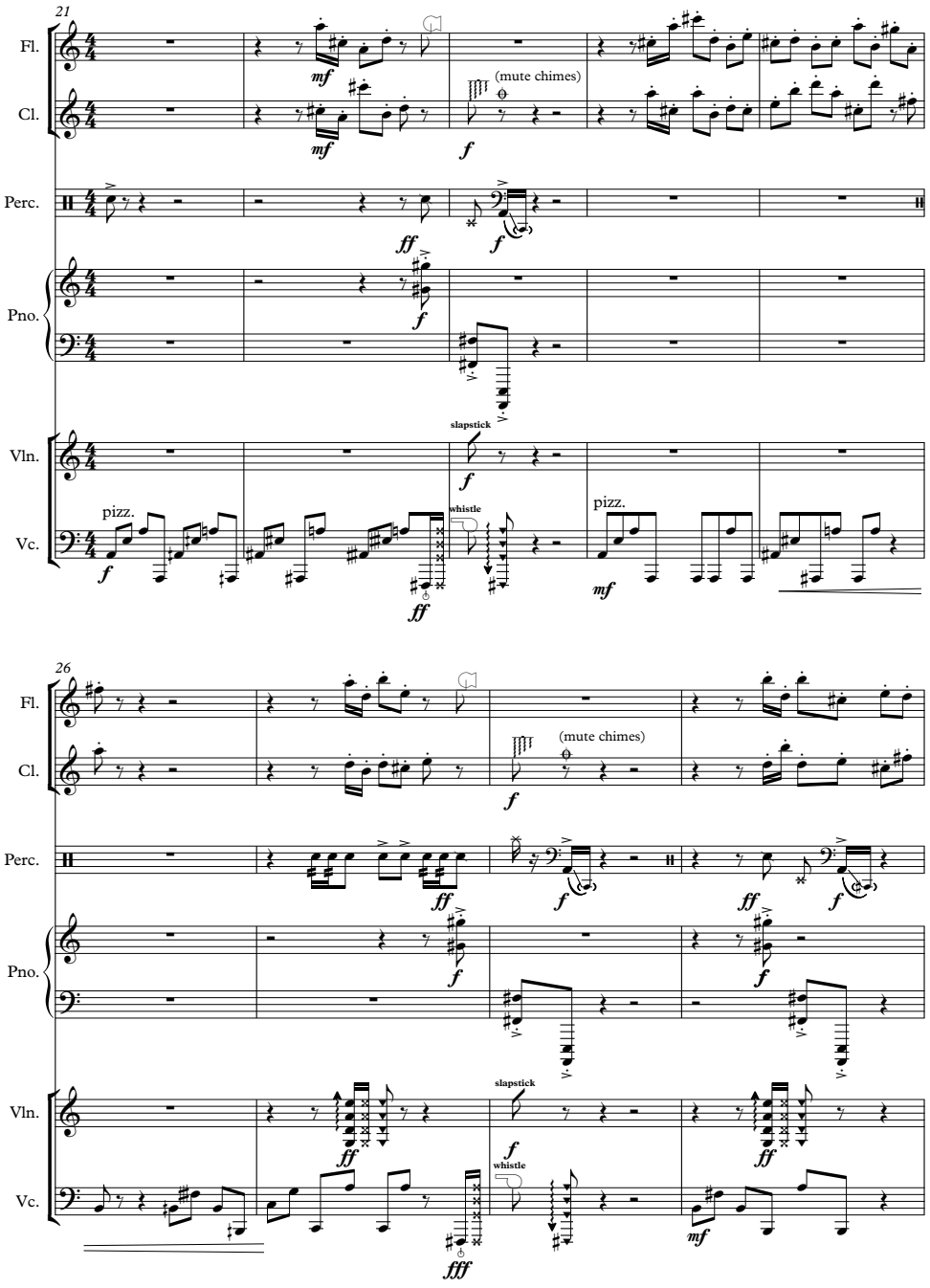
III. Permanent Alien (and native friends)

