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LANGUAGE PROSODY AS A RESOURCE IN MUSICAL COMPOSITION

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Abstract

This dissertation explores the notion of prosody and its relationship to musical composition. The linguistic study of prosody is concerned with the energy, rhythms and intonations of speech patterns and how these impact on the meaning of utterances. It is clear that there are considerable correspondences between the prosodic elements of language (its rhythms, stresses and intonations) and music; it is by far the closest element of language to musical sound (as opposed to semantic or even pragmatic meaning). The study of prosody reveals many of the features of any speaker's emotional or expressive state, in the same way that we infer emotional content in music from the performance of a work. But what of the relationship between prosody and composition? The link between prosody and musical composition has been very significant at particular moments in history yet there is a lack of any thorough scholarship on this connection. This dissertation aims to address this lack of research.

With these ideas in mind, over the four chapters of the thesis, I provide an overview of the connections between prosody and music composition, and examine some current psycho-linguistic work on the subject (Chapter 1). I then turn to the way in which prosody has provided compositional resources by attending to a number of case studies, which reflect a changing but persistent role for prosody in composition (Chapter 2). In Chapter 3, I reflect on my own compositional approach using prosody as a resource, before a final discussion chapter.

1 PROSODY AND COMPOSITION

As in many new fields where two different disciplines of knowledge interact, when dealing with the two-fold domain of prosody and composition, it is important to find the appropriate interconnections in order to arrive at significant results. The very first challenge is to create a conceptual frame where these outcomes can become meaningful. In our case, this frame should act as a lens through which we can view composition in an innovative way.

It could be said that one of the aims of musical composition is to create beauty, or to communicate, through organised sound in a meaningful way. When a musical creator begins a new work, it represents a new world for them to discover. In this process of discovery, as happens with an explorer, there are often no borders. During this process of exploration, this musical wilderness is not divided into watertight compartments or into areas of knowledge. As a result, the act of linking ideas is at the core of artistic creation. It is therefore surprising that the exploration of the links between prosody and composition has been largely overlooked. This fact underlines the importance of the research I am about to carry out, all the more because interdisciplinary research is becoming an increasingly major trend in many universities and research institutes. Accordingly, research into composition's connections with prosody, in spite of being a difficult task, seems both a necessary and a fascinating challenge.

Notwithstanding the aforementioned lack of studies specifically considering the usage of prosody in composition, fortunately, the common grounds of prosody and music are now fairly clear. Several studies undertaken by Lerdahl & Jackendoff (1983), Clarke (1986, 1989), Lerdahl, (1992), Sloboda (1995), and Glaser (2000), among others, have considered the connections between music and linguistic prosody. Furthermore, the definition of prosody as an integrative field (Hirst & Di Cristo, 1998; Fujisaki, 1997) is widely accepted by most scholars, as we will soon see. We are therefore in a position to, firstly, regard prosody as an open discipline, and

secondly, to create a conceptual frame where it can interact not only with music —which as aforesaid has recently been analysed— but particularly with composition. Let us start by having a look at prosody.

1.1 Prosody

By reason of its many links with several domains of human knowledge, prosody is a multifaceted notion. To start with, it is a fundamental concept in the study of metre, poetry and music, in Latin and Ancient Greek traditions. In fact, προσῳδία (prosodia) comes from the combination of the prefix *pros* (towards) and the root *ôidê*, which also derives from *aôidē* (chant or ode) (Stevenson & Waite, 2011: 1152). Thus, when the Latin tradition translated this word, the result was *accentus*, that is to say, *ad cantus*, 'towards chant' (Atkinson, 2009: 56). This is the reason why the term προσῳδία could directly mean "a song with an accompaniment" (Liddell & Scott, 1940). It can therefore be assumed that prosody was understood as the musical accompaniment to the words themselves (Fox, 2000: 1). Likewise, in the domain of philology, prosody can be considered as "the study of metres in verse" (Matthews, 2007: 274) covering a wide range of aspects such as rhythmical patterns, rhyme patterns or verse configuration. As seen, music, or more precisely intonation and rhythm, form part of the very beginning of prosody as a theoretical arena.

Another important definition of prosody is the one given by linguistics. It is the phonetic science that has renewed the ancient concept of prosody. Thus, most authors agree to define prosody as the study of the variations in the suprasegmental phonetic features of language. For Chomsky, these prosodic features would be stress, pitch and length (Chomsky & Halle, 1968: 300), while later interpretations define prosodic features as pitch, loudness, tempo and rhythm (Crystal, 2008: 393). Therefore, prosody includes lexical and non-lexical information (Hirst & Di Cristo, 1998: 3). According to Hirst and Di Cristo (1998: 5) lexical features are tone, stress and quantity, whereas the non-lexical feature is intonation proper. The next figure summarises this view of prosody:

Fig. 1.1: Prosody (Hirst & Di Cristo, 1998: 4)

Furthermore, Hirst and Di Cristo also reveal the existence of a 'physical' part of prosody including fundamental frequency, intensity, duration and spectral characteristics as shown in Figure 1.2:

Fig. 1.2: Prosody as a linguistic and physical concept (Hirst & Di Cristo, 1998: 5)

However, in order to create a frame in which to integrate prosody and composition it is interesting to consider prosody not only as a linguistic or physical concept. Indeed, just as prosody is the main conveyor of mood in spoken language, music also expresses emotions through sound organisation. Recent models termed non-linear, with more multi-dimensional frameworks, have tried to explain prosody considering extra-linguistic information.

One of these more complex and multi-faceted models is the one suggested by Fujisaki, who defines prosody in a broader way:

> Prosody is the systematic organization of various linguistic units into an utterance or a coherent group of utterances in the process of speech production. Its realization involves both segmental and suprasegmental features of speech, and serves to convey not only linguistic information, but also paralinguistic and non-linguistic information. (Fujisaki, 1997: 28)

This definition, due to the fact that it emphasises 'paralinguistic' and non-linguistic information, opens the window to possible interpretations of prosody as a conveyor of emotional information. Fujisaki proposes a scheme of possible frameworks through which prosody can be studied.

Fig. 1.3: Processes by which various types of information are manifested in the segmental and suprasegmental features of speech (Fujisaki, 1997: 29)

The above figure suggests that non-linguistic and paralinguistic processes have an enormous influence on speech. Hence, intimately related with prosody, we find concepts such as attitude, intention or emotion, all of which also appear in music. Actually, other approaches to prosody that are directly or indirectly linked to music have recently been put forward in the context of cross-linked knowledge. A good example is emotional prosody, which can be defined as "the ability to express emotions through variations of different parameters of the human speech, such as pitch contour, intensity and duration" (Besson *et al.*, 2002: 405).

Thus, the relationship between prosody and the perception of emotions has produced a series of important studies into the way certain brain responses prioritise certain prosodic features over actual semantic content of speech (cf. Abelin & Allwood: 2000). These studies are arguably most relevant to my own research into prosody and its possible usage in musical composition. Likewise, regarding prosody and music, Juslin and Laukka (2003) examine the connection between vocal expression of emotions and musical expression of emotions within 104 studies of speech expression and 41 studies of music performance. Their analyses reveal conclusive similarities between these two different channels.

As is evident, prosody shares with music many of its features in a very direct way. This is not surprising, given the musical origin of the word as seen at the beginning of this chapter. However, a more in-depth examination of these common features is necessary if we want to build a solid conceptual framework in which to study prosody as a resource in musical composition.

The physical features of prosody, as seen in Hirst and Di Cristo (1998: 5), are fundamental frequency, intensity, duration and spectral characteristics. These qualities are also found in music. Still, their standard behaviour apparently seems to be slightly dissimilar. Let us have a look at them individually.

1.2 Fundamental frequency

The fundamental frequency of a given syllable tends to be fluctuating in a spoken utterance. Of course, this differs depending on many circumstances: the given language, the absence or not of a consonant, or the presence of stress (Lass, 1976: 231), just to cite a few. Even the given vowel affects the pitch of a syllable. In English and in most of the non-tonal languages “high vowels like /i/ and /u/ have a higher intrinsic pitch than low vowels like /a/” (Nooteboom, 1997: 4, citing Peterson & Barney, 1952; Ladd & Silverman, 1984; and Steele, 1986). In a different manner, musical notes tend to have a stable pitch. Naturally, depending on the style, music can also produce continued pitch fluctuation and obviously the regular pitch

oscillation of the vibrato lies within standard performance resources. Nevertheless, in principle, there are great differences between the behaviour of pitch in the spoken voice and in music. One of the purposes of this dissertation is to assess whether a rapprochement between spoken-voice pitch and music pitch is feasible within the field of composition.

Nooteboom (1997: 4) analysed the behaviour of fundamental frequency in a certain number of spoken sentences. The course of pitch in this Dutch sentence displays this fluctuating behaviour of the fundamental pitch we have just mentioned.

Fig. 1.4: (Nooteboom, 1997: 4). Measured course of pitch in a Dutch sentence.

As seen in the figure above, after each syllable attack there is often a fall in frequency and seldom a rise in frequency. Professor Nooteboom provides us with a very detailed explanation of the pitch fluctuation:

> The course of pitch is discontinuous. It is interrupted during the production of voiceless consonants like /k/, /p/, /t/. One should note that, while listening to fluent speech, one does not hear these interruptions of F0 during stop consonant silent intervals as pauses or perceptual interruptions of the course of pitch. Although such interruptions of F0 contribute to the perceived character of the consonants concerned, as listeners, we have the illusion that the speech and its intonation or melody are uninterrupted. In fact, interruptions of the sound of speech during for example silent intervals of voiceless consonants are only perceived as interrupting the stream of speech and the speech melody when they are longer than, roughly, 200 ms. (Nooteboom, 1997: 5)

This sense of fluctuation, adapted to musical characteristics, has been used in the opera recitativo, where the sung voice imitates speech. It also inspired Arnold Schoenberg's Sprechstimme works like *Pierrot Lunaire*, *Ode to Napoleon Bonaparte* or *A Survivor from Warsaw*. The Austrian composer was trying to reflect this fluctuation when saying that "singing tone unalterably stays on pitch, whereas speaking tone gives the pitch but immediately leaves it again by falling and rising" (Schoenberg, 1990: Preface). The realisation of Sprechstimme "remains problematic partly because the pitch range of speaking voices is narrow, partly because there is no clear middle point between speech and song but rather a haze of alternatives" (Griffiths, 2001). Indeed, if we take the word 'heeft' from Figure 1.4, we observe a strong decay after the beginning. On the contrary, if this word were to be sung, the vocalist would maintain the pitch until the final consonant group. In Sprechstimme, "lying somewhere between singing and speaking" (Bryn-Julson, & Mathews, 2009: xi), the singer would touch the pitch and then immediately interrupt the steadiness of it.[1] The understanding of these processes and of how voice produces pitch fluctuation within a spoken utterance has inspired some of my compositions, which I will discuss in chapter 3.4.

Fig. 1.5. Sprechstimme in *A Survivor from Warsaw* (1947). Accessed online on 29 March 2020. www.schoenberg.at/scans/MS50/MS50/954.jpg

[1] There are numerous possibilities of performance approach, mainly because the Reciter can decide to execute Sprechstimme being more sung or more spoken, with more vibrato or with a straighter tone. Likewise, there can be either portamento or sliding between the notes, or the Reciter may decide to adhere strictly to the pitches or simply follow the contour of the line (Soder, 2006). In any case, I am here merely presenting a historical precedent that is useful to understand my own approach to prosody as a resource in music composition.

Another important issue is the demeanour of fundamental frequency within a sentence, rather than in an individual syllable. Here the situation is different because we will take into account the overall pitch deviation within a longer time span. For example, Chow and Brown (2018) propose a generic melodic pattern for declarative phrases in English.

Fig. 1.6: Generic model of the melody of a long declarative sentence. (Chow & Brown, 2018: 11).

Curiously, this model fits perfectly into many Gregorian chant melodies (cf. Chapter 2.3) or Classical and Romantic music phrases, to name a few examples. This pattern, or any other transferred from a spoken utterance, could serve as a frame in which to shape a musical phrase. In Figure 1.7 a declarative sentence is the resource by which the melodic curve is constructed. The notes are freely chosen given a central *G* (taken as 'habitual pitch') and, following the model, two sub-arches are organised within a perfect fourth above (first arch) and a perfect fourth below (second arch). The pitch peak is attained in *C* quartertone flat. Obviously, the secondary arch is lower and compressed, as in Chow and Brown's model, being the final pitch a *D* quartertone sharp. The result retains the declarative aspect in music and, in fact, confers a speech-like aspect to the melody. In order to comply with Chow and Brown's model the first phrase uses all the quartertones from *G4* to *C5*, whereas the second one covers all the quartertones from *G4* to *D4*. This musical passage,

intended for the violin, is an example of how to use a declarative sentence intonation as a resource in composition.

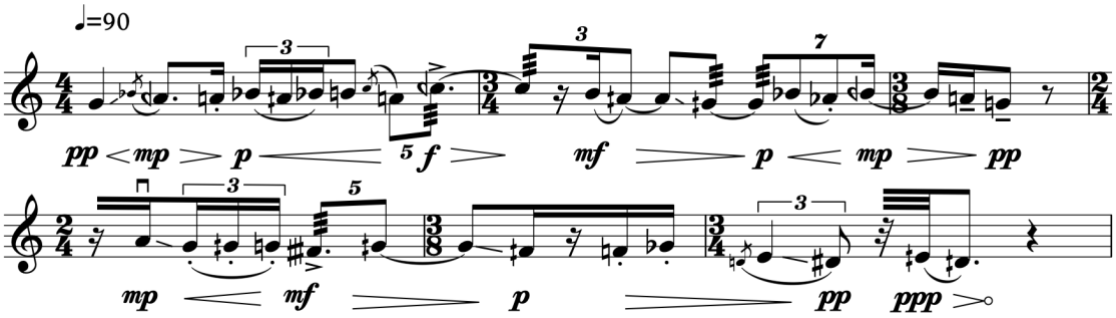


Fig. 1.7: Manuel Martínez-Burgos, violin passage based on Chow & Brown's (2018) declarative sentence model.

What seems very interesting here is that there are many other intonation models apart from those previously mentioned. In fact, "for both British English and Dutch six such basic intonation patterns can be distinguished, probably carrying different attitudinal and/or emotional connotations" (Nooteboom, 1997: 12). With this idea in mind, different emotional connotations could be transferred to music by means of different melodic contours belonging to various spoken intonation patterns.

Another field that could be explored is the fundamental frequency variation, depending on the emotion of the speaker. For instance, in everyday life the occurrence of an unexpected event will result in a steep rise or a jump in the pitch of a given utterance (Kehrein, 2002: 424). Likewise, speakers perceived by others as energetic, certain, angry or annoyed tend to use an increased fundamental frequency range compared to their average range (Kehrein, 2002: 425). Furthermore, happiness, fear and shyness show a uniform and rather high fundamental frequency (Abelin & Allwood, 2000: 3). Thus, the study of fundamental frequency behaviour in different emotions could also bring new resources to the table.

In light of this information, the previous example could be rewritten in order to convey a less neutral emotional state. The intervals of the melody can be expressed in semitones in the following way:

+3, -1.5, +0.5, +1, -0.5, +0.5, +1, +1, -3, +2.5, -0.5, -1.5, -2, +2.5, -2, +2.5, -1.5, -2, +2, -2, +0.5, -0.5, -0.5, +1, -2, -0.5, +1, -4, +2, -1, +1.5, -2

However, if we want to convey a sense of dynamism, certainness, anger or annoyance, we can multiply these intervals by three. This will increase the pitch variation between each note and its subsequent one, thus suggesting the sonic characteristics of the aforementioned emotions. The result of this multiplication is:

+9, -4.5, +1.5, +3, -1.5, +1.5, +3, +3, -9, +7.5, -1.5, -4.5, -6, +7.5, -6, +7.5, -4.5, -6, +6, -6, +1.5, -1.5, -1.5, +3, -6, -1.5, +3, -12, +6, -3, +4.5, -6

Thus, after transposing the melody up three semitones so that all notes fall within the violin's range, we get following the musical result:

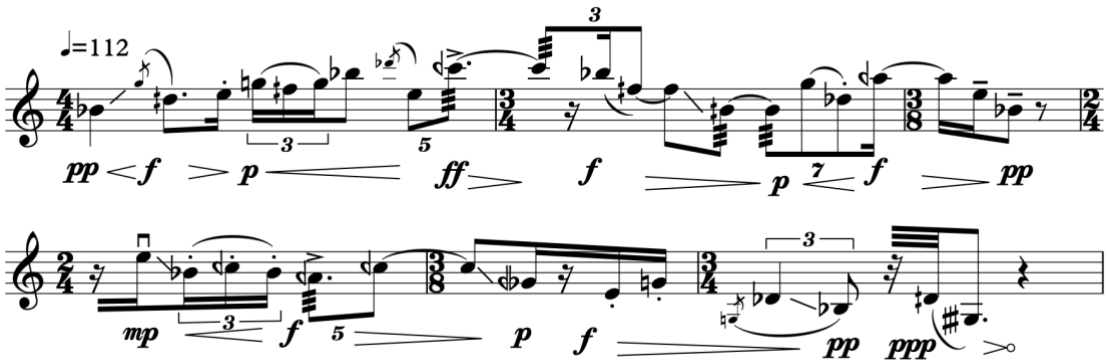


Fig. 1.8: Violin musical passage based in Chow & Brown's (2018) declarative sentence model. Intervals multiplied by three.

When comparing the music of Figures 1.7 and 1.8, we can perceive that the second example —with an increased fundamental frequency range— conveys a more energetic mood. Whereas the first musical excerpt is somehow introverted, the second one is more extroverted. I believe that one of the reasons for this change in

mood are the transformations I have made on the interval range. Other parameters that can help to create a sense of energy or angriness have also been changed, to wit: 1) the dynamics are more extreme so that there is a feel of increased intensity variability, just as suggested by Juslin and Laukka (2003: 792-3); and, 2) the tempo has been increased, following the criterion exposed by Juslin and Laukka (2003: 792) who suggest that anger or happiness normally imply a faster tempo rather than a slow one. As a result, we can perceive that example 1.8 is more vigorous and livelier than 1.7. It goes without saying that an interval multiplication by four or five would augment the emotional effect we are looking for even more. The same applies to dynamics or tempo. This means that it would also be possible to construct a musical gradation of the emotional states we are looking for.

1.3 Intensity

Word and syllable intensity are directly related to several factors. Firstly, stress and intonation affect a language sound due to their amplifying influence (Fougeron, 1999: 56). Secondly, the intensity of a sound can also be altered owing to articulatory and phonological reasons (Kula *et al.*, 2011: 352-3). We will discuss these features in connection with stress.

Overall intensity in a given utterance plays an important role in the conveyance of emotions. As Kuka *et al.* state (2011: 352-3), “the emotional expressions with the overall highest intensity levels are anger, surprise, disgust and dominance. The weakest ones are sadness and shyness”. Once again, the handling of all these emotional states by means of music dynamics can be stimulating for composers. Interestingly, intensity variation can also be a significant indicator of certain emotions: whereas anger, fear and happiness show high intensity flow, sadness and tenderness show low intensity variability (Juslin & Laukka, 2003: 792-3). All this information could be relevant when considering how to organise dynamics in music.

1.4 Duration

Duration was, in reality, at the core of prosody studies until the 20th century. The study of metre is firmly stemmed in the tradition of prosody[2], starting with Ancient Greek and Roman quantitative versification. The metrical scansion is a discipline deeply rooted in prosodic studies. It is used to analyse the "poetic metre in verse lines, by displaying stresses, pauses, and rhyme patterns with conventional visual symbols" (Baldick, 2015). As we will see in chapter 2.2, syllable duration is the basis of rhythm in many songs, from ancient to contemporary times. Likewise, metrical patterns also play a crucial role in the conversion of prosodic rhythm into musical rhythm, since, with regard to this feature of sound, a straightforward equivalence can be established between prosody and music.

However, many other resources can be employed taking duration as the starting point. In the next figure the rhythmic structure of music is directly taken from speech rhythm with a minimum quantisation. The pianist must recite while playing. Indeed, the actual recitation forces musical rhythm to copy its rhythmic pattern, so acting as a catalyst of expression.

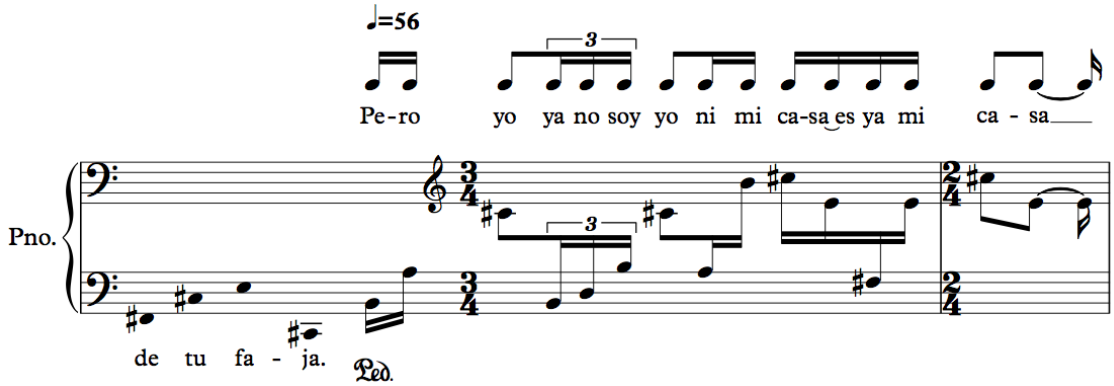


Fig. 1.9: *Romancero gitano*. Lorca-Martínez Burgos, for pianist-reciter.

[2] As a matter of fact, in the 60's certain scholars still stated that "in a narrow and technical sense prosody means the craft of versification" (Gross, 1963: 204). As we have already discussed on pages 6 to 8, this narrow definition of prosody was broadened by subsequent linguistic studies carried out by Chomsky & Halle (1968), Crystal (2008), Hirst & Di Cristo (1998) and Fujisaki (1997).

Another aspect connected with duration is speech rate. It has been demonstrated that anger, fear and happiness tend to have fast speech rates, whilst sadness and tenderness have low ones (Juslin & Laukka, 2003: 792). Speech rate can be understood as tempo in music. Likewise, note value can also create a sense of flow and consequently of speech rate. The latter could thus be used in music as a feature portraying different emotions or states of mind.

We should also remember that silence has a significant role in prosody and definitively in semantics. Let us consider the following two phrases:

—The queen said the knight is a monster.

—The queen, said the knight, is a monster.

Nooteboom (1997: 34) reminds us that syntagmatic boundaries, in this case marked by two silences, are essential in certain cases of ambiguous phrases. These pauses could likewise be used in music as a way of organising melodic or harmonic phrases, thus creating subordinate musical clauses to the principal phrase. This would be the case for the following two examples.

In the following figure the musical phrase has three subdivisions, each one marked with a box. The phrase is characterised by the usage of a range covering from *G4* to *E5*, the medium to high register of the flute. The extensive use of tenths in the melodic intervals furnishes a sense of intervallic coherence to the phrase.

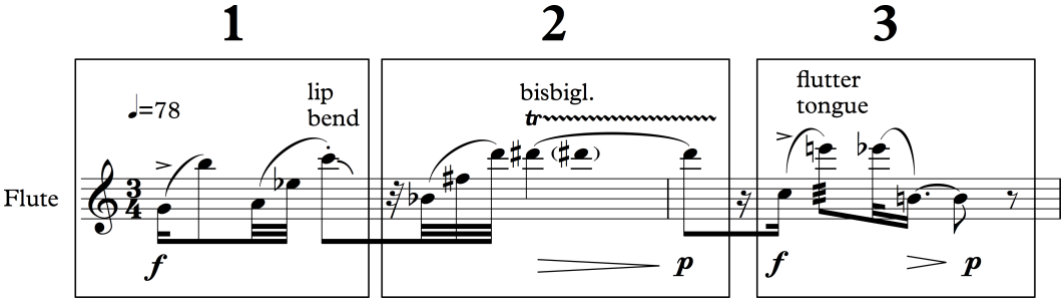


Fig. 1.10: A musical phrase representing the text phrase 'The queen said the knight is a monster', without subordinate clause. Manuel Martinez Burgos (2019).

In the figure below the same musical phrase has its second subdivision in the lower octave. Besides, a longer rest marks the boundaries of such subdivision. The effect is

somehow similar to the subordinate clause we find in the aforementioned phrase 'The queen, said the knight, is a monster'. The small pause between the three subdivisions tends to separate the second one as if it was a subordinate sub-phrase, thus changing the sense of the whole musical idea.

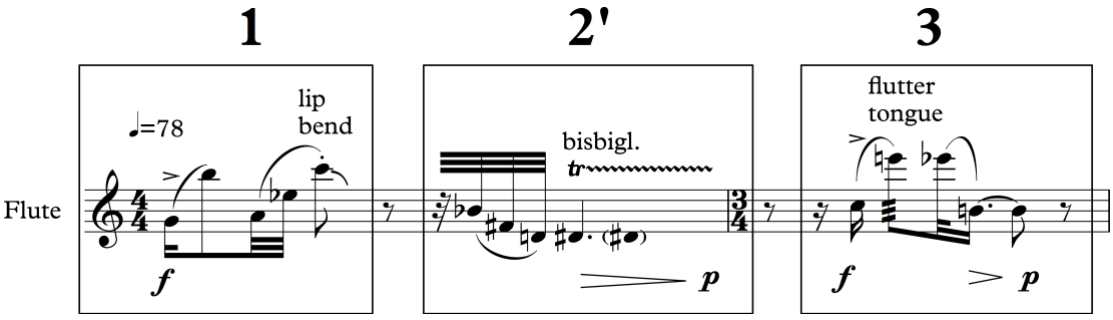


Fig. 1.11: A musical phrase representing the text phrase 'The queen, said the knight, is a monster', with subordinate clause. Manuel Martinez Burgos (2019).

1.5 Spectral characteristics

The spectral characteristics of the voice enable us to distinguish the different consonants and vowels of a spoken utterance. Vowels change their spectrum formants thus enabling us to distinguish the diverse vocal timbre features (front or back; rounded or unrounded). This vowel sound variation is principally due to the frequency relationship between the different formants of a given spectrum. For example, according to Hillenbrand et al. (1995: 3103) average measures within a group of 45 men for a given vowel /aː/[3] yield a result of 123Hz as fundamental frequency (F0), 768Hz as first formant (F1), 1333Hz as F2 and 2522Hz as F3. Likewise, the vowel /uː/ has the following values: F0, 133Hz; F1, 469Hz; F2, 1122Hz; F3, 2434Hz. Obviously, these frequency data can be easily transferred to music as chords. In fact, this is the basis of one of my own pieces, entitled *Vowels*, which will be analysed in Chapter 3.

Another important aspect of vowel behaviour is formant transition. Greenberg, Ainsworth & Ainsworth (2006: 23) propose a schematic formant transition between

[3] I use in this essay the International Phonetic Alphabet signs.

/aː/ and /uː/ that could be treated as the harmonic basis of an instrumental composition. Figure 1.12 illustrates such transition[4] whereas Figure 1.13 shows its musical realisation for a sinfonietta type orchestra with a choir of basses singing /aː/ - /uː/. Curiously, the result is a total symbiosis of the choir with the orchestra, which actually boosts the harmonics of the vowels sung by the basses.

Fig. 1.12: Vowel articulatory transition /aː/-/uː/ (Greenberg, Ainsworth & Ainsworth, 2006: 23).

[4] There is a mistake in the original figure published by Greenberg, Ainsworth & Ainsworth (2006: 23). The top of the /a/ - like formants should read 'F3' instead of 'F2'.

