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**PERFORMING NUEVO TANGO ON
THE FREE-BASS ACCORDION:
FUNCTIONALITY, TECHNIQUE, TIMBRE**

DOCTORAL THESIS SUBMISSION

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DECLARATION OF GRANTING POWERS OF DISCRETION

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ABSTRACT

This thesis explores the potential of the free-bass accordion in nuevo tango performance and composition, addressing traditional perspectives that predominantly associate the genre with the bandoneon. The study focuses on the characteristics and capabilities of the free-bass accordion, highlighting its versatile functionality, technique, and timbre. By examining Astor Piazzolla's bandoneon performance techniques and nuevo tango compositions, this research explores the free-bass accordion's ability to both interpret Piazzolla's works and introduce novel methods of performance.

The research is structured into two main objectives. The primary objective of this research is to explore the performance techniques of the free-bass accordion in nuevo tango music, highlighting its distinctive capabilities and distinguishing it from the bandoneon. The secondary objective of this research is to explore innovative approaches to performing nuevo tango on the free-bass accordion by collaborating with contemporary Argentine composers, with the aim of performing new contemporary tango pieces.

Methodologically, the study employs a multi-phased approach, combining musical analysis, fieldwork, trial-and-error, and collaborative creation. This includes inquiries into Piazzolla's bandoneon techniques, examinations of the free-bass accordion's sonic attributes, and practical experimentation in performance settings. Additionally, fieldwork in Buenos Aires and collaborations with contemporary composers provide practical insights into integrating the free-bass accordion into nuevo tango ensembles.

This research highlights the innovative potential of the free-bass accordion in nuevo tango, offering new perspectives and performance approaches to the evolving genre. These findings contribute to the broader field of music performance studies and support the continued relevance and vitality of both the free-bass accordion and tango music for future generations.

CHAPTER 1: INTRODUCTION

“The bandoneon has a velvet sound, a religious sound.

It was made to play sad music.”

— Astor Piazzolla, 1988.¹

1.1 Overview

This research explores the potential of the free-bass accordion in nuevo tango performance and composition. The accordion, particularly the free-bass accordion, has evolved considerably over the last few decades in terms of instrument build and sound. This significant development has raised the status of the free-bass accordion in the classical music establishment. By contrast, the free-bass accordion is largely neglected in tango music. According to Astor Piazzolla, the accordion is “a very happy instrument” and therefore not suitable for playing nuevo tango. In a 1988 interview in New York, he described the accordion as “a very happy instrument...the accordion has an acid sound, a sharp sound. It would never do justice to the essence of our music”.² In this research, I will challenge that view and argue that, not only does the free-bass accordion have the ability to deliver the characteristics of nuevo tango, but its versatility can also take tango in new directions.

There are two main objectives to the research. First, to explore the performance techniques of the free-bass accordion in nuevo tango music, highlighting its distinctive capabilities and distinguishing it from the bandoneon. Second, explore innovative approaches to performing nuevo tango on the free-bass accordion by

¹ María Susana Azzi and Simon Collier, *Le Grand Tango: The Life and Music of Astor Piazzolla* (New York: Oxford University Press, 2000), p. 153.

² Azzi and Collier, pp. 152-153.

collaborating with contemporary Argentine tango composers, with the aim of performing new contemporary tango pieces.

1.2 Personal Motivations

With over twenty years of dedication to the accordion, performing Piazzolla's nuevo tango on the free-bass accordion has been a significant part of my repertoire.

Despite the instrument's neglect in nuevo tango, Piazzolla's nuevo tango compositions remain a staple for many free-bass accordionists, with international competitions often dedicating categories to his works. In London, I am part of a nuevo tango quintet comprising professional musicians from diverse classical and cultural backgrounds, including Asia, Europe, and South America.

A significant challenge for free-bass accordionists is the lack of systematic performance techniques for Piazzolla's compositions, which are predominantly written for the bandoneon. Consequently, free-bass accordionists, including myself, often resort to listening to Piazzolla's bandoneon performances and attempting to imitate his style, without fully expressing the unique versatility that the free-bass accordion offers. In addition, Piazzolla himself, a key figure in nuevo tango, had once said that the accordion is unsuitable for the genre. However, as a professional free-bass accordionist, I am intimately aware of the instrument's versatility and potential. I believe that its capabilities have not been fully explored in both Piazzolla's and contemporary nuevo tango compositions.

My goal is to explore the capabilities of the free-bass accordion within the context of nuevo tango. Beginning with a detailed analysis of Piazzolla's bandoneon techniques — focusing on ornamentation, embellishment, and rubato — I aim to adapt and expand these elements for the free-bass accordion. This exploration will

demonstrate the instrument's potential not only to replicate but also to reinterpret Piazzolla's works, introducing novel methods of performance and interpretation. Collaborations with contemporary composers will further enhance this exploration, leveraging the free-bass accordion's expansive timbral range and advanced chordal functionality to create new tango compositions and performance practices, thereby charting new directions for the genre.

1.2.1 Cross-Cultural Journey

This research is deeply rooted in my personal cross-cultural journey with tango music. As a Chinese musician, my initial exposure to tango came through Piazzolla in 2005, during an accordion competition at which my father introduced me to one of his albums. This personal encounter is part of a larger historical narrative of tango music's introduction to China. While early efforts by Argentine musicians like Osvaldo Pugliese in the mid-20th century did not significantly popularise tango in China, the late 1990s marked a turning point. Notably, in 1997, the release of Yo-Yo Ma's "Tango Soul" album, featuring Piazzolla's compositions, and the visit of the influential Chinese accordion teacher Yan Sheng Li to Europe, where he encountered Piazzolla's compositions arranged for the free-bass accordion, played pivotal roles in popularising Piazzolla's nuevo tango in China.³ Consequently, in both music academia and broader circles in China, Piazzolla's music and the accordion have become virtually synonymous with tango.

This cultural backdrop provides a unique lens through which I approach my research. My experience in London, where Piazzolla's influence is similarly pervasive, has enriched my experience with Piazzolla's nuevo tango, and I believe that music is a

³ 欧占明,《探戈艺术的中国之花: 阿根廷探戈在中国的发展》(Beijing: New Star Press, March 2019), p.9. This book is in Chinese; no English version is available. Title in English: "The Chinese Flower of Tango Art: The Development of Argentine Tango in China."

dynamic and ever-evolving art form, with genres like tango and nuevo tango constantly undergoing transformation and reinvention. My aim with this research is to contribute to the evolving conversation within nuevo tango music practice through a synthesis of cultural influences and free-bass accordion techniques.

1.3 Literature Review

This section offers an initial overview of key literature and recordings relevant to the study. In addition, more detailed engagement with scholarship appears throughout the subsequent chapters, where specific bodies of literature are examined in relation to the historical, analytical and performance-related discussions to which they pertain. This distributed approach enables the literature to be addressed with greater precision within the thematic contexts on which each chapter focuses.

1.3.1 Literature and Recording Review

Tracing Tangueros, by Kacey Link and Kristin Wendland, is a comprehensive work that describes a number of key Argentine tango musicians and their musical styles. It traces the journey of nuevo tango as a part of tango's evolution,⁴ and it examines Piazzolla's arrangement, instrumentation, and performance style. For the bandoneon, despite its central role in tango, there is little academic literature that analyses its performance techniques comprehensively. Eva Wolff's *The Bandoneon in*

⁴ Other books on nuevo tango include: Omar García Brunelli, "A Brief History of Tango," in *The Cambridge Companion to Tango*, ed. Kacey Link and Kristin Wendland (Cambridge: Cambridge University Press, 2023), pp. 10–26; Oscar López Ruiz, *Piazzolla: loco, loco, loco* (Buenos Aires: Ediciones de la Urraca, 1994).

Tango describes the fundamental bandoneon techniques for tango.⁵ I have been in correspondence with Wolff and have undertaken bandoneon lessons with her.⁶

While there is little research on the details of Piazzolla's bandoneon performance technique, the many recordings that he made throughout his lifetime are a rich resource for understanding the intricacy of his playing style. In recent years, some scholars have used Piazzolla's recordings as a basis of their research,⁷ but they do not contain a thorough analysis of Piazzolla's performance techniques, including his ornamentation and embellishment. I have therefore analysed several of Piazzolla's recordings⁸ from different eras by manually transcribing the bandoneon segments, focusing on his ornamentation and embellishment. My findings reveal patterns that show Piazzolla's distinct style, such as his techniques of compensating for the bandoneon's complex keyboard-bellows relationship⁹ and for the bandoneon's non-systematic keyboard arrangement.¹⁰

⁵ Eva Wolff, *The Bandoneon in Tango* (Buenos Aires: Tango Sinfon, 2018).