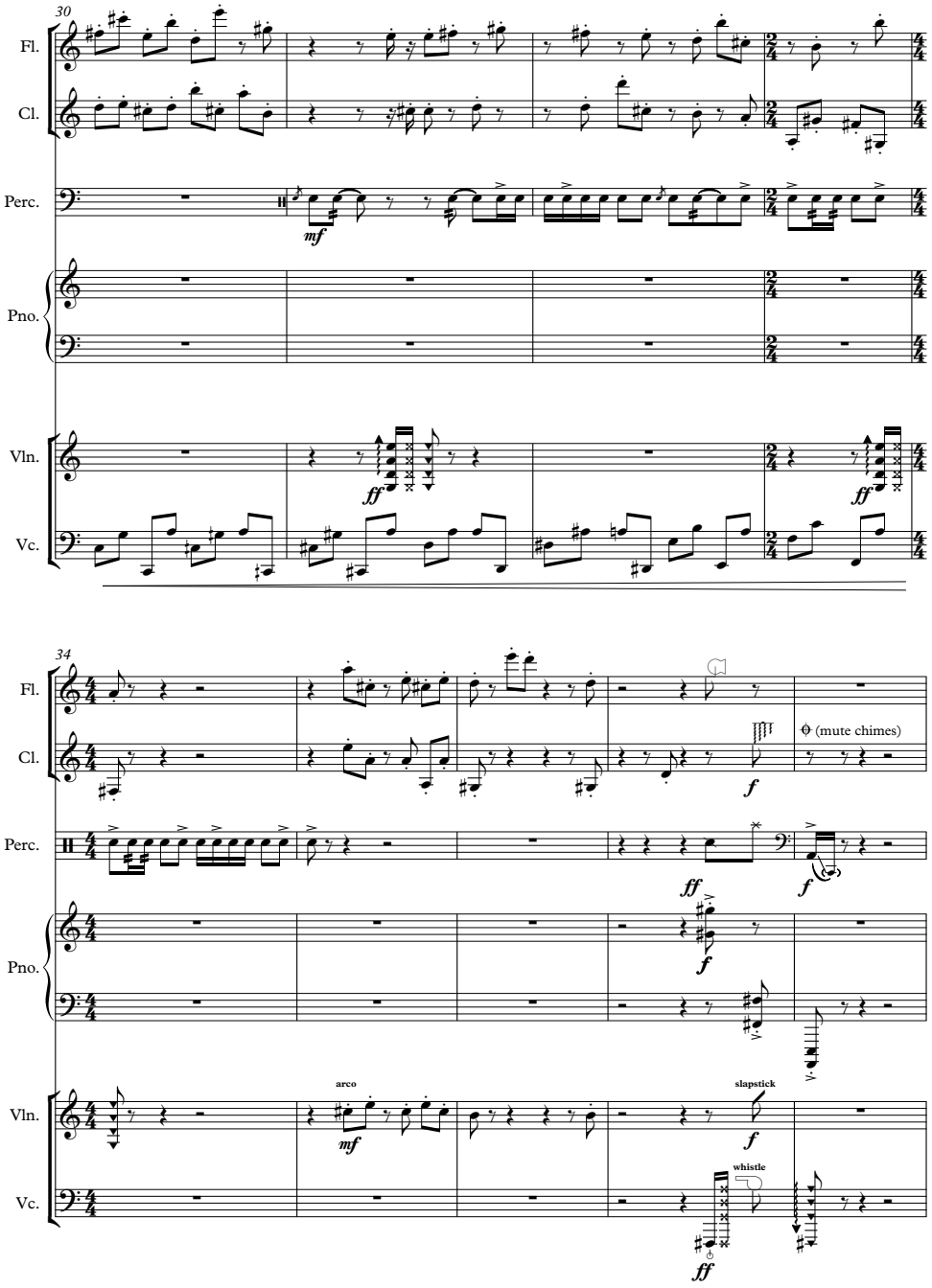


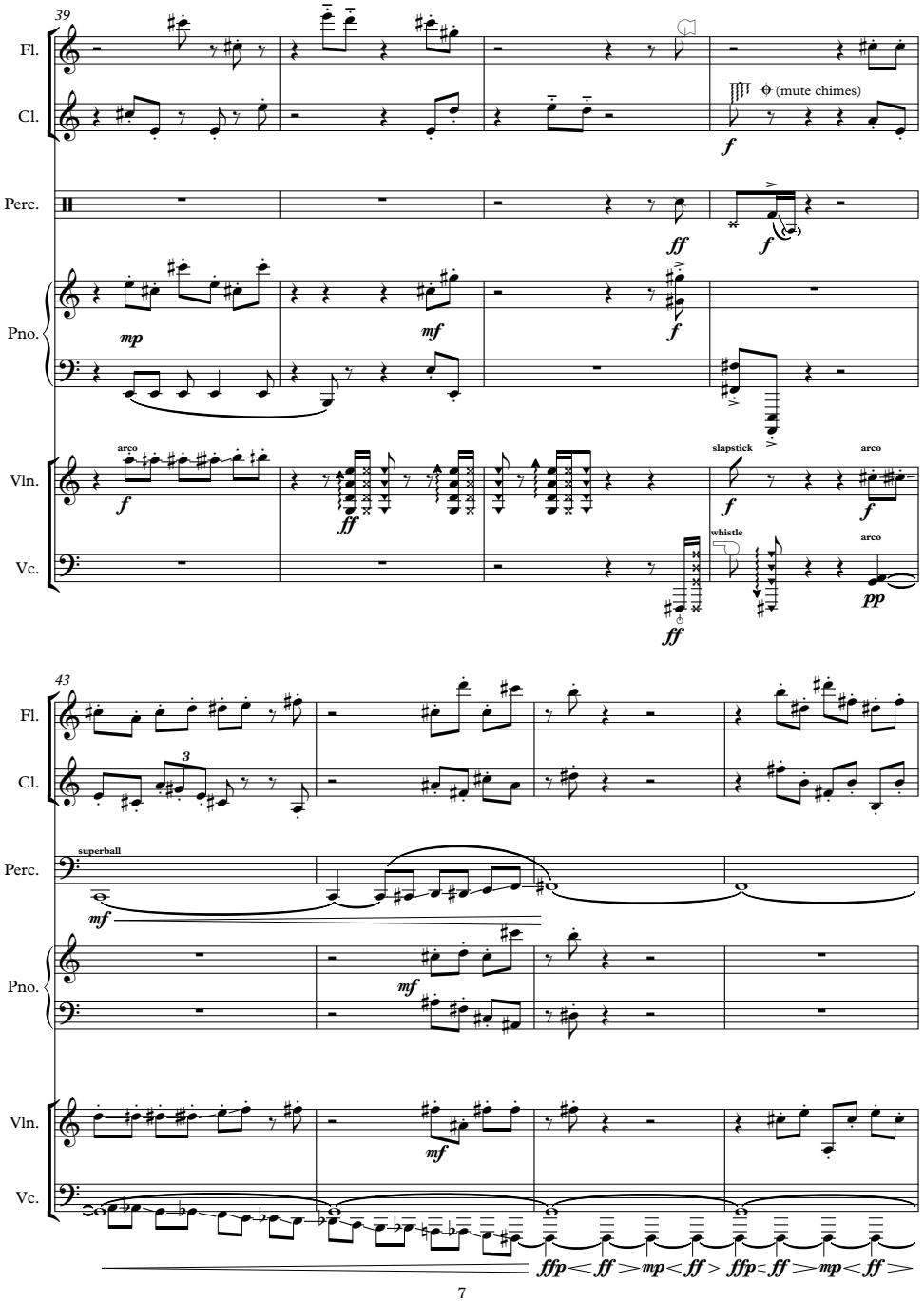

5
Fl.
Cl.
Perc.
mf
Pno.
Vln.
Vc.
9
siren
windchimes+
seed rattle
(mute chimes)
f
cymbal
rimshot
ff
thunder
drum
timpano
f
3
6
ppp
mf
ff
mp
slapstick
whistle
"glassy"
mp
f
I
2