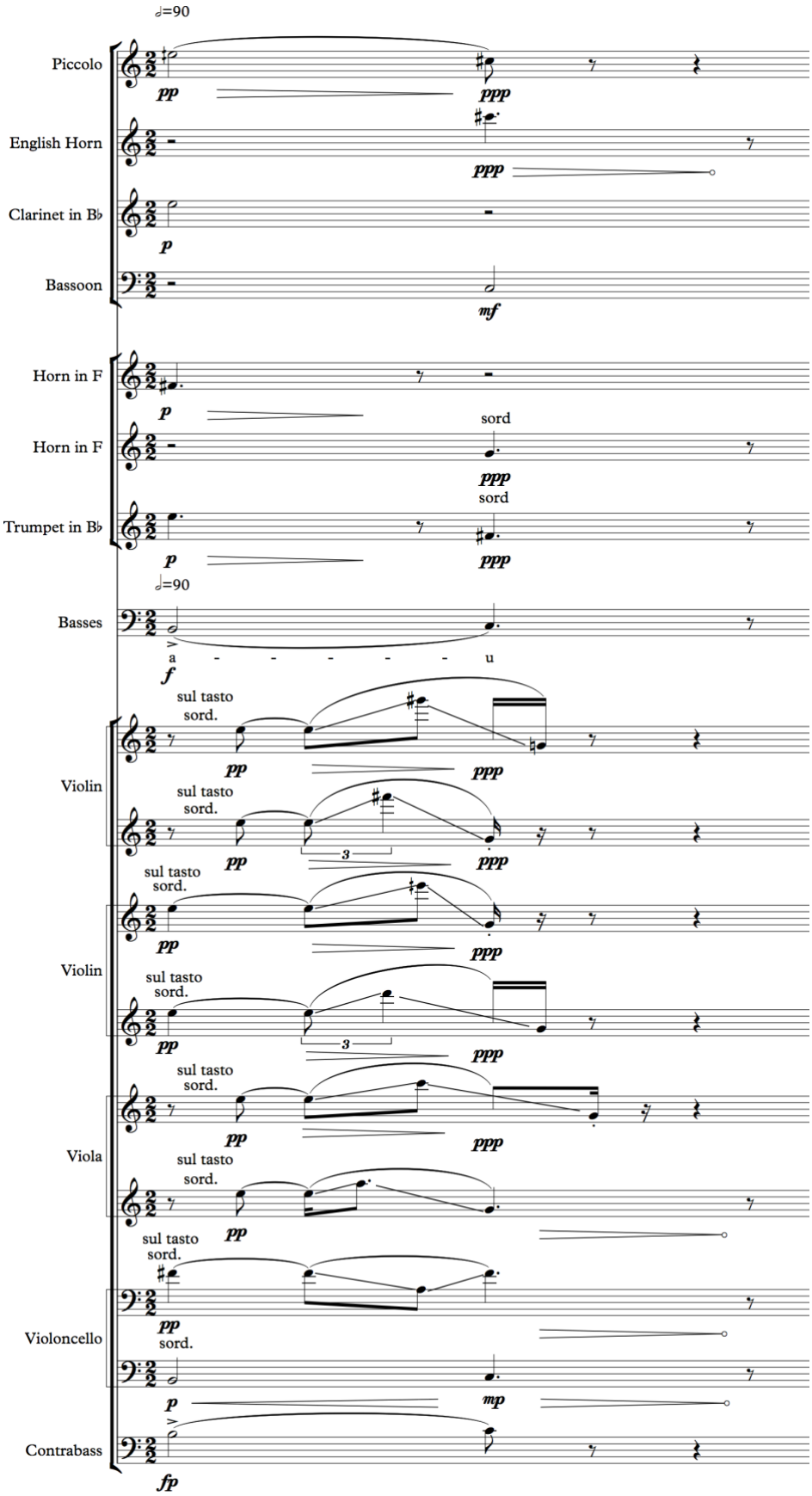


Fig. 1.13: Musical realisation of an /aː/ - /uː/ transition.

1.6 Accentuation

In the last subchapters we have been considering the common acoustic parameters of prosody and music. Following on from this, it might also be appropriate to analyse the notion of accentuation, which shares most of the features we have considered, and is used equally both in prosody and music.

We have already mentioned that the Latin word *accentus*, which comes from *ad cantus*, is a translation of the Greek word *prosodía* (cf. p. 6). Nowadays, although related, their meanings are not the same. In fact, accentuation is a confusing concept in linguistics. Though it is beyond the scope of this research to discuss this muddle in detail, where we also find notions such as stress and emphasis, we will underline some important aspects of accentuation.

As Nooteboom (1997: 33) states, words "are accented by means of an accent-representing pitch movement on their lexically stressed syllable, with some concomitant cues such as some extra loudness and some lengthening of the word." So, pitch variation is the main prosodic feature involved in accentuation although other features are also affected. This assertion is completely congruent with the accent study made by Chow and Brown (2018). Given the phrase 'My roommate had three telephones', they show the effects of placing the accent sequentially on the different words or syllables. In Figure 1.14 we can clearly observe the effect of stress in each case. It generally implies a higher pitch and, sometimes, a longer duration. The accented word or syllable, depending on its phonological

Fig. 1.14: Identical sentences with accents placed sequentially on different words (Chow & Brown, 2018: 8).

boundaries, could also have a higher intensity (Fujisaki, Hirose, & Sugito, 1986: 61) (Niebuhr, & Pfitzinger, 2010: 3-4). These considerations are very important when composing for voice. Composers can thus change the semantics of a given text depending on the interpretation of the accented word. Obviously, example A in the preceding figure could be an answer to the question 'Did his roommate have three telephones?' whereas C would be an answer to 'Did your roommate have two telephones? Thus, the musical realisation of example A would be very different from example C, although a text does not normally provide us with the accented words.

1.7 Discussion

It is fairly clear that prosody can be a useful resource in music composition. Composers have often used sources of inspiration outside of music. Hence, these types of sources might operate as a catalyst for the composers' inspiration. To cite only a few instances, Xenakis (1992) suggested that mathematics could be used as a compositional resource in music; Jonathan Harvey (1999) thought that religious feelings could inspire musical compositions; Stravinsky states, wisely, that:

> Most music-lovers believe that what sets the composer's creative imagination in motion is a certain emotive disturbance generally designated by the name of inspiration. I have no thought of denying to inspiration the outstanding role that has devolved upon it in the generative process we are studying; I simply maintain that inspiration is in no way a prescribed condition of the creative act, but rather a manifestation that is chronologically secondary. (Stravinsky, 1947: 50)

I agree with Stravinsky that inspiration is by no means a compulsory condition of the creative act. It is thus important to consider any source of inspiration, including prosody, as an external aid to composition. The final piece will always be judged only by its sonic appearance, not by the resources used or by the source of inspiration. In this context, it seems sensible to consider prosody as a tool to add to the always-growing list of music composition resources. This research will therefore prioritise musical considerations when comparing composition and prosody. If the musical result is not satisfactory, it is useless to apply complex prosodic theories to a piece.

With this idea in mind it seems appropriate to take an overview of prosody as a compositional resource in music history.

2 HISTORICAL EXAMPLES OF PROSODY AS A RESOURCE IN MUSICAL COMPOSITION

2.1 Preliminary considerations

The learning of musical composition has traditionally been taught by means of two chief tools: analysis and stylistic composition. Through analysis, composition students learn the general technique of previous composers and then tend to write music that follows the conventions and processes of others until they begin to develop their own personal style. This was the methodology of Johann Joseph Fux in his celebrated *Gradus ad Parnassum* (1725) or André Gédalge in his *Traité de la fugue* (1901), both examples of mimetic procedure, mainly focused on the technical facets of composition. But while the adoption and incorporation of known technical procedures is central to the craft of composition, other complex factors play their part. The composer's personal approach to aesthetics, other influences, be they cultural or social, emotions, instincts, feelings or even individual circumstances of the creator, can define in great part a music composition. This multidimensional nature of the creative process will be the theoretical frame that I will use to survey the connections between prosody and musical composition.

I have shown in the previous chapter that prosody has numerous connections with music. In this chapter I am going to consider historical examples in which prosody has had an influence upon the musical decisions of the composer. My aim here is to show what parameters of prosody are at play in the following examples, and to explore how composers have modelled their works, consciously or unconsciously, on prosodic features.

Of course, the present chapter cannot deal with all the historical scores where prosody has had an evident presence. The list would have been endless and, inevitably, important composers have been left out. Thus, beyond trying to cover all historical instances our intention here is to present an approach to composition

through prosody. This will then serve as a conceptual background when examining my own pieces in the next chapter.

2.2 Seikilos Epitaph: prosodic length as musical rhythm

The *Seikilos Epitaph* is the oldest surviving example of a complete composition from anywhere in the world (West, 1994: 23-24). Different authors have dated this funeral lament from 200 BC to 100 AD, yet the 1st century AD is the most feasible hypothesis (Landels, 1999: 252). In this song we can see the relationship between the prosodic length of syllables and its correspondent musical rhythm. Not surprisingly, there is a complete connection between prosody and music with respect to rhythmic coherence.

The reason for this one-to-one match is understandable: in Greek poetry, metre is founded on patterns of long and short syllables. Accordingly, these are ascribed respectively to long and short notes; the former being crotchets and dotted crotchets, and the latter quavers on the following example (Figure 2.1). The following list demonstrates the long and short syllables and their corresponding notes durations[5] in the first verse Ὅσον ζῇς φαίνου:[6]

Ὅ — Vowel Omicron thus short syllable = quaver

σον — Vowel Omega, in between consonants thus long syllable = crotchet

ζῇς — Eta is long by nature thus long syllable = dotted crotchet

φαί — long diphthong by nature, thus long syllable — three slurred quavers thus equivalent to a dotted crotchet

νου — long diphthong by nature, thus long syllable — dotted crotchet

[5] There are of course several ways of establishing a correspondence between the syllable length and the musical rhythm. Here I make a correlation between the syllable length and the musical version proposed by Pohlmann and West (2001: 89), although other musical versions are also possible.

[6] Translation: “As long as you live, shine”. (Moore: 2013, 66)

Fig. 2.1: *Seikilos Epitaph*. Modern transcription by Pohlmann & West (2001: 89).

The correspondence between syllable and note durations remains stable throughout the composition. This direct link is even kept in the long syllable φαί (phae-) of φαίνου (*phaenōn*)[7], where we find a melisma with three slurred quavers, thus representing the value of a dotted crotchet. Briefly, the lexical prosodic feature 'quantity' has a straightforward parallel in the musical length of notes. Prosody has been used as a resource to establish rhythm in the score.

This first prosodic parameter, rhythm, remains an important feature throughout this chapter. Indeed, rhythm is one of the basic factors in music. The same thing happens with speech: rhythm, or duration, so to say, is a primary perceptual cue (Dennis, 1976). It is thus unsurprising that a composer, in one way or another, wants to convert the sense of prosodic length into musical length. Gregorian chant, as I will soon demonstrate, transfers this sense of prosodic length in a dissimilar manner: to the neumes and melismata organization.

[7] "Phaenōn" meaning "Shining one", Glare (1968: 1,371-2).

2.3 Gregorian chant: musical correlations of prosodic length and intonation

Peter Clemoes claims that Gregorian chant was essentially a development of normal speech intonation, "a kind of speech-song" (Clemoes, 1952: 7). If this is the case, then spoken features such as prosodic length or intonation must have left traces on Gregorian melodies. To do justice to this topic would take a doctoral dissertation in itself. However, plainchant —which laid "the foundation for the entire development of Western music" (Apel, 1972: 168; Mahrt, 2012: 87-114)— could not be set aside in this historical insight. Here, therefore, I discuss two Gregorian chant examples that show evidence of an influence of prosody on compositional decisions.

2.3.1 Prosodic length

In Gregorian chant, rhythm has permanently been a source of debate among scholars. Yet, is it clear that there are three rhythmic style categories depending on how the text is set to the music, namely: a) syllabic style (one note to each syllable); b) neumatic style (two to four notes or more to one syllable); and c) melismatic style (ten to twenty or more notes to one syllable) (Apel, 1972: 355). Here I discuss cases b) and c) within the *Alleluia* from the Feast of the Sacred Heart of Jesus (Figure 2.2, Liber Usualis, 1961: 972) and argue that the influence of prosody can be noticed in the organisation of neumes and melismata.

As Figure 2.2 shows on the next page, most accented syllables systematically fall on neumes or melismata that have more notes than their neighbouring syllables. When comparing the average notes per syllable in this *Alleluia* the rule tends to be confirmed. The accented syllables of the first three words of the verse after the *Alleluia* opening are: *tól-li-te, jú-gum, mé-um*. All three words have their accented syllables associated to a neume or a melisma that is longer than the following non-accented syllable. In this verse, the rest of the two or three-syllable words follow the same scheme, to wit: *dís-ce-te*, *quí-a*, *hú-mi-lis*, *cór-de*, *ré-qui-em* and *vés-tris*.

Fig. 2.2: Liber Usualis, 1961: 972.

The word *requiem*, which seems to be the most important semantic area in this verse, is exaggeratedly long. This could potentially be a way of highlighting the word itself, and its important meaning within Christianity: 'you will find rest'. The exceptions that do not assign the longest melisma to the stress syllable, are: *mí-tis, sú-per, in-ve-ni-é-tis* and *a-ni-má-bus*. In *mí-tis* and *sú-per*, it seems that the same melodic pattern has been applied to these two words, thus slightly changing the number of notes of the final non-stressed syllable. Nevertheless, there is little difference between the number of notes per syllable: two for the stressed syllable and four for the non-stressed one. Regarding *in-ve-ni-é-tis* and *a-ni-má-bus,* interestingly, they are the only four and five-syllable words. It seems that in these

long words, the sense of syllable stress becomes a secondary aspect and so neumes and melismata behave in a freer way.

This principle of note-to-syllable distribution depending on word accents was in fact one of the cornerstones of the 17th century reformation of Gregorian chant. With the Medicean reformation (1614-15) there was a "rearrangement of the notes to reflect correct declamatory principles, so that unaccented syllables should not have more notes than accented ones. Every type of chant was affected, the more ornate ones most of all" (Hiley, 1993: 616). It is thus not surprising that in this ornate *Alleluia* that I have just examined, prosodic length is directly proportional to the number of notes per syllable. The following table shows the reasoning I have just argued for the two and three-syllable words:

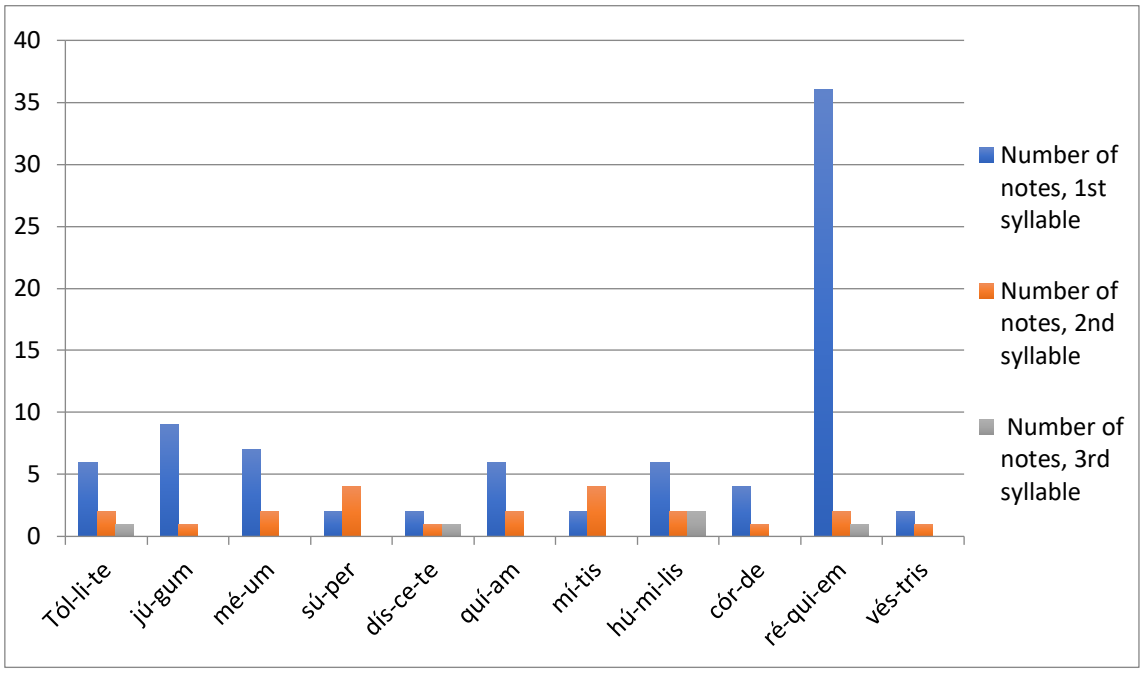


Fig. 2.3: Table, number of notes-per-syllable depending on the prosodic accent.

As seen, nine out of eleven words follow the proposed neumes and melismata organisation rule. Accordingly, most of the stressed syllables have more notes than their neighbouring non-stressed syllable/s. Of course, this evidence confirms the main premise that most Gregorian chant scholars hold: "the importance of the

textual accent" in the formation of neumes and melismata (Apel, 1990: 130). Still, there are many different theories as to how to perform this general premise. For example, on the one hand according to Eugene Cardine, syllabic time, though directly coming from the symbiosis of the text and the music, must have certain "elasticity, as a consequence of the modifications imposed [to the syllabic time] by the different weights of the syllables themselves" (Cardine, 1970: 10)[8]. On the other hand, another group of theorists, named mensuralists, maintain that rhythm has to be performed strictly.[9] It is beyond the scope of this essay to study in depth this painstaking issue, which in Apel's words "looms large in the mind of scholars and students" (Apel, 1990: 127). Be that as it may, what is clear once again is that a prosodic feature, namely length, seems to have a firm influence on music composition, determining important aspects such as neumes and melismata organisation in Gregorian chant melodies. It is thus not coincidence that the anonymous author of the 11th century treatise *Quid est cantus?* states that "it is from the prosodic accents that there comes a sign called a neume" (Cited by Hiley, 1993: 365).

2.3.2 Intonation

I will now turn to the influence of prosodic intonation on musical intonation in Gregorian chant. In order to explain this correspondence in Gregorian chant let us first consider two basic prosodic intonation curves. In Latin and in most European languages an interrogation is marked by means of an overall upward intonation, especially at the end of the phrase. In contrast, a declarative phrase is made evident through a slight global downward curve.

Figure 2.4, taken from Beyssade (2007: 169), shows a typical interrogative sentence in French. The sign H* marks a strong upward movement in the fundamental pitch.

[8] Translation from French is mine.
[9] For a comprehensive list of mensuralist theorists see Apel (1990: 129-132).

Here we can appreciate that pitch rises gradually from around 130Hz at the beginning of the sentence up to around 220Hz at the end.

Fig. 2.4: Beyssade, 2007: 169.

This can be contrasted with a declarative sentence in Spanish, shown in Fig. 2.5. Here the fundamental pitch falls from around 250Hz at the beginning of the sentence, to around 190Hz at the end.

Fig. 2.5: Troncoso-Ruiz & Elordieta, 2017: 8.

The two different melodic curves we have just described are crucial to determine the semantic nature of a simple sentence whose morphologic construction is the same for an interrogation and for a declaration. In these cases, intonation can eliminate either the declarative or the interrogative meaning, thus helping to define the

context of utterance (House, 2006: 1545). That is to say, prosody becomes an exclusive semantic marker for all sentences that do not have a differentiated syntactic form for declarative or interrogative sentences. When taking a simple word such as *knien* (rabbit in Dutch), we observe that depending on the intonation we will consider it as an interrogation or a declaration. Figure 2.6 shows the two different contours.

Fig. 2.6: Gussenhoven, 2014: 333.

Similar sorts of intonation devices are evident in the basic type of Gregorian recitation formula used to sing the Psalms. The next figure shows the archetypical melodic structure of a Psalm tone, here the fifth tone.

Fig. 2.7: Liber Usualis, 1961: 115.

"Nearly every Psalm verse falls into two parts" (Apel, 1990: 210) corresponding to its two poetic hemistiches. This is the case here: the first part comprises the Intonation, the Tenor and Flex, and the Mediant, as Figure 2.7 shows. This first semi-phrase has an upward overall motion, moving in this instance from *F* to *C*. The second semi-phrase comprises the second part of the Tenor and the Ending, drawing a downward

line from *C* towards *A*. This rise-fall movement of the melody during the singing of the Psalm has drawn the attention of scholars. Combarieu (1897: 75-6) argues that the "normal oratorical period comprises two parts separated by a culminant point. In the first part the voice gradually rises following a sort of *crescendo*. In the second part the voice descends by means of a *decrescendo* that resets the voice to its point of departure."[10] The principal accent of the phrase takes place at the culminant point of this melodic parabola (Gajard, 1945: 12) and is thus, not only an oratorical and phraseological accent, but also a musical accent typical of Gregorian melodies (Mocquereau, 1908: 564). According to Riemann (1896: 486) during the rise a melody has a positive period expressing longing or wishing; conversely, the falling, or negative period, conveys introspection or calming down. Though this assumption might be considered a gross oversimplification, what is interesting here is that this upward-downward movement has a direct link with the prosodic intonational curve we have discussed at the beginning of this section. As aforesaid, an interrogation intonation draws an upward curve (Fig. 2.4), whereas a declarative phrase would normally draw a downward line (Fig. 2.5). The succession of these two prosodic intonation archetypes is exactly what we find on most Psalmodic recitations.

The reason for this direct parallel between melodic contour and semantic intonation possibly lies in its success as a communicative strategy. It is a very strong expressive resource both in spoken language and in music: a question creates suspense, whereas a declaration, or an answer, resolves that suspense (Bolinger, 1986: 160). Gregorian chant composers found a sort of universal intonation formula that worked both as structural cement and a catalyst for expression. The interesting issue here is that the two prosodic intonation contours we have just discussed are the very basic ones. This could suggest that music is fitted into two widely used prosodic patterns that, unconsciously, sound familiar to the listener. Accordingly, the listener feels at ease in this recognisable melodic environment. All this is congruent with the idea that Gregorian chant was intended to reinforce the monastic life and Christian

[10] Translation from French is mine.

spirituality. As Phelan (2017: 81) states, “the potential of singing in a ritual context to promote a particular belief and to reinforce it, not only as an intellectual position, but as a somatic experience, is immense”. In this regard, to use our intonational abilities in a communicative context is doubtlessly a somatic act. Supporting this idea, Lakoff and Johnson (1980: 57), claim that this idea of an upward and downward movement is one of central concepts within our body’s function. I return to this theme in the discussion at the end of the chapter.

2.4 *Euridice* by Jacopo Peri. Interaction of melody and harmony as a semantic booster

Euridice, the earliest surviving opera with music by Jacopo Peri and additions by Giulio Caccini (Brown & Hanning, 2015), gives us a good example of how prosody is also linked to musical composition. Published in Florence in 1600 with libretto by Ottavio Rinuccini after Ovid's *Metamorphoses*, this opera narrates the story of the mythological Orpheus and his wife, Euridice.

In the previous section, I discussed the musical correlates to syllabic length and pitch intonation. Given the monodic nature of Gregorian chant, the analyses I made were exclusively melodic. However, melody can also interact with harmony in order to reflect certain prosodic or semantic features. In *Euridice*, one of such interactions takes place in the second scene. Dafne expresses her torment as she describes the moment when Euridice is bitten by a snake. There is one main resource that depicts this suffering: the relationship between melody and harmony. This relationship can generate musical effects that highlight large linguistic segments, such as a whole syntagma or a whole phrase. Likewise, these segments might contain words that, due to their semantic content, are differentiated from others in order to enhance expressivity. This is the case in this lament by Dafne:

Fig. 2.8: *Euridice* by Peri. Modern transcription (Peri, 1908: I, 39).

The very first impression is that something is wrong with measure two in this example. In 1600, how can a *Bb* be together with a *B*? Hence, my first impulse was to check the original score, and I found this:

Fig. 2.9: *Euridice* by Peri. Original score (Peri, 1600: 16).

It is clear that there is no mistake here; it is a *B* in the bass with an added natural. The reason for this apparent cacophony must be found in the meaning of the text we have here: ´a sweat colder than ice'. The word *assai* is stressed through dissonance because, in actual fact, such a diminished octave can create the effect of something truly cold and painful. But the overall outcome is that the entire syntagma, 'Un sudor viè più freddo assai che giaccio', is emphasised by means of this outstanding harmonic effect. This is in line with the thoughts of the *Seconda Pratica*. Monteverdi claimed in 1605 that there should be a new way of considering dissonances, apart from the old-fashioned suspensions: namely "with satisfaction to the reason and to the senses" (Cited by Lippman, 1992:30). So here, the traditional technique of dissonance preparation and resolution is not at work. This is a good instance of what Galilei considered a new practice of dissonance, "keyed to the

expression of the text and emancipated from the artificial restrictions of the *contrapunto osservato*" (Cited by Palisca, 1956: 82). As a result of these new compositional thoughts, we can here listen to an expressive bitterness in the word *assai*, which is the stress word that acts as the culmination of the musical phrase. It is very likely that Peri chose this word due to its onomatopoeic properties. In fact, in Italian, the interjection used when expressing pain is *ay*. So the syllable *ai* from *assai*, sounds exactly the same as the aforementioned interjection. This resource can be understood as a 'word painting' that has a suggestive expressive value.[11] Peri, who was a singer himself, thought that "one should imitate in song a person speaking" (Cited by Palisca, 2006: 110). Hence, this syllable *ai*, as in natural speaking, is highlighted thanks to intonation: let us consider the notes of this melody *F*, *A*, *Bb* and *G*. *Bb* is clearly the highest point of the melodic arc and thus acts as an articulation point. Consequently, Peri creates a melodic curve that has its highest note in this word. Once this is established, harmony does its job by punctuating the dissonance right in this word. As a result, the entire syntagma comes out of the score as something distinctive and unique. In other words, the prosodic non-lexical feature 'intonation' works as a source of inspiration in this composition. It should now be noted that we have moved from analysing lexical features, namely length in *Seikilos Epitaph*, or intonation patterns in Gregorian chant, to considering non-lexical features in this Baroque example. Furthermore, prosody has been used with the purpose of underlining a semantic issue here. The words *freddo* (cold) and *giacchio* (ice) belong to the same semantic field and thus could be considered co-hyponyms. This semantic field summarises the whole dramatic intention inside Dafne's song. The consequence of this is that word stress, which is achieved by means of the diminished octave, creates a perfect connection between prosodic intonation, semantic field and music. Not in vain, Peri himself described the style of his opera as "an intermediate course, lying between the slow and suspended movements of song and the swift and rapid movements of speech" (Cited by Lippman, 1992: 37). Peri

[11] Dr Jeremy Llewellyn, Oxford University, suggested the onomatopoeic interpretation of this syllable. Personal communication, 29 December 2017.

thus aligns himself with the views expressed by Galilei who, in Palisca's words (Galilei, 2003: Iiv) was "imbued with faith in the power of the word".

2.5 Janáček's 'speech melodies': prosody as a central topic in composition

Unlike in the *Seikilos Epitaph*, the Gregorian chant examples or Peri's opera *Euridice*, in Leoš Janáček (1854-1928) we encounter a more conscious use of prosody as a compositional resource. The Czech composer turns his attention to the intonation contour of speech, which he called 'speech melody'. It is an isolated case in his time and the interpretation of Janáček's interest in speech melodies remains unclear for many musicologists, as we will see.

From 1897 on, Janáček started developing the idea of 'speech melodies', "his habit of jotting down in musical notation scraps of overheard speech, often with notes on the circumstances, and making inferences about the emotional state of the speaker" (Tyrrell, 2019). He devoted more than thirty years to notating down not only the intonations of people talking, but also the melodies of birds or thunder (Pearl, 2006: 157). Let us start by giving the floor to Janáček himself in order to understand what speech melodies represented for him.

> Speech melodies? For me, music as it comes out of the instruments, from the repertoire, whether it is by Beethoven or anyone else, has little truth in it. Perhaps it was like this, strange as it seemed, that whenever someone spoke to me, I may have not grasped the words, but I grasped the rise and fall of the notes! At once I knew what the person was like: I knew how he or she felt, whether he or she was lying, whether he or she was upset. As the person talked to me in a conventional conversation, I knew, I heard that, inside himself, the person perhaps wept. Sounds, the intonation of human speech, indeed of every living being, have had for me the deepest truth. And you see – this was my need in life. The whole body has to work – it is something different from just working the keys. (Translation by Zemanová, 1989: 121–124.)