⁶ In the lessons, what stood out for me was the bandoneon's complex and non-systematic keyboard arrangement and its short bellows.

⁷ Natalio Gorin, *Astor Piazzolla: A Memoir*, trans. by Fernando González (Portland, Oregon: Amadeus Press, 2001), pp. 141-145; Santiago Cimadevilla, 'Improvisation on bandoneon solos in Argentine tango: A study of the soloistic language of Astor Piazzolla' (unpublished master thesis, CODARTS Rotterdam Conservatorium World Music Academy, 2010); Mauriño Gabriela, 'A New Body for a New Tango: The Ergonomics of Bandoneon Performance in Astor Piazzolla's Music', in *The Galpin Society Journal* (Galpin Society, 2009), pp. 263-271.

⁸ The selected recordings are: Astor Piazzolla, *Concierto para quinteto, Astor Piazzolla y su Quinteto* (RCA Victor, AVL-4013, 2005); Astor Piazzolla, *Live at Cine Teatro Gran Rex Buenos Aires 1987* (West Wind Latina, WWL 2212, 1992); Astor Piazzolla, *Tango: Zero Hour* (American Clave, AMCL 101, 1993); Astor Piazzolla, *Octeto Buenos Aires Tango Progresivo* (Allegro, AL 6001, 1956).

⁹ For example, Piazzolla would use an elaborate set of ornamentations as compensation. Further discussion on this is in chapter 2 of this thesis.

¹⁰ There are several studies within English literature that focus on performance style analysis using recordings, these studies highlight how recordings, when analysed alongside written scores, can offer insight into performance practices that are often underexplored in the notation itself. A recent example is Kevin Ngo, 'Embellishment, Ornamentation and the Role of the Performer in the Late Eighteenth Century: Reanimating the Adagio from Mozart's Sonata K. 570' (Doctoral thesis, University of Calgary, Calgary, Canada, 2021). Kevin's research explores the historical practice of improvising ornamentation in Mozart's music and provides modern pianists with tools to integrate un-notated embellishments into their performances.

For the free-bass accordion, there is little existing literature on its history and construction. In addition, there is a lack of authoritative literature on its performance techniques in both tango and nuevo tango. This represents a gap in our understanding of the genre, and further research is needed to develop a comprehensive understanding of the instrument's role in tango music.

Thus, I have identified three key gaps in the literature: (1) detailed performance techniques of the bandoneon in nuevo tango, (2) a comprehensive analysis of Piazzolla's nuevo tango bandoneon performance techniques, particularly in ornamentation and embellishment, and (3) performance techniques of the free-bass accordion in nuevo tango.

Together with subsequent chapters, this section lays the foundation for a practice-based exploration grounded in both historical awareness and performance analysis.

1.4 Research Objectives

This research aims to serve both academic and practical purposes, and the two main objectives are as follows:

- (1) The primary objective of this research is to explore the performance techniques of the free-bass accordion in nuevo tango music, highlighting its distinctive capabilities and distinguishing it from the bandoneon.
- (2) The secondary objective of this research is to explore innovative approaches to performing nuevo tango on the free-bass accordion by collaborating with

contemporary Argentine composers, with the aim of performing new contemporary tango pieces.

To support these main objectives, the research will focus on four specific areas:

- i. **Analysing and challenging Astor Piazzolla's perspective on the accordion in tango.** This objective involves a critical examination of Astor Piazzolla's views regarding the accordion's role and appropriateness in nuevo tango. It aims to compare these views with modern interpretations and technological advancements in accordion design, thus re-evaluating the instrument's potential in this genre.
- ii. **Exploring the functional capabilities of the free-bass accordion in nuevo tango.** This research explores the technical and musical capacities of the free-bass accordion, particularly its timbral range, versatility, and its potential to extend beyond the traditional limitations of the bandoneon. Additionally, new performance techniques will be developed in conjunction with these capabilities to enable more effective interpretations of nuevo tango, offering a distinctive approach to its musical expression.
- iii. **Collaborating with composers to create new tango compositions.** This objective involves partnering with contemporary composers to produce compositions that highlight the unique sonic characteristics and capabilities of the free-bass accordion, contributing fresh perspectives to the tango repertoire.
- iv. **Demonstrating the free-bass accordion's role in the evolution of tango.** Through performance and analytical studies, this research aims to illustrate how the free-bass accordion can play a pivotal role in the ongoing evolution

and diversification of tango music, potentially opening new avenues for artistic expression within the genre.

1.5 Research Methodology

This practice-based research employs a multiple-phased exploratory strategy, encompassing musical analysis, fieldwork, auto-ethnography, and collaborative creation. The methodology is segmented into four distinct phases to ensure a multidimensional exploration of the free-bass accordion's potential in nuevo tango.

The initial phase involves an in-depth inquiry into the bandoneon's construction and performance characteristics, particularly focusing on Piazzolla's nuevo tango bandoneon performance techniques. This includes acquiring a bandoneon similar to Piazzolla's, undertaking fundamental bandoneon lessons with experts such as Eva Wolff and Damian Foretic, a professional Argentine bandoneon player, and reviewing relevant literature on nuevo tango and Piazzolla's works. In addition, I carried out extensive listening to Piazzolla's historical recordings and transcribed selected bandoneon parts for detailed case studies of his performance practice. Interviews with Argentine bandoneonists and Piazzolla scholars further enrich this segment, contributing to a deeper understanding of the nuanced performance techniques that define Piazzolla's nuevo tango.

The second phase entails an extensive examination of the free-bass accordion's sonic attributes, expanded chordal capabilities, and intricate performance techniques. This involves a detailed review of existing literature, critical analysis of auditory recordings, and practical experimentation on the instrument, leveraging my expertise as a free-bass accordionist. Specifically, the exploration focuses on the

instrument's twenty registers across two categories of music: Astor Piazzolla's existing works and more recent pieces by contemporary tango composers who are not primarily known for their accordion skills. This phase also included an exploration of percussive methods applied to the accordion's body. In addition, a preliminary timbral analysis was conducted to examine how the free-bass accordion compares with the bandoneon and the standard-bass accordion.

The third component employed a trial-and-error methodology, where I engaged in reflective practice by performing Piazzolla's compositions on the free-bass accordion, both in solo and ensemble settings. Throughout this process, I experimented with various performance techniques, such as nuanced bellows articulation, the use of alternate bass notes, and subtle rhythmic variations to enhance the expressive potential of the accordion. Through continuous experimentation and adjustment, I explored how Piazzolla's bandoneon techniques could be adapted and expanded for performance on the free-bass accordion.

The fourth and final phase involves collaboration with contemporary Argentine composers to interpret their new tango compositions using the free-bass accordion. This collaborative effort extends to creating a new composition, with the aim of positioning the free-bass accordion at the forefront. The process requires close engagement with the composers to internalise their artistic vision and formulate appropriate performance methodologies for the free-bass accordion. This phase aims to showcase the instrument's versatility and innovation in nuevo tango.

To enrich this research, fieldwork was conducted in Buenos Aires, Argentina. This included interviews with prominent tango artists and academics, observational visits to key tango clubs and performance spaces, and archival research in local libraries and museums. During this period, I also engaged in informal practice sessions with local tango musicians. In addition, I participated in two contrasting performance

contexts: one in a formal concert hall and another in a well-established local tango bar. The latter performance, aimed at discerning local Argentine patrons, presented a unique challenge and provided invaluable feedback to me as a non-Argentine musician.

Additionally, I invited an Argentine composer and pianist specialising in nuevo tango, along with a professional Argentine bandoneon player, to London for a tango musical festival. This event included two performances over the course of two days, featuring duet and quintet formations with the free-bass accordion, bandoneon, piano, violin, and bass. This collaboration offered practical insights into the integration of the free-bass accordion within nuevo tango ensembles, highlighting its potential to bring variety to the traditional instrumentation.

As described above, in addition to the four structured phases, the project adopts elements of ethnographic and anthropological methods. The fieldwork, rehearsals, performances and collaborations with Argentine musicians in Buenos Aires, including work with composers such as Diego Schissi and Ariel Pirotti, and observations in tango clubs and orchestras, are treated as forms of situated enquiry. In this thesis, ethnographic and anthropological methods are understood as ways of investigating performance practice through participation, observation and reflection, with particular attention to how musical behaviours are embedded in cultural meanings and social contexts. Taken together, these activities shape my understanding of nuevo tango as a lived performance practice and allow cultural expectations, rehearsal conventions and stylistic nuances to inform the analytical and creative decisions discussed in later chapters, including my work as a non-Argentine free-bass accordionist.

1.6 Organisation of the Thesis

This thesis is organised into six chapters, each serving a distinct purpose in the overall research narrative.