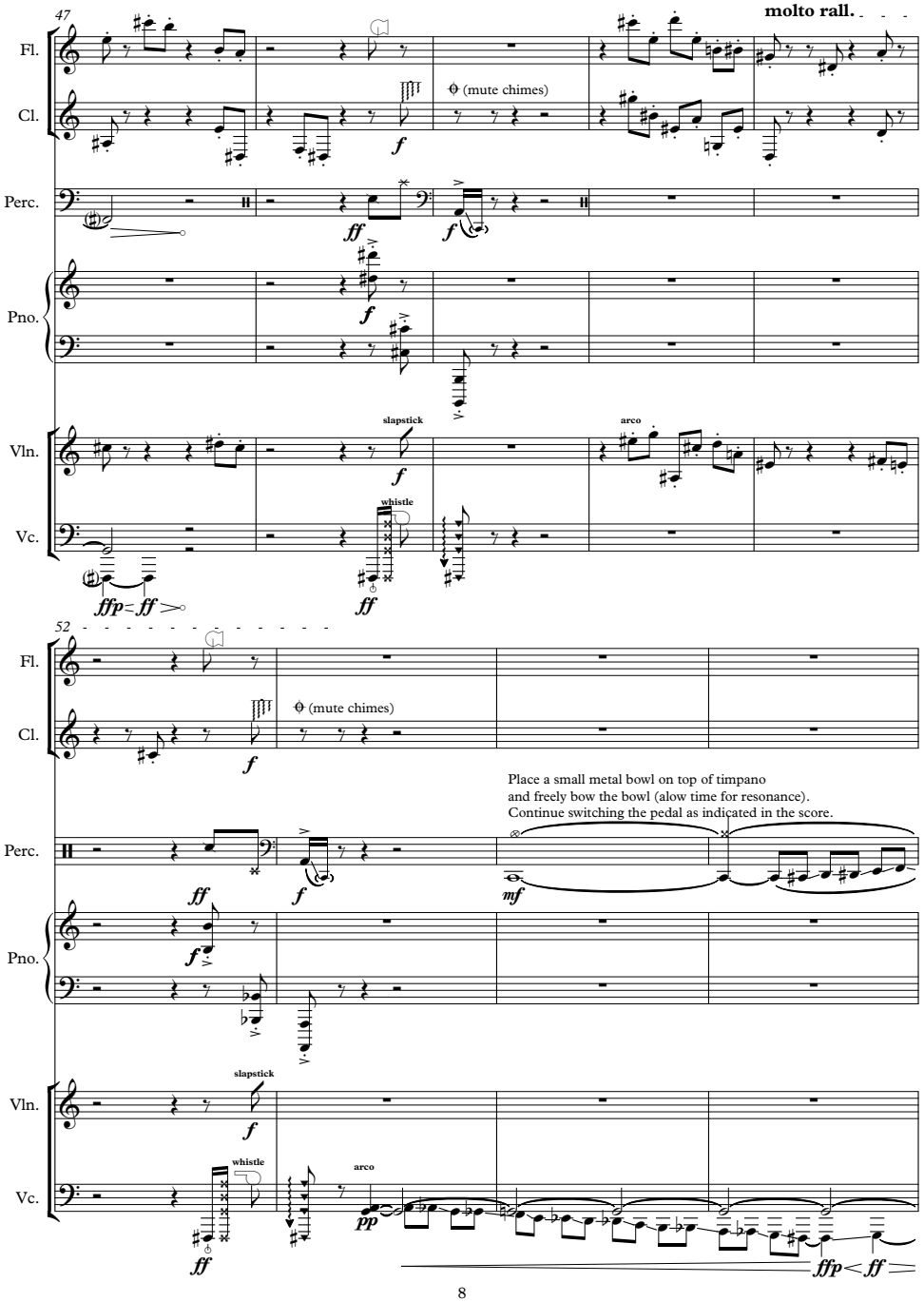

11
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
13
rimshot
II

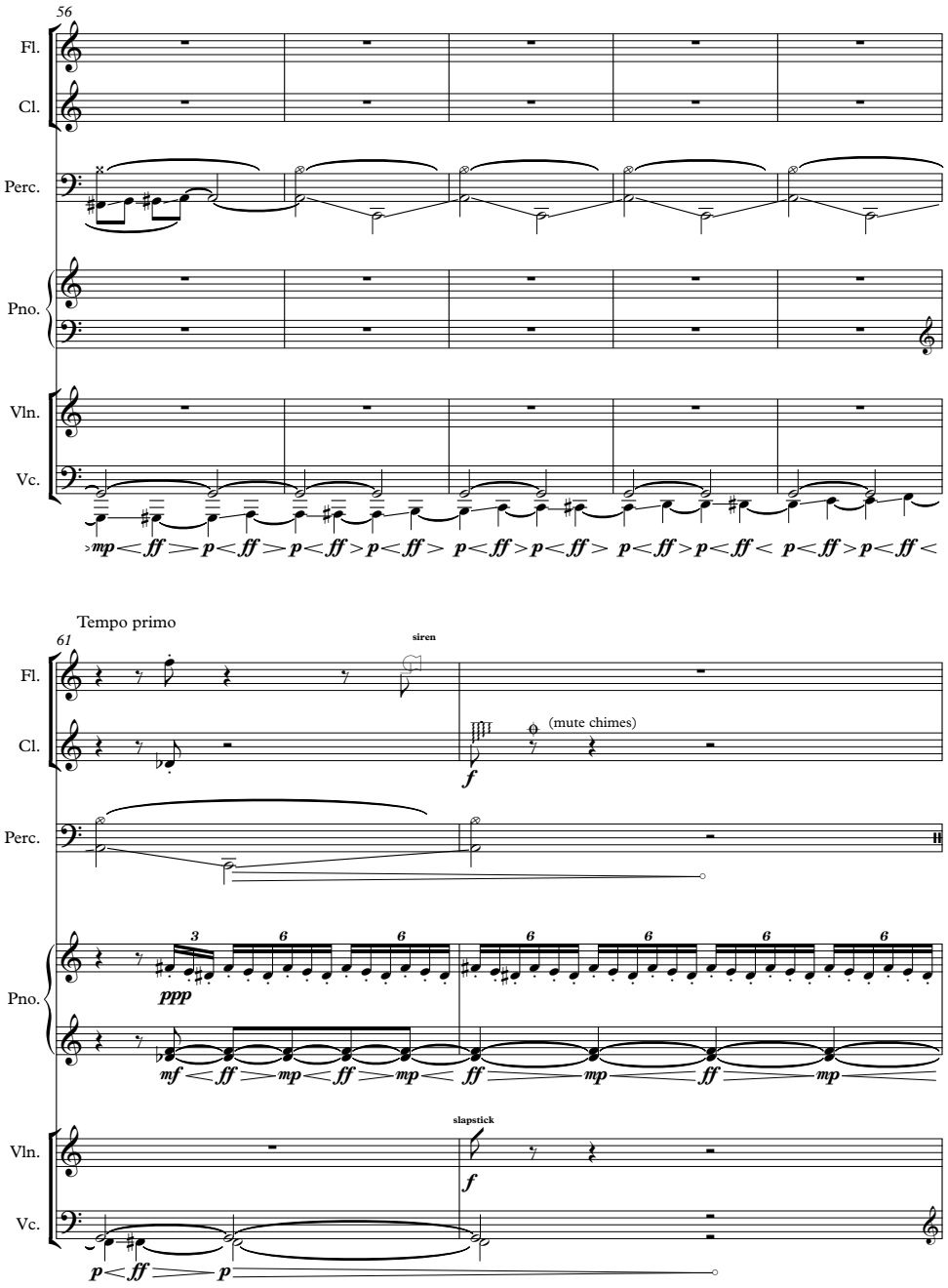

15
Fl.
Cl.
(mute chimes)
f
cymbal
timpano
Perc.
Pno.
mp ff mp ff mp ff mp ff
ppp
slapstick
Vln.
Vc.
whistle
arco
f mp f
17
mf
ff