In Figure 2.10 we have an example of a speech melody. Janáček explains in his notebook (Straková & Drlíkova, 2003: 352) the situation in which the utterance took place and then transcribes the melody. "A woman from the countryside sits in a tram

in Prague. The car stops and the woman hesitates whether she ought to get off already. She addresses the driver urgently:" (Cited from Vainiomäki, 2012: 167)

Fig. 2.10: Vainiomäki, 2012: 167.

Another interesting example shows the speech of a Prazan woman rebuking a child.

Fig. 2.11: Vainiomäki, 2012: 168.

As fascinating as all these speech melodies might be, what has not yet been clearly established is their relationship with Janáček's compositional technique. Pearl (2006: 158) states that no direct link has been found between the transcriptions and the melodies of Janáček's compositions; there is no "method for transfering [sic] these *objets trouvés* into musical compositions" (Pearl, 2006: 158). As Pearl comments (2006: 158) "perhaps the most fruitful interpretation […] is that Janáček sought in his studies more inspiration than material, that he immersed himself in the motives of nature in order to absorb them into his artistic thought, just as W. A. Mozart, when seeking to write Italianate operas, internalised their form and sound, rather than borrowing from their substance". Yet, Carrasco (2013: 115) provides a very different interpretation, since she does identify a speech melody in an oboe part of Janáček's wind sextet *Mládí*, as Figures 2.12 and 2.13 show.

Fig. 2.12: Carrasco, 2013: 115.

Fig. 2.13: Janáček, L (1958). *Mládí*. Prague: Hudební Matice. Plate H. 2609. [Score]

Furthermore, Wingfield (1992) considers that the speech-melody approach could have possibly influenced the way Janáček conceived the melodies of his opera *Jenufa*. In fact, he gives a structured guide for describing how these melodies were achieved:

> (1) a self-contained musical unit should set each segment of text; (2) words and syllables should not normally be repeated; (3) stress patterns should be reflected in one or more of the musical dimensions of metre, rhythm, pitch, dynamics and harmonic rhythm; (4) key words should be placed on the first beats of bars; (5) there should be a preponderance of repeated pitches; (6) intervallic ascents and descents should reflect the rises and falls of speech; (7) each unit should have a small melodic range; (8) melismas should be avoided; (9) a limited variety of relatively short rhythmic values should be employed; (10) musical motifs should rarely be repeated; and (11) the intervallic structure of a unit should reflect the mood and/or character of the person who sings it by means of the conventional distinctions between, and associations of, consonance and dissonance. (Wingfield, 1992: 289)

We can clearly see that this description is congruent with the melodic construction of many passages in *Jenufa.* Figure 2.14, given by Wingfield (1992: 293) shows such a voice treatment.

Fig. 2.14: Wingfield, 1992: 293.

Whether Janáček directly used speech melodies or not in his music, is not as important as trying to understand the influence of such prosodic intonations on his compositional style. Vainiomäki cites Vilem Tausky, a disciple of Janáček, in order to clarify this very important aspect of speech melodies. According to Tausky, Janáček explained to him what speech melodies meant in the following terms:

> I don't need to understand the words, I can tell by the tempo and modulation of speech how a man feels; if he lies, or if it is just a conventional conversation. I have been collecting these speech rhythms for over fifty years,[12] and I have an immense dictionary. These are my windows into the soul of man, and when I need to find a dramatic expression I have recourse to my library. (Vainiomäki, 2012: 212)

The most important words in this text are 'dramatic expression'. This could explain the small amount of direct transcriptions of speech melodies in Janáček's compositions: he was not so much looking for the melodies but instead for the expressions of people. Accordingly, this library of dramatic expressions was not used as a bank of motifs. Instead it could have been more a reservoir from which to retrieve true, direct, real-life utterances. The latter would have been used, not as a transposable object, but in its place as a sort of musical energy that could be implemented into any composition, in order to boost a certain dramatic expression. Briefly, Janáček is considering emotion as the cornerstone of his compositional thought. This chimes with Juslin and Laukka's study (2003), covered in the previous chapter, which demonstrated that emotions leave an important trace in the prosodic parameters of speech. For example, in Figure 9 (Vainiomäki, 2012: 167), discussed above, it is obvious that there is a very strong pitch contrast between the two syllables of *Pane* (Mister in Czech). The situation described is an urgent one, with a woman having to get off the tram very quickly. This surprise is expressed, according to Janáček's transcription, with a quick upwards major third interval and a major ninth fall. All this is consistent with the description of surprise given by Abelin (2000: 4) who states that for this emotion, the fundamental pitch is "strongly varying".

[12] Vainiomäki (2012: 212) thinks that Janáček collected these speech melodies for thirty years not for fifty as his pupil states.

Thus, Janáček is a pioneer regarding the usage of prosody as a resource in musical composition. Likewise, his interest in the melody of speech has inspired other composers after Janáček. The American composer Steve Reich, in his opera *The Cave*, followed this pathway in a similar way.

2.6 Intonational prosody as a compositional resource in *The Cave* by Steve Reich

In 1998, Steve Reich composed *Different Trains*, a piece for string quartet and tape that included some pre-recorded speech. These utterances were reflected in the melodies of the strings. Some five years later, in 1993, the American composer integrated sampled speech fragments into his documentary opera *The Cave*. In comparison with *Different Trains*, *The Cave* makes use of these samples in a stronger way: they constitute the structural blocks for the large-scale musical configuration. Thus, here, prosody is a robust compositional resource that functions at various formal levels.

According to Prieto (2002: 22) *The Cave* is interesting

> for the way in which it modifies the relationship between music and text, not only shifting the balance of power between them, but fundamentally altering the ways in which musical structure and semantic content work together. This last point has important consequences for what might be called the social function of music theatre.

In *The Cave*, Reich accomplished an unusual balance between music and text. In fact, in his *Writings on Music* (2004) he explains the connection of music with language by means of numerous examples taken from music history, including some speech melodies from Janáček (cf. subchapter 2.5). When it comes to considering Africa, he claims:

> In Africa these connections are much more pronounced and built not only on the rhythm of speech but also on its pitch as well. This is the case because in many African countries they speak tonal languages. In a tonal language, the speech melody is not only a kind of

> an emotional aura surrounding what is said but it is also part of the literal meaning of the words. (Reich, 2004: 196)

Obviously, if the text intonation is conceived as part of the text meaning then the music-text connection is stronger, almost inseparable. This acts as a powerful inspiration in *The Cave*. Let us consider one fragment of the second act where a Palestinian man asserts: "This place is holy for me, you can't make war against my feelings. It's impossible to get in my heart."

The excerpt shown in Figure 2.15 is in *Eb* Aeolian, and it aligns perfectly with the minimalistic aesthetic we can find in Reich's earlier works. Each motive is repeated wholly or partially in order to obtain a sense of gradual process, one of Reich's aesthetical principles (Reich, 2004: 34). However, what seems more interesting is that certain words are highlighted by means of harmony. For example, 'holy' is an important concept in the first phrase. Thus, in the syllable 'ho-' we find a major second dissonance that emphasises this word. Likewise, the phrase 'you can't make war against my feelings, it's impossible to get in my heart' is harmonised in parallel fifths. This change of harmonisation style could be a strategy in order to stress the anti-war statement of the Palestinian man. The process is not dissimilar from the one we analysed in Peri's *Euridice*: important words of the text are highlighted by means of dissonance. In this case, the change of harmonisation style also plays an important role. Thus, almost 400 years after our Baroque example, (Peri's *Euridice*, cf. subchapter 2.4), the relationship between melody and harmony is still a powerful tool in order to stress words or syllables in a text. Through his reinterpretation of the concept of speech melodies and his usage of the melody-harmony relationship from the standpoint of semantic stress, here the minimalist music of Reich is discovering a new horizon. Accordingly, in *The Cave* the sense of gradual process is applied not only to the music but also to the text. In this way, musical time also becomes a frame in which to discover a sense of semantic process.

Fig. 2.15: Prieto, 2002: 33.

In fact, Prieto (2002: 41) also points out the remarkable approach to semantics in *The Cave*:

> With *The Cave*, Reich becomes a composer who makes use, not just of the acoustic properties of language, but also its semantic properties: he composes simultaneously

> on both planes. This point is crucial for understanding the primary innovation of *The Cave* with respect to traditional vocal music. Reich composes with words in such a way that he is able to maintain the two-tiered structure of the linguistic sign throughout — the acoustic and the semantic properties of words remain as indissoluble as they are in ordinary speech. Unlike the traditional composer, who begins with words on the one hand and melodies on the other and tries to reconcile them as best he can, Reich's procedure ensures that the bond between the two is unbreakable, like the two sides of a coin. He composes, in a sense, holistically, working on both the bodies and the souls of the words, in an idiom capable of orchestrating thoughts and arguing with tones. He does not compose music to accompany words, he composes **with** words.

As a whole, here, prosody has a chief role in order to assure the semantic coherence of the composition: the concept of tonal language has been applied to English. Hence, in a sense Reich has 'tonalised', so to say, a non-tonal language. As a result, the prosodic nature of the text is tied to music in a totally new and coherent manner.

2.7 *Speakings* by Jonathan Harvey, or how to make an orchestra speak

In 2007-08, Jonathan Harvey wrote the orchestral piece *Speakings*. It was commissioned by the BBC Scottish Symphony Orchestra and by IRCAM/Radio France. The British composer introduces the main ideas of this composition in the programme notes for the première:

> Speech and music are very close and yet also distant. In Speakings I wanted to bring together orchestral music and human speech. It is as if the orchestra is learning to speak, like a baby with its mother, or like first man, or like listening to a highly expressive language we don't understand. The rhythms and emotional tones of speech are formed by semantics, but even more they are formed by feelings. (Harvey, 2008)

What Harvey does with *Speakings* is to "make an orchestra speak" (Nuono *et al.*, 2009). In fact, this idea is not very far from the speech melody we analysed in Janáček's wind sextet. As we have seen, Carrasco (2013: 115) identifies a speech melody in an oboe part. The purpose is thus to make the oboe speak, just as Harvey does with the orchestra. Of course, the realisation of *Speakings* is more complex than the one of the wind sextet, but the intention of making the instrumental forces

sound like speaking voices was something already achieved by Janáček. In Harvey's piece, the procedure to obtain such an effect is complex and involves the use, on the one hand, of computer aided composition, and, on the other hand, of live electronics. Harvey's aim was to make a sort of metaphor of voice and its expressive power. Consequently, the work evolves from the unintelligible baby sounds at the beginning, to a mantra phrase in the final calmed section.

All these utterances, be it baby sounds, or mantras, needed to be orchestrated in a very elaborate manner in order to obtain a realistic and convincing result. This is the reason why computing was a fundamental part of the composition process of this masterpiece. The main program used was *Orchidée*, which was created by IRCAM. The idea behind this program is to make a cartography of sound colour, a map with all the interactions of a given timbres set. Basically, it functions as follows: "Starting from an initial target sound, *Orchidée* searches instrument sound combinations that —when played together— 'sound as similar as possible' to the target" (Charpentier, 2010: 48).

For example, the baby sounds were analysed through *Orchidée* and subsequently converted into an orchestral score "so as to mimic the voice's rhythm and natural inflections" (Schaub, 2013: 2). Similarly, the final mantra of the piece was sung by the composer himself and recorded in order to make a spectrum analysis that could enable a possible ostinato-like orchestral version of that phrase itself (Fig. 2.16).

Fig. 2.16: Mantra used for the automatic generation of *Speakings* ostinato (Carpentier, 2010: 58).

Carpentier explains the process in detail:

> The goal was to imitate the sound of the sung mantra with an ensemble of 13 musicians. The composer wanted the orchestra to sing the mantra 22 times and wished the resulting timbre to evolve along the ostinato in the following manner: the sound was to become louder and louder over time, brighter and brighter, closer and closer to the target vowel. (Carpentier, 2010: 58-59)

To obtain the desired result, *Orchidée* generated different possible solutions of the orchestrated mantra. Harvey used these solutions freely, combining them with other instruments in the orchestra. The result is a very interesting score that enables us to truly listen to an imaginary mantra though there is no actual voice in action. An excerpt from the proposed solution by *Orchidée* is shown in Figure 2.17. As we can see, the same bass ostinato generates different spectra and diverse orchestral colours that tend to the final loud, bright target sonority.

Briefly, Harvey is taking the physical prosodic features so to create a refined metaphor for spoken language as a form of mystical expression. Thus, by means of prosody, we now arrive at dealing with highly sophisticated paralinguistic and non-linguistic matters. The latter transcend the domain of the piece itself so creating an allegory of spiritual scope.

Fig. 2.17: Automatic orchestration of a mantra ostinato for *Speakings* (Carpentier, 2010: 58).

2.8 Georges Aperghis and the use of phonemes as a compositional resource

With Steve Reich, we have seen how language can be converted into music by means of prosody. In Harvey's *Speakings*, a whole orchestra resembles spoken utterances

with the aid of electronics. For Georges Aperghis, given his distinctive aesthetic approach, the use of prosody works in a different direction.

Language plays a central role in Aperghis' attitude towards composition. Likewise, the concept of sound as theatre is also crucial in his music.[13] The writer François Regnaud, one of Aperghis' closest collaborators, explains some of the central ideas of the Greek composer in the musical show *Machinations*:

> Between speech and song: what is there in common between the pronunciation (formerly called the prolation) of pure and discreet phonemes, which imperatively contributes to the spoken language, and the least sung sound, which supposes the continuous prolongation of a sound, and apparently prefers the vowel to the consonant? And yet, the song supposes the problem solved, to the point that we have gone so far as to suppose that "to say and to sing" was formerly the same thing (proposition of Strabon quoted by Jean-Jacques Rousseau). Aperghis descends into this gaping Grand Canyon between the voice that speaks and the one that sings and revisits the tribes that inhabit it. (Regnaud, 2008)[14]

For Aperghis, language is the fundamental idea in his compositional approach. This metaphorical point of intersection between words and singing is an essential idea in his music. The physical aspect of words, namely phonemes, plays a vital role in many of his compositions, regardless of whether they are written for voice or for instrumental forces. Firstly, I will look at some vocal examples before moving on to instrumental instances.

In the following figure we can see the nine-note pre-compositional series of *Récitation VII*. The series is the basis for the whole composition. Unlike a dodecaphonic series here each note is associated with a particular combination of phonemes. These phonemes are a complete invention of Aperghis, an imaginary new

[13] In fact, language and sound theatre are the two main axes that explain much of Aperghis' compositional thought. It is important to point out that, although I am going to focus on language and particularly in prosody, these two aforementioned axes are indissoluble in Aperghis' music; they both contribute with the same strength to the final compositional output, notably in relation to music theatre, a domain in which he is one of the leading figures of the last decades.

[14] Translation from French is mine.

language and a sort of *lingua ignota* that he uses as a catalyst of musical expression. Certainly, as Durney states (1995: 58) “in Aperghis any phoneme, syllable or word is above all a sound, and all affect is only the corollary of a musical choice that the theatrical or even corporal posture of the performer corroborates”[15]. The very usage of prosody as a compositional resource, more precisely of phonemes, takes music into the domain of music theatre here. It also acts as the musical building block of the texture.

Fig. 2.17: Durney, 1995: 54.

This central position of the phoneme as a sound object is treated in a systematic way. Aperghis even works on the ornamentation of phonemes; he states: “it's like ivy that sometimes manages to hide the tree. I try to make the ornaments proliferate" (Cited by Regnaud, 2008: 4). For example, in his music theatre piece *Machinations*, we find independent consonants that decorate a principal vowel (Regnaud, 2008: 4):

afk ams lar axd val zat atr pav sab arz

In this list of three-phoneme syllables the vowel ‘a’ is the main sonority. In this way, when combined with different consonants, the vowel ‘a’ acquires different colours. This demonstrates that, in Aperghis, language is a musical material rather than a traditional semantic content. Hence, each phoneme, the sound of language —devoid of its semantics— is conceived as music in itself. In pieces such as *Machinations* or

[15] Translation from French is mine.

Conversations these phoneme combinations form an imaginary language. Its aim is to create a new significance that comes from the expressive power of the phoneme sound. In Aperghis' words, in *Machinations* for four singers "there is nothing played, it is the phoneme that plays"[16] (Aperghis, 2008: 6).

This phoneme, or its sonic structure, is also the basis for some instrumental pieces. In an interview given in 2015, Aperghis spoke about the importance of language as a generator of music: "I am very much interested in understanding music as a language and I use language as a way of searching for my own musical language. I have a piece entitled *Parlando* where in a sense, these ideas are put forward"[17] (Cited in Salas, 2015). Indeed *Parlando* (2007) showcases this speech-like style applied to the double bass:

Fig. 2.18: Georges Aperghis, *Parlando* (2007), for double bass solo. Opening measures.

Figure 2.18 shows a recitation-like texture around *F2*. The irregularity of the phrases suggests that Aperghis is thinking about phonemes rather than notes. In fact, this musical passage is not conceptually very far from the phoneme ornaments we have just dealt with. Furthermore, the idea of making instruments speak, which we have seen in Janáček and Harvey, is once again present here. In this case, the speech-like instrumental music comes from the fact that the different notes around *F2* are treated as if they were phonemes. Music is thus conceived as a language within

[16] Translation from French is mine.
[17] Translation from Spanish is mine.

which the composer can operate transformations, just as if it were speech. Accordingly, prosody acts as a complete renovator of the basic concepts in music; a renovation that has evidently has both aural, and aesthetic consequences in this piece.

2.9 Discussion

Any discussion to be undertaken on historical examples of prosody as a compositional resource, should take into account the reduced number of instances we have studied in this chapter. But even with this constraint, it is clear that the chosen examples raise important ideas regarding the use of prosodic elements as a component of musical technique, and across very different historical periods.

Firstly, it is clear that there are considerable commonalities in composers' use of prosody across different periods. For instance, when a composer wants to underline a certain semantic concept, the normal procedure is to associate a special musical event to it so that it stands out from the rest of the score. In our Gregorian chant example, we have seen that the word *requiem* is highlighted, thanks to an extremely long melisma. Likewise, in Peri's *Euridice*, a whole syntagma that shows Euridice's pain is emphasised through the diminished octave relationship between the melody and the bass. The same applies to Reich's *The Cave*. The American composer tends to associate stronger dissonances to important semantic ideas. In such a manner, lexical meaning has an impact on how vocal music is configured. Very interestingly, the gateway that makes this influence clear is prosody, or to be more precise, the prosodic traits that are transferred to music by the composer.

Other prosodic parameters such as syllabic metre can also be integrated into music. For example, the determination of long and short syllables is the fundament of musical rhythm in the *Seikilos Epitaph*. Likewise, in Gregorian chant, syllables also determine the length of neumes and melismata. In fact, the phonetic aspect of syllables is also the basis of Aperghis' approach to composition. Aperghis decomposes words and syllables in order to convert language exclusively into sonic

material, thus dismissing semantics from his initial musical considerations. This decomposition searches for an innovative expression which, in fact, results again in a new musical language coming from raw speech material: primarily syllables. There is therefore, as White states (2017: 221), a new potentiality coming from the destruction in art. In the case of Aperghis, this potentiality arises directly from the removal of the semantic content in order to emphasise the sonic structure of the syllable. One might argue that Aperghis' treatment of the syllable is conceptually very far from Gregorian chant, and to a certain extent, this is true. However, it could be argued that there is also a removal of the semantic content in the long melismata where the sense of the word is lost, due to long vocalic singing. Let us consider the long melismata of many *Alleluias*. Here, the word meaning is destroyed because each syllable lasts for one minute, or even longer. As the Dutch humanist Desiderius Erasmus (1469-1536) states: accentuation of texts and the long melismata "are the two features which undermined intelligibility of the words of the chant" (cited by Chan and Kassler, 2006: 210). Thus, the decomposition of semantic content in sung music was already underway a long while ago.

Another important feature that is found across different historic periods is the conversion of a prosodic intonation into a musical melody. Some of the analysed examples clearly demonstrate an interest in decoding speech intonation in order to somehow code it back again into music. In Gregorian chant, we have appreciated that some intonation curves can be translated into musical recitation. The interesting point here lies in the fact that the central branch of Western plainchant was established throughout Europe with the aim of substituting or unifying the local chants (Levy, 2001). "As part of the movement towards political and liturgical unification begun in regions ruled by the Carolingians in the mid-8th century, all the local musical rites except the Ambrosian were progressively suppressed in favour of the Gregorian" (Levy, 2001). It must be taken into account that this movement had to deal with the fact that —although Latin was a *lingua franca*— different languages were already in use across all of these territories. So how could this new chant be

imposed in such diverse regions? My hypothesis is that the use of universal prosodic intonation patterns in the recitation formulas is not fortuitous. As we have already seen, the two main melodic contours used to sing the Psalms, resemble the question and the affirmative prosodic curves. Research shows that cross-linguistic prosodic similarities might be grounded in a "common archetypal, biologically related contour" (Vaissière, 1995: 123). If so, the liturgical recitative, with a perfect question-answer universal contour, would have been a perfect compositional strategy to enhance both political and religious unity in the Middle Ages.

Similarly, Harvey's *Speakings* displays an impressive use of the prosodic contours of baby cries. The composer's aim was to create a metaphor of the "evolution of speech consciousness", starting with baby cries and ending with a "mantric serenity" (Nouno et al., 2009: 1). The resultant orchestrated baby sounds, created with the aid of informatics, show an extensive deployment of microtones in order to precisely reflect the fundamental frequency of each sample. But the noteworthy aspect of *Speakings* is that the orchestral transcription not only takes into account the pitch of such baby sounds, but also considers their timbre in order to convey a more realistic replication of the original sample. Thus, the notion of sound colour —a very spectral concept— appears, for the first time in our historical tour, as a primary feature in these melodies that are borrowed from prosodic contours.

The aforementioned inclusion of baby cries in a musical composition demonstrates an interest in what could be defined as 'pre-semantic' prosody. This interest might be due to the expressive power of prosody as an isolated object, that is to say, as a conveyor of the emotional aspects of communication. Excluding music with lyrics, composition is a non-semantic art that can awaken our emotions by means of the replication of the emotional correlative prosodic parameters. These parallelisms thus are a very attractive source of inspiration for composers. This might then be the reason for all of the correlations between prosody and composition that we have been analysing in this chapter. To conclude, as we have explored earlier in our

historical overview, the search for emotion through the usage of prosodic traits in music has been commonplace for many composers throughout music history. I will now turn to the use of prosody in my own work.

3 PROSODY AS A RESOURCE IN MY OWN COMPOSITIONS

In the previous chapter I have shown, through a few significant historical examples, how musical composition can be inspired by prosody. Although there are clear indications of this influence, it is very difficult to know exactly what is going through a composer's mind while creating a piece. In this chapter, I will try to describe, in the best possible way, the creative processes that I have used in several of my compositions, taking aspects of prosody as a starting point. I will therefore try to deal with aspects that, inevitably, have not been considered in the previous chapters, and that as a composer, I am in a position to convey to the reader.

When I was deciding the order in which I would discuss the pieces in this chapter, I first thought about a chronological presentation. However, this arrangement did not reflect the logical order of the prosodic parameters that inspired each composition. This is the reason why I decided to present the pieces in the following order:

1) *I Have a Dream* (2017)
2) *Vowels* (2016)
3) *Sibilus* and *Signals* (2012)
4) *Romancero gitano* (2019)

This enables me to deal with a linear approach in the first composition before moving to a harmonic approach in the second piece. After that, in the two orchestral pieces, *Sibilus* and *Signals*, I will consider a remarkable way of transferring prosodic features into music: by means of the melodies of whistled languages. Finally, in *Romancero gitano* I will discuss a holistic methodology for composing with prosodic resources, not only integrating linear and harmonic approaches, but also dealing with semantic and dramatic aspects.

3.1 Speech intonation as a compositional resource: *I Have a Dream*, for oboe solo

As we have seen in the previous chapter, the speech intonation of a given text can have a direct influence on the matching vocal melody of a composition. Gregorian chant recitation is a good example of this (cf. Chapter 2.3). Equally, the Baroque opera recitativo uses a reduced melodic range in order to imitate voice inflection. For Jean-Philippe Rameau the recitative should aim to imitate speech and make all syllables understandable by means of an adequate choice of duration:

> More care is required in recitative than in airs; for here it is a matter of narrating or reciting stories or other such things. The melody must then imitate the words so that the words seem to be spoken instead of sung. […] We must arrive to express the long syllables of the discourse by notes of a suitable value and those which are short by notes of a lesser value, so that we can hear all the syllables as easily as if the text were pronounced by an orator. (Rameau, 1722: 178)

Just to cite a few examples, composers such as Telemann, Carl Philipp Emanuel Bach or Beethoven experimented with recitatives that were instrumental. Telemann's oboe concertos and oboe d'amore concertos make considerable use of recitative in slow movements (Zohn, 2012: 131). C. P. E. Bach used the recitative as an expressive resource in his harpsichord music. For instance, the opening of the Andante of the first of his *Prussian Sonatas* deploys remarkable recitativo-like melodies. Figure 3.1 shows an arioso melody on measures 1-3 followed by a narrow-range recitativo-like melody on measures 4-8. The indication "Recit." confirms the composer's conscious intention of transferring this vocal style to the harpsichord. The alternation between instrumental arioso and recitativo continues during the whole short movement.

Fig. 3.1: Carl Philipp Emanuel Bach, First Prussian Sonata, Andante, mm. 1-8. Rudolf Steglich (ed.), Hannover: Adolph Nagel's Verlag, 1927, p. 3.

Figure 3.2 shows an excerpt of Beethoven's *31st Sonata op. 110*. He indicates "Recitativo" in the score so as to convey the expressive vocal character of the opening of the second movement. With the recitative Beethoven opens the "emotion-laden extra-musical associations of expressive vocalization" for the listener (Ockelford, 2005: 95). Notably, the second staff of Figure 3.2 is an instance of the *Bebung* technique. In this case various *A5* notes are tied and, at the same time, a change of fingering takes place (from finger 4 to 3). Though there are different performance theories (Badura-Skoda, 1988; Del Mar, 2004), what seems clear here is that with the *Bebung* technique pianists can "give their playing access to an effect similar to that sought by singers" (Schenker, 2015: 91). As a result, the *Bebung*, together with the use of the pedals, gives a vocal character to this excerpt.

Fig. 3.2: Beethoven, *31st Sonata op. 110*, second movement, mm. 4-5. Frederic Lamond (ed.) Berlin: Ullstein, n.d. (ca.1918). Reissue - Leipzig: Breitkopf & Härtel, 1923. Plate 28727, p. 586.

In instrumental music the transfer from speech to the instrument implies a loss of the semantic content of the text, which is not being conveyed. Two specific prosodic features, to wit, fundamental frequency and duration, can be distilled from the linguistic context in order to form the basis of a musical composition. However, although semantics are not implicitly addressed by the resultant compositional process, what is interesting here is to see if the emotional content of the text is still suggested by the isolated prosodic melody or not.