Chapter 1, the “Introduction,” sets the stage for the research by outlining the research’s context, personal motivations, literature review, research objectives, and methodology. This chapter provides the foundational context and framework, establishing the relevance and scope of the exploration.

Chapter 2, “Piazzolla’s Nuevo Tango on the Bandoneon,” explores Astor Piazzolla's performance techniques on the bandoneon. It begins with a brief history of tango, nuevo tango, and the bandoneon. Following this, it introduces Piazzolla and traces the development of his nuevo tango music. Detailed attention is given to the bandoneon’s significance within tango, including its construction and how Piazzolla’s techniques—such as rubato, ornamentation, and dynamic phrasing—redefined the genre. This chapter sets the foundation for examining how these techniques might be adapted to other instruments, particularly the free-bass accordion.

Chapter 3, “Interlude — Introducing the Free-Bass Accordion into Nuevo Tango,” introduces the free-bass accordion within the context of nuevo tango, highlighting its structural differences from the bandoneon and how these characteristics influence performance. This sets the stage for assessing how the free-bass accordion’s unique features might expand the interpretive possibilities within the genre, while respecting the established musical and cultural conventions surrounding the bandoneon.

Chapter 4, "Performing Piazzolla's Nuevo Tango on the Free-Bass Accordion," explores the performance techniques of Piazzolla's nuevo tango pieces on the free-bass accordion. The chapter outlines the rationale for selecting specific pieces for analysis and describes these selections — two solo and two ensemble pieces. It then provides a detailed examination of free-bass accordion techniques, focusing on its registers, bellows, and keyboards.

Chapter 5, "Performing Contemporary Nuevo Tango on the Free-Bass Accordion," explores collaborations with contemporary nuevo tango composers. It documents the process of performing contemporary nuevo tango pieces on the free-bass accordion and details the creation of an original composition specifically centred around the instrument. The chapter reflects on the collaborative process and the innovations introduced through these partnerships.

Chapter 6, the "Conclusion," summarises the key findings of the research, emphasising the original contributions to the field of nuevo tango and free-bass accordion performance. It reflects on the research process, discussing challenges encountered and the ways they were addressed. Finally, the chapter will consider the broader implications of this research for future studies and the ongoing evolution of tango music, particularly in relation to the integration of the free-bass accordion.

CHAPTER 2: PIAZZOLLA'S NUEVO TANGO ON THE BANDONEON

2.1 Introduction

This chapter serves two primary purposes. First, it aims to establish the contextual foundation of Piazzolla's bandoneon performance within the framework of nuevo tango. To achieve this, the chapter traces the evolution of tango through its four key stages over the past 150 years: the "Guardia Vieja" (Old Guard), the "Guardia Nueva" (New Guard), the "Avant-Garde" period, and the "Contemporary Tango" period, focusing on the place of the bandoneon within this evolution. Understanding these stages is crucial for appreciating the cultural and musical contexts from which nuevo tango emerged, as well as the instrumentation integral to its development.

Additionally, I will explore the history of the bandoneon, detailing its arrival in Argentina and its roles in tango, examining how the bandoneon contributed to tango's evolution and how the bandoneon became the essence of the genre.

Following this historical overview, the focus will shift to Astor Piazzolla, examining his influential role in the development of nuevo tango and the key influences that shaped his musical journey.

The second, and central, purpose of this chapter is to analyse Piazzolla's bandoneon performance techniques within nuevo tango. Piazzolla's music, emerging from a rich tango tradition infused with classical and jazz elements, represents a synthesis of various musical influences. This section provides a detailed examination of his performance techniques, including his use of rubato, ornamentation, and innovative approaches to phrasing and dynamics. By understanding Piazzolla's bandoneon techniques, it is then possible to subsequently adapt and expand them for the free-bass accordion, demonstrating the free-bass accordion's potential to perform and

reinterpret Piazzolla's works and introducing novel methods of performance and interpretation.

2.2 *A Brief History of Tango and Nuevo Tango*

Tango emerged in the late nineteenth century in Buenos Aires within a cultural environment shaped by diverse musical currents circulating in the Río de la Plata region. These included rhythmic patterns associated with the *habanera*, Afro-Argentine influences present in local *milonga* traditions, and musical practices brought by successive waves of European immigrants.¹¹ The genre developed within working-class and immigrant communities and was performed in informal and often marginal spaces such as bars, brothels, and *conventillos*. As Buenos Aires expanded socially and economically, tango evolved in parallel with the city's shifting cultural and urban landscape.¹²

Early Tango and the Old Guard (to c. 1920)

The earliest form of tango, later referred to as the *Guardia Vieja*, was primarily instrumental and performed by small ensembles featuring guitar, violin, and flute.¹³ Influenced by rhythmic patterns derived from the *habanera* and *milonga*, tango gradually adopted the characteristics recognised today. The introduction of the bandoneon in the early twentieth century contributed significantly to this transformation. By the 1910s, the instrument had become a defining element of tango ensembles, shaping both the sound and performance practice of the period.¹⁴

¹¹ Omar García Brunelli, "A Brief History of Tango," in *The Cambridge Companion to Tango*, ed. Kacey Link and Kristin Wendland (Cambridge: Cambridge University Press, 2023), pp. 10–12.

¹² García Brunelli, pp. 15-16.

¹³ García Brunelli, pp. 10-11.

¹⁴ García Brunelli, pp. 12-14.

This era established tango's foundational rhythmic and melodic vocabulary while the genre remained connected to the marginal and immigrant social circles in which it originated.

Guardia Nueva (c. 1920–1935)

By the 1920s, tango entered the Guardia Nueva, characterised by greater musical refinement, more elaborate orchestral arrangements, and growing social acceptance.¹⁵ During this period, the bandoneon became central to the instrumentation of the Orquesta Típica, and vocal performance gained prominence. Carlos Gardel played a significant role in bringing tango to international audiences through recordings and films, contributing to its emergence as a cultural symbol of Argentina.¹⁶

The Golden Age (c. 1935–1955)

The so-called Golden Age is widely recognised as a period of flourishing musical creativity and stylistic diversity.¹⁷ Large orchestras dominated dance halls, radio broadcasts, and the recording industry. Ensemble leaders such as Juan D'Arienzo, Aníbal Troilo, and Osvaldo Pugliese developed distinctive rhythmic profiles and approaches to arranging, contributing to the formation of the repertoire still used by social dancers today. Tango functioned simultaneously as a characteristic urban popular music of Buenos Aires and a prevalent social dance, appealing to audiences across different sectors of Buenos Aires society.

¹⁵ García Brunelli, pp. 18-19.

¹⁶ García Brunelli, pp. 16-17.

¹⁷ García Brunelli, pp. 20-22.

Nuevo Tango (c. 1955–1990)

Astor Piazzolla (1921–1992) is situated in tango historiography at the transition between the final phase of the Golden Age and the emergence of nuevo tango.¹⁸ After working as a bandoneonist and arranger in Aníbal Troilo's Orquesta Típica, and later studying composition with Nadia Boulanger in Paris, Piazzolla combined a grounding in traditional tango with compositional techniques drawn from Western art music and jazz.

Between 1955 and 1957, his Octeto Buenos Aires introduced chamber-style instrumentation, contrapuntal textures, expanded harmonic structures, and irregular rhythmic groupings. These included the characteristic 3–3–2 accent pattern, which Brunelli identifies as a distinctive feature of Piazzolla's rhythmic writing.¹⁹ These developments marked a departure from post-Golden Age stylistic norms, particularly in relation to ensemble structure and rhythmic emphasis.

Contemporary Tango (c. 1990–present)

Since the 1990s, tango has undergone a global revitalisation driven by tourism, international festivals, and renewed transmission through both traditional and contemporary pedagogical networks.²⁰ Contemporary tango encompasses a wide range of stylistic approaches, from historically informed performance to more experimental practices involving electronic elements, non-traditional instrumentation, and cross-genre influences. This diversity reflects tango's continuing evolution as both a living tradition and a site of musical exploration.

¹⁸ García Brunelli, pp. 22.

¹⁹ García Brunelli, pp. 23.

²⁰ García Brunelli, pp. 25-26.

This historical framework sets the stage for the present research, which explores how the free-bass accordion, an instrument often overlooked in tango, can be incorporated into nuevo tango. By analysing Piazzolla's performance techniques and compositions, this thesis argues that the free-bass accordion is capable of delivering the complex textures and emotional depth characteristic of nuevo tango, while offering new interpretive possibilities that can expand the genre's expressive range.

2.3 *A Brief History of the Bandoneon*

Having briefly explored tango's history, I now turn to the bandoneon's history, tracing the journey from its European origins to its roles in Argentine tango.