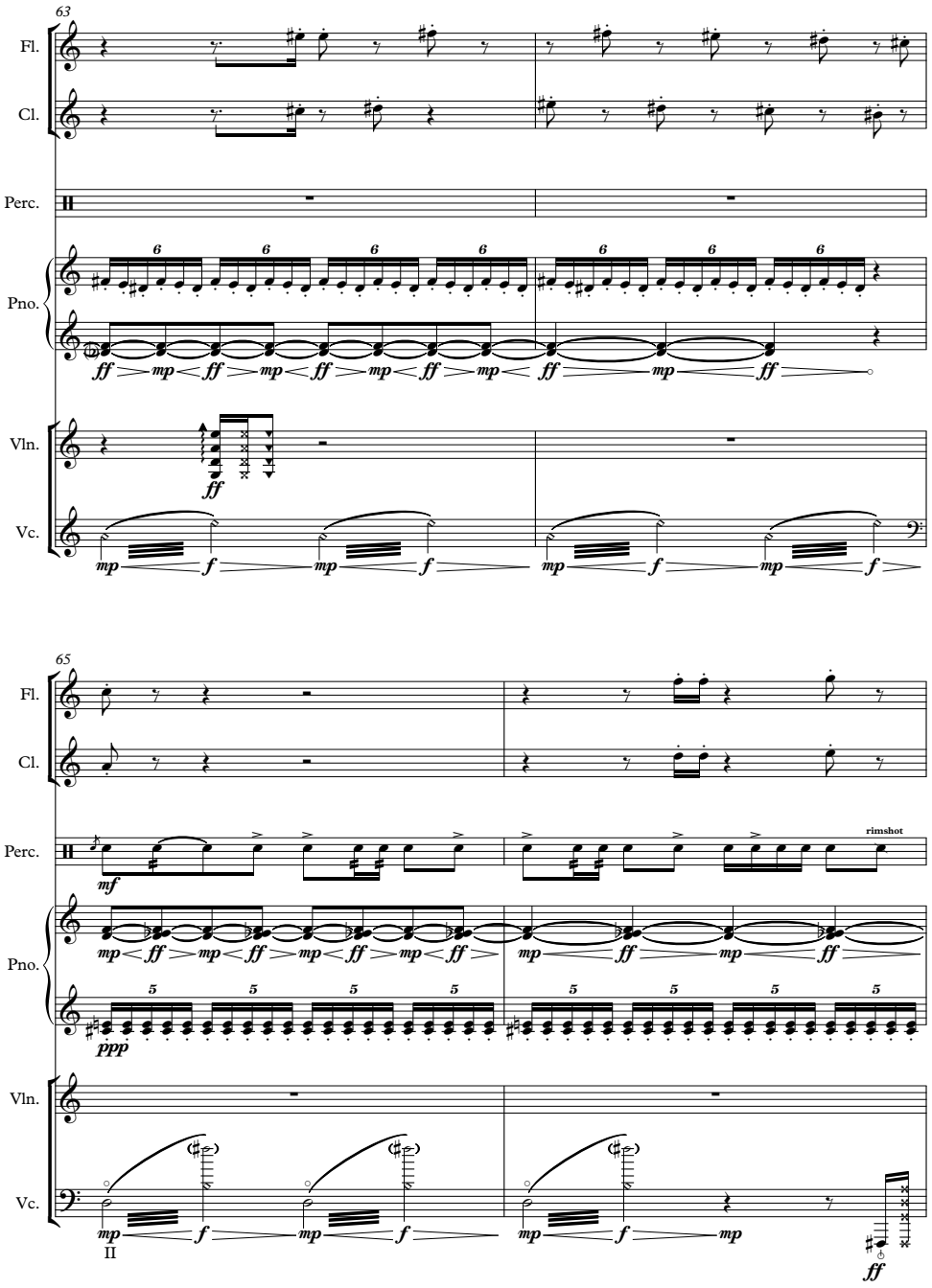

21
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
(mute chimes)
slapstick
whistle
pizz.
26
(mute chimes)
slapstick
whistle
pizz.

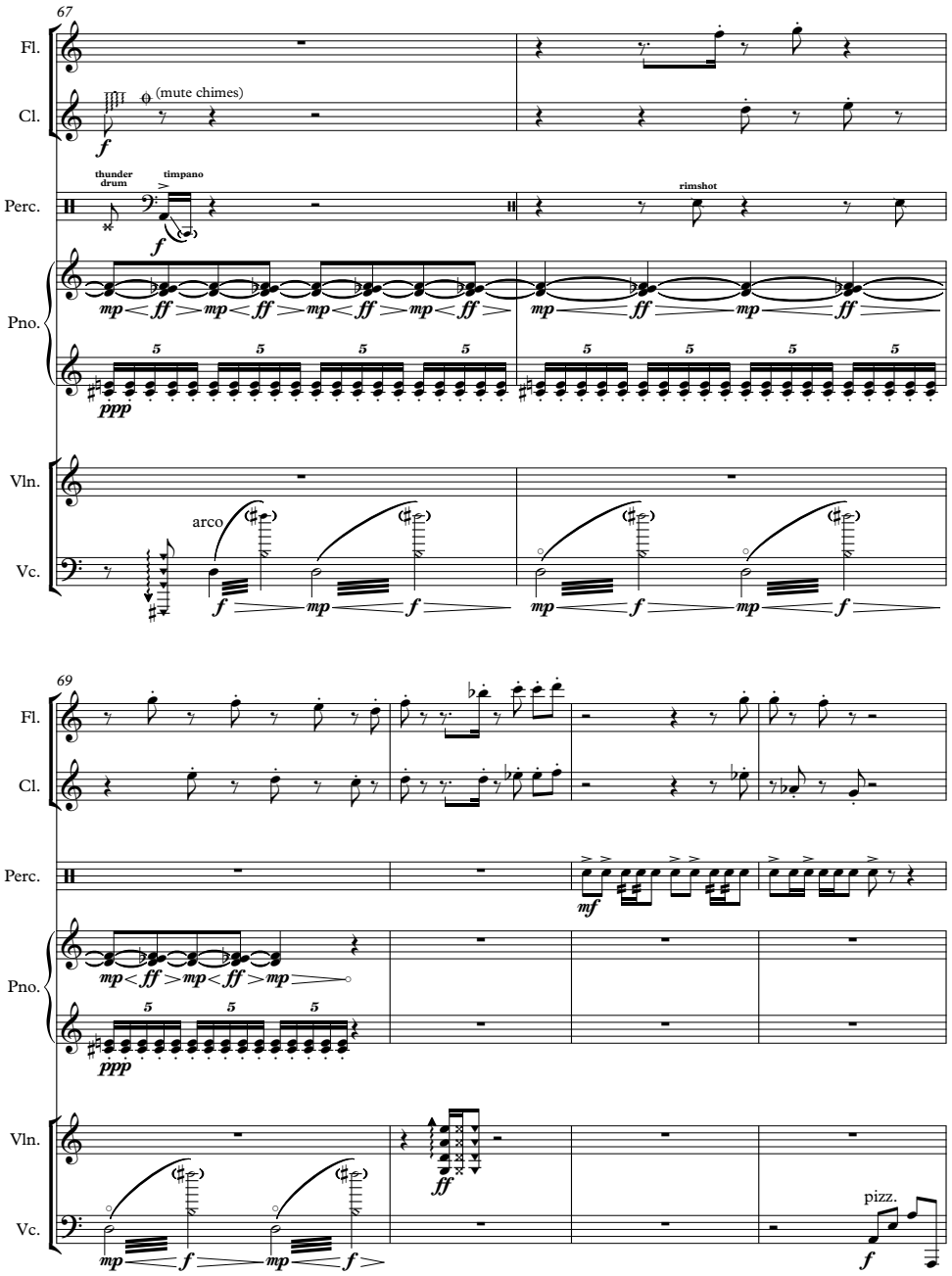

30
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
mf
ff
ff
34
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
(mute chimes)
f
ff
f
f
arco
mf
slapstick
f
whistle
ff