In *I Have a Dream* for solo oboe (2017) I am interested in exploring the potential emotional connotations of fundamental frequency variations and durations, both of which are projected in my piece onto an instrumental line. The basis of this piece is of course Martin Luther King's well-known speech, which was made in the context of the 'March on Washington for Jobs and Freedom' on 28 August 1963 (King Jr., 2003). I chose this speech because of its highly expressive prosodic features. It was a very moving moment in the history of the United States. Consequently, the orator did his best in order to convey extremely important information through the full extent of his prosodic resources, also drawing on models stemmed from "the African American folk preaching tradition" (Lassiter, 2010: 13). The recording of the speech reflects great pitch frequency variations, distinctive duration and intonation patterns, as well as an expressive employment of silence. The intention of this musical piece is to 'track' these prosodic resources with the hope of creating an isomorphic projection of them onto the plane of music. My piece tries to convey this emotion through the melody of the oboe, which is partly obtained —by means of computer-based procedures— from the recording of King's speech. The first step was to achieve a melody of the speech. This was done through spectrum analysis using *Audiosculpt*, a program developed by IRCAM. The result of applying a fundamental frequency analysis to a fragment of the speech was the following:

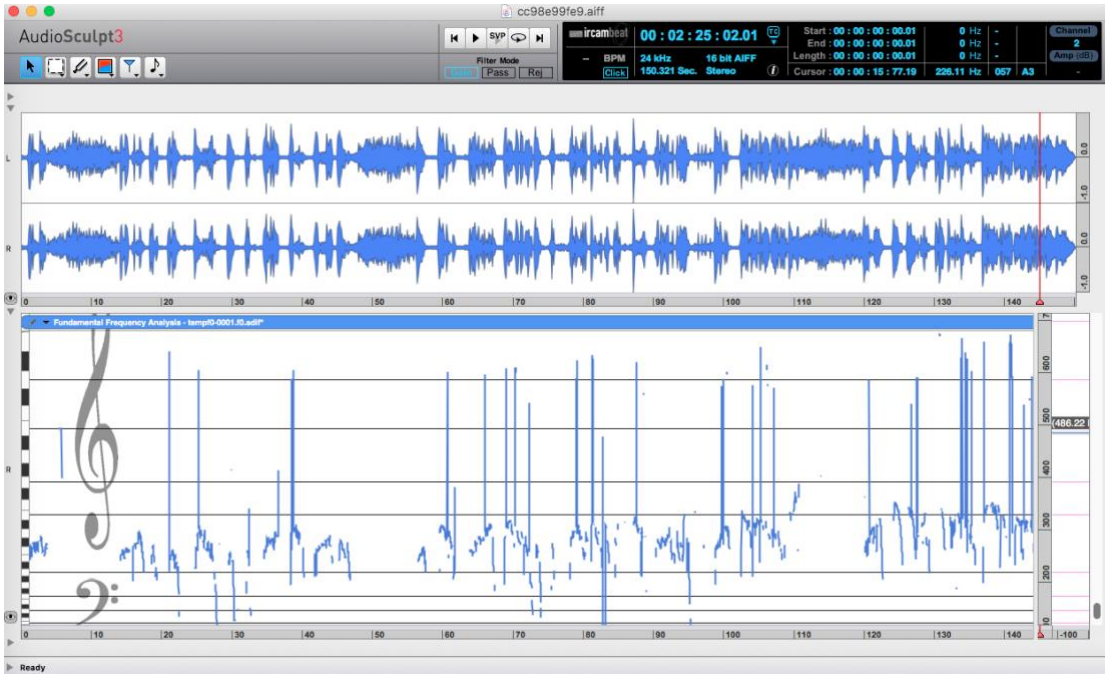


Fig. 3.3: Fundamental frequency analysis of a fragment of Martin Luther King's speech.

Martin Luther King's speech uses too many pitches that are below *Bb3*, out of the oboe's range. Consequently, the first decision was to transpose the resultant pitches one octave higher. When transferring a prosodic intonation to music the friction between two different domains requires many adaptions; this simple octave transposition is one such example. In fact, inspiration can come from these transfer interferences, from this displacement of realms by which new ideas come to light. Displacement can be in itself an identity of contemporary art as explained by Potts (2012, par. 40):

> It may entail the deliberate dislocation of images or sound from one geographical context to another. All these engagements with the theme of displacement occur within the increasingly globalised dimension of contemporary art, which may itself be situated in the intensified movement of information, goods or people, commonly known as globalisation.

Yet, in my piece this displacement idea is presented in a more metaphorical manner. Instead of geographical dislocation, *I Have a Dream* has more to do with overstepping the limits of different knowledge domains: speech is in this way transformed into music.

The method for transcribing the fundamental frequency into music is complex but, in itself, is a source of inspiration that can help to build unconventional melodies. As previously stated (cf. Chapter 1.1), the fundamental pitch of speech shows fluctuating behaviour; so the approach was, firstly, to find stable pitches in each syllable. Secondly, the pitch route between one syllable and the next had to be clearly established. Whenever this route had a pitch fluctuation it had to be transcribed as glissando, but sometimes such pitch oscillations were unclear or very weak (or impossible to be played on an oboe). In such cases different approaches were taken. Figure 3.4 shows the fundamental frequencies of the utterance 'I say to you today my friends'.

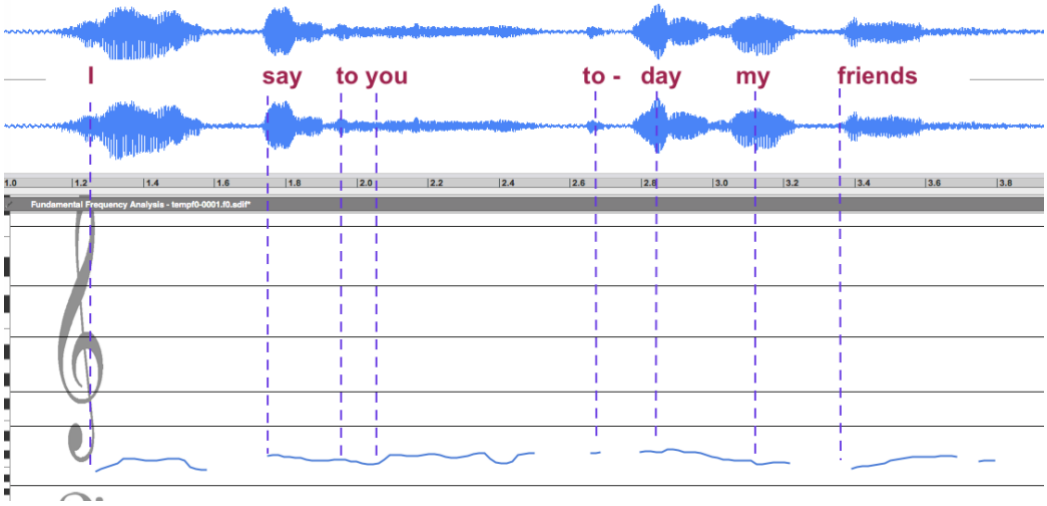


Fig. 3.4: Fundamental frequencies of the utterance 'I say to you today my friends'.

The first word 'I' has an upward-downward movement around the central pitch *C#*. This is transferred to the score as a glissando surrounding *C#*, as Figure 3.4 suggests. The words, 'say to you today my', oscillate around the fundamental frequency *C#*. In transcribing such words, I have taken into account the quartertone possibilities of the oboe. For instance, *D* quartertone-higher and *D* quartertone-lower fingerings have only one different key, to wit *C#*. As a result, the oboe melody fluctuates around *C#* just as in seconds 1.75 to 3.20 of the speech. This gives the instrumental melody the air of speech intonation. High vowels as /i/ in 'I' [/ai/] or /uː/ in 'you' [/juː/] are given a trill timbre. The aim of such resource is to mimic the complex spectral

characteristics of these vowels on the oboe. Furthermore, the spectrogram of the final word 'friends' (Fig. 3.5) shows a more unstable formant structure, with several partials strongly moving upwards. This gave me the idea of altering the original transcription. In this case the compositional decision was to assign a multiphonic to that word. The original fundamental *B* is substituted by a complex sound in the oboe. The most prevalent tone of this multiphonic is *B*.

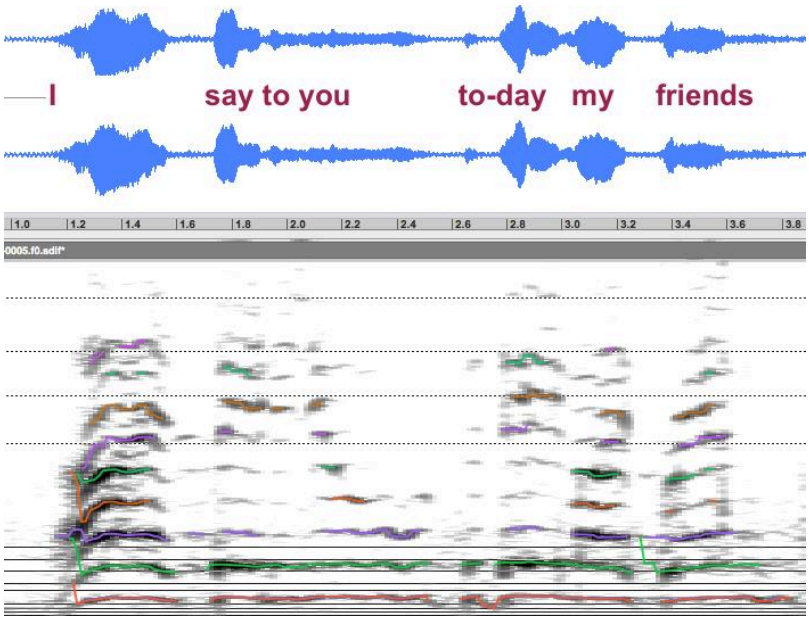


Fig. 3.5: Spectrogram of the utterance 'I say to you today my friends'.

Another important musical parameter is duration. It was obtained by directly translating syllable duration into note duration. The main problem here is that a strict accurate transcription would render the music difficult to measure. These are the syllable durations of the first phrase:

I 1.15—1.73 = 0.58 seconds

say 1.73—1.95 = 0.22 seconds

to 1.95—2.06 = 0.11 seconds

you 2.06—2.63 = 0.57 seconds

to- 2.63—2.77 = 0.14 seconds

day 2.77—3.05 = 0.28 seconds

my 3.05—3.26 = 0.21 seconds

friends 3.26—3.85 = 0.49 seconds

Taking crotchet equals 60 and approximating the duration to the nearest quintuplet quaver the resultant rhythm is:

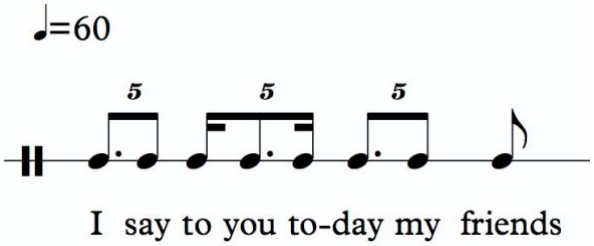


Fig. 3.6: Utterance 'I say to you my friends. Direct transcription.

The latter is musically the same as the following,

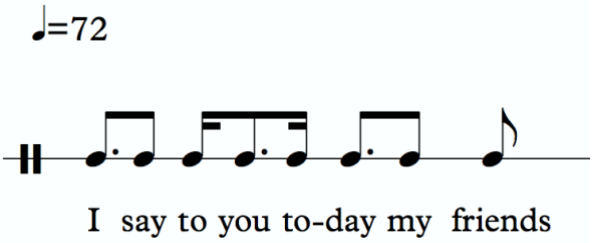


Fig. 3.7: Utterance 'I say to you my friends. Conversion to crotchet equals 72.

which is easier to measure like this:

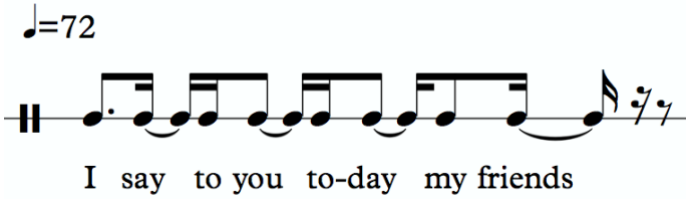


Fig. 3.8: Utterance 'I say to you my friends. Conversion to crotchet equals 72 with adaptations.

However, this rhythm risks not conveying the accents of the text that fall here on the upbeat. Martin Luther King articulated this phrase by accentuating the words 'I', 'say' and 'today' (in this last word with an accent in the syllable '-day'). Figure 3.5 shows that these syllables have stronger dynamic energy, which is an indicator of accentuation (Nooteboom, 1997: 33).

So the original rhythm was transformed into this rhythm below, in which accents fall on the beat:

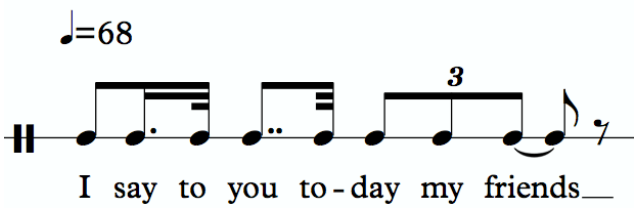


Fig. 3.9: Utterance 'I say to you my friends. Accents adaptation.

The metronome mark was lowered to crotchet equals 68 so that semiquavers were closer to the original rhythm. At this stage I had quite a clear idea as to what to do with duration, pitch and timbre. I therefore started drafting the final oboe version of this phrase and firstly omitted the speech on the score. However, I later realised that leaving the speech on the score would have a double effect. On the one hand, the oboist could internally read these words and try to imitate the rhythm of the original speech in the performance, taking a personal prosodic approach. This strategy would render the original prosodic melody more transparent for the oboist and, hopefully, somehow for the listener too. Besides, the fact that the semantic context of the speech was provided on the score could give the oboist important performance clues and could also help to bring forward the emotional aspect of the original speech. Obviously, I maintained the speech text consistently throughout the piece.

Here is the resultant musical fragment inspired by the first phrase of Martin Luther King's speech (Fig. 3.10):

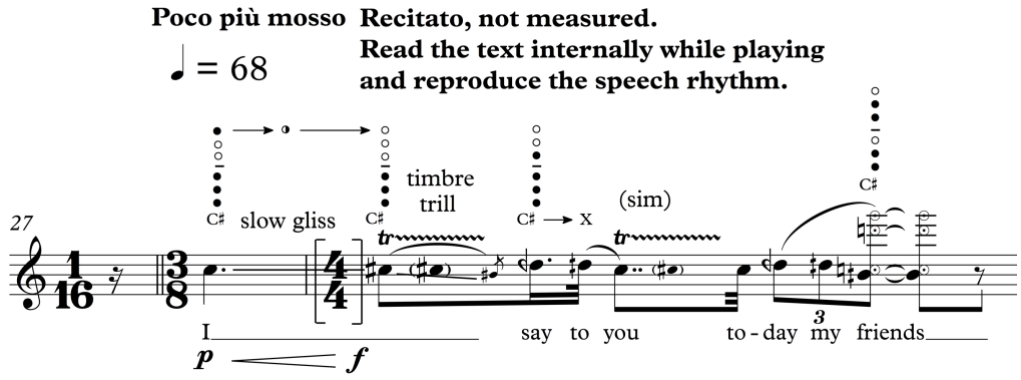


Fig. 3.10: Musical fragment inspired by the first phrase of Martin Luther King' speech.

As seen in Figure 3.10, the first note *C* corresponds to the word 'I', which was extended before the 4/4 measure with a 3/8 measure. This was done in order to take advantage of the excellent ability of the oboe to perform a smooth glissando between *C* and *C#*, which is the main feature of Martin Luther King's prosodic intonation at this point. The whole phrase, although being an unconventional recitative with unusual fingerings, can be played with only four different fingerings, all of which are very close together. In such a manner, a prosodic element, a speech, has been transferred to a musical composition. This compositional resource represents a conceptual journey from the world of speaking to that of music. Such travel involves taking a given utterance and making a creative transformation of it into music. In such a transformation, some original features are lost whereas others are emphasised. The question is whether this music could have been created without this inspiration or not. In my opinion this is clearly a new way of creating music that could not have come into existence if the given prosodic model was not taken as the source of inspiration. The outcome is a strong change in the paradigm of the compositional process.

But of course, a seven-minute recitative piece for an oboe solo would have been extremely tedious. In normal speech we pay attention to semantic content and thus we hardly notice its monotonous recitative-like contour. However, in instrumental music, the lack of semantic content would emphasise the monotonous quality of a seven-minute speech-like melody. The solution I found was to alternate melodic sections with recitative passages. I created a sort of rondo form where the initial section, the refrain, had a more melodical expression, covering a wider tessitura. These refrains took elements of the speech-like section in an arioso style, whereas the recitative sections were based on the speech, which logically covers a tighter range. The resulting formal structure of the piece is shown in Figure 3.11:

mm. 1-26	**Refrain 1** – low recitative on *B* & *Bb* that gradually moves to an arioso style. Presentation of the accelerando motive.
mm. 27-39	**Speech**: 'I say to you… created equal'
mm. 40-53	**Refrain 2** – elaboration of the ascending-descending motive.
mm. 54-64	**Speech**: 'I have a dream… of freedom and justice, I have a dream'
mm. 65-74	**Refrain 3** – Short refrain
mm. 75-86	**Speech**: 'I have a dream… as sisters and brothers, I have a dream today'. By means of octave displacement, the recitative gradually acquires a melodic appearance.
mm. 87-110	**Refrain 4** – Coda. Closing section that presents most of the materials of Refrains 1 to 3.

Fig. 3.11: *I Have a Dream*, formal design.

The way the recitative motive is transformed should also be highlighted. While the first speech section (mm. 27-39) is a clear recitative, the melody of the second speech section (mm. 54-64) presents some leaps. Finally, in the third speech section (mm. 75-68) the melody is profusely suffused with leaps. The latter are obtained by means of octave displacements that break the recitative. Figures 3.12 to 3.14 show such transformations.

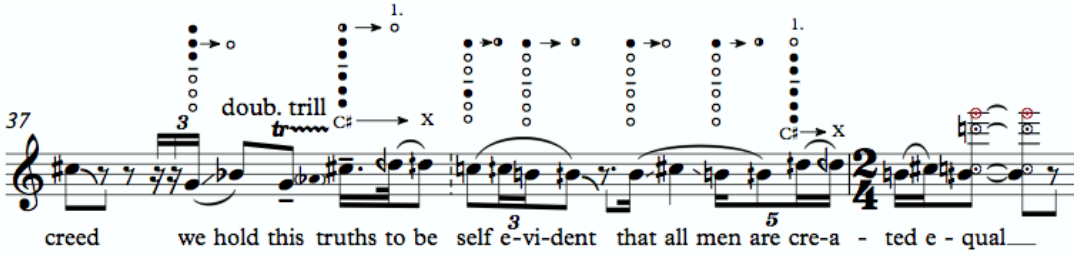


Figure 3.12: Fragment of the first speech section. Recitativo-like melody.

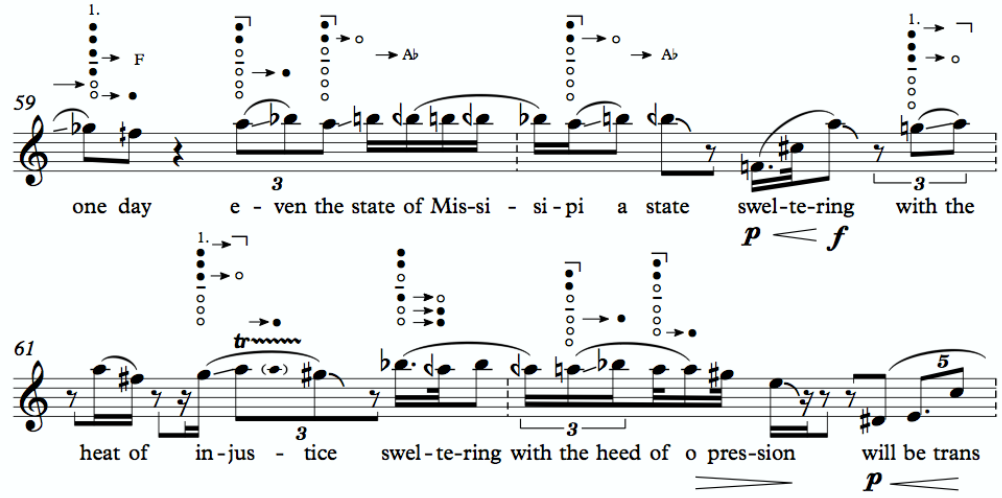


Figure 3.13: Fragment of the second speech section. Recitativo-like melody with occasional leaps.

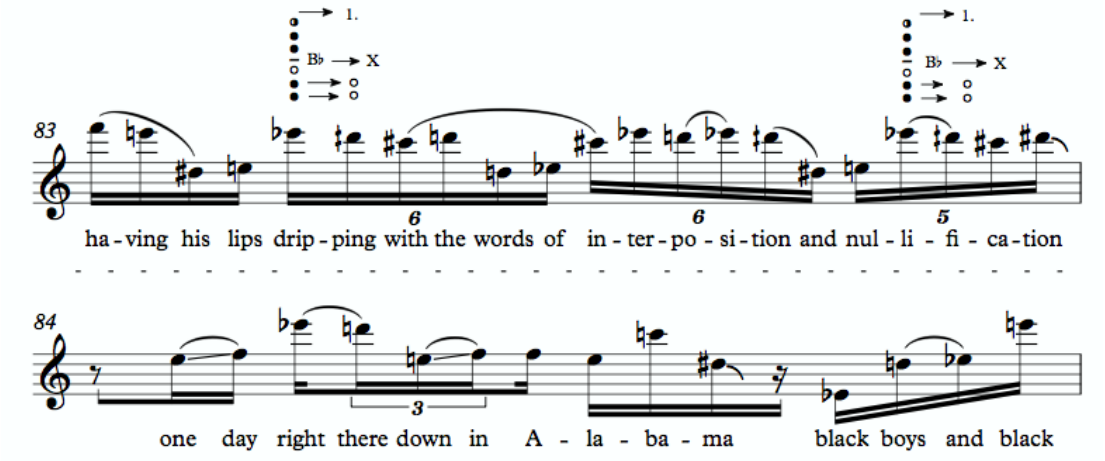


Figure 3.14: Fragment of the third speech section. The melody is profusely suffused with leaps.

The piece evolves from an obvious statement of the original prosodic melody to a more sophisticated version. The elaborated version of the speech conveys an activated emotional state by means of the octave displacement whilst maintaining the vocal character. This resource has already been anticipated in the first chapter of this dissertation (cf. pp. 14-16). As suggested by Juslin and Laukka (2003: 792-3) greater fundamental pitch variation is an indicator of higher emotional arousal, mainly anger and happiness. This entails a journey from the mere transcription of the speech to a transcription of emotions. This understanding of the behaviour of emotion arousal parameters is a determinant of completing such transfer to the oboe melody.

With *I Have a Dream* I research into the direct use of a speech as a resource in musical composition. Whereas the traditional recitativo produces melodies within the tempered scale, the transcription of this speech results in a comprehensive employment of quartertone movements in the melody. This, whilst being motivating for a composer, is at the same time a constraint, since not all quartertones can be easily fingered on the oboe. Yet, limitations are connatural to the compositional act. A new way of melodic construction is put forward as a result of the transfer from one operational instrument, the voice, to another, the oboe. In that sense, as previously mentioned, displacements are by themselves a source of inspiration. The surprise of finding a relocated object can be in itself a significant artistic value.

In this respect the traits of spoken voice in the oboe melody also contain, somehow, a dramatic effect. Similarly, in a theatrical performance, an unforeseen chain of events can be triggered when an actor loses his place or when an action takes place at the wrong point. This is at the very origin of theatricality which we thus transfer to the world of music through prosody, a connecting device of apparently remote artistic media. The word and the notes, the voice and the oboe, the prosody and the melody, all serve as a framework in which artistic expression can be developed. Therefore, *I Have a Dream* falls into the category of artistic interlanguage; it is a composition constructed using both the dialogue and the interchange between domains.

However, does this quasi-theatrical performance of the oboe reflect the semantic qualities of the original text? Needless to say, no text can convey its semantic content through another code other than the linguistic one. Yet, and this is the crucial question, of all the information conveyed in a communicative act, is it semantic content the most important? If, as Littlejohn & Foss (2009: 332) state, "human nonverbal emotional displays are universal", then *I Have a Dream* is pointing at a domain where verbal and nonverbal communication meet: the domain of emotions. This being so, this piece does reveal some of the qualities of the original text, despite being set within another communication code, namely, music.

3.2 Fundamental pitch and formants of vowels as a resource in composition: *Vowels*, for string quartet

Whereas the compositional process I employed to create *I Have a Dream* arguably excludes harmonic considerations –apart from some isolated multiphonics– in this section I will deal with *Vowels*, a string quartet that takes the formants of the five cardinal vowels as the basis of harmonic and melodic construction. Spectralism also looks into the harmonic qualities of sound as an inspiration. The usage of a sonic model as a way of obtaining a re-synthesised and artistic version of it has already been researched. For instance, Gérard Grisey in his paradigmatic *Partiels* (1975) used the sonogram analysis of a trombone low *E2* as the generator of harmonic material.

Tristan Murail's *Désintégrations* (1982) used piano, flute, clarinet, trombone, bell and tam-tam spectra as generating sources for timbre and harmony. Likewise, as seen in Chapter 2.7, Jonathan Harvey took language analysis as the basis of his orchestral composition *Speakings* (2008). In my string quartet *Vowels*, the formants of the five cardinal vowels /aː/, /eː/, /iː/, /oː/, /uː/ provided the harmonic and melodic material of the piece.

From the point of view of language perception, we are able to distinguish the different vowels by means of their formants. These are, "of a complex sound, a range of frequencies in which there is an absolute or relative maximum in the sound spectrum" (Acoustical Society of America, 1994: 37). Thus, for example, an /iː/ would sound very different to an /aː/ mainly due to their individual formants. Their respective sonograms are shown in Figures 3.15 and 3.16.

Fig. 3.15: Formants of vowel /iː/. Mannell (online).

Figure 3.15 shows the formants of the vowel /iː/. There are three spectra (F2, F3 and F4) forming a very narrow band on top of the fundamental frequency. However, in vowel /aː/ (Fig. 3.16), the formants have a very different configuration: whereas the F1 and F2 are very close together, upper formants, F3 and F4, are quite far apart. As

is the case for all low vowels, F1 and F2 have a strong dynamic energy whereas upper formants are weaker.

Fig. 3.16: Formants of vowel /aː/. Mannell (online).

These features we have just focused on are a determinant factor in distinguishing vowels and, in fact, are in a sense 'harmonies' or compound sounds that have distinctive spectral analysis. Consequently, we can use these spectral formations in order to obtain the harmonic material of a composition. As abovementioned, in *Vowels* the harmonic material is derived from the acoustic characteristics of the five cardinal vowels in European languages. Fortunately for my purposes, Hillenbrand *et al.* (1995) completed a very comprehensive study on this issue that I have used as the basis of the chord construction in my string quartet.

Figure 3.17 shows the fundamental and partial frequencies of American English vowels taken from a considerably large group of people, including women, men and children. My first decision was to select only certain vowels in order to limit the possible chords of the piece. I decided to select the cardinal vowels /iː/, /eː/, /aː/, /uː/ and /oː/. Secondly, I had to reduce the formants to a maximum of four due, understandably, to the number of instruments I had in the string quartet. Lastly, I

had to focus only on a part of the considered sample. Accordingly, I decided to select only the vowel frequencies produced by men.

TABLE V. Average durations, fundamental frequencies, and formant frequencies of vowels produced by 45 men, 48 women, and 46 children. Averages are based on a subset of the tokens that were well identified by listeners (see text for details). The duration measurements are in ms; all others are in Hz.