The bandoneon was developed in the mid-19th century as part of the broader evolution of bellows-driven instruments like the concertina. It originated in Germany, primarily through the work of Carl Friedrich Uhlig (1789-1874), who developed the Chemnitz concertina. Uhlig's instruments were refined and expanded by his son-in-law, Johann David Wunsch (1841-1895), and later, Heinrich Band (1821-1860), whose modifications led to the creation of the bandoneon.²¹

Initially, these instruments were designed with a relatively simple layout, but through customer demand, more keys and rows were added, with models reaching up to 88 tones. Heinrich Band played a crucial role by introducing a unique keyboard arrangement, later referred to as "Rhineland tuning," which allowed for more expressive and versatile playing.²²

²¹ Janine Krüger, *Heinrich Band. Bandoneon Die Reise eines Instruments vom Niederrhein in die Welt* (Klartext, 2020), pp. 255-256.

²² Krüger, p.259.

The bandoneon gained popularity in Germany but became particularly significant in Argentina, where it became an essential instrument in tango music. The instrument underwent further refinements, such as the AA model by Alfred Arnold, which garnered preference among Argentine musicians. Early 20th-century endeavours to standardise the bandoneon, achieving partial success with the adoption of a 71-button configuration, underscored its integral role in tango ensembles, eventually supplanting the flute by the 1930s to 1940s. Arnold, a German luthier, played a pivotal role during this period by manufacturing and exporting the bandoneon to meet Argentina's surging demand, with his instruments affectionately dubbed "Doble A (AA)" after his initials. World War II, however, interrupted production as Arnold's workshop was requisitioned for the war effort, leading to post-war production challenges until figures like Klaus Gutjahr spearheaded revival efforts.²³ Today, the bandoneon's singular sound continues to resonate at the heart of tango music, emblematic of its journey from European innovation to a symbol of Argentine cultural identity.

The bandoneon's integration into Buenos Aires' tango scene is credited to several pioneering individuals, and the history of bandoneon in tango is a dynamic and contested field. Tomas Moore, known as "el inglés" (the Englishman), is believed to have first introduced the instrument to Argentina in 1870. Other key early figures include Ruperto "el ciego" (the blind man), Pedro Ávila, Pablo Romero, and Domingo Santa Cruz, who played roles in adopting and adapting the bandoneon into tango music.²⁴ By the late 19th century, bandoneonists were recognised as notable musicians, with historian Roberto Selles acknowledging Antonio Francisco Chiappe as a seminal figure in the bandoneon's tango history. This period marked the bandoneon's firm entrenchment in tango music, leading to the formation of the

²³ Marcelo Solis, "History of Tango – Part 5," *Escuela de Tango de Buenos Aires*, accessed October 29, 2023, <https://escuelatangoba.com/marcelosolis/history-of-tango-part-5/>.

²⁴ Solis, *History of Tango – Part 5*.

"orquesta típica criolla," the first tango ensemble to be formally recorded, where the conductor was also the bandoneonist of the group. In sum, the bandoneon arrived in Buenos Aires shortly after its invention and quickly became central to tango music.

2.4 Piazzolla's Nuevo Tango and His Bandoneon

“The old traditional tango was very boring.
There had been no changes to that music
for at least forty or fifty years until I came in.”
— Astor Piazzolla²⁵

After exploring the roles and impacts of the bandoneon in tango music, the focus shifts to Astor Piazzolla, a notable figure whose work accelerated important changes within the genre. Piazzolla, an innovative composer and bandoneon virtuoso, became a leading voice in the evolution of the nuevo tango style, influencing how tango music is expressed and perceived. By weaving in modern musical elements such as the harmonies and structures of jazz and classical music,²⁶ he contributed to broadening tango's appeal and expanded its range of expression and compositional possibilities.

These innovations were shaped by multiple converging factors. First, as an Argentine steeped in the tango tradition from childhood, Piazzolla was deeply familiar with its established patterns. Second, his formative years in New York exposed him to jazz and classical music,²⁷ and his later studies in Paris with Nadia Boulanger provided rigorous classical compositional training, enabling him to move beyond the idiomatic limits of traditional tango.²⁸ Third, tango itself was already undergoing renewal; musicians and composers such as Horacio Salgán and Osvaldo Pugliese were introducing new harmonic, rhythmic, and performance practices.²⁹ Piazzolla's work

²⁵ David Butler Cannata, 'Making it there: Piazzolla's New York concert', in *Latin American Music Review*, vol.26, no.1 (Austin: University of Texas Press, 2005), pp. 75-81.

²⁶ Azzi and Collier, p. 158.

²⁷ Azzi and Collier, pp. 11-15.

²⁸ Azzi and Collier, pp. 50-51

²⁹ García Brunelli, pp. 21-24.

emerged within this environment and innovates further in both his compositional voice and his approach to the bandoneon.

Although Piazzolla claimed that earlier tango had changed little for decades, historical evidence suggests that this reflects more a rhetorical assertion than an accurate depiction of tango's evolution. In reality, the historical record shows a continuous process of musical refinement well before and during Piazzolla's career. Julio De Caro's guardia nueva model introduced a lighter ensemble sound, expanded phrase shaping, and more varied approaches to orchestration,³⁰ Salgán advanced the genre through harmonically sophisticated writing, textural contrast, and contrapuntal interplay³¹ and Pugliese developed a distinctive rhythmic organisation, ensemble articulation, and dynamic design.³² Their contributions demonstrate that tango's creative language had been in motion well before Piazzolla's interventions. Thus, viewing nuevo tango as something suddenly and solely invented by Piazzolla would be inaccurate. A more fitting understanding is that nuevo tango emerged from an existing trajectory of change.

Understanding Piazzolla's early influences and career is essential for comprehending his contributions to nuevo tango and the development of his bandoneon playing style. By examining the key figures and experiences that shaped his musical evolution, we gain insight into how he synthesised diverse musical elements to create a distinctive and enduring musical voice.

³⁰ Link and Wendland, pp. 138-149.

³¹ Link and Wendland, pp. 204-213.

³² Link and Wendland, pp. 181-190.

2.4.1 Astor Piazzolla and His Early Influence

Piazzolla's distinctive style emerged from a confluence of influences that spanned traditional tango, classical music, and jazz. This section explores his socioeconomic background and, importantly, the pivotal figures and moments that directly contributed to his development as a bandoneonist and composer.

(1) Socioeconomic Background

Astor Piazzolla's socioeconomic background is characterised by a pattern of intergenerational mobility and transnational migration, beginning with his Italian immigrant grandparents³³ and continuing through his parents' moves between Argentina and the working-class community of New York³⁴ in search of economic opportunity.³⁵ This environment of persistent striving influenced the family's aspirations, leading his father, Vicente Piazzolla, to place a strong expectation on Astor to achieve greatness and to regard the bandoneon as the instrument most suited to realising that potential.³⁶

This background can be further understood through the class histories of his Italian-born grandparents and their migration to Argentina. All four came from Italy, although from different regions and circumstances. His paternal family originated from Trani in Puglia, an area associated at the time with limited economic prospects. His paternal grandfather, Pantaleón Piazzolla, who was unable to read or write, undertook a sequence of manual occupations, including seasonal maritime work, coastal labour, and service roles such as working as a theatre doorman.³⁷ By

³³ Azzi and Collier, p. 3.

³⁴ Azzi and Collier, p. 5.

³⁵ Azzi and Collier, pp. 3-4.

³⁶ Azzi and Collier, pp. 5-8.

³⁷ Azzi and Collier, pp. 3-5.

contrast, his maternal family, the Manettis from Lucca in Tuscany, benefited from comparatively stronger economic conditions. After settling in Mar del Plata, his maternal grandfather, Luis Manetti, established himself as a small-scale farm owner.³⁸

The class position inherited by Piazzolla's parents reflects the aspirations commonly observed among first-generation immigrant families who seek to improve their circumstances through skill acquisition and entrepreneurship. Although the formal education levels of Vicente Piazzolla and Asunta Manetti are not specified in available sources, both demonstrated marked vocational adaptability. Vicente, known for his restlessness and readiness to relocate in search of better opportunities, moved from running a bicycle shop in Argentina to retraining as a barber after the family migrated to New York.³⁹ Asunta followed a similar path, beginning with labour-intensive factory work, later acquiring hairdressing skills, and ultimately developing an almond-based cosmetic cream.⁴⁰

Piazzolla's early years between Argentina and the United States were characterised by both material limitation and cultural abundance. When he was born in 1921, the family lived modestly in a rented room behind a local confectionery shop.⁴¹ Later, in the United States, they lived in a working-class area of Manhattan's Lower East Side, among predominantly Italian and Jewish communities, where the variety of sounds, languages, and street culture left a lasting impression on him.⁴² Although the Depression required a temporary return to Argentina before the family stabilised again in New York, Piazzolla consistently remembered his childhood with warmth

³⁸ Azzi and Collier, p. 4.