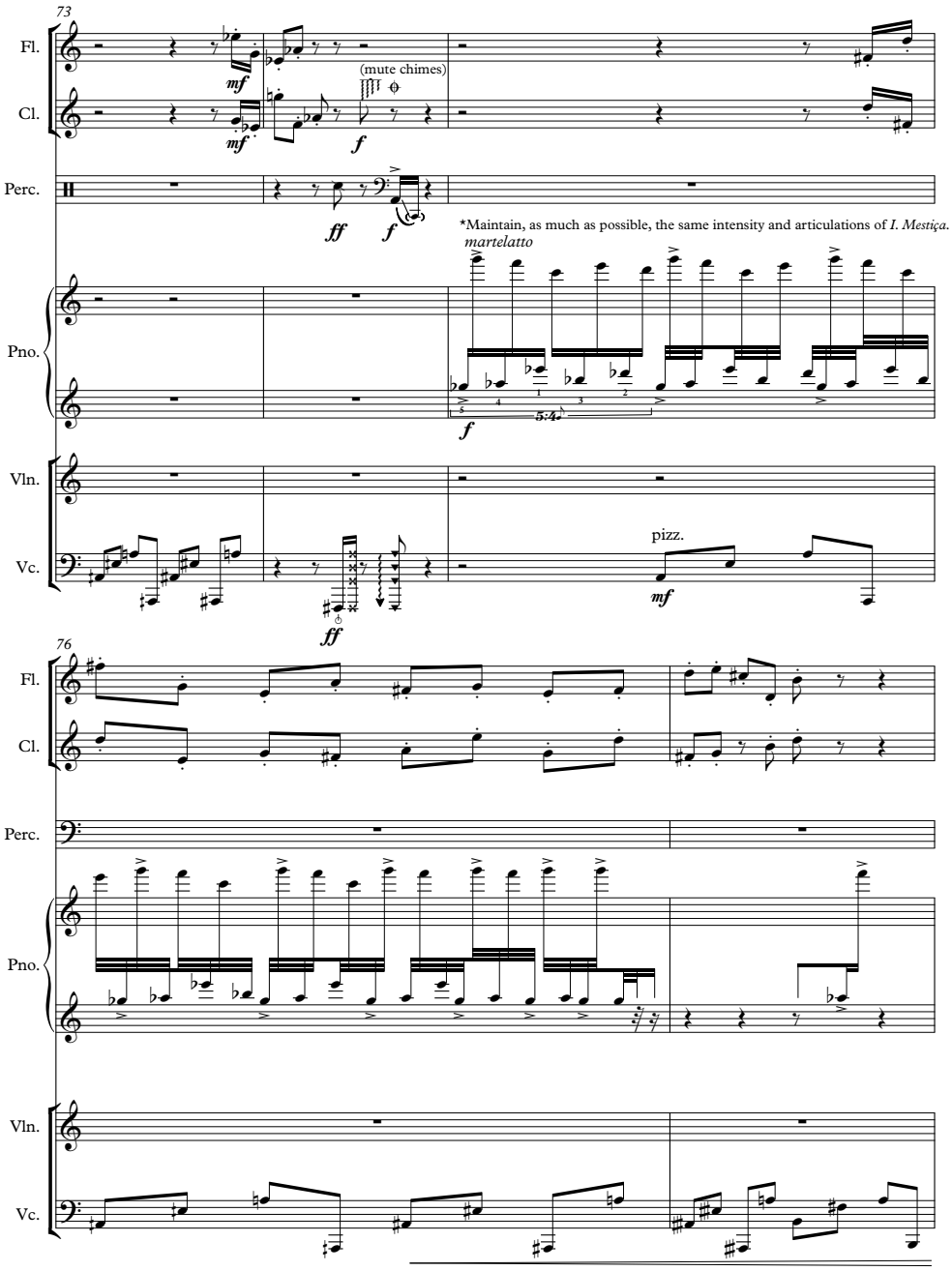

39
Fl.
Cl.
(mute chimes)
Perc.
Pno.
Vln.
arco
slapstick
arco
Vc.
whistle
arco
43
Fl.
Cl.
3
Perc.
superball
Pno.
Vln.
Vc.


47
molto rall.
Fl.
Cl.
(mute chimes)
Perc.
Pno.
Vln.
slapstick
arco
Vc.
whistle
52
(mute chimes)
Place a small metal bowl on top of timpano
and freely bow the bowl (alow time for resonance).
Continue switching the pedal as indicated in the score.