		/i/	/ɪ/	/ɛ/	/æ/	/ɑ/	/ɔ/	/o/	/ʊ/	/u/	/ʌ/	/ɚ/
Dur	M	243	192	267	189	278	267	283	265	192	237	188	263
	W	306	237	320	254	332	323	353	326	249	303	226	321
	C	297	248	314	235	322	311	319	310	247	278	234	307
*F*0	M	138	135	129	127	123	123	121	129	133	143	133	130
	W	227	224	219	214	215	215	210	217	230	235	218	217
	C	246	241	237	230	228	229	225	236	243	249	236	237
*F*1	M	342	427	476	580	588	768	652	497	469	378	623	474
	W	437	483	536	731	669	936	781	555	519	459	753	523
	C	452	511	564	749	717	1002	803	597	568	494	749	586
*F*2	M	2322	2034	2089	1799	1952	1333	997	910	1122	997	1200	1379
	W	2761	2365	2530	2058	2349	1551	1136	1035	1225	1105	1426	1588
	C	3081	2552	2656	2267	2501	1688	1210	1137	1490	1345	1546	1719
*F*3	M	3000	2684	2691	2605	2601	2522	2538	2459	2434	2343	2550	1710
	W	3372	3053	3047	2979	2972	2815	2824	2828	2827	2735	2933	1929
	C	3702	3403	3323	3310	3289	2950	2982	2987	3072	2988	3145	2143
*F*4	M	3657	3618	3649	3677	3624	3687	3486	3384	3400	3357	3557	3334
	W	4352	4334	4319	4294	4290	4299	3923	3927	4052	4115	4092	3914
	C	4572	4575	4422	4671	4409	4307	3919	4167	4328	4276	4320	3788

Fig. 3.17: Table V of Hillenbrand *et al.* (1995: 3103)

The result of this procedure was a group of five chords taken from the transcription of the different frequencies of Hillenbrand's *et al.* Table V (1995: 3103). For the sake of attaining a clearer and more feasible score, adjustments to each resultant frequency were made so that all notes fell into the tempered scale. This would ensure the playability of sections in quick tempi. The figure on the next page shows, on the one hand, the five basic chords, and on the other, their variations. Chord variations were obtained through octave displacements. Though in most cases this operation distorts the original chord, the pitch-class content remains the same. The method by which these new chords were obtained was completely empirical. After developing an exhaustive list of variations from each vowel spectrum, only the

chords that were relatively different from each other were chosen. In a way, here, as Rameau claims in his *Treatise on Harmony*, "chord-inversion and root-progression thinking is the organizing force" (Lester, 1992: 175) for the harmonic spectra of the five vowels. Thus, the fundamental frequency acts here as a root and the different chord variants are inversions of the main chord. The five chords could be expressed, in terms of pitch-class set theory (Forte, 1973: 3), as the following prime forms:

/iː/ = [1, 2, 5, 6, t]
/eː/ = [0, 4, t]
/aː/ = [3, 4, 7, 8, e]
/uː/ = [2, 6, 8, e]
/oː/ = [0, 3, 8, t, e]

Figure 3.18 shows that chords are organised so as to create a melodic line with their fundamental frequencies, namely *Db*, *C*, *B*, *D* and *C*. This enabled me to use formants analysis to create not just harmonic material but also melodic texture as I will later explain. Additionally, I had to find a procedure that could give some coherence to this set of unrelated chords. The solution came when I decided to use them as a chain of possibilities that could always be listened to within a certain order. This was a way of creating a kind of harmonic syntax, which was mostly based on the possible combinations of a given algorithm. The algorithm had restrictions on how the chords should be ordered. Everything was settled so that each individual vowel could only be preceded and/or followed by another two specific vowels in a circular arrangement. Each vowel chord could move either clockwise or anticlockwise towards the next harmonic variant. In doing so, this system provided a simple but effective way of harmonic organization.

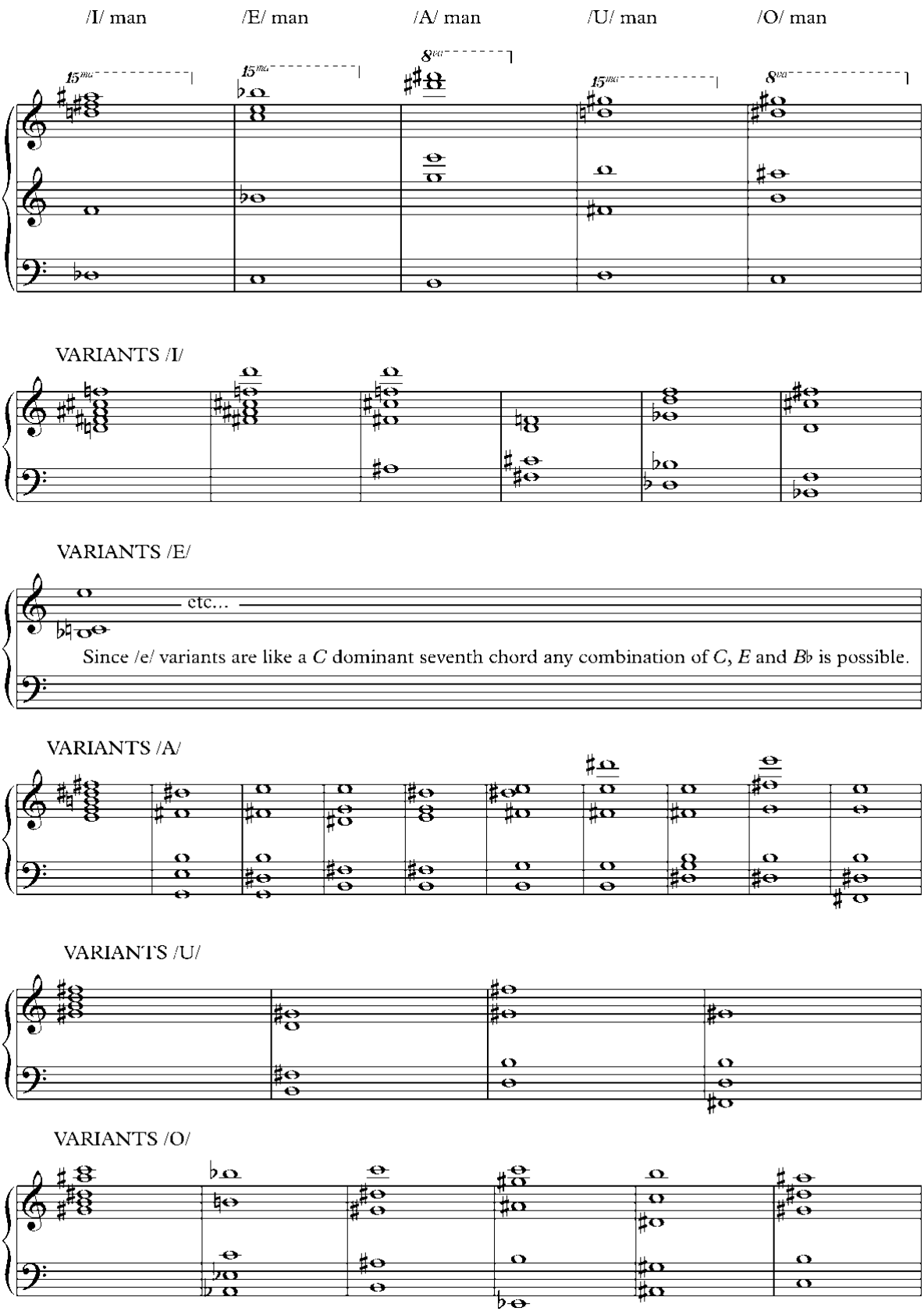


Fig. 3.18: Chords derived from cardinal vowels and their variants as used in *Vowels*.

As the pitch-class sets show above, in this algorithm, all chords —regardless of whether they have three, four or five notes— have at least one common pitch-class. This assures smooth harmonic transitions. Furthermore, just in the interest of having more variety, each harmonic step could be coloured with free material. The following figure shows the visual representation of the algorithm.

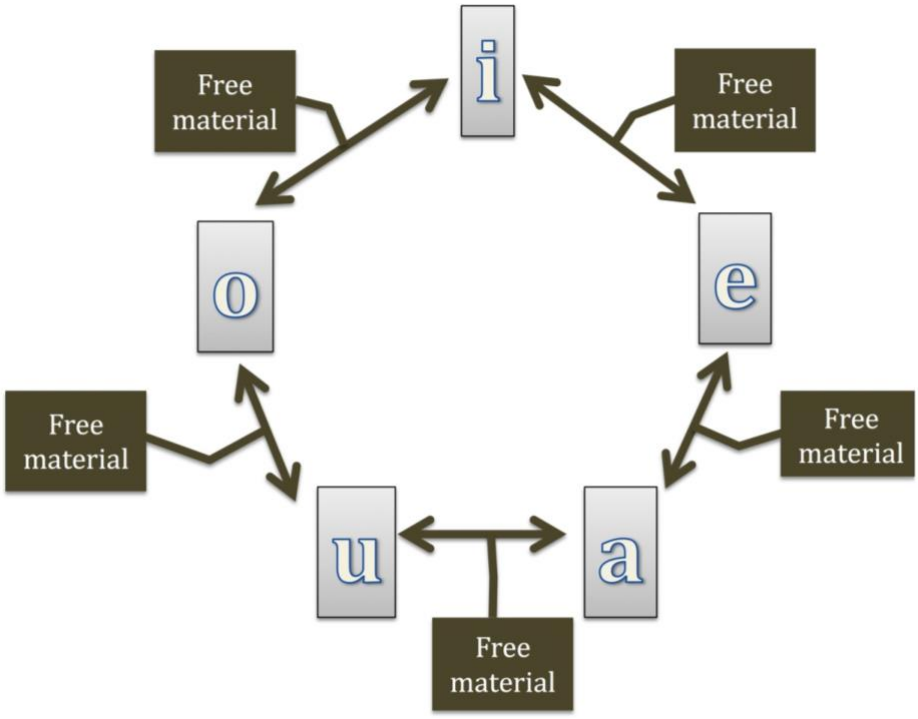


Fig. 3.19: Algorithm of chord syntax in *Vowels*.

The next two examples can be considered in terms of compliance with my own harmonic plan. In Figure 3.20 harmonic transitions are subtle because there is always a short modulation zone where the two variants operate at the same time. In the modulation zone, one or more pitches are maintained, functioning as a link between one harmony and the next. On the contrary, Figure 3.21 shows circular motion between three vowels that culminates in /e:/, thus escaping from the clockwise & anticlockwise movement.

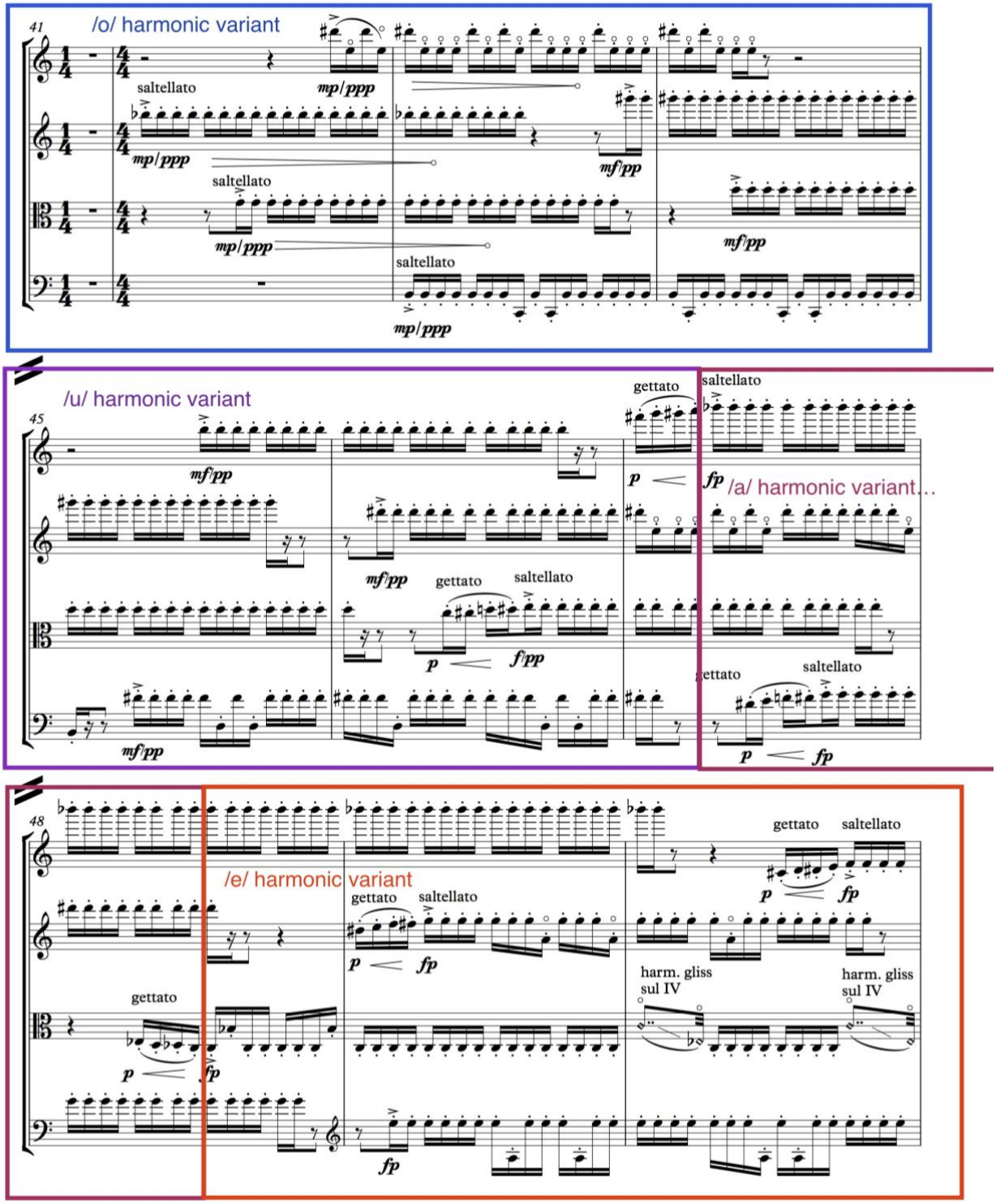


Fig. 3.20: Fragment of *Vowels* showing modulation between different harmonic variants

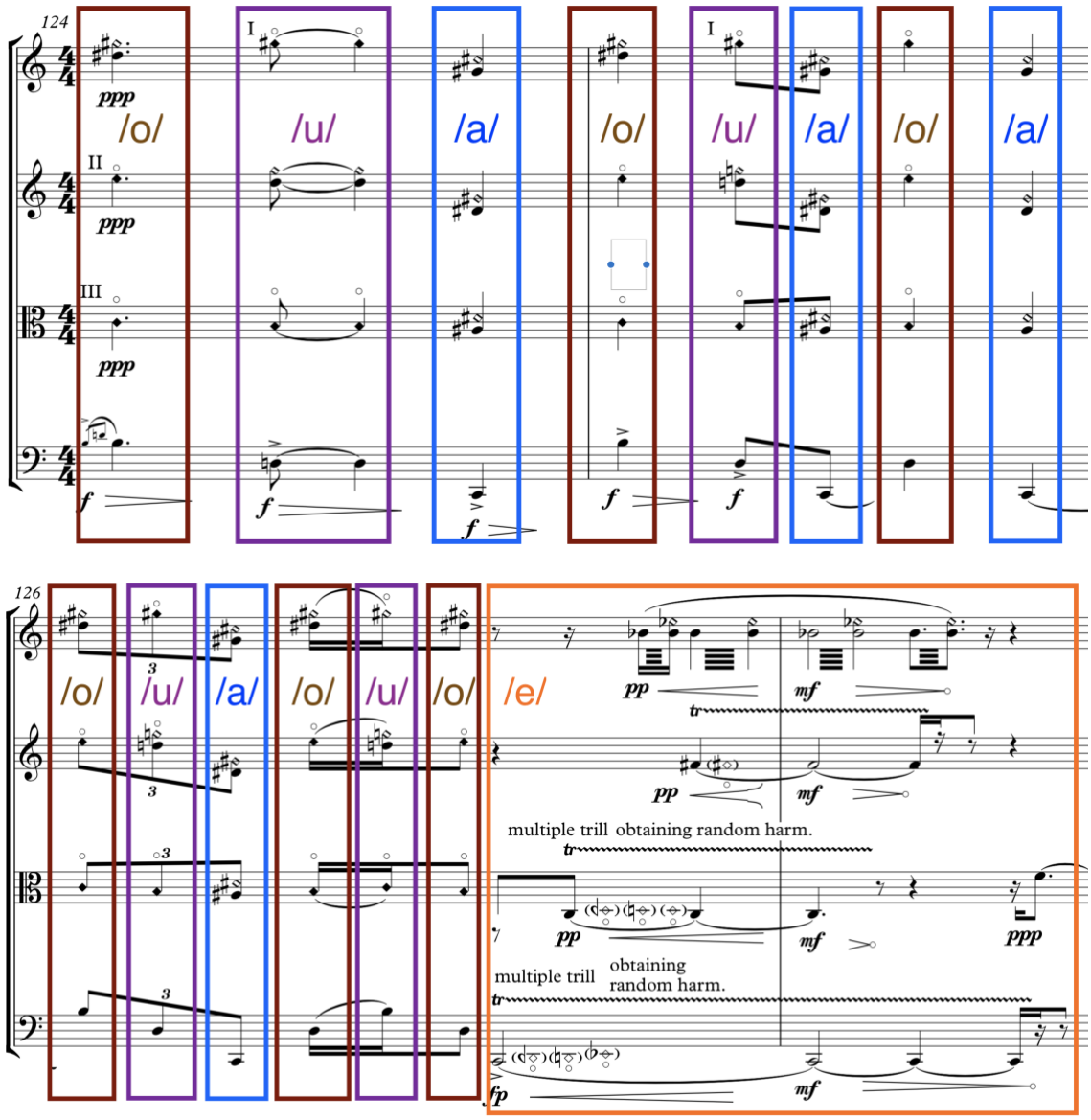


Fig. 3.21: Fragment of *Vowels* showing circular motion between /o:/, /u:/, /a:/, /u:/, /o:/ that culminates in /e:/

Despite the strong weight of harmony in the compositional process, this piece also explores the possibilities of the five vowels' fundamental frequencies used in order to create melodic lines. The chosen order of the primary melodic motive was the one given by the algorithm referred to in Figure 3.19. The fundamentals of each vowel generate the following melodic motive: /i:/=*Db*, /e:/=*C*, /a:/=*B*, /u:/=D and /o:/=*C*. This core motive is presented at the opening of the piece, as Figure 3.22 shows.

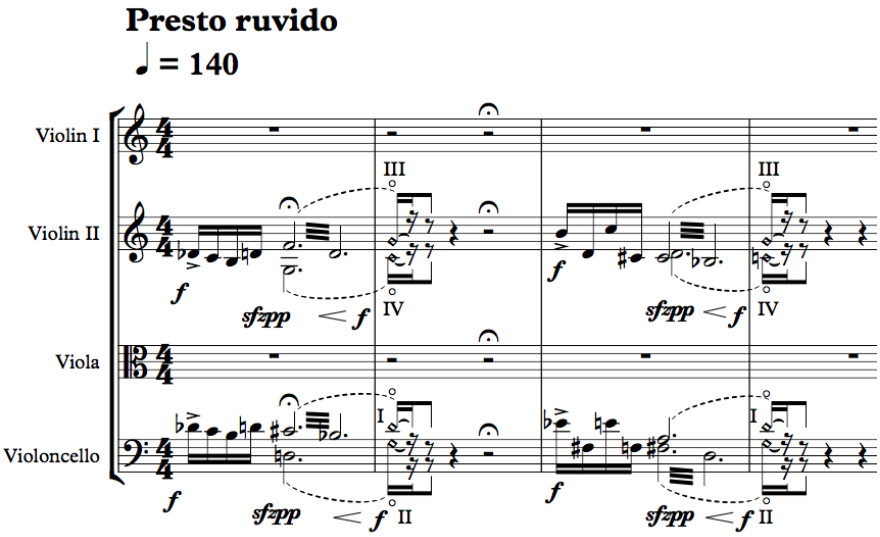


Fig. 3.22: Opening of *Vowels* showing the primary melodic motive.

Vowels is a composition that explores the spectral features of prosody as a harmonic resource. This procedure was already introduced in the first chapter of this essay when dealing with vowels' formants that could be transcribed into an orchestral score (cf. pp. 18-19). Of all the compositions presented in this essay *Vowels* is probably the one where prosodic features are most hidden. If truth be told, in this piece it is impossible to perceive the vowels at all. This is because vowel formants appear with extremely precise dynamic energies and therefore —although pitches are transcribed into the music— no actual sonic reference to any vowel can be heard. Thus, prosodic suprasegmental features, namely five phonemes, act as the theoretical foundation of the string quartet. I am therefore using prosody as an abstract source of inspiration. As with many spectral composers, the aim with *Vowels* was not to recreate the sonic source in the string quartet but to make an artistic abstraction of it. Rose (1996: 11), referring to the spectral method of obtaining inspiration from natural sounds, asserts that "the result of this procedure, while deriving from physical models, no longer shares but replaces the characteristics of the modelled phenomenon". Likewise, it was the perception of vowels as an artistic object that inspired my composition. In that respect Tristan Murail (2004: 46) says that "the artist does not look to describe the object but to

reflect the sentiment created by the impregnation of this object".[18] Analogously, *Vowels* tries to recreate the sentiment of our own speech, of our own phonological appreciation, which is transformed into an artistic expression by means of spectra analyses.

Paradoxically, in this composition, just the initial ideas and the pre-compositional plan are inspired by prosody. Although the piece is completely pervaded with these initial harmonic and melodic ideas coming from prosodic resources, the aesthetical orientation of the discourse is aligned with the idea of germinal development. In my developmental method, citing Keller (1982: 15), I look for a discourse of "continuity and unity". Thus, in line with Rudolph Reti's arguments regarding motivic development (Buteau & Mazzola, 2000: 117), *Vowels* is "realized through developments stemming from a single germinal motive, which then contributes to unity within the composition". Despite the harmonic and melodic germinal motive having its prosodic qualities masked —or at least as aforesaid not being recognisable— this embryonic motive leaves its traces ubiquitously within the piece. Thus, we are here in front of one of the most enigmatic compositional paradoxes: do pre-compositional thoughts that are not immediately evident to the listener, as in this case, nevertheless succeed in imbuing a piece of music with a compositional 'idea'? There is a path from the idea to the completion of the piece, which the composer explores in solitude. During this process a new dialectic occurs between the being, the soul, and the piece composed. This dialectic supposes facing the world as an individual. Throughout the completion of this creative process that brings the musical idea into being, loneliness gradually disappears and a communion with the potential listener arises. Schoenberg claims that the idea is the totality of the piece and thus "an idea can never perish" (Schoenberg, 1950: 49-50). However, in order for that idea not to die there must be a driving force during the creative process. Regarding my part, the element that pushes forward a composition is the need for communication, because we are social beings. During the development of this

[18] Translation from French is my mine.

impulse, the idea can manifest itself fully, or partially as is the case with *Vowels*. I believe that a hermetic idea can give rise to a highly expressive, fully communicative piece. Thus, citing Grisey (1987: 268-9), it is the process more than the idea that defines a composition. In *Vowels* the idea is defined by prosodic-related matters, whereas the whole composition is defined by an inner need for communication.

3.3 *Sibilus* and *Signals*: two compositions based on whistled languages

3.3.1 General concepts

In certain cultures, whistling is used to communicate in large open spaces. It is a code that exploits, for practical purposes, the prosodic component of spoken language. As Meyer states "whistled languages can be regarded as a transposition of a given local language into a repertoire of whistles. Almost any language (non-tonal, tonal or accent-pitch) could be whistled and nearly anything can be expressed this way" (Meyer, 2004: 405). When we whistle, evidently, there is no manner of articulation in the mouth. We can only use pitches and their change in tone colour in order to suggest the different vowels and consonants. With this method, almost any spoken phrase can be conveyed through whistles.

In the era where there were no phones, the great advantage of whistled languages was that —due to the fact that whistles produce high pitches— these messages could be heard over long distances. This phenomenon can be explained by reason of a combination of the so-called Wegel and Lane (1924) mask theory and the Fletcher and Munson (1933) hearing threshold curve. The hearing threshold curve in Figure 3.23

Fig. 3.23: Estimated equal-loudness-level contours (Suzuki and Takeshima, 2004: 928).

shows that, for a given fixed decibel energy, we do not subjectively hear with the same loudness at all pitch ranges. In fact, at around 3000 Hz we can start hearing a sound with much less decibel energy than at 100 Hz. Surprisingly whistles take place around 2000 ± 1000 Hz (Meyer, 2004: 406). Therefore, they are strategically situated very near the pitch range where a message can be best heard over long distances. I would now like to consider some uses of these whistles as a compositional resource.

Sibilus (2009) and *Signals* (2011), both for orchestra, are two compositions in which I have used whistled languages as an inspiration. *Sibilus* was awarded the first prize of the *Isang Yun* contest; *Signals* was awarded the second prize at the BBVA Foundation - National Auditorium of Spain competition. When I first came across whistled languages, my impression was that I was listening to beautiful melodies with unique contours. Afterwards, when researching this domain, I came to understand that the whistle's unique melodic outlines were a consequence of their original spoken prosody, which in fact was being transferred to the melody. Indeed, whistles are used by shepherds, country people or farmers as a communication method all over the world, from the Canary Islands, to Mexico or Turkey. When these people whistle, they are actually thinking of the words they would articulate when normally speaking. This is the reason why these melodies have a language-like contour. Correspondingly, the prosodic feature intonation is being relocated, as it were, on the whistle. In fact, these two pieces were my first approach to prosody as a resource in musical composition and, in a way, the origin of this thesis. In *Sibilus* and *Signals* the transcripts from whistled languages are treated with different methods.

3.3.2 *Signals*: whistled language music transcripts directly incorporated into the compositional discourse

Whistling can be produced just with the lips, with the aid of the fingers or by means of a leaf. The latter acts as a sort of reed producing a high pitch. The Akha people[19],

[19] More information on this tribe can be found in Cohen (2009).

a tribe living in the mountains of Laos and Thailand, use leaves as a whistling method. In my orchestral work *Signals,* I have directly incorporated the music transcription obtained from Akha people whistling leaves as shown in Figure 3.24. The only alteration of the original source has been the juxtaposition of some musical comments that serve as a break from the whistled language phrase. Figure 3.24 shows the original source; the melody produced by the whistling leaf.

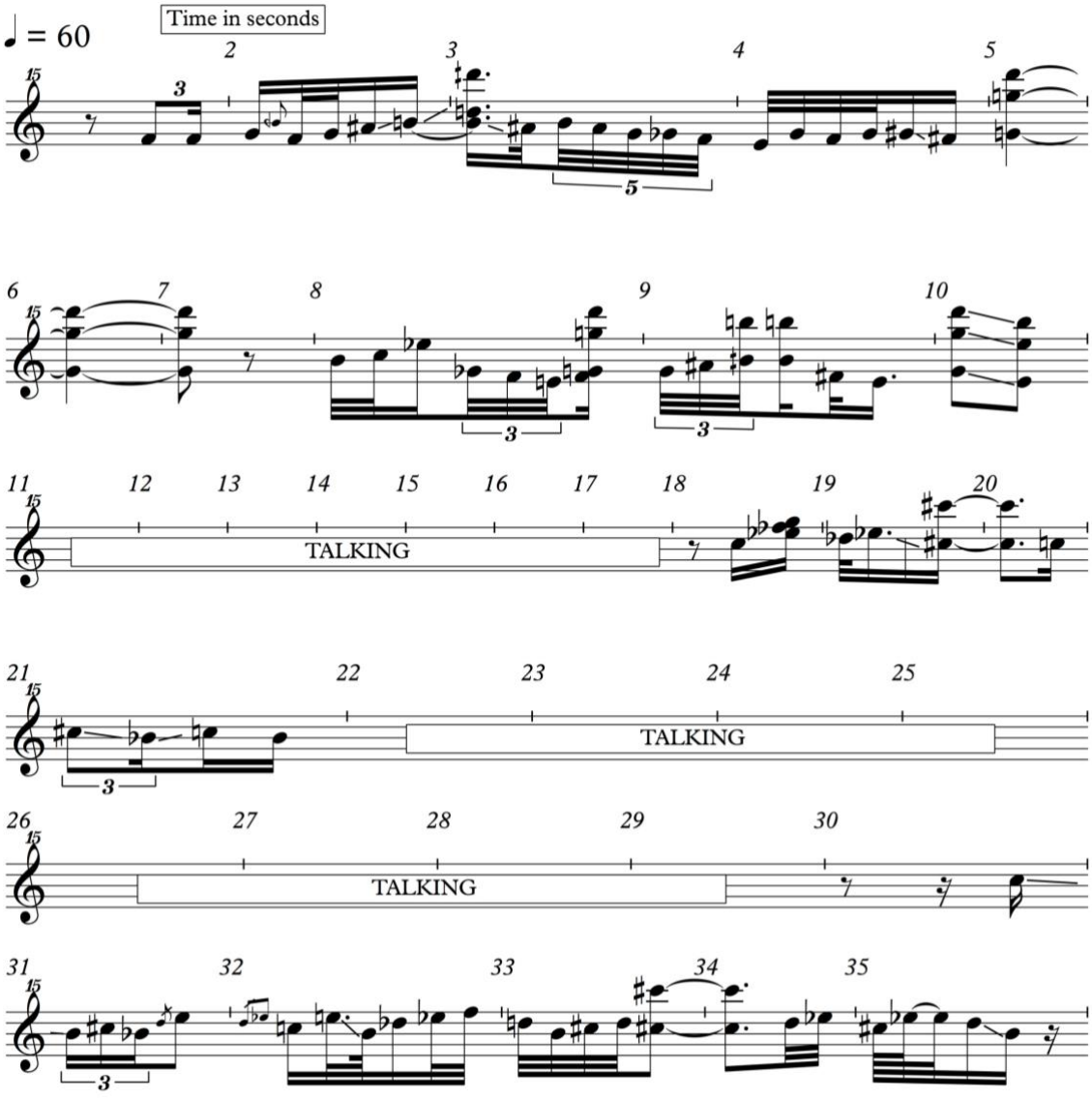


Fig. 3.24: Akha whistling leaves, transcription. Private file.