³⁹ Azzi and Collier, pp. 18-19.

⁴⁰ Azzi and Collier, p. 9.

⁴¹ Azzi and Collier, p. 3.

⁴² Azzi and Collier, pp. 6-8.

rather than hardship. He described it as a “happy childhood, not a tortured one”, emphasizing that he was “always coddled... I had everything”.⁴³

In addition, Vicente’s ambitions for his son were shaped by his attachment to the tango culture. A devoted admirer of Carlos Gardel,⁴⁴ and a regular listener of recordings by leading tango musicians such as Julio De Caro, he envisioned a musical future for Astor that aligned with the rising prestige of tango during what was often described as its great golden age, when it was rapidly becoming the dominant tradition in Argentine popular music. When Astor was eight years old, Vicente purchased for Astor his first bandoneon, reportedly because “nothing would have pleased him more than seeing his son become a renowned tango musician”.⁴⁵

For working-class immigrant families such as the Piazzollas, success within tango offered a visible and attainable pathway to social mobility, and Vicente therefore regarded the bandoneon as the “key to that future”.⁴⁶ His determination was also shaped by concerns about Astor’s congenital defect in his right leg,⁴⁷ which he feared might lead to insecurity or social withdrawal; he thus became resolved that his son had to be something great,⁴⁸ viewing the bandoneon as a vehicle through which Astor might overcome physical limitations and attain public recognition. Although Astor later encountered jazz in New York and developed an admiration for classical music under the instruction of Béla Wilda, Vicente viewed these interests differently.⁴⁹ A Spanish-language newspaper once referred to Astor as a child prodigy of the bandoneon following a community performance in New York, reinforcing Vicente’s belief in the instrument’s potential.⁵⁰ By contrast, classical

⁴³ Azzi and Collier, p. 9.

⁴⁴ Azzi and Collier, p. 3.

⁴⁵ Azzi and Collier, p. 8.

⁴⁶ Azzi and Collier, p. 8.

⁴⁷ Azzi and Collier, p. 5.

⁴⁸ Azzi and Collier, p. 5.

⁴⁹ Azzi and Collier, pp. 13-14.

⁵⁰ Azzi and Collier, p. 12.

instruments such as the piano or violin were not, in Vicente's view, as directly associated with public acclaim or upward mobility as tango musicianship.⁵¹

This combination of immigrant ambition, exposure to multicultural urban environments, and a clear parental directive towards artistic achievement formed the basis of his later musical identity, particularly the synthesis of classical discipline with the energy of tango.

(2) The Early Exposure

Piazzolla's formal musical journey began in New York City, where his family migrated when he was four years old. At home, his father frequently played 78-rpm records on the family phonograph, introducing him to both vocal tango recordings by Carlos Gardel and the influential orchestrations of Julio De Caro from the 1920s and 1930s.⁵² These early commercial studio recordings shaped his first impressions of tango and provided an auditory connection to Argentina during his years abroad.

During his adolescence, particularly between 1934 and 1936, Piazzolla's listening environment widened considerably. He often visited Harlem to hear big bands led by Duke Ellington and Cab Calloway, gaining first-hand exposure to jazz performance, swing rhythm, and large-ensemble textures. Living within a Jewish neighbourhood also brought him into contact with wedding music traditions, where characteristic 3-3-2 accent patterns were commonly heard.⁵³ These experiences meant that, from an early stage, his sense of rhythm incorporated elements from tango, jazz and Jewish musical practice, and he began to perceive tango's rhythmic language in relation to these broader syncopated traditions.

⁵¹ Azzi and Collier, pp. 8-13.

⁵² Azzi and Collier, p. 3-8.

⁵³ Azzi and Collier, pp. 5-15.

His initial performance instruction on the bandoneon came from Andrés D'Aquila, who introduced him to the basics of the instrument.⁵⁴ A turning point was when he studied under Bela Wilda, who introduced him to the works of Johann Sebastian Bach.⁵⁵ Wilda's influence was crucial in Piazzolla's adaptation of classical pieces for the bandoneon, setting the stage for the inclusion of classical elements in his later compositions.

(3) Influence of Tango Masters

After formally returning to Buenos Aires in 1937, Piazzolla immersed himself in the lively tango scene. He quickly entered the musical circles of the capital, frequenting cafés, night-time venues and radio studios, where he encountered tango as a lived urban practice rather than solely through recordings.⁵⁶ This period exposed him to the sound world of the tango Golden Age and offered direct insight into ensemble interaction, performance conventions and the relationship between tango and the social life of the city. He was greatly influenced by bandoneon players, including Pedro Maffia and Pedro Laurenz, whose innovative techniques expanded what the bandoneon could express.⁵⁷

Pedro Maffia and Pedro Laurenz

Since Piazzolla did not have access to any systematic way of learning to play the bandoneon, he often learnt by observing other musicians performing, by listening to

⁵⁴ Natalio Gorin, *Astor Piazzolla: A Memoir*, trans. by Fernando González (Portland, Oregon: Amadeus Press, 2001), p. 141.

⁵⁵ Gorin, p. 141.

⁵⁶ Azzi and Collier, p. 23.

⁵⁷ Azzi and Collier, p. 20.

recordings, and by playing and participating in different orchestras.⁵⁸ From a young age, Piazzolla's father expected his son to become a famous tango musician, so he played a lot of gramophone records to the young Piazzolla — including the records of the great tango bandleader Julio De Carlo (1899-1980) and those of the baritone Carlos Gardel (1890-1935), the acknowledged superstar of tango at the time. According to Link and Wendland, the early influence of tango on Piazzolla came from those recordings.⁵⁹

The most acclaimed Argentine bandoneonists between 1930 and 1970 were Pedro Maffia (1899-1967) and Pedro Laurenz (1902-1972); both were part of Julio De Caro's Sexteto.⁶⁰ While Piazzolla never studied under Maffia or Laurenz, Piazzolla did listen to many of their recordings and learnt their playing styles. According to Piazzolla and other musicians, Maffia brought into tango a new style of bandoneon playing: a refined fingering and sound quality, introducing turns, elongated notes, *arrastre*, ornaments, and embellishment.⁶¹ Maffia also introduced the *fraseo* to bandoneon playing. *Fraseso* (Figure 1) is a flexible and elastic rhythmic approach to the melody and is similar to the "swing" in jazz music.⁶²

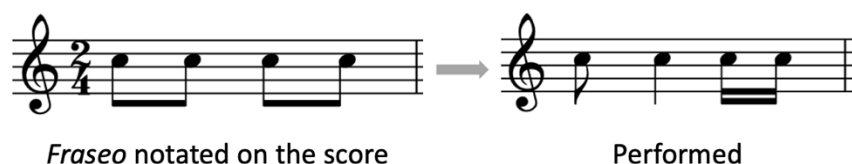


Figure 1: The *fraseso* notated on the score and actual performance

⁵⁸ Azzi and Collier, p. 38.

⁵⁹ Link and Wendland, pp. 221-222.

⁶⁰ Link and Wendland, p. 140.

⁶¹ Gabriela Mauriño, 'Raíces tangueros de la obra de Astor Piazzolla' in *Latin America Music Review* (University of Texas Press), Vol. 22, No. 2 (Autumn-Winter, 2001), p. 243.

⁶² Pedro Maffia, "Pedro Maffia," *Todotango*, accessed April 2022, <https://www.todotango.com/english/artists/info/24/Pedro-Maffia>.

On a technical aspect of the bandoneon performance, Laurenz’s main contribution was the independence of the hands, freeing the left hand of the bandoneonist from the poor and enslaving role of a homophonic harmoniser, indirectly contributing to the polyphonic elaboration of Piazzolla’s playing and other followers. Amongst all bandoneonists, Laurenz also possessed a style with which Piazzolla most identified: a characteristic ‘cutting’ phrasing, a sound with brilliance and force of attack.⁶³

It could be said that Maffia's and Laurenz's greatest contribution to the bandoneon was that they made it a much richer instrument for the tango orchestra than their predecessors, which then Piazzolla built upon. A comparison of the three different recordings of *La Cumparsita* shows the evolution from early generation bandoneonist, Maffia and Laurenz, to Piazzolla. In the transcriptions below (Figure 2), I have highlighted *fraseo* and embellishment used.