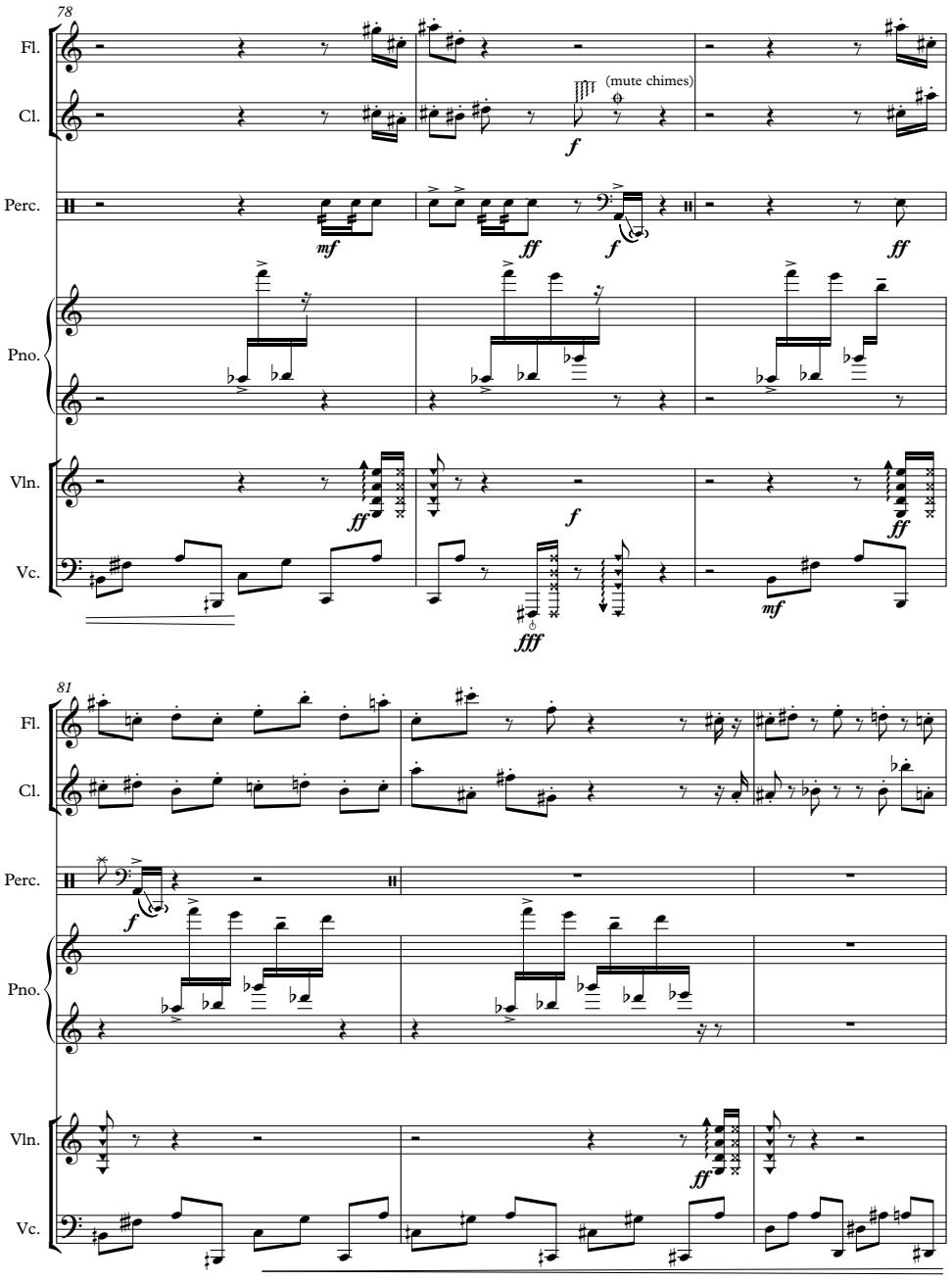

56
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
Tempo primo
61
siren
(mute chimes)
slapstick