In *Signals* I use a juxtaposition of materials; there is an alternation of the original melody with some comments. The original prosodic melody acts as a sort of

ritornello. Comments are musically not related to prosodic features and thus constitute a contrast to the *ritornello* sections. This simple model could be schemed as:

Original melody - *Ritornello*	Musical commentary	Original melody - *Ritornello*	Musical commentary	Etc…

Fig. 3.25: Scheme for the alternation between original melody and musical commentary in *Signals*.

The two following figures (Figs. 3.26 and 3.27) illustrate the musical realisation of this compositional plan, where we find a transition between the original melody and the musical comment:

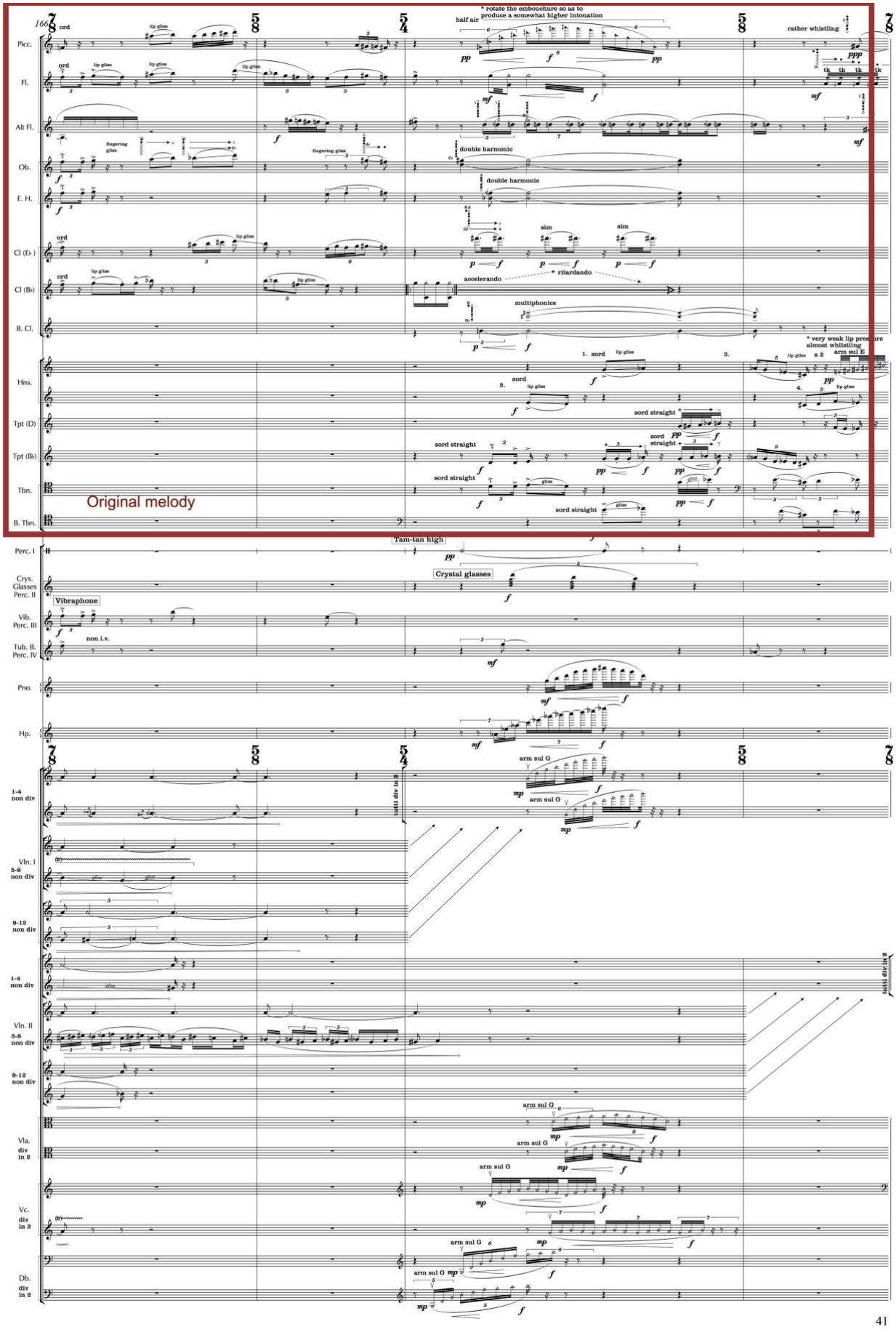
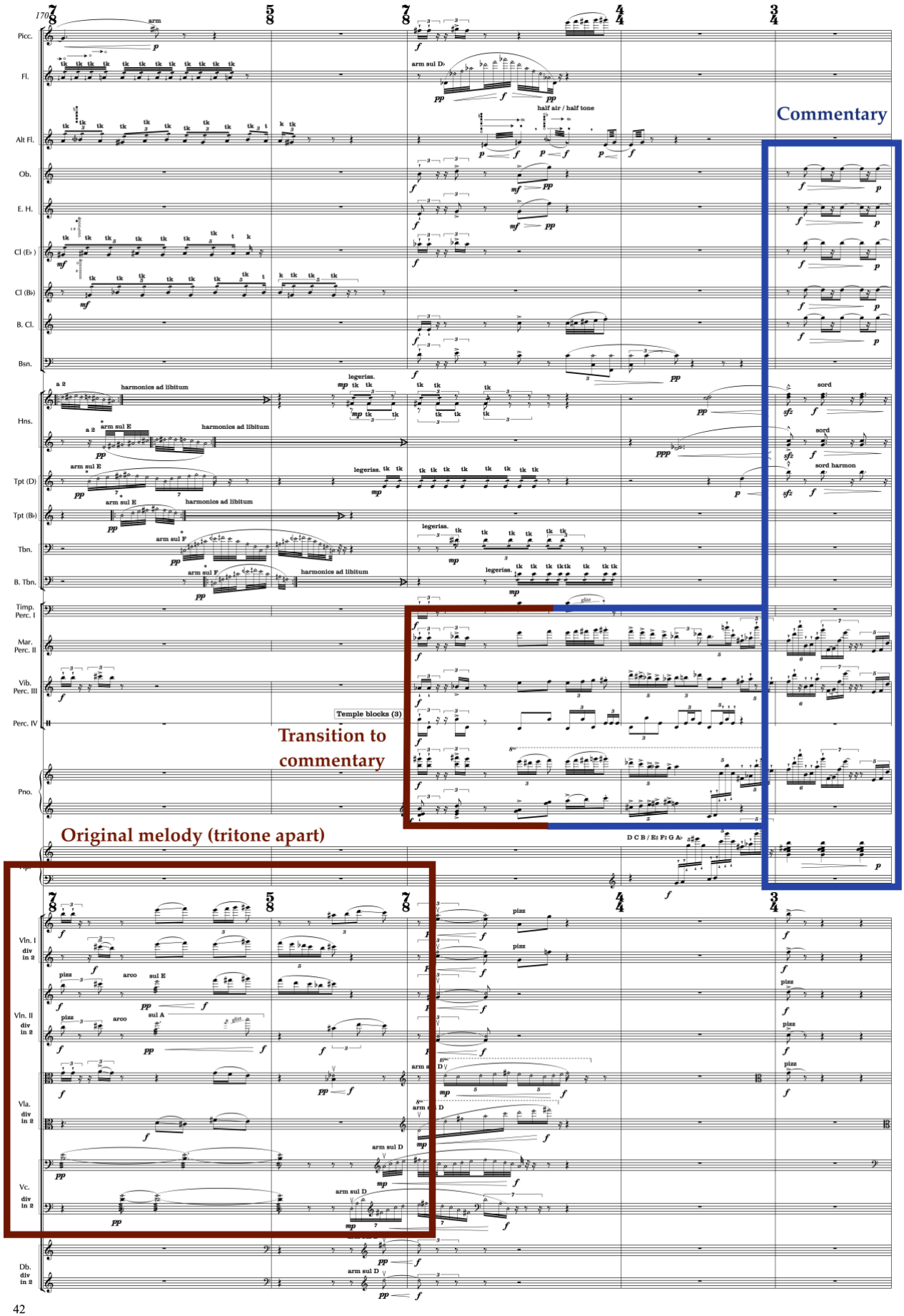


Fig. 3.26: Original whistled melody orchestrated in *Signals*.



42

Fig. 3.27: Original whistled melody, a tritone apart, and transition to commentary in *Signals*.

This intermingling procedure creates a musical atmosphere where prosody comes in and out very gently. By using this technique, the presence of prosodic features in the musical discourse is more evident. As a whole, the prosodic resources in *Signals* are mainly focused on pitch and length, like in the *Seikilos Epitaph* (cf. Chapter 2.2). Yet, there are also harmonic qualities of the whistling leaves that are incorporated into the score. As Figure 3.24 demonstrates, the whistling leaf also produces some sounds with rich spectrum content (seconds 3, 5, 8, 9, 10, 19 and 33). In these cases the orchestration reflects a more complex harmonic material, thus mimicking the original source.

Consequently, in *Signals* I conceive prosody in a 'concrete' manner, focusing on physical aspects. However, the fact that these prosodic resources were presented within a musical frame reveals another dimension of prosody: the interaction between music that is obtained from a prosodic source and the, so to say, non-prosodic music is, in itself, an artistic resource. Interaction and tension as a creator of art is a constant modus operandi in my compositions. I believe, with Biaggio and Supplee (1983: 116), that aesthetical conflict and contrast is a way of creating art, something I will return to in the final chapter. In fact, "Eli Siegel (1972)[20], for example, lists these pairs of contrasts: rest and motion, oneness and manyness, structure and function, form and substance, line and color [sic], intellect and emotion" Biaggio & Supplee (1983: 116). In *Signals* the contrast comes from the opposition of two pairs: whistled language melodies and their musical commentaries (as shown in Figure 3.25). The pathway towards the resolution of this divergence is the driving force of the piece.

The main developmental technique in this piece is the juxtaposition of sections obtained from whistled languages with other sections that are not inspired by any prosodic feature. As aforementioned, I deal with prosodic sections as *ritornello*

[20] The work quoted is Siegel, E. (1972). *Damned welcome: Aesthetic realism maxims*. New York: Definition Press.

passages where prosodic features are evident. Baroque music also experimented with this idea of *ritornello* sections in the instrumental concerto. The term *ritornello* comes from the word 'ritorno', which means 'return' in Italian (Talbot, 2001). I believe the interesting issue here is the coming in and out of prosodic resources, the return of prosody as an impulse that keeps the piece moving forward. Butt (2010: 33) suggests that the listeners of Bach's *ritornelli* in the church cantata *Liebster Jesu, mein Verlangen,* BWV 32, "get a sense of the constant unfolding of something we knew or felt already, an increasing uncanniness, […] [a] simultaneous finding and losing of Jesus". In *Signals* I intend to produce the effect of a loss of prosodic features in the non-prosodic sections. Likewise, the listener will find clear instances of speech-like melodies in the prosodic sections. Like Butt, I am also interested in this idea of finding and losing. Metaphorically, I want to convey the idea of human melodies in the prosodic sections, whereas non-prosodic sections are supposed to convey the loss of the human qualities. For Butt, Bach's *ritornelli* play "on the potential for subconscious recognition" (2010: 36). For me, the prosodic *ritornelli* play on the potential for recognising ourselves as human beings. This dualism presented by *Signals* —the humanlike versus the self-alienation— is a personal reflection on today's life in our age of techno-science.

3.3.3 *Sibilus*: whistled language music transcripts as a motif that is freely developed

Another composition for orchestra that explores the possibilities of whistled languages is *Sibilus*. The whistles here are treated as melodic motifs that are amply unfolded over the score.

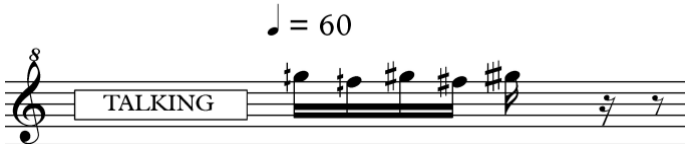


Fig. 3.28: Original whistled melody, from Mazateca, Mexico. Private file.

In this example from Mexican Mazateca whistles, the musical transcription was very short. Consequently, the motif had to be copiously transformed and developed. Contrapuntal resources were a good means of achieving this goal. Figure 3.29 illustrates the contrapuntal techniques applied to this short subject.

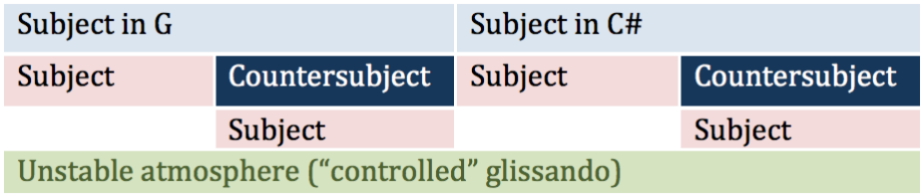


Fig. 3.29: Opening Compositional plan for Mazateca whistle.

In fact, these techniques are based on Bach's *Inventions*. It is distinctive of this genre of compositions to use certain counterpoint resources in order to expand the phrase of short motifs. The compositional plan for the first measures of Bach's *Invention Number One* would be as follows:

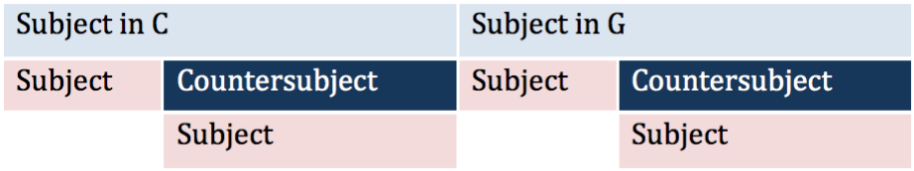


Fig. 3.30 : Compositional plan for Bach's First Invention.

We can apply this compositional plan in a freer manner in an orchestral composition. The result so obtained in *Sibilus* is shown in Figure 3.31 on the next page.

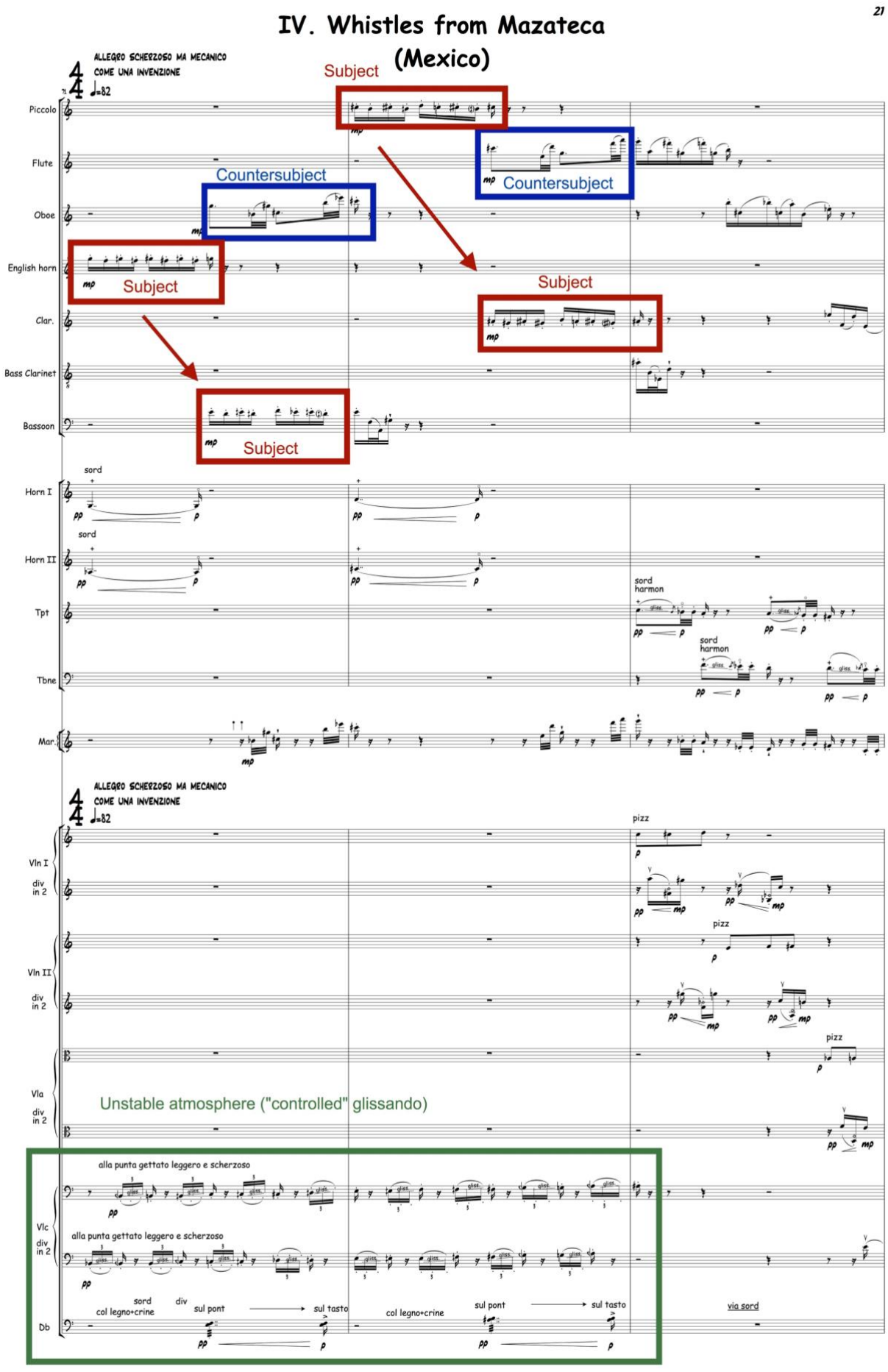


Fig. 3.31: Realisation of Bach's compositional plan in *Sibilus*.

Despite this passage incorporating a Bach pseudo-invention technique, it does not resemble Baroque music. The final result is that of a completely original new musical structure where quartertone melodic patterns acquire a principal role. These quartertone contours bear a resemblance to spoken intonation. Yet this connection is weakened by the fact that the prosodic line is brief and has been scattered all over the musical discourse in different voices. In a certain way, I am considering this movement of *Sibilus* as a 'counterpoint of prosodies', as a highly sophisticated dialogue between melodic parts that are obtained from a whistled language melody. Interestingly, in 1897 the poet Stéphane Mallarmé mentioned this idea of 'counterpoint of prosody', of different intonations going on at the same time, when composing his visual poem "Un coup de dés"[21] (Mallarmé, 1982: 106). It is worth mentioning that Mallarmé used different font sizes to suggest the counterpoint of prosodies. Although *Sibilus* was not inspired by this poem, it is interesting to point out that the idea of a 'polyphony of texts' already inspired symbolist poets more than one century ago. Marchal and Steinmetz (1999: 279), suggest that Mallarmé uses a musical form in his poem "Un coup de dés" so as to escape from the logical structure of language discourse. In *Whistles from Mazateca* I also create a similar counterpoint to that of Mallarmé's with the aim of building a multi-prosodic discourse, as if by imagination various utterances happened simultaneously. However, my aim with the counterpoint of prosody goes in the opposite direction: I am using this resource in order to create a coherent and logical musical discourse.

3.4 *Romancero gitano*: a dialogue between poetry and music with prosody as the linking factor

Poetry recitation accompanied by music has a long tradition. In the 8th or 7th century B.C. the Greek Archilochus is said to have invented the art of poetry recitation to a music accompaniment (Kivilo, 2010: 117). Thus, it is widely accepted by scholarship that in Ancient Greece, the poetry of Homer (Bowra, 1961: 1) or Alcman (Antcliffe,

[21] Translated as "A throw of the dice".

1930: 270) was frequently recited to the accompaniment of the lyre. What we do not know is the exact nature of this accompaniment, its texture or its precise connection to the poetry it complemented. It was not until the mid 18th century that, with the birth of the *melodrama*[22]*,* clearer instances of recitation to music arose. One noteworthy example is Jean-Jacques Rousseau's lyric scene *Pygmalion*. In 1770, eight years after Rousseau's text was completed, Horace Coignet added orchestral music to the original script. This type of interaction between the recitation and the music was, at the closing of the 18th century, an extremely successful genre which in fact captivated Mozart himself (Anderson, 1938: 937). With the *melodrama,* we do know how music interacted with the text. It was predominantly based on the alternation of orchestral music and declamation, despite some climactic sections where the instrumental forces and the poetry were actually presented simultaneously (Drake, 1971: 1059).

The tradition of the *melodrama* continued during the 19th century in the form of various subgenres. This is the case in the spoken lyric poem. It had much to do with the *melodrama* though it was not scored for voice and orchestra but for narrator and piano. The spoken lyric poem, unlike the *melodrama*, did not rely so much on the alternation between the instrumental forces and the voice. On the contrary, the piano accompaniment and the recitation exhibited a more symbiotic collaboration (Elfline, 2007: 32). A splendid illustration of this new approach is Schumann's spoken lyric poem "Ballade vom Haideknaben". Figure 3.32 shows how this collaboration takes place. The first fermata acts as a sort of checkpoint where the narrator and the piano adjust their paces. After that the synchronization of declamation and accompaniment is approximate. Only certain words at the beginning of each measure serve as a reference in order to match the speed of narration to that of the music.

[22]As defined by the Grove Music Dictionary, a *melodrama* is "a kind of drama, or a part of a drama, in which the action is carried forward by the protagonist speaking in the pauses of, and later commonly during, a musical accompaniment." (Branscombe, 2001).

Figure 3.32: Robert Schumann, "Ballade vom Haideknaben," Op. 122, no.1 (1852), p. 6. *Robert Schumanns Werke, Serie XIII: Für eine Singstimme, mit Begleitung des Pianoforte*. Leipzig: Breitkopf & Härtel, 1887. Plate R.S. 155.

In the 20th century there are also examples of recitation to music. Prominent works such as Stravinsky's *Perséphone* (1934), a full-scale melodrama, Prokofiev's *Peter and the wolf* (1936) or Britten's *The Young Person's Guide to the Orchestra* (1945) are scored for narrator and orchestra. Even Messiaen, though not including any melodrama in his catalogue, started his *Trois petites liturgies de la présence divine* with the idea of incorporating a narrator, a plan that was not finally accomplished (Hill & Simeone, 2007: 130-31).

All the aforementioned works are obviously not an exhaustive list of compositions including recitation to music. They do, however, make for an interesting introduction to *Romancero gitano*[23]. Published in 1928, "Romancero gitano" is a book of poetry by Federico García Lorca (1898-1936), one of the most beloved Spanish poets of all time. It deals with the world of Spanish gypsy people —the *gitanos*— and their region, Andalusia, in the south of Spain. Some of the main themes underlying "Romancero gitano" are frustrated love, the yearning for freedom, violence or

[23] When referring to the poetic work I will use quotation marks, when referring to my composition I will use italics.

eroticism (Lumbreras García & Lumbreras Sanchón; 2012: 70). My *Romancero gitano* is a tribute to Lorca, a composition where his poetry meets my music. Here the great difference in comparison to the *melodrama* works or the spoken lyric poem is that the responsibility of reciting and playing the piano relies on the same person. In this way, all the aforesaid synchronicity troubles are avoided. Additionally, the interaction between declamation and its accompaniment flows more naturally and the overall performance feels more unified and integrative. Conversely, the difficult task here is to find a performer that can assume the exceptionally demanding undertaking of simultaneously reciting and playing the piano.[24]

The first decision I made with *Romancero gitano* was to make a selection of the book's poems. The recitation of the whole book with piano accompaniment would have taken around one hour and a half, which would have been too long for a performance. Consequently, out of 18 poems only 8 were chosen for my composition, to wit: "Romance de la luna, luna"; "Preciosa y el aire"; "Reyerta"; "Romance sonámbulo"; "La monja gitana"; "La casada infiel"; "Romance de la pena negra"; "Romance de la Guardia Civil española". This selection results in a composition that lasts half-an-hour.

My main purpose with this work was to create a dialogue between the recitation and the music in such a way that the piano part was not a mere accompaniment. Prosody becomes the guiding thread of the composition, fusing the recitation with the piano part. Thus, the central compositional problem to this work was how to establish a flexible control of the prosodic resources of the reciter. A strict control of the recitation would have rendered the work constrained and rigid. The solution I came up with was to regulate the prosodic rhythm in certain passages and to exert a compositional control of the relationship between the recitation and the piano performance. As such, the reciter can perform as an actor but with certain resources

[24] In my case, I collaborated with Juan Carlos Garvayo, a well-known pianist in Spain who is also a poet.

that reinforce the relationship of the recitation with the music. The recitation thus adopts three different degrees of freedom. The first one —free recitation— enables complete autonomy for the recitation and is often juxtaposed with differentiated music passages. Here prosody determines the development of the piece. Secondly, recitation can be to some extent dependent on musical elements whilst maintaining a degree of independence. In this way, prosody can be the driving force of the composition, generating musical passages that depend on the recitation. Lastly, the recitation can be mostly dependent on the music with various sub-gradations as we will see later on. In this final category, musical aspects penetrate prosodic features such as fundamental pitch or length, thus altering the purely poetical aspect of the text. The following scheme shows the aforesaid gradations of recitation-to-music and music-to-recitation subordination.

1) Free recitation

2) Adaptation of the music to the recitation
    2.1) Syllable-to-note rhythm, prosody providing the music rhythm
    2.2) Free music passages that involve reciting at the same time

3) Adaptation of the recitation to the music
    3.1) Free recitation with certain sparse synchronicities with the music
    3.2) Rhythmic recitation

3.4.1 Free recitation

Free recitation grants complete autonomy to the performer with respect to management of the poetry prosodic features. The reciter can thus decide the pace of the reading, the intonation, the pauses, that is to say the prosodic suprasegmental features (cf. Chapter 1.2 to 1.6). However, there are certain synchronicities that must be observed. For instance, in Figure 3.33 the last note of the music section must

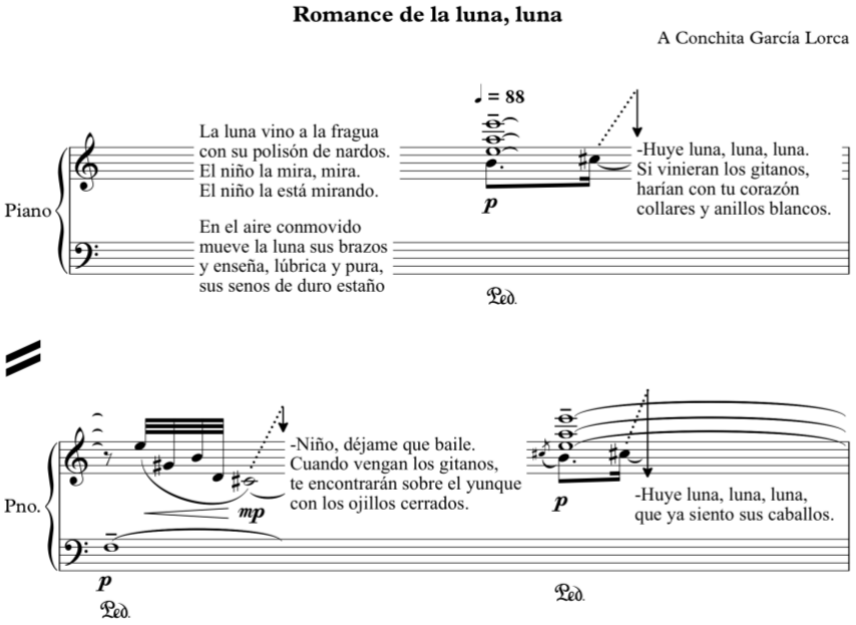


Figure 3.33: Manuel Martínez-Burgos. *Romancero gitano*, opening.

coincide exactly with the first syllable of the next poem fragment. This helps combining poetry and music as a continuous flow.