The image shows four staves of musical notation for the bandoneon part of 'La Cumparsita'. Each staff is labeled A, B, C, and D. Staff A is the original score. Staff B is a recording from 1916. Staff C is a recording from 1930 by Pedro Maffia and Pedro Laurenz, with annotations for 'embellishment' and 'fraseo'. Staff D is a recording from 1943 by Astor Piazzolla, with an annotation for 'embellishment'. The notation includes treble clefs, a key signature of two flats, and a common time signature. The music consists of eighth and sixteenth notes, with some rests and dynamic markings.

A: Original score of bandoneon part by the composer Gerardo Matos Rodríguez

B: Bandoneon part in Roberto Firpo y su Orquesta (1916)⁶⁴

C: Bandoneon tutti played by Pedro Maffia and Pedro Laurenz in Julio De Caro y su Orquesta Típica (1930)⁶⁵

D: Bandoneon tutti in Aníbal Troilo Orquesta Típica arranged by Astor Piazzolla (1943)⁶⁶

⁶³ Mauriño, p. 244.

⁶⁴ Roberto Firpo y su Orquesta. *La Cumparsita*. Recorded 1916. YouTube video, 3:08. Posted by “CDA Filmaciones,” July 21, 2016. Excerpt 1:07–1:18. <https://www.youtube.com/watch?v=gPr3V0eIWXw>

⁶⁵ Julio De Caro y su Orquesta Típica (Pedro Maffia and Pedro Laurenz, bandoneons). *La Cumparsita*. Recorded 1930. YouTube video, 3:31. Posted by “cdenoy,” July 21, 2012. Excerpt 1:39–1:52. <https://www.youtube.com/watch?v=qZKYoCPd5V8>.

⁶⁶ Aníbal Troilo y su Orquesta Típica, arr. Astor Piazzolla. *La Cumparsita*. Recorded 1943. YouTube video, 3:10. Posted by “argmusic1,” July 21, 2010. Excerpt 0:56–1:01. <https://www.youtube.com/watch?v=M6jZHcRbDWw>.

Figure 2: Original score and three recordings of *La Cumparsita*, bars 26-31

The first recordings of *La Cumparsita* demonstrate the fundamental tango melody texture. The bandoneon plays the melody in unison while the piano articulates rhythm in the accompaniment. Maffia's and Laurenz's recording illustrates *fraseo* in bar 30 and embellishment in bar 27. Piazzolla's part in the recording by the Aníbal Troilo Orchestra showed many of Piazzolla's own added embellishments.

Furthermore, these developments did not occur in isolation. Beyond the detailed comparison of bandoneon techniques, the broader musical landscape also reflects the ongoing transformation of tango. Before Piazzolla's emergence, early recordings such as Roberto Firpo's 1916 version, which reflected the typical style of its time, maintained a steady and regular rhythmic foundation to support dancers, with each instrumental line fulfilling a relatively fixed function; there was little room for improvisation or inter-ensemble interaction. By the 1930s, however, orchestras led by figures such as Julio De Caro began to introduce greater rhythmic and phrasing flexibility. Rubato became more frequent, and the interaction between strings and bandoneon grew more active and responsive. This produced a musical texture that, while still serving a dance function, possessed greater nuance, elasticity, and a sense of breath.

At the level of bandoneon performance, Pedro Maffia and Pedro Laurenz expanded the expressive possibilities of the instrument further.⁶⁷ Their playing incorporated richer embellishment, arrastres, turns, sustained notes, and a more flexible *fraseo*, giving the melodic line greater elasticity and expressive depth. Laurenz, in particular, developed a high degree of independence between the hands; this allowed the

⁶⁷ Alejandro Marcelo Drago, *Instrumental Tango Idioms in The Symphonic Works and Orchestral Arrangements of Astor Piazzolla. Performance and Notational Problems: A Conductor's Perspective* (doctoral thesis, The University of Southern Mississippi, 2008). pp. 35-37.

bandoneon to articulate both melody and simple contrapuntal or responsive lines, giving it a more varied and dynamic presence within the ensemble.⁶⁸ In addition, by the 1940s, Troilo's orchestra advanced the overall sound of tango again. The ensemble's dynamic range widened, sectional organisation became more clearly articulated, and the orchestral texture grew richer and more sophisticated.

Within this evolving musical landscape, Piazzolla introduced a distinctly new direction. His contribution lay not only in expanding instrumental techniques, but also in integrating these earlier performance-based developments into the structural fabric of his compositions. Whereas earlier musicians tended to innovate primarily through performance practice, Piazzolla approached innovation from the standpoint of compositional design. Drawing on his classical training, he incorporated structural awareness, thematic development, and clearer sectional organisation into tango, transforming what had traditionally been dance music into works that bore the imprint of chamber-music thinking. This represents one of his core contributions as a composer.

Because Piazzolla was himself a bandoneonist, the instrument occupied a more prominent and structurally significant role in his ensembles. Alongside its decorative and melodic functions, Piazzolla gave the bandoneon thematic or contrapuntal roles within the ensemble. Piazzolla's writing often shows clearer thematic articulation and more defined formal divisions, and the bandoneon parts were treated with increased independence, resulting in a more prominent place for the instrument within the overall texture.

⁶⁸ Drago, p. 36-37.

Aníbal Troilo

Aníbal Troilo (1914-1975) was an Argentine bandoneon player and orchestra conductor credited with establishing the classic style of Golden Age tango music. In 1937, Troilo formed his famous Aníbal Troilo Orquesta Típica, and it was at this time that Piazzolla began his career as a tango player, gaining a permanent seat in Troilo's orchestra, where he learned Troilo's repertoire by watching and listening to Troilo. Piazzolla called this encounter with Troilo's orchestra his "tango baptism".⁶⁹

As a bandoneonist, Troilo expertly encompassed the tonal delicacy of Maffia, the sonic brilliance of Laurenz, and knife-sharp *stacatto* of Ciriaco Ortiz's phrasing in octaves.⁷⁰ Troilo also inherited the virtuosity of the *fraseo*. Based on Maffia and Laurenz's method of playing style, Troilo created vibrato technique on the bandoneon, where the acoustic effect is produced by holding the key button of the bandoneon while shaking the bellows.⁷¹ An example of this can be found at the beginning of the 1962 recording of "Pa' que bailen los muchachos". Later in Troilo's orchestra, the guitar imitated this acoustic effect when the band played "Maipo". Piazzolla also applied the vibrato in his own playing; an example of this can be found in the bandoneon solo segment of "Mumuki" in the album *Tango Zero*. Piazzolla described Troilo's influence on him not as a teacher to a student, but an 'essence', "Troilo didn't teach me anything, although I caught him in his best period...What I learnt from him is his way of saying, the pure essence he had in playing tango."⁷²

Piazzolla played in Troilo's orchestra for five years. During this time, Piazzolla began his formal training as a composer with Alberto Ginastera. Eventually, Piazzolla felt that Troilo's orchestra was too conservative and limited his development as a

⁶⁹ Azzi and Collier, pp. 23-25.

⁷⁰ Link and Wendland, pp. 162-165.

⁷¹ Link and Wendland, p. 161.

⁷² Gorin, p. 101.

composer. When Piazzolla tried to use the harmonies and rhythms he had learnt from Ginastera in his arrangements for Troilo's orchestra, Troilo stopped him and cut out the new notes Piazzolla added.⁷³ This frustrated the young Piazzolla, and he left Troilo.

And despite Troilo disagreeing with Piazzolla's new arrangement styles, Troilo remained an important figure for Piazzolla. At Troilo's death, Piazzolla dedicated to him the *Suite Troileana*, formed of four movements: "Bandoneon", "Zita", "Whisky" and "Escolaso".

Orlando Goñi

Orlando Goñi (1914-1945) was a tango pianist who joined Troilo's orchestra in 1939, the same year that Piazzolla had joined. The performance style of Goñi derived partly from Francisco De Caro, and Goñi was also influenced by the jazz pianists of the time such as Teddy Wilson.⁷⁴ Goñi had a strong sense of orchestral conducting, and this was reflected in the use of rubato and the precise use of a few single notes in the bass to fill all possible gaps.⁷⁵

Goñi's precision in tempo and liberation in rubato had an influence on Piazzolla's improvisation of ornamentation and embellishment. Piazzolla remembered that, "Goñi drove me crazy. When I was already a member of Pichuco's (Aníbal Troilo's nickname) orchestra, I would stand behind him with a notebook and write down everything he played and then imitate it on the bandoneon."⁷⁶ In my opinion and from my observation, Piazzolla's use of embellishment — for filling in the gaps when

⁷³ Link and Wendland, pp. 222-227.

⁷⁴ Néstor Pinsón, "Orlando Goñi," *TodoTango*, accessed April 2022, <https://www.todotango.com/english/artists/biography/725/Orlando-Goni/>.

⁷⁵ Mauriño, p. 245.