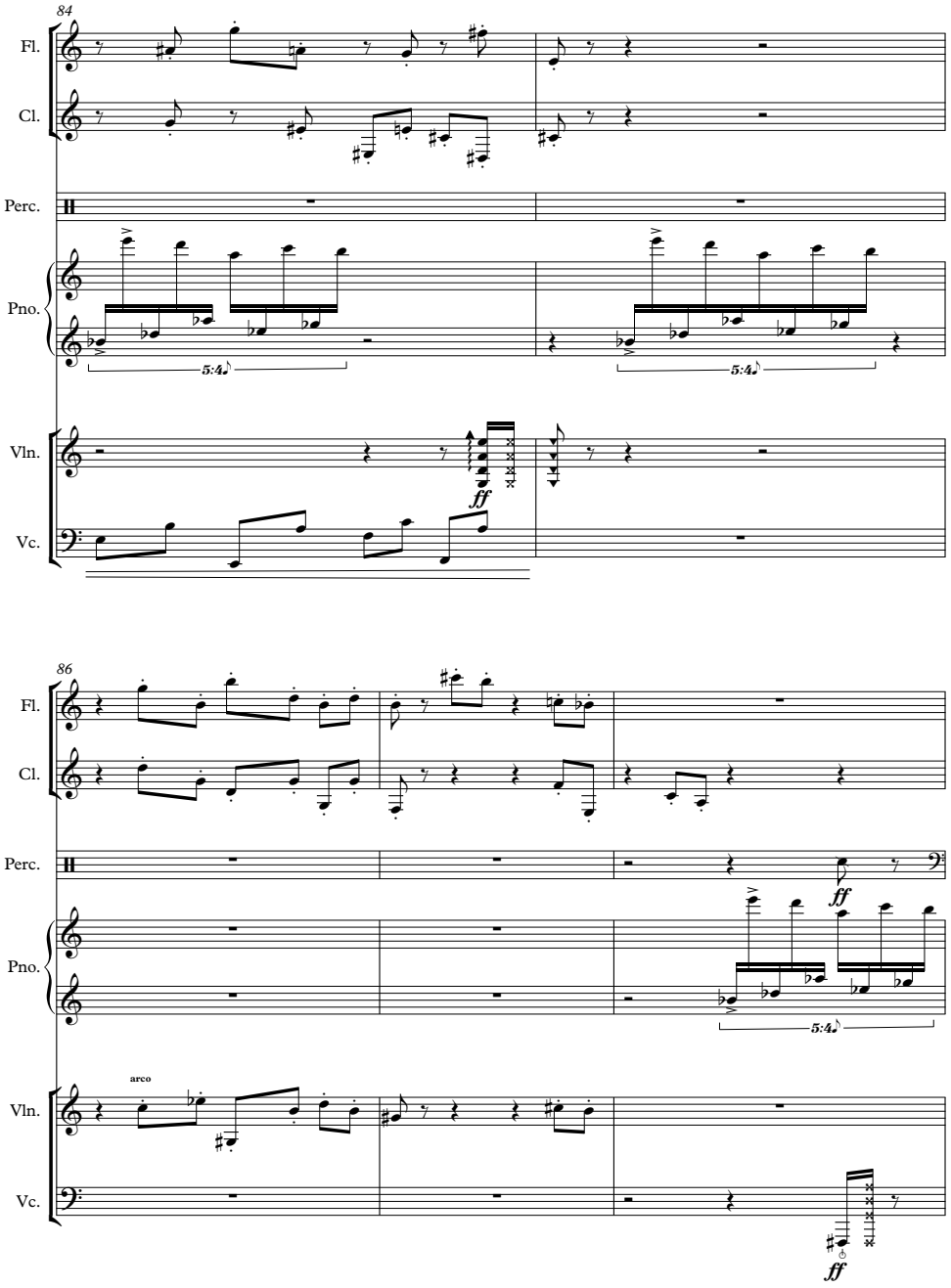

63
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
65
rimshot
II

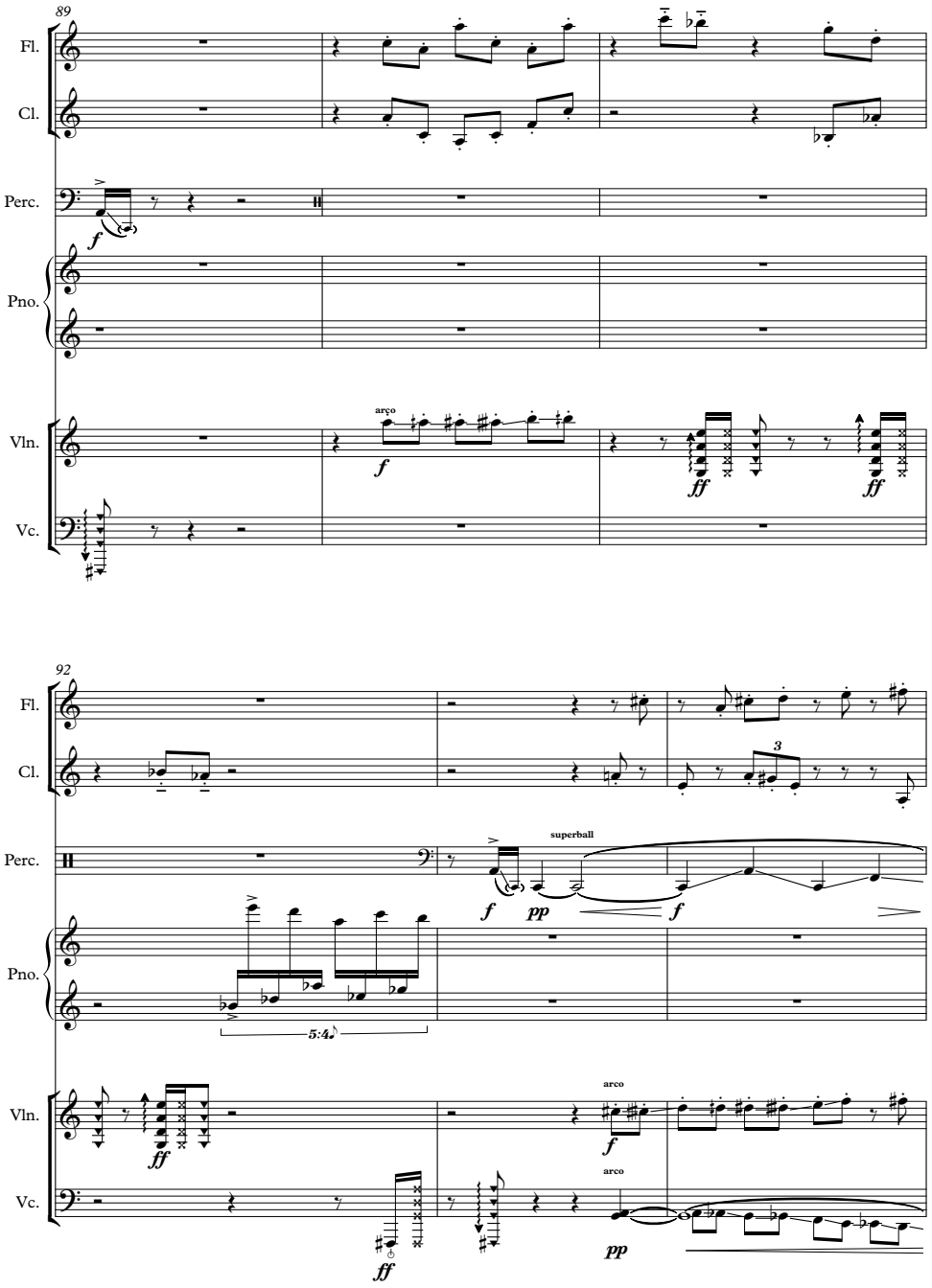

67
Fl.
Cl.
(mute chimes)
Perc.
thunder drum
timpano
rimshot
Pno.
Vln.
Vc.
arco
69
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
pizz.

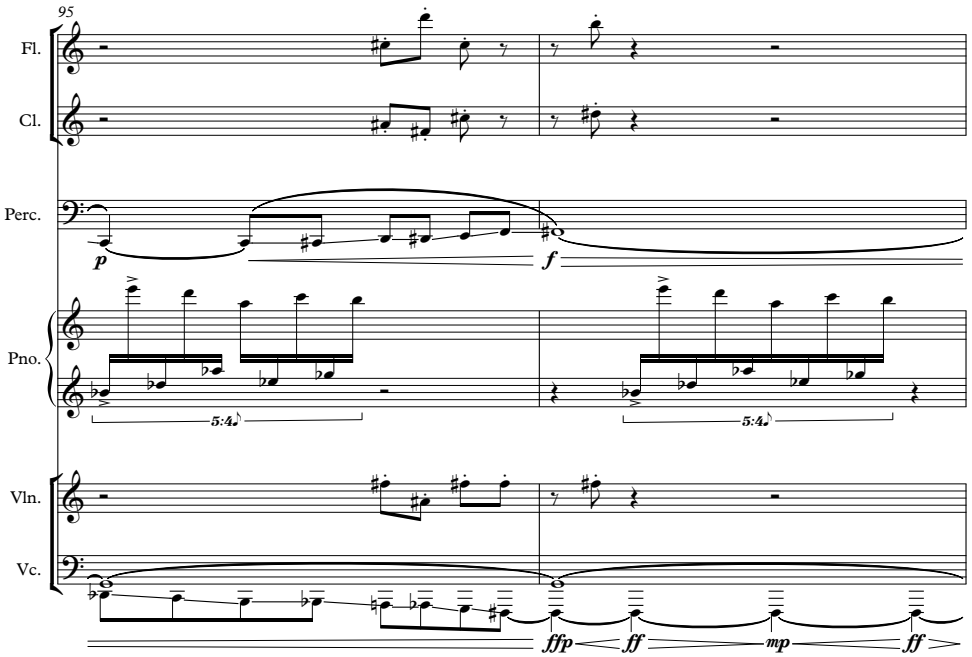

73
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
mf
mf
f
(mute chimes)
ff
f
*Maintain, as much as possible, the same intensity and articulations of I. Mestiça.
martelatto
f
5:4
pizz.
mf
ff
76
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.