In some other cases, where free recitation is in action, music helps to illustrate the poetry with agile gestures that reinforce the meaning of the text. In the passage shown in Figure 3.34 the poem describes an erotic episode between a *gitano* (a gypsy man) with a *gitana* (a gypsy women). The music deploys quick ascending arpeggios that represent such a scene. In this fashion, prosody interacts with music by means of certain stressed syllables (printed in bold) that must coincide with the beginning of each arpeggio.

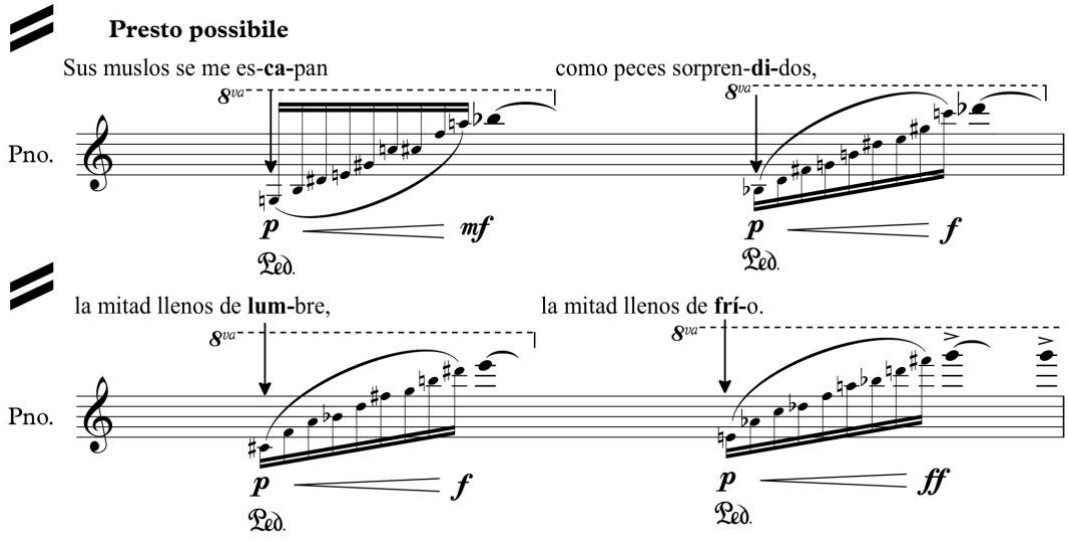


Figure 3.34: Manuel Martínez-Burgos. *Romancero gitano*, p. 23.

3.4.2 Adaptation of the music to the recitation

Syllable-to-note rhythm, prosody providing the music rhythm

In *Romancero gitano* some passages deploy a continuous and stable use of a syllable-to-note rhythm. Figure 3.35 shows one such section. The poetry in this passage depicts the dialogue between a young *gitano* and a middle-aged *gitano*. As suggested by Hollien & Shipp (1972) from age 20 to 40 speech fundamental frequency tends to lower. I thus decided to establish a treble melody for the young *gitano* and a bass melody for the older *gitano*. This establishes two clear musical surfaces that help understand the dialogue within the poetry. As in the previous example all stressed syllables correspond to higher notes.

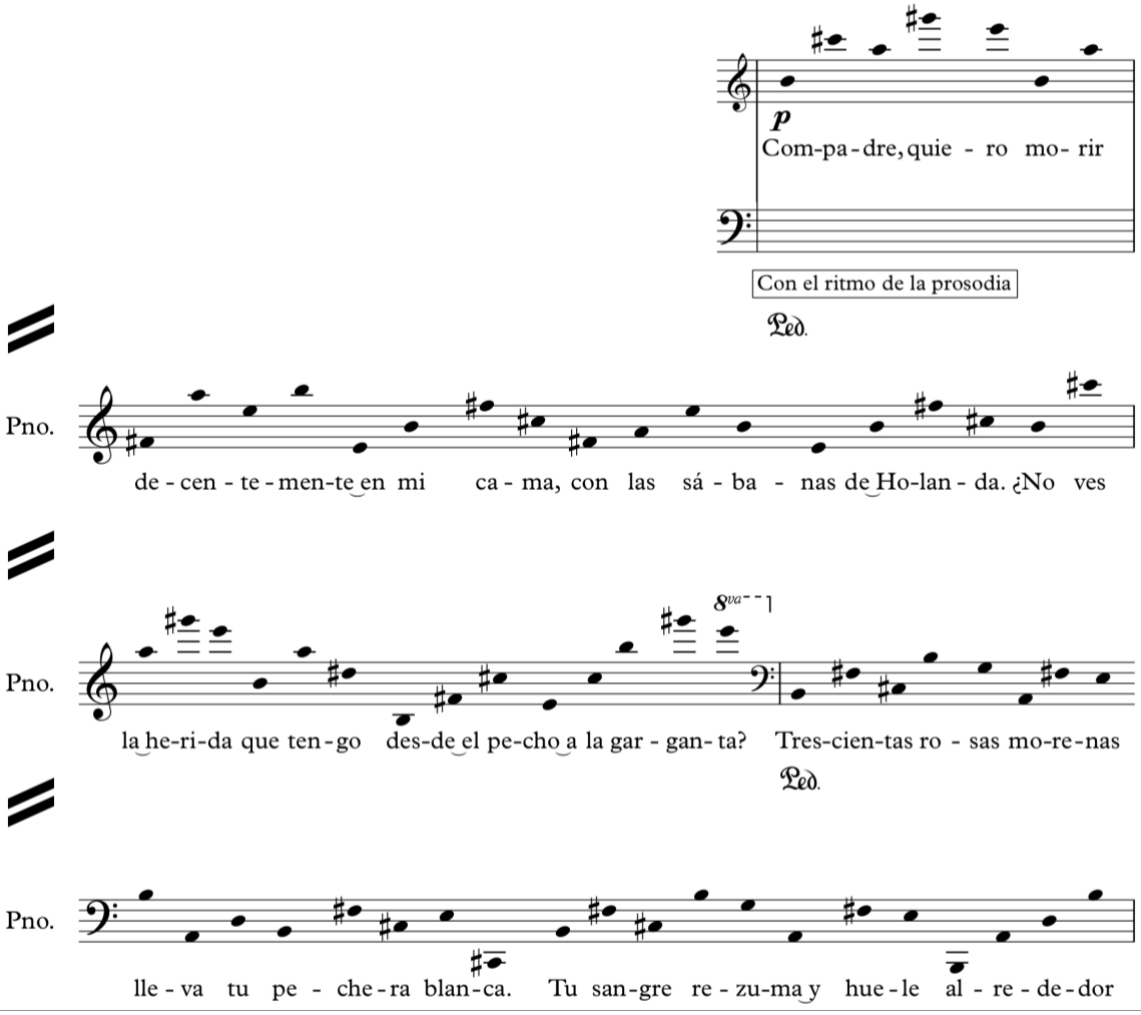


Figure 3.35: Manuel Martínez-Burgos. *Romancero gitano*, p. 15.

The passage shown in Figure 3.36 displays a syllable-to-note rhythm. Just after the first measure, the musical metre is interrupted, and the prosodic metre of the poetry takes over. This fluctuation from musical metre to prosodic metre happens as a result of the core compositional aim of the piece: the dialogue between poetry and music. The syllable-to-note resource entails a transfer from prosodic rhythm to musical rhythm and is consubstantial to the aforementioned dialogue. Still, other prosodic aspects are also filtered out into the piano part. As demonstrated by Nooteboom (1997: 33) (cf. Chapter 1.4) stress basically provokes a rise in the fundamental pitch. Thus, in the Spanish phrase *verde viento, verdes ramas* (green wind, green branches) the stressed syllables are ***ver-****de* ***vien-****to,* ***ver-****des* ***ra-****mas*. Except *ramas*, which does not fall into the syllable-to-note resource, all stressed syllables receive a higher note than the non-stressed syllables. Even the final /r/ in the first syllable of *ver-de* has its correspondent musical transfer: a grace note. Prosody is in this manner modelling the musical result of the composition.

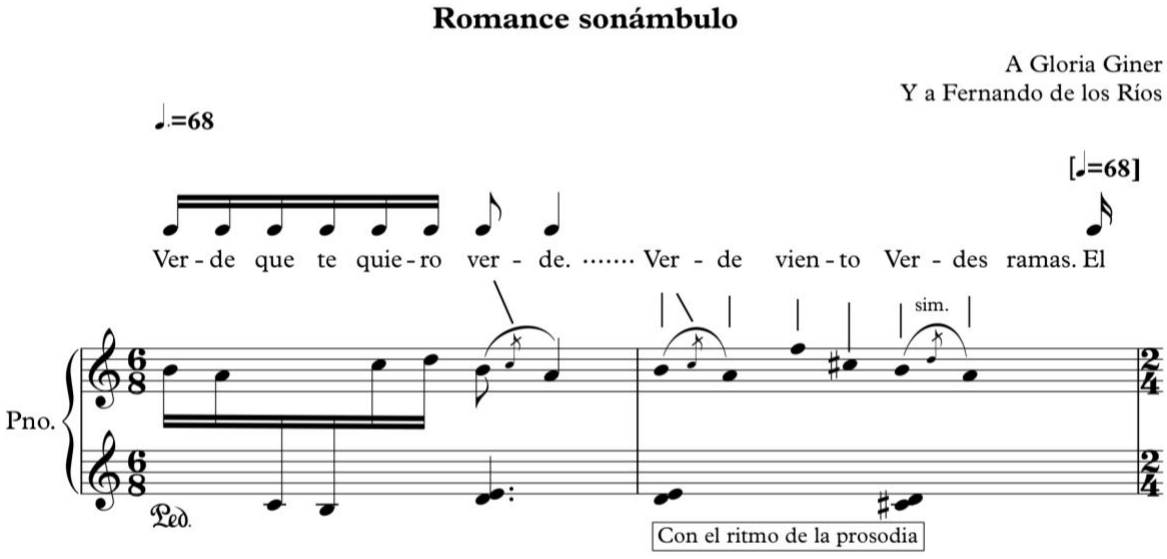


Figure 3.36: Manuel Martínez-Burgos. *Romancero gitano*, p. 13.

Free music passages that involve reciting at the same time

As already mentioned, having a pianist-reciter performing this piece facilitates the poetry-music synchronicity. The two previous figures are a good example of this. Likewise, Figure 3.37 illustrates a recitation with an accompaniment that works as a musical substratum to which poetry is added. In this case a repeated percussive chord acts as the rhythmic guiding line of the reciting text shown above. The pianist must use this structure during the recitation and quickly shift to the last two chords on the word *serpiente* (snake). The chords must coincide with the syllables 'pien-' and '-te'.

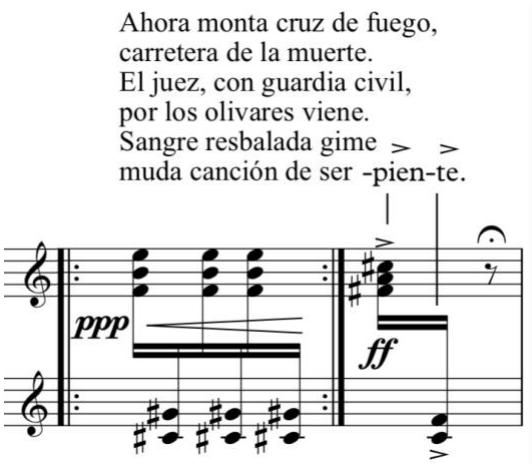


Figure 3.37: Manuel Martínez-Burgos. *Romancero gitano*, p. 11.

3.4.3 Adaptation of the recitation to the music

Free recitation with certain sparse synchronicities with the music

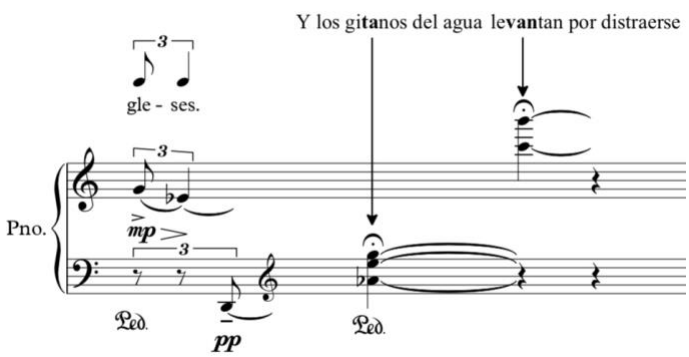


Figure 3.38: Manuel Martínez-Burgos. *Romancero gitano*, p. 6.

Free recitation can be decorated by means of certain chords that appear at particular stressed syllables or important words. In Figure 3.38 the words *gitano* and *levantan* (to raise) are highlighted due to their coincidence with two chords. The latter take place on the stressed syllables. In this way recitation is still free but music pops up now and then changing the mood of the narration. Prosodic parameter stress is also highlighted in this case. Again, here prosody establishes the place where the chord has to appear.

Rhythmic recitation

Rhythmic recitation can be presented with or without piano accompaniment. Figure 3.39 shows various combinations: from a rhythmic recitation with accompaniment to a solo one, including a note-to-syllable recitation.

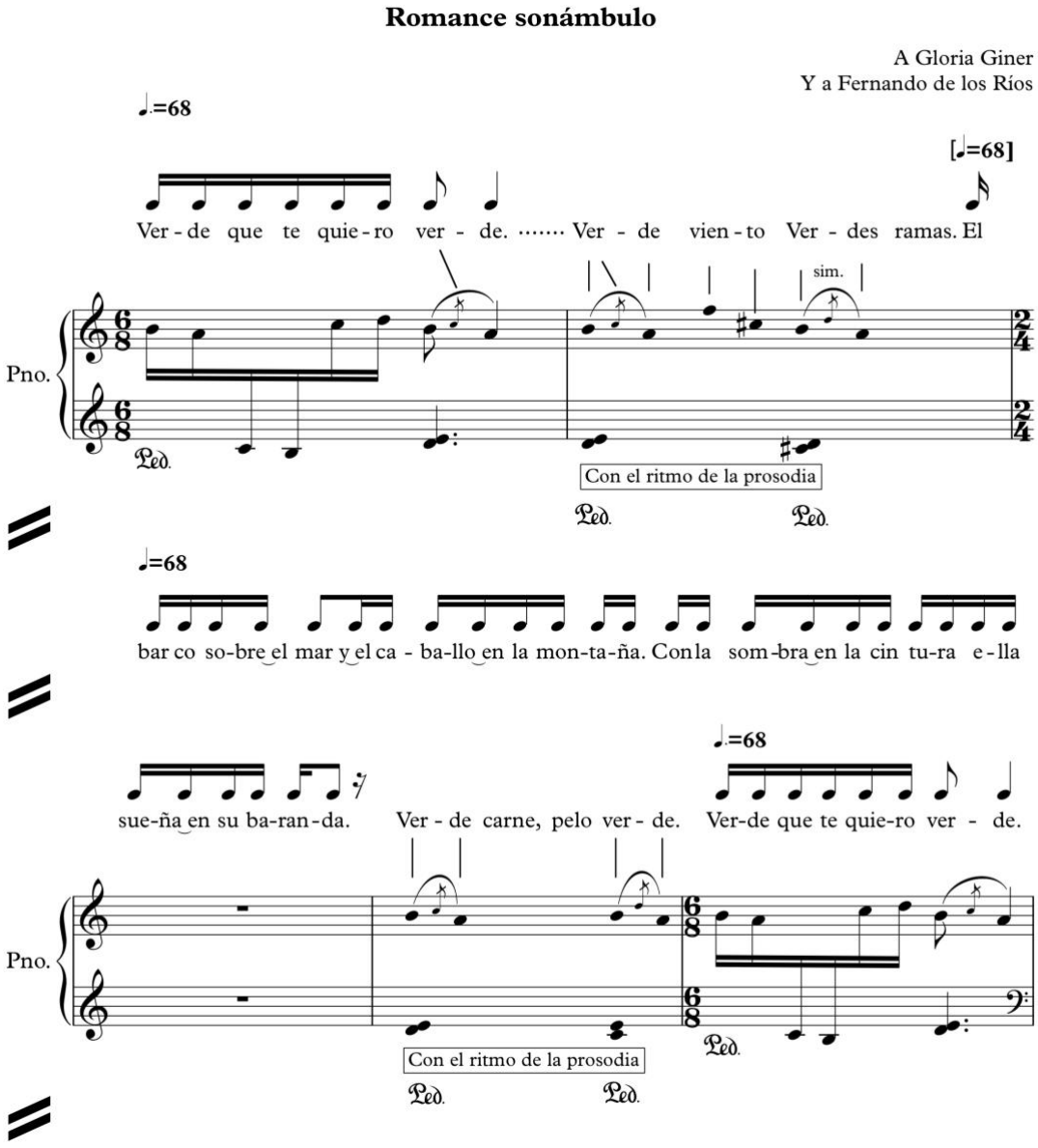


Figure 3.39: Manuel Martínez-Burgos. *Romancero gitano*, p. 13.

On the first measure the recitation has to be adapted to the written musical rhythm that also appears in the piano part. The second system is a good example of rhythmic recitation without piano accompaniment. Although of course in the rhythmic recitation prosodic features such as stressed syllables or pace are observed, the performer is not allowed to recite freely. So, on the one hand, there is a loss of

spontaneity. Yet, on the other, thanks to this resource, poetry can be tinged with music in a natural manner.

3.4.4 Leitmotivs in Romancero gitano

Romancero gitano makes use of leitmotivs associated with particular words, concepts or ideas. This renders the work more unified in that it embodies a coherent discourse within a net of musical-semantical crossed relations. Some of these leitmotivs are inspired by the prosodic features of the word concerned.

Leitmotiv 1: the moon (la luna)

This motive appears at the beginning of the piece (cf. Figure 3.33) and whenever the word 'luna' (moon) is cited. The first poem deals directly with this idea of the moon, which is a special symbol for García Lorca. It represents the coming of death and its mysteries (Correa; 1957, 1066).

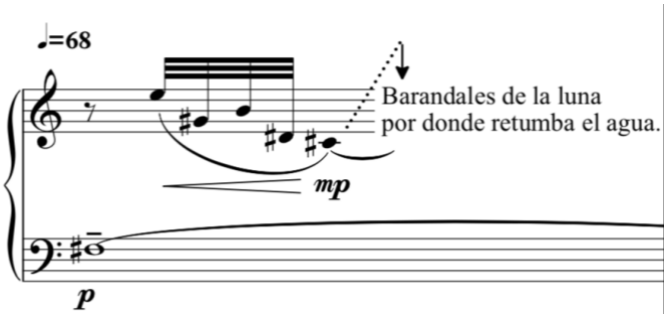


Figure 3.40: Manuel Martínez-Burgos. *Romancero gitano*, p. 16.

Leitmotiv 2: preciosa (lovely)

"Preciosa y el aire" is the second poem in *Romancero gitano*. *Preciosa* is a Spanish word meaning lovely. Its second syllable (*pre-cio-sa*) is the stressed syllable. Consequently, the word has an upward-downward intonation outline. This shape is transferred to the piano melody. In this case, prosody thus determines the melodic contour and, at the same time, creates a linking factor throughout the poem.

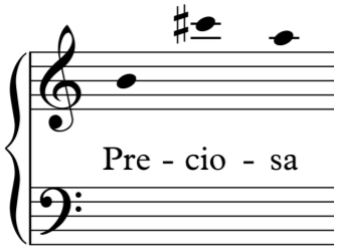


Figure 3.41: Manuel Martínez-Burgos. *Romancero gitano*, p. 8.

Leitmotiv 3: *verde* (green)

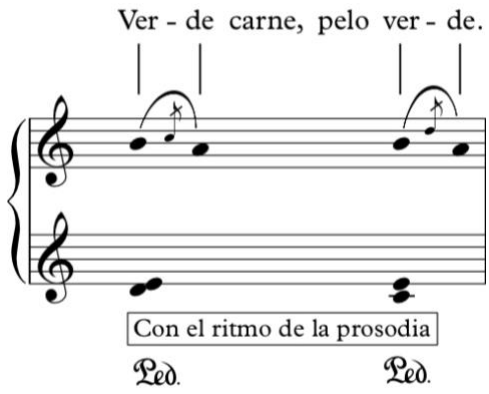


Figure 3.42: Manuel Martínez-Burgos. *Romancero gitano*, p. 13.

"Verde que te quiero verde" (Green I love you green) is a well-known verse in Spain. Green represents fatefulness and tragedy in Lorca's poetry (Sainz; 2004: 34). Here I wanted to establish again a syllable-to-note relation with the word *verde* (green). The difference with previous examples is that in this case there is a harmonic treatment of the syllable-to-note resource. The stepwise motion from *B* to *A* functions as an appoggiatura in most cases. As a result, there is a harmonic feeling associated with the word *verde*. In this manner, traditional aspects like harmonic resolutions are combined with this new idea of a leitmotiv network covering all the piece.

While this word is the main theme in "Romance sonámbulo" (Sleepwalker romance), it also appears in other poems in the collection. In these cases, the musical leitmotiv is embedded in the poem in an almost unconscious manner for the listener. For instance, in Figure 3.43 the word *verde* appears in a completely different context (marked in a box).

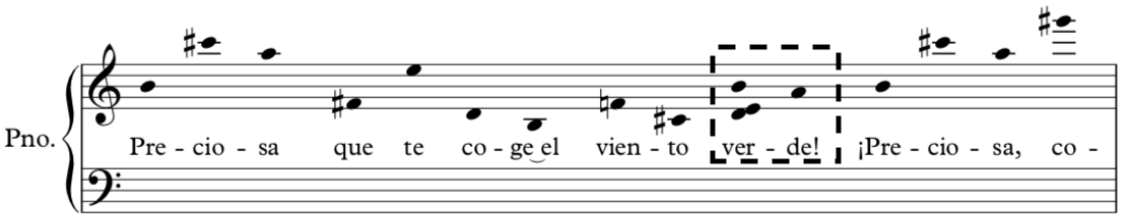


Figure 3.43: Manuel Martínez-Burgos. *Romancero gitano*, p. 13.

Romancero gitano has a completely different approach to prosody in comparison with my previous works presented in this essay. In the preceding pieces I extracted certain prosodic parameters from different speeches or abstractions, in order to work with them in a more controlled compositional way. In *Sibilus* or *I Have a Dream*,

it was mainly speech intonation and rhythm that inspired me, in *Vowels* it was timbre spectra. With *Romancero gitano* all the prosodic parameters are simultaneously brought into play in a more integrated manner. In this composition —which in fact rescues the tradition of the 19th century spoken lyric poem from oblivion— the presence of prosody is more direct, is more alive and more dramatic. Thus, the artistic result depends mostly on the pianist-reciter, on their approach to recitation, on their own conception of prosody. These more direct outcomes imply a lesser intervention of the composer in the creative process. Hence, as compared with my other pieces discussed in this essay, in *Romancero gitano* I have given more freedom to the performer. Yet, the final artistic creation is still dealt with in a controlled and structured manner, ensuring the overall coherence of the piece and the relationship between music and poetry in general. Within this connection, prosody is the principal linking factor. In the piece under consideration, prosody becomes cement, a connecting element that makes the composition cohere into a satisfying whole. As a result, a balance is created in *Romancero gitano* between poetry and music. Both elements are equal driving forces within the piece, breaking down the boundaries between two different fields of artistic expression. In fact, this piece is a prime example of what Tatarkiewicz termed the *Apollinaire's motif*, "the breaching of the boundaries between the arts" (Tatarkiewicz, 1980: 247).

In my opinion, this breakdown of boundaries always involves a risk. Within an inter-art piece, if a frontier is to be surpassed, what art, or so to say what territory, are we departing from? In my view, there is no real inter-art if there is a dominant role of one of the arts involved in this collaboration. In my case, the very conception of *Romancero gitano* was undertaken precisely 'on' the border between music and poetry. As a composer, I did not go 'from' music to poetry (or vice versa), I envisaged this piece within a new territory. *Romancero gitano* has one foot in music and the other in poetry. The bridge between these two arts is prosody, which was the starting point of the piece. Thus, with *Romancero gitano* I believe I have demonstrated that prosody can help produce an artistic composition involving

musical and dramatic aspects in a unifying manner, in a way in which music and poetry can consistently collaborate hand in hand. I agree with Thomas (1991:33) that a piece with a two-fold approach can reveal new insights to the listener that might not be perceived in a single discipline. Therefore, this inter-art piece is a proposal for a new way of approaching a composition by the audience.

4 THOUGHTS ON COMPOSING WITH PROSODIC-BASED RESOURCES

At first, I thought that the final chapter should be laid out in the classic style: written in the form of conclusions that demonstrate what prosody means for musical composition. However, the development of this dissertation itself has given rise to reflections and questions that do not allow a closed ending. This is probably inherent to the creative drive, which is always open and constantly evolving. Nonetheless, with the aim of presenting my considerations in a focused and neat way, this final chapter is divided into six topics that have arisen during the composition process of the works presented in this dissertation, namely: 1) Humanism and Communication; 2) Emotions, Prosody and Composition; 3) Artificiality in Composition Processes; 4) Prosody as a New Look into Traditional Techniques; 5) Escaping Alienation: Opposite Thinking in Composition; and 6) Interdisciplinarity. This chapter is not intended as a conclusion but, on the contrary, is conceived as a series of open questions that could be developed further.

4.1 Humanism and Communication

My first thought is concerned with aesthetical and socio-cultural issues resulting from the connections between prosody and composition. Starting with 20th-century avant-garde music and still operational in more recent trends like New Complexity, the idea of the dissolution of the relationship between the composer and the audience has extensively triggered intense debate. Twenty years ago, as a young student at the Darmstadt Summer Courses, I witnessed how Brian Ferneyhough, one of the foremost exponents of New Complexity, and Wolfgang Rihm, his counterpart in the New Simplicity tendency, did not greet each other when they met in the long corridors of the school where the summer courses took place. Whereas the former exhibits a radical, experimental approach to music —which is achieved by an extremely complex notation— the latter advocates for the directness of the creative impulse. Ferneyhough described New Simplicity, also named *Neue Romantik*, as

“music [that] relies heavily on variants of rather limited repertoire of gestural types calculated to energise the receptive and interpretational faculties of the listener in a culturally quite specific fashion” (Ferneyhough, 1995: 23).

This controversy is now probably somewhat mitigated, but as Maureci (1997: 189) points out, “criticism has long complained that avant-garde music is dehumanized and unnatural”. This has led, on some occasions, to a divorce between composers and the audience. So now, in 2020, would it be possible for Ferneyhough and Rihm to become reconciled? In other words, can avant-garde music appeal to a larger public? Can we compose ‘humanised’ avant-garde music? Of course, it would be extremely pretentious to claim that I have the solution to these complex questions. Yet, my present research opens a path to composing in a more ‘humanised’ way while maintaining an aesthetically challenging approach. The pieces I have created —and considered in this essay— remain familiar, natural and ‘human’, although they are also conceived as avant-garde music. The reason why, lies in the fact that language is, although not exclusively, an inherent attribute of humans. Within the domain of language, it is prosody, not grammar or semantics, that is directly linked to music.

Directly related to the aforementioned aesthetic topic are socio-cultural matters. Composing with prosodic-based resources implies a personal philosophical view of the current situation of art. Science has had an enormous influence on compositional techniques over the last century. Art, in our age of techno-science, is looking more and more to scientific disciplines as the generators of ideas. Within current artistic trends, a more humanistic approach to art is now challenging. My research puts forward a purely human attribute, prosody, as the modelling factor of artistic ideas. This point of departure —to wit the emotional capacity of prosody— opens a new field for composition.