⁷⁶ Gorin, p. 105.

playing the bandoneon during the changing of bellows — was inspired by Goñi. Piazzolla often improvised ornaments and embellishments, such as octave ornaments, transitions, arpeggios, and scales, to give continuity to his melodies without being cut off by the gaps created during bellows changes. This hypothesis will be examined in more detail in my thesis.

Oswaldo Pugliese

Oswaldo Pugliese (1905-1995) was a pianist and bandleader, and he embodied the pinnacle of Golden Age style. He came from the school of Julio and Francisco De Caro, which Pedro Maffia and Pedro Laurenz were also part of.⁷⁷ Pugliese's way of playing sounded a lot like Francisco De Caro. His trilogy of compositions, "La Yumba", "Negracha", and "Zum" (1948),⁷⁸ was a forerunner in the modern use of syncopation and initiated an opening for new possibilities of harmonic, rhythmic, melodic, and thematic order that would later be taken up by Piazzolla.⁷⁹

According to Gabriela Mauriño,⁸⁰ the most significant influence Pugliese had on Piazzolla's playing was the *yumba*, an onomatopoeia that named the rhythmic marking of the orchestra conducted by Oswaldo Pugliese. It was the accentuation of the strong beats of each bar but in the reverse of the usual way, giving greater emphasis to the second and fourth beats and attenuating the first and third. In the score, the notation of *yumba* is usually annotated as shown below (Figure 3):

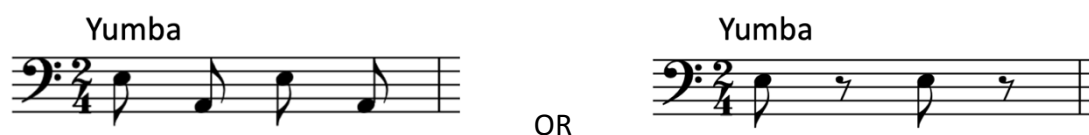


Figure 3: The notes on the first and third beats are usually annotated with the word *yumba*

⁷⁷ Link and Wendland, pp. 177-180.

⁷⁸ Link and Wendland, pp. 188-189.

⁷⁹ Link and Wendland, pp. 170-171.

⁸⁰ Mauriño, p. 248.



Figure 4: Actual acoustics of *yumba*

The creation of *yumba* by Pugliese came from many influences. Pugliese explained that a key influence was from early tango orchestras, where he joined and absorbed strong accenting of the first and third beats (Figure 4). Playing the *yumba* on the piano requires the pianist to play a short, accented chord with both hands, followed by a cluster in the lowest register of the left hand and accompanied by the pedal. The left hand then swings to the middle register and plays another short, accented chord with the right hand, while the right foot lifts the pedal. This method of *yumba* playing was also used on other instruments.⁸¹ For example, in playing *yumba* on the bandoneon, the bandoneonist opens the bellows by playing a chord with the left and right hands while pulling the bellows down with the force of the wrist, and the bandoneonist then presses both hands in a cluster to close the bellows quickly. Piazzolla also applied *yumba* to his performance, as seen in the video of him playing ‘La Yumba’ with Pugliese in 1989 in Amsterdam.⁸² Piazzolla also further used various instrumental combinations and devices to perform the *yumba*. For example, in his “Contrabajisimo” (1986), after the first contrabass solo, there were four bars of *yumba* accompaniment that served as a bridge to the main melody. Furthermore, Piazzolla’s *arrastres*⁸³ were heavier and full of the grittiness that pervaded the bordellos a century ago.

⁸¹ Link and Wendland, pp. 114-115.

⁸² In the beginning of the *La Yumba* from the live recording in the Amsterdam 1989, <https://www.youtube.com/watch?v=xoDqCsfvWGs>, accessed 18 July 2022.

⁸³ Robert Farris Thompson, *Tango: The Art History of Love*, p. 183. The *arrastre* technique on the bandoneon means attacking the chords before the beginning of the bar. The bandoneon player needs to stretch the bellows before the press the chords.

Alberto Ginastera

As a young teenager, Piazzolla moved back with his family to Argentina in 1937. Two years later, in 1939, Piazzolla began his life as a professional *tanguero* in Buenos Aires. Although at this time Piazzolla was mostly working in tango music, his passion for classical music always stayed with him. In 1941, on the recommendation of Arthur Rubinstein, Piazzolla started a 6-year study of classical composition with Alberto Ginastera (1916-1983).⁸⁴

In an interview, Piazzolla acknowledged Ginastera's influence in shaping his compositional styles: "Thanks to this musical instruction by Ginastera, I began to do new arrangements. I got to know the orchestra and I started to compose string quartets for tango orchestras."⁸⁵ As a result of learning with Ginastera, Piazzolla began to create his tango music by incorporating classical composition techniques. Ginastera's musical language consisted of an attempt to articulate the indigenous music of South America through the use of harmonic complexity; in addition, Ginastera also used different tonalities simultaneously, particularly evident in Ginastera's "Panambi" (1927) and "Estancia" (1941). From Ginastera, Piazzolla learned the detailed techniques of counterpoint, harmony, and orchestration. An example of Ginastera's influence on Piazzolla is Piazzolla's "Piano Suite No. 2" (1950) that had traces of Ginastera's "Estancia" combined with influences from Bartók and Hindemith.

⁸⁴ Link and Wendland, p. 222-223.

⁸⁵ Link and Wendland, p. 223.

(4) *The Journey to Paris and Return*

Nadia Boulanger

In 1953, Piazzolla's classical composition "Sinfonia Buenos Aires" won the Fabian Sevitzy Prize, which came with the opportunity to study composition in Paris with Nadia Boulanger (1887-1979). With Boulanger, Piazzolla studied counterpoint, harmony, and pastiche composition. Boulanger also persuaded Piazzolla to abandon the ambition to become like other contemporary classical composers, and instead devote himself to developing his nuevo tango as a contemporary musical genre. She said to Piazzolla, "Here you are like Stravinsky, like Bartók, like Ravel, but you know what happens? I can't find Piazzolla in this."⁸⁶ In a sense, Boulanger pushed for Piazzolla to find and define himself as a new breed of tango composer and musician.

This period of studying classical composition established the roots of classical elements in Piazzolla's music, and these roots would mature in Piazzolla's later compositions. Some features of baroque music were inherited in Piazzolla's Fugue theme, and Piazzolla recreated them with new musical elements. Piazzolla used classical-influenced techniques that were not traditional in tango music. For example, he used a contrapuntal way to expand the formal structures of tango music by processing thematic material. From J. S. Bach, Piazzolla inherited the fugue technique, sequences, and pedal lines. With the influence of Stravinsky and Bartók, Piazzolla applied classical orchestration techniques not found in traditional tango music.⁸⁷ Examples of Piazzolla's fugue technique can be found in *Fugata*, *Fuga y Misterio*, and *Fuga 9*.

⁸⁶ Azzi and Collier, p. 160.

⁸⁷ Aslan Pablo, *Tango Stylistic Evolution and Innovation* (Unpublished Master of Fine Arts in Music Thesis, University of California, 1990), p.16.

Piazzolla's use of imitative counterpoint marked an innovative moment in tango. *Fugata* is a four-beat rhythmical piece, and the harmony is based on an eight-bar cycle with chromatic descending bass line, as in a passacaglia. The main theme of the *Fugata* is an eight-bar fugue theme. The B section of the piece (

Figure 5) shows a polyphonic exposition that is evocative of a baroque two-part invention. Influenced by Bach, the rhythm is complementary, and the melody of each part moves in opposite directions.

Figure 5: *Fugata*, bars 9-15

Additionally, Piazzolla's fugues are all in minor keys. This may be influenced by *Milonga Canción*, which is a slow song in a minor key characterised by a downbeat melodic theme. In terms of the aesthetics of tango, during a period of change in tango music (1920-1955), the themes of tango were expanded by the tango poets, adding sadness and nostalgia. This gave tango music a richer emotional connotation, and thus the tango music of the period was predominantly in minor keys.

Conclusion

In short, Piazzolla's artistic development brought together his dual identities as performer and composer. He studied not only with distinguished bandoneonists but also with musicians on other instruments, while simultaneously undergoing extensive classical compositional training. From his return to Argentina in 1936, and particularly during the years 1939 to 1954 when he worked as a performer, arranger, and ensemble leader in Buenos Aires, the global centre of tango, he was continually exposed to and shaped by the city's rich and evolving musical environment.

In his compositional work, Piazzolla preserved aspects of traditional tango language while adopting new writing methods. From jazz, he absorbed richer harmonic vocabularies and greater rhythmic flexibility. His classical training provided him with a stronger sense of structure, thematic development, and sectional planning. By combining these elements, he expanded his palette of compositional techniques and produced works with greater depth and multilayered complexity.