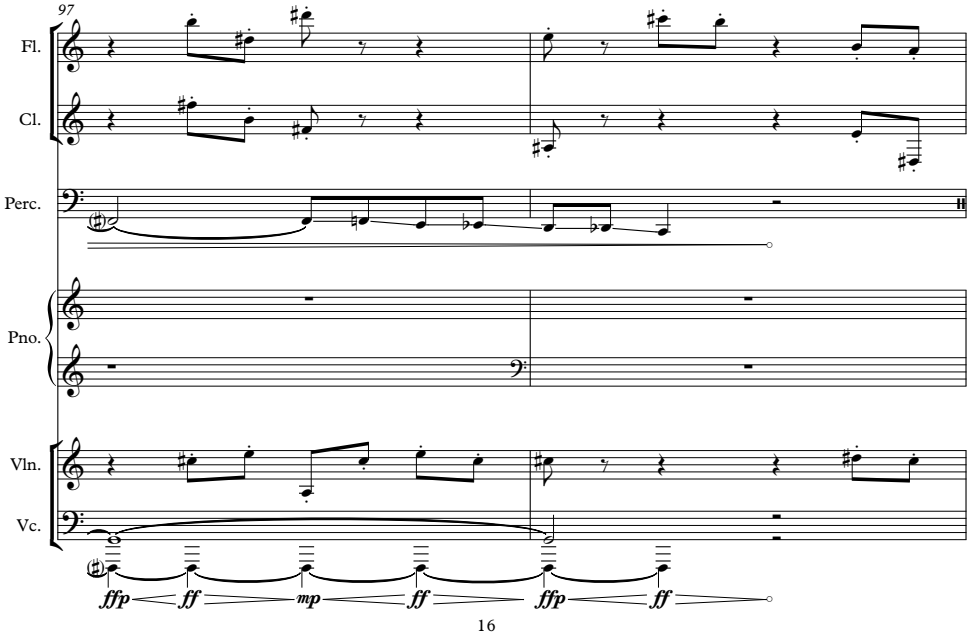
12

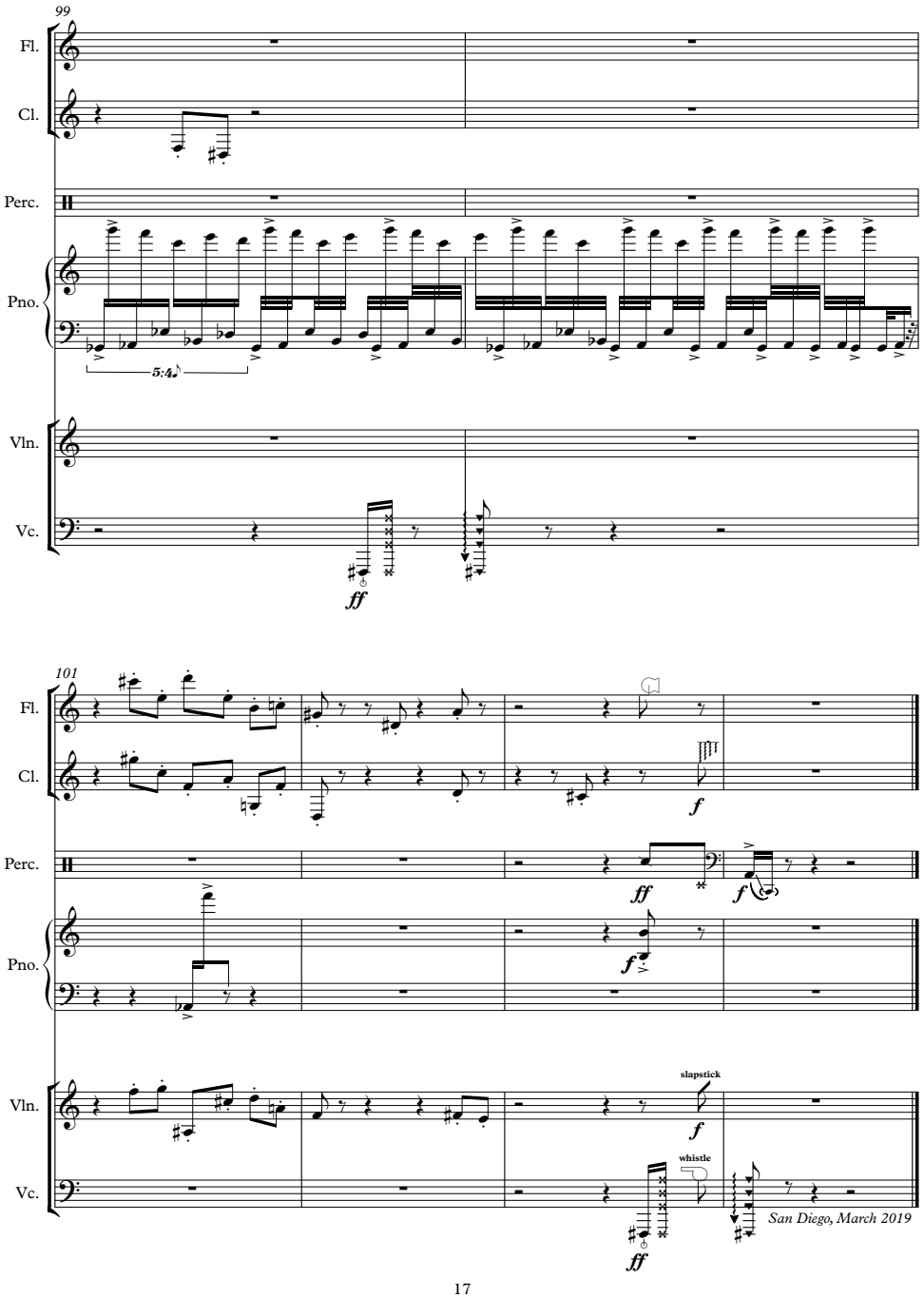

78
Fl.
Cl.
(mute chimes)
Perc.
Pno.
Vln.
Vc.
81
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.


84
Fl.
Cl.
Perc.
Pno.
5:4
5:4
Vln.
Vc.
ff
86
Fl.
Cl.
Perc.
ff
Pno.
5:4
Vln.
arco
Vc.
ff


89
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
f
arço
f
ff
ff
92
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
3
superball
f
pp
f
5:4
ff
arco
f
arco
pp
ff


95
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
p
f
5:4
5:4
ffp
ff
mp
ff


97
Fl.
Cl.
Perc.
Pno.
Vln.
Vc.
ffp
ff
mp
ff
ffp
ff


99
Fl.
Cl.
Perc.
Pno.
5:4
Vln.
Vc.
ff
101
Fl.
Cl.
f
Perc.
ff
f
Pno.
f
Vln.
slapstick
f
Vc.
whistle
ff
San Diego, March 2019

REFERENCES

Adlington , R. (2009) Sound commitments : Avant-garde Music and the Sixties

Adorno, Theodor (author), Richard Leppert (editor), Susan H. Gillespie (translator). *Essays on Music*. University of California Press, 2002.

Agawu VK (1984*) The impact of language on musical composition in Ghana*

Bannan, N. (2012) *Music, Language and Human Evolution*

Bellugi, U. and Klina, E. (1976*) Poetry and song in a language without sound*

Carrington J (1971) *The talking drums in Africa*

Coker, W (1972*) Music and Meaning: A Theoretical Introduction to Musical Aesthetics*

DeBoer Barlett, Amanda (?) *The Failure of Music* https://fociarts.com/thefailureofmusic-amandadeboerbartlett/

Felden, S (1994) *Communication, Music and Speech about Music.*

Fletcher, N and Rossing, T (1998) The physics of musical instruments

Globokar, Vinko (1985) ?Corporel

Hantz, E (1972) *Music and Language: A Comparison of Structural Models*

Jackendorff R (1989) - *A comparison of rhythmic structures in music and language*

Kano, Mieko (2007) *Prescriptive notation: Limits and challenges,* Contemporary Music Review, 26:2, 231-254, DOI: 10.1080/07494460701250890

Kutner, Jon and Leigh, Spencer (2013) *1000 UK Number One Hits: The story behind every single since 1952.*

Lewis, George (2008) *A power stronger than itself: the AACM and American Experimental Music*

McCaffery Steve - *Seven Pages Missing: Volume 2: Previously Uncollected Texts 1968- 2000*, pp.171-180

McMullen, E. and Saffran J. (2004) *Music and Language: a developmental Comparison*

Miller, George A. *The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information*

Nattiez, JJ (1990) *Music and Discourse: Toward a Semiology of Music*

Nattiez, JJ (1972) - *Linguistics: a new approach to musical analysis*

Patel, A. (2008) *Music, Language and the Brain* Raffman, D.(1993) *Language, Music and Mind*

Schwarz, B (1983) The Musical Quarterly Vol. 69, No. 4, pp. 503-526 *Joseph Joachim and the Genesis of Brahms's Violin Concerto*

Szmolyan, W(1984) Schönbergs Verein für musikalische Privataufführungen

Temple, Alex (2015) *Composers, Performers and Consent* https://nmbx.newmusicusa.org/composers-performers-and-consent/

Woram, J. (1974) Microphones: design and application

Wong, G. and Embleton, T. (1995) AIP handbook of condenser microphones: theory, calibration, and measurements

Wenner-Gren International Symposium Series (1990) - *Music, Language, Speech and Brain*