My interest in humanism in art comes from my conception of composition as a means of communication. Though the Communication Theory Model by Shannon & Weaver (1949) has been subject to much criticism, my interest lies in the idea that, as a composer (or sender), I do have something to express —a message—, I do have a channel —sound in the form of music—; and, hopefully, a listener (or receiver). As an artist, the aim of my compositions is to convey to the listener a complex message encoded in the form of a sound object. However, unlike written language, or mathematical language, music is a multifaceted open code. Music, if considered as a message, is an objective sound entity; but it becomes subjective the very moment it arrives at each individual. Each person interprets the musical message, filters it and turns it into a personal experience. Thus, I believe in composition as the creation of experiences, experiences that are a form of knowledge, or to be more precise, a "procedural knowledge" in Elliott's words (1993: 67). In this regard, beyond question, I compose for the public, to 'induce' in them —citing Juslin's (2005: 98) interpretation of the Shannon & Weaver model— an emotional response. Hence, it is interesting, and this is an open question, to consider the composer as an inducer of emotions, and composition as a kind of alchemic trade that triggers an affective reaction in the listener. These two senses of the words 'composer' and 'composition' are linked with my thoughts on, 1) Emotions and Prosody, and, 2) Artificiality, which I deal with in the following subchapters.

The fit of prosody in my compositional universe is clear: my desire to communicate with the listener made me look into spoken language as a fundamental form of communication. Within this form of communication, prosody plays a particularly vital role in transmitting a message. Certain theorists (Roman, 2006: 107) claim that 60% of the interpersonal message content are non-verbal signs. There are also studies that demonstrate the possibility of correctly identifying emotions within an unknown foreign language (Abelin & Allwood, 2000). Of course, the feature responsible for such an identification is prosody. Therefore, prosody plays a fundamental role in spoken language as a way of communicating feelings and

emotions. In like manner, these terms —feelings and emotions— are also part of the musical vocabulary. Accordingly, I consider it worth trying to establish links between spoken language and music through prosody. I have stated before that I understand my task as a composer as an 'inducer of emotions'. It is prosody that best 'induces' emotions to a given message, hence its expressive possibilities in music.

4.2 Emotions, Prosody and Composition

I have already raised the question, in the first chapter, of whether there could be a connection or not between the prosodic features associated with each emotion and a correspondent realisation in the field of composition. For instance, if I want music to convey an emotion of dynamism, anger or annoyance, can I translate their characteristic prosodic features into instrumental music in a convincing manner? I believe we can do so, but the communication code itself establishes certain limits. Take Figures 1.7 and 1.8 on pages 14 and 15 of this essay, of which we have a recording. While my appreciation is subjective, I believe that the music of Figure 1.7 reflects a certain calm or at least a neutral expression. As previously explained, I created this melody by mirroring, in the violin part, the intonation curve of a declarative sentence. However, in Figure 1.8, whilst maintaining the same intonational curve, I transferred to the violin melody the main prosodic features related with dynamism and annoyance, namely, an increased pitch variation, a louder dynamic range and a faster tempo. In my view, Figure 1.8 has more energy, is more active and has more strength. Yet, do we really perceive the emotion of anger or annoyance? This is where the limits lie. In spoken language this emotion, that of anger or annoyance, would be linked to an utterance that has both a semantic and pragmatic context. In music we lose the semantic and pragmatic context, and we are only left with the energy given off by an angry situation. According to Littlejohn (2009: 57), words are often paired with particular events and, accordingly, words by themselves can evoke affective responses. Therefore, when the affective link between prosody and semantic content is broken, any transfer from the world of spoken language to that of instrumental music will lose part of the original message content. For this reason, the expression of emotions changes when we

change the communication channel. As we move from the spoken language channel to the music channel, the context also changes. The musical context, regarding instrumental music, is neither semantic nor pragmatic. It is a new context where musical meanings depend directly on the subjective experience of the listener, among other matters. It is precisely here where this thesis has contributed new ideas for the composer: understanding how prosodic traits work on emotions is a technical aid that can enhance expressivity in a given composition. In short, emotions cannot be directly copied or transferred from spoken language to instrumental musical language, but we can evoke the energy produced by these emotions. The linguist Hultzen (1964: 59) defines prosodic features as 'residues of utterance'. As composers, what we can do, using this terminology, is to move these 'residues of utterance' to our compositional cosmos and use them as raw material. The context, and therefore the meaning, of these residues will change, but part of its original expressive force will remain.

4.3 Artificiality in Composition Processes

The idea of picking up prosodic features of spoken language —or whistled language as I did in *Signals* and *Sibilus*— and transferring them to another communicative context supposes a highly abstract process, somehow artificial. Indeed, there is a great deal of laboratory work in this procedure by which musical melodies are obtained from prosodic intonations. A clear instance of this compositional process is at work in the oboe melody of *I Have a Dream* (Chapter 3.1). Likewise, the process for obtaining the chords in my string quartet *Vowels* is, to a certain extend, artificial (Chapter 3.2). Behind my compositional thinking stands the idea that the construction of a given piece is a technical process focused on obtaining an expressive effect. The resulting sound object must seem natural in the sense that, as a composer, I am looking for one musical event to lead to another in an apparently logical, or natural, way. Schoenberg (1950: 192) expressed this idea with a stunning metaphor: "Creation to an artist should be as natural and inescapable as the growth of apples in an apple tree". Therefore, a peculiar paradox arises: naturalness —or spontaneity should this term be preferred— is sought with artificial procedures.

Behind all these thoughts are my readings of Roland Barthes' *Mythologies* (1957) and *Rhetoric of the Image* (1964), where he deals with the 'myth of naturalness' in Western art, which I consider is still meaningful in contemporary society. Following Barthes, Maye (2007: 21) argues that "from the mastery of the human form in Classical art, to the development of linear perspective in the Renaissance, to even, although more subtly, the expressionism of modern art, the naturalizing principle has guided the Western tradition." Of course, naturalness has a different fit in music. Paul Griffiths reminds us that composers have often justified their music by claiming that it appeals to nature in some way or another:

> Modern composers have often sought validation for their new approaches precisely in nature – so proving themselves entirely traditional, since the appeal to nature is a constant of harmonic theory, from Pythagoras through medieval and Renaissance theorists, then through Rameau (whose treatise provided the first systematic understanding of chords and functions in the major-minor system), to the spectralists of the 20th century and early 21st. Messiaen's harmonic ideal was to imitate natural resonances, an ideal that spectralism then endorsed. (Griffiths, 2005: 317)

The myth of naturalness as a way of validating art has sometimes tinged the term 'artificiality' with a negative connotation. By way of illustration, Parrish (1951: 448) points out that artificiality has negative connotations in the art of speech. Even in fields such as bioethics, sports or politics this negative sense is also evident (Birnbacher, 2014: 71, 105).

In regard to the topic of naturalness versus artificiality, the pieces I present in this essay set forth a model where a human natural feature —spoken language— is at the genesis of the compositional process. Therefore, prosody involves a double link, on the one hand, with the human being, on the other, with the physical environment as an acoustic manifestation of any utterance. Yet, this creative process, the process of transferring the prosodic 'residues of utterance' to music, is totally artificial. It is produced through a transfer that denatures the spoken language in order, as stated in the previous subchapter, to relocate it in a different communication channel. This paradox, that of an artificial process that attempts to accomplish an effect of

spontaneity or naturalness, seems very attractive for me as a composer. Likewise, I am interested in removing the negative connotation of artificiality. In fact, Erwin Panofsky (1982: 14) identifies artificiality as one of the crucial features of art: "[Art is] a man-made object demanding to be experienced aesthetically". As aforementioned, Tristan Murail (2004: 46) argues that the artist does not look to describe an object but to reflect its sentiment. Consequently, he is not interested in the natural object but in its artificial reflection. Music derived from prosodic models is thus an artificial mirror of the original source. This creative process, an artifice that triggers an experience in the listener, also implies a fresh reappraisal of the traditional techniques and parameters of composition.

4.4 Prosody as a New Look into Traditional Compositional Techniques

As can be deduced from my scores discussed in this essay, an approach to composition through traditional techniques is evident. In *I Have a Dream* I present a formal opposition between recitative and *arioso* style sections, within a linear conception. *Vowels*, for string quartet is basically a harmonic development of five pitch-class sets. The two orchestral works, *Sibilus* and *Signals*, propose, on the one hand, a use of the line as a contrapuntal construction, and on the other, a use of the *ritornello* as a structural resource. Though, how has prosody changed my conception of these traditional parameters?

Prosody here has acted as a prism, as a multiplying glass that generates new approaches to these traditional parameters. For example, through prosody, my melodic lines have been drenched with numerous glissandi and colourful pitch fluctuations. Without prosody, I could not have conceived of such melodies. It is important to point out that, although these melodic lines use quarter tones, listening to them reveals, returning to the previous topic, a certain naturalness. Perhaps the features of the melody belonging to human speech, now returning to the subject of humanism, help establish a more direct connection with the listener's auditory universe. Similarly, in *Vowels*, the chords obtained from the harmonic spectra of the

five cardinal vowels would have been inconceivable had they not been obtained from prosody. Prosody has also generated this idea of a counterpoint of prosodies in *Sibilus*, as if many people were speaking at the same time to create a musical discourse. Similarly, prosody has had an effect on musical form. Most of my pieces have worked with the idea of creating opposition between musical sections very directly related to prosodic features and sections obtained through other procedures. There is thus a notion of opposition or divergence in my compositional approach that also greatly appeals to me. I will discuss this idea in the next section.

For a composer, harmony, counterpoint and orchestration are the technical tools with which to work. These tools exert their action on the musical material, just as a carpenter does on wood or a goldsmith on metal, to complete a musical work. In my case, prosody has been a source of inspiration to work with traditional tools on new materials. The prosodic features have been those components that, undoubtedly, have generated music that I would not have arrived at without this new raw material.

4.5 Escaping Alienation: Opposite Thinking in Composition

"We never really know what a thing is, unless we are also able to give a sufficient account of its opposite." This phrase, collected by John Stuart Mill (1843: vol.2, 332) from Latin scholastic sources, illustrates a thought that has a long tradition, not only in Western culture, but also in Eastern philosophies such as Taoism (Legge, 1962, vol. 1, 26). In terms of musical form, most of the prosodic-based pieces I have composed share this notion of opposites as a generator of musical discourse.

In my case, as I have already mentioned in subchapter 3.3.2 (pp. 85-86), the idea of 'finding' and 'loss' is a beautiful analogy with the human struggle to discover self-identity. The *ritornelli* in *Signals* or the recitation sections in *I Have a Dream* involve an encounter with prosody, with one of the most properly human characteristics: that of spoken language. However, these prosodic sections are confronted by others where this idea is abandoned. In the course of my personal growth I have experienced this constructive/destructive force that brings us closer/further from

ourselves. The fight against alienation, not in the political or religious sense but in a psychological sense, the struggle for maturing a critical capability, not only as an artist but also as a human being, is a topic that has widely concerned philosophers. As Sinari (1970: 125) claims "any endeavour, emotional or otherwise, to achieve a concord between oneself and one's milieu is an endeavour towards dealienation". In my view, composing is an endeavour towards escaping alienation, and, as I mentioned before (Cf. Chapter 4.1), the result of a personal need for communication. In my music, I try to reflect this striving for concord, for 'dealienation', by taking a dialectical approach to musical form. In the formal realisation of my pieces, I believe that setting opposites against each other is a constructive device of great dynamism because it is part of my inner universe. Prosody fits in this universe as a subjective symbol of humanity. The finding and loss of humanity is a diverging pathway, an emotional movement that can generate musical form. If "movement is time, expressed" (Teki et al., 2012: 1), then this movement from humanness to inhumanness, which is metaphorically expressed in my music as a movement from a prosodic section to a non-prosodic section, can also be time, and thus musical form.

4.6 Interdisciplinarity

I opened this essay by mentioning its interdisciplinary nature. Indeed, I have dealt, within music, with concepts coming from linguistics, specifically from prosody, from aesthetics or from neuroscience. I have also mentioned that there is a certain corruption of the word interdisciplinarity. In many interdisciplinary studies, researchers start from one field of knowledge and, from that starting point, seek to access another domain of knowledge. Perhaps this has been the case for my compositions I have here analysed except for the last one, *Romancero gitano*. The starting point in this piece was the recitation of Lorca's poems while imagining music for them. Poetry was the guide in the whole compositional process because it generated musical passages that seemed to be appropriate to the poetic meaning. Undoubtedly, this piece could not have been composed if I had not previously gone through a process of reflection in my previous prosodic-based compositions. The

reflection on the prosodic features in *I Have a Dream*, *Sibilus*, *Signals* and *Vowels* constituted my technical tool with which to face a new situation: in all of these compositions, being instrumental, I owned the 'freedom' not to convey a semantic content. With *Romancero gitano* a new situation arose: through Federico García Lorca's poems, semantics came into play, which inevitably also led to an unavoidable emergence of new forms of dialectical opposition within a dramatic context. In this situation, I decided to leave the performer greater space for freedom. Perhaps the freedom I left to the performer was the freedom I had lost as a composer when faced with the challenge of semantics. Be that as it may, the fundamental matter here was the interdisciplinarity that the conception of the piece itself demanded to the creative process. Thus, my task was more to organise a poetic and musical framework than to compose in a traditional manner. Fortunately, in order to accomplish this, I had a great ally: Lorca himself was a musician and, as Jakobson points out (1973: 102), he considered music a fundamental part of poetry. As Uscătescu (2000: 39) claims, "musical intentionality is consubstantial with [Lorca's] poetic spirit"[25] and therefore a fertile ground for my purposes of interdisciplinarity. My *Romancero gitano* is therefore an example of inter-art, of collaboration between two different arts, or *ut musica poesis*[26]*,* as Paul Verlaine would say: from poetry, music is made, and vice versa. This kind of back-and-forth channel is the new fecund artistic territory that gave birth to *Romancero gitano*, a genuine interdisciplinary composition.

As already explained, the topics discussed above are a closing statement within this thesis but also a starting point for further research. I have tried, to the best of my capabilities, to accomplish the difficult task of putting what is behind words and music into words, of describing the ethereal realm of our inner landscapes; a 'place' inhabited by a strange type of knowledge, which our soul can only touch through art. One possible end to this essay —an open one— would be the one suggested by

[25] Translation from Spanish is mine.
[26] Derived from the Virgilian principle of "ut pictura poesis", "ut musica poesis" was used by Verlaine and other symbolist poets to underscore the influence of music in poetry (Dufrenne, 1973: Chap. IV).

James Joyce in his *Ulysses*: “Words? Music? No: it's what's behind” (Joyce, 1922: Chap. XI, 703). In this dissertation I have thus explored how prosody can be the key that unlocks this ‘behind’.

(26.016 words, excluding acknowledges, abstract and contents)

APPENDICES

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6 ANNOTATED INVENTORY OF THE PORTFOLIO COMPOSITIONS

6.1 Romancero gitano

For pianist-reciter

Date of composition: 2019

Duration: 30 minutes

Premiere: 21 May 2019, Oxford, Jacqueline Du Pre Music Building, Juan Carlos Garvayo.

Based on *Romancero gitano*, a selection of poems by Federico Garcia Lorca, this composition puts into play all the parameters of prosody as well as semantic and pragmatic matters. As a result, the piece researches into the use of prosody as an integrative resource in composition, combining and unifying techniques found in most of my previous compositions. In this way recitation and music converge into a common field of artistic expression. This piece is comprehensively examined in chapter 3.4.

6.2 Codex

For symphony orchestra

Date of composition: 2018-19

Duration: 9 minutes

Premiere: 11 May 2019. Oxford Town Hall, Oxford Philharmonic. Cond. Hannah Schneider

Commission of Oxford Philharmonic on the occasion of Leonardo da Vinci's 500th anniversary.

Codex is a composition inspired by Leonardo da Vinci. His "Codex on the Flight of Birds", with its meticulous studies of mechanics, aerodynamics and anatomy, serves as a pretext to create a musical work in which different bird flight techniques are recreated. This 16th-century codex contains detailed notes and drawings on the flight

of birds, as well as an analysis of how they maintain balance, move, rotate, descend and ascend during flight. Da Vinci clearly explained two different types of flight: the flight by beating the wings, or propeller flight, and the flight taking advantage of the wind energy, or gliding. *Codex* explores these different ways of flight and tries to reflect the kinetic energy through music.

As a result of the reading of this treatise there are two main musical ideas underlying the piece. On the one hand I try to reflect the propeller flight by means of poly-rhythmic sections. The main resource here is to generate block chords that resemble a sort of echo effect. This echo effect is achieved by virtue of the timbral alternation of the same harmony between two different groups of instruments. Measures 20 to 23 are a clear example of this technique.

On the other hand, the gliding flight is more static and less rhythmic. The gliding sections tend to use floating harmonies and melodies that convey a sense of relaxation. One such section is found in measures 64 to 89. After a French horn solo, the musical texture has little rhythmic activity and most instruments use mainly long notes.

The overall plan of the piece, based on these two contrasting kinetic concepts, is:

—Introduction (mm. 1-20)

—Propelling flight I (mm. 23-59)

Although the propelling flight is the main idea there are also subtle suggestions of the gliding flight (m. 24).

—Gliding flight I (mm. 60-89)

— Propelling flight II (mm. 90-124)

This section presents new material whilst maintaining the main atmosphere of the first propelling flight section. The music progresses here into a climax at m. 124.

—Recapitulation based on ideas of the introduction (mm. 124-131)

—Gliding flight II (mm. 132-154)

Final relaxation section where I try to reflect the idea of a bird gently landing after the flight.

6.3 I Have a Dream

For solo oboe

Date of composition: 2017

Duration: 6 minutes

Not premiered

This piece is based on the speech that Martin Luther King made on the occasion of the 'March on Washington for Jobs and Freedom' in 1963. Some parts of this speech are transcribed into musical notation and treated as melodic subjects. This composition is extensively discussed on chapter 3.1.

6.4 Daivat

For symphony orchestra

Date of composition: 2017

Duration: 13 minutes

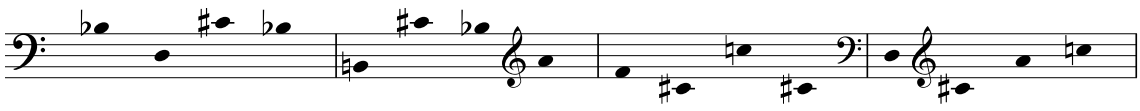
Premiere: 23 February 2019, Basel. Basel Chamber Orchestra. Cond. Franck Ollu

Andres Gaos Prize, Spain.

Final round at the *Basel Composition Competition* 2019

Daivat has different meanings in Sanskrit. On the one hand, it means power or strength. On the other, it also refers to a mythical time that memory cannot remember. This second connotation was very inspiring for me since it does not have a lexical translation[27] in any European language. Consequently, in order to describe the meaning of the word Daivat in English we have to use a whole sentence. Sanskrit has used this word as a way of indicating what cannot be remembered, a mythical time. The fact of naming the unmemorable implies the recognition of the limits of our conscious memory. Therefore, the unconscious is admitted as a space of the mind even though we are not able to enter it intentionally, consciously.

With this idea in mind, in this composition I try to work with the notion of memory as a builder of musical form. When we recall musical ideas that have been previously presented, our memory makes different connections within a given piece. For this reason, I present the initial melody (mm. 1-12, shown on the next figure) with distinctive intervals, to wit, minor third and major seventh leaps.



This melody is not conceived as a theme or a subject. On the contrary, I am trying to create a characteristic atmosphere by restricting the use of intervals to thirds and sevenths. Likewise, the rhythmic texture also collaborates to create this distinctive atmosphere. I gradually incorporate demisemiquavers to the textural tissue (mm. 7-17). This gradual incorporation leads to an energetic section that is completely immersed in the rhythmic drive of demisemiquavers (mm. 18-68). These two features, demisemiquaver values and intervallic content, render the first idea very recognisable, which is the aim of this first section. The latter is so to say the

[27] Lexical translation as defined by J.C. Catford is a type of restricted translation in which the source language lexis is replaced by an equivalent target language lexis (Catford, 1965: 71-72).

memorable subdivision of the piece and is juxtaposed to other less recognisable sections. One such less memorable section is found in measures 80 to 128. Here there is not a regular rhythmic structure as in the first section; neither is there a recognisable melody. In this manner, the fluctuation between memorable sections and less recognisable sections is the main way I develop the musical form of the piece. During the process of composition, I labelled these two contrasting sections/ideas as “memorable sections” and “Daivat sections”. The next schema shows the formal outline of the piece.

—Introduction (mm. 1-17)

—Memorable section I (mm. 18-69)

—Daivat I (mm. 70-139)

This section includes memories of the first section at mm. 84-85, 91-92, 111-112, 129-132

—Development section (mm. 140-179)

This section leads to the climax of the piece at m. 179. It is mostly a non-memorable section (Daivat) but it includes certain textural ideas (demisemiquavers) of the memorable section.

—Daivat II (transition) (mm. 180-191)

—Memorable section II (mm. 192-227)

—Coda (mm. 228-261)

The Coda is a remembering of the Introduction but with the vertical addition of a spectral harmony to all the individual notes of the initial melody.

6.5 Geroglifico d'amore

For choir and symphony orchestra

Date of composition: 2017

Duration: 20 minutes.

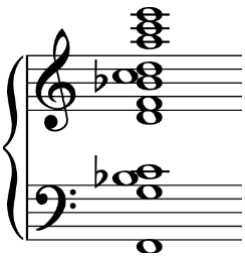
Premiere: 27 February 2018, Madrid, National Auditorium. ORCAM, choir and orchestra. Conductor: Víctor Pablo Pérez.

Commission of Madrid government.

This piece is a reflection on love and its different meanings according to Classical Greek tradition. I divide the composition in the following sections, each one dedicated to a particular type of love:

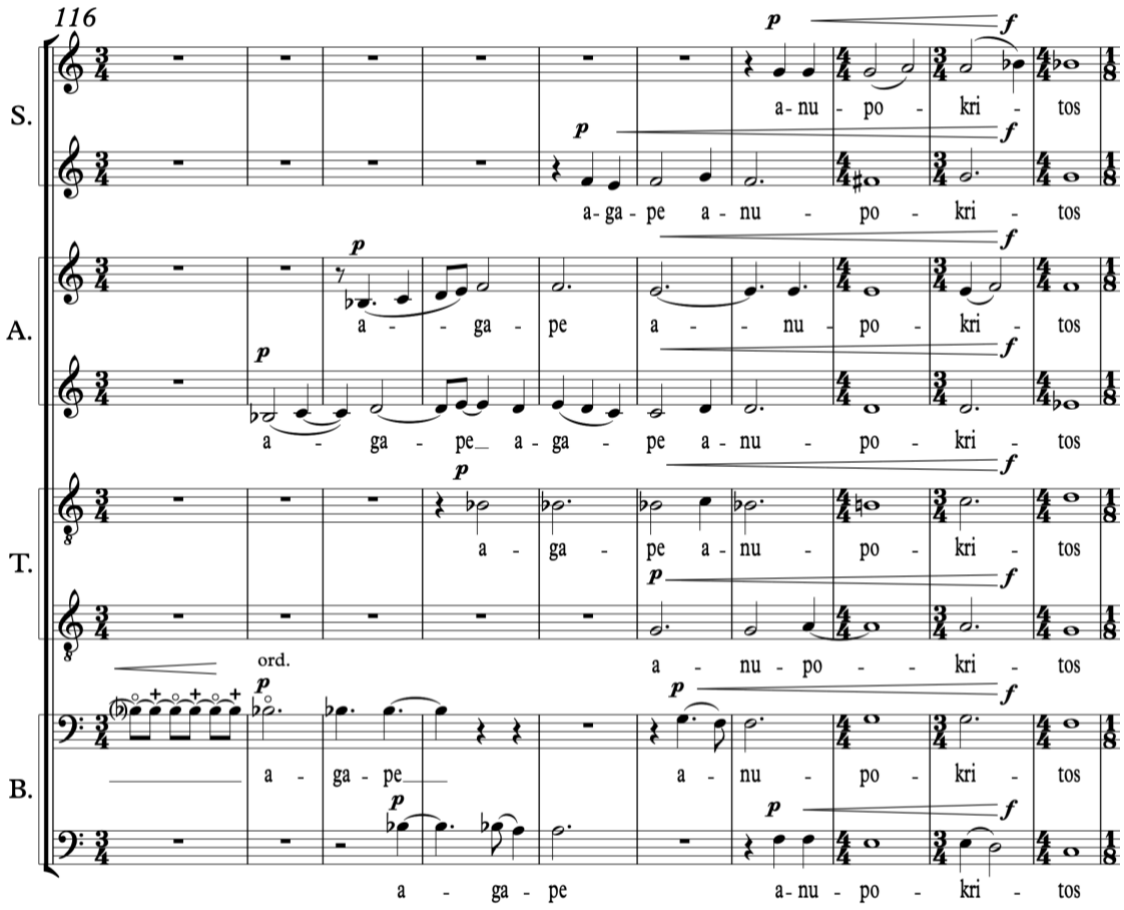
I. Prelude (m. 1-58)
II. Agape (m. 59-105)
III. Storge (m.106-170)
IV. Philia (m. 171-221)
V. Eros (m. 222-345)
VI. Philautia (m. 346-379)
VII. Postlude (m. 380-419)

The musical characteristics of each section try to reflect the different types of love. In the *Prelude* I present the sonnet by Giovan Giacomo Ricci that gives the piece its name. The sonnet deals with the, sometimes, pointless sense of carnal love. Whereas the choir recites the text in a micropolyphonic manner, the general impression is that of a harmonic continuum. The main harmonic idea comes from the opening chord, shown on the figure to the right.



Agape is defined as an unconditional and reflective love, associated with the concept of "caritas" in the Christian tradition or "metta" (universal goodness) in Buddhism. In this section the choir develops a contrapuntal polyphonic texture in the style of Palestrina, though with completely different harmonic content.

The third section, *Storge*, is inspired by brotherly or family love. Here the main musical idea is the spreading out of harmony from a central opening point. Measures 117 to 125 provide a good example of this. The figure below shows this expansion of harmony from a central point (*Bb*) towards a target chord. This procedure is sequentially repeated during this section while gradually increasing the choir range at the target chord.



The four section, *Philia*, is inspired by the type of love that promotes the common good, friendship. My intention here is to create a sort of mantra recitation within a calmed atmosphere. This recitation progressively grows in dynamic and range until measure 198 and from there on falls in tension towards the end of the section (mm. 198-216). In this manner, my purpose at measure 216 is to create an anticlimax that helps the next movement (*Eros*) to be perceived as a strong and intense section.

Carnal love, *Eros*, is reflected by means of a quick ternary tempo during section V (m. 222-345). I here look for strength and vigor in the choir, so at many points sopranos and altos are in unison. The same applies for men. This energetic movement has its climax at measure 318, where the text says “gemitus” (moan). After this, tension gradually decreases and the rhythmic texture tends to be vaguer.

This melting effect in the rhythmic texture leads to the next movement, *Philautia* (self-love) (mm. 346-379). The opening chord of this section, which is already suggested in the final part of the previous one, is a harmonic restatement of the opening of the piece. As a result, I use the same opening chord half a step down, in *E*.

The *Postlude* carries on with this idea of recapitulation, reducing step by step the musical tension. At the end, the initial sonnet is read aloud first by a man then by a woman before the conclusion of the piece. The whole piece is a sort of metaphorical descent from the most sublime love, *Agape* or love for God, to the lowest type of love, *Philautia* or self-love. This descent is also reflected in the recapitulation of the opening chord a half-tone lower. The descending harmonic and melodic gestures of the choir from measure 380 to 400 also try to suggest the aforesaid descent.

6.6 Vowels

For string quartet

Date of composition: 2016

Duration: 11 minutes

Workshop: 8 March 2016, Oxford, Faculty of Music, University of Oxford. Villiers Quartet.

Premiere: 5 November 2016, Madrid, Royal Conservatory of Music. Cibeles string quartet.

My third string quartet is based on the spectral analysis of the five basic vowels. These analyses form the harmonic material of the work. This piece is discussed on chapter 3.2.

Total duration of the portfolio: 89 minutes