Piazzolla's formative listening environment was notably broad. His early years in New York brought him into contact not only with tango but also with Bach, jazz and Jewish musical traditions. This combination of influences gave him an unusually diverse musical background for a young bandoneonist of his generation, and it may have encouraged a receptiveness to stylistic mixture in his later work. After returning to Buenos Aires, his musical experience became grounded in the sound world of the tango Golden Age. Through his work in cafés, night-time venues and within the city's expanding broadcast culture, he encountered tango performance as part of a wider urban ecosystem. These experiences provided him with a close understanding of ensemble practice and its interaction with the social and cultural life of the city. The combination of early cosmopolitan exposure and later immersion in Buenos Aires

thus offered him a distinctive set of listening environments and performance contexts from which his approach to nuevo tango emerged. Rather than adhering solely to dance-hall traditions or to academic compositional models, his work can be seen as drawing upon multiple strands of his musical environment.

As his style matured, Piazzolla maintained a continual openness to new musical elements, which made nuevo tango increasingly diverse. Like other leading figures of the movement, the bandoneon remained at the centre of his work. Later chapters of this thesis (Chapters 3, 4, and 5) will examine how the free-bass accordion can also embody the characteristics of nuevo tango and how its versatility may contribute to the future evolution of the genre.

2.4.2 Construction of Piazzolla's Bandoneon

Before examining Piazzolla's performance techniques in nuevo tango, it is essential to briefly examine the construction of the bandoneon.

The bandoneon and its construction

An instrument of the accordion family, the bandoneon was invented in Germany in 1846. Understanding the construction of bandoneon is essential to appreciating its unique sound, expressive capabilities, and also constraints in nuevo tango.

The bandoneon (Figure 6) consists of the bellows and the two keyboards with buttons.

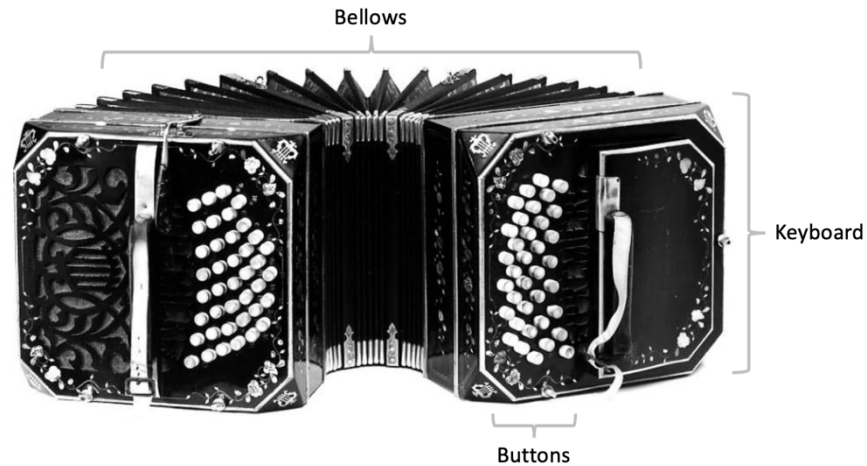


Figure 6: The bandoneon

The middle section of the bandoneon are the bellows which are used to gather air inside the bandoneon. The bandoneon is played by holding the instrument with both hands, pulling it out (*abriendo* = opening) and pushing it in (*cerrando* = closing) while pressing one or more buttons with the fingers. The bandoneon creates sound when air flows past the vibrating reeds mounted inside the left-hand and right-hand frames.⁸⁸ The right-hand keyboard consists of an additional air button which allows the bandoneonist to silently open or close the bellows without producing any sound.

The bandoneon is distinguished by the evolving layout of its keyboards. Nowadays, there are several types of bandoneons. The most common types are the *Rheinische* 142 and *Einheits* 144 systems. There is also the chromatic system which is more common in Europe. Bandoneons with the 142 and 144 systems are more complex in their button arrangements and thus are more difficult to play than those with the chromatic system. Piazzolla played on the 142-system bandoneon.⁸⁹

⁸⁸ When the air button is pressed, the bellows can be opened or closed without the reeds creating sound.

⁸⁹ The 142-system consist of 142 tones (right hand 38 buttons, left hand 33 buttons).

The 142/144-system bandoneon produces different notes for most of the buttons depending on whether the bellows are played while opening or closing. This means that there are effectively two layouts for each keyboard: one for when the bellows are opening and one for closing. Since the left-hand and right-hand keyboards are different, there are effectively four different keyboard layouts which must be learned and mastered.

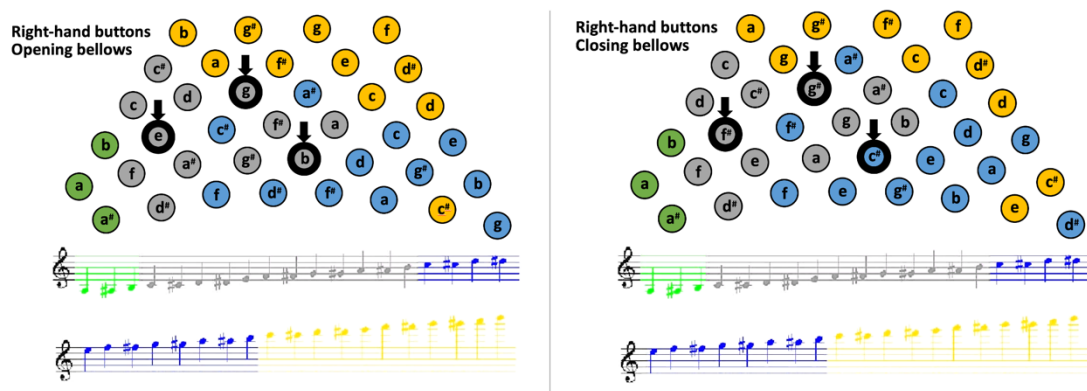


Figure 7: Right-hand buttons of the 142-system bandoneon

Bandoneonists consider the 142/144-system bandoneon to be an extremely difficult instrument to play, as its keyboard framework does not necessarily follow an easy-to-follow logic. In particular, the 142/144-system bandoneon keyboard layouts do not follow a sequence of scales. Figure 6 shows the right-hand keyboard layouts of the 142-system bandoneon.⁹⁰ As highlighted in Figure 7, the three adjacent buttons represent a set of notes (E, G, B) when the bellows are opening, and the same buttons represent a different set of notes (F#, G# and C#) when the bellows are closing.

⁹⁰ The left-hand keyboard layouts of the 142-system bandoneon can be found in annex 1.

2.5 *Piazzolla's Bandoneon Performance Techniques of Nuevo Tango*

Analysing Piazzolla's bandoneon performance techniques reveals the methods he used to transform traditional tango into nuevo tango. In this section, I will describe and analyse the key elements of Piazzolla's performance techniques, particularly his use of rubato, ornamentation, and embellishment, which are crucial to understanding his impact on the genre.

2.5.1 Physical Stance

I will begin with Piazzolla's physical stance because this is a key visual signature of his performance and also because, as we will see later, this influenced his use of the bellows and, consequentially, the way he uses rubato. During this time, Piazzolla's physical stance with regard to the bandoneon was considered an innovation.⁹¹ From videos of his playing, we can see that Piazzolla played while placing the bandoneon on his left leg — which rested on a chair — while standing on his right leg to support most of his weight (Figure 8). This was different from most bandoneon players, who usually played the instrument sitting down in order to spread the weight of the bandoneon, about 10 kilos, on both legs.

⁹¹ Gabriela, p. 270.



Figure 8: Piazzolla's body posture during performance

According to Gorin, Piazzolla stood to play so that he could distinguish himself from the other musicians surrounding him and to lead effectively standing up.⁹² Aurally, this has subtle and important consequences: as I will show in the upcoming Rubato section, Piazzolla's stance allowed him to open his bellows more extendedly, allowing him more room to create a higher level of tension in his music.

2.5.2 Rubato, Tension, and the Bellows

The bellows are the most essential parts of the accordion family, including for the bandoneon. They are as important as the lungs of a singer and the bow of a string instrument, and they control the breath of the music and the quality of the sound. Piazzolla usually played in a fully extended way while opening his bellows, especially when the bandoneon was taking a melodic role.⁹³ This fully extended way of playing

⁹² Gorin, p. 142.

⁹³ For example, in the *Otoño Porteño* from the live recording in Montreal 1984, at 52'58 to 54'28, <https://www.youtube.com/watch?v=awUZxIjg0h4>, accessed 23 October 2021.

required substantial control of the airflow through the bellows. Thus, Piazzolla would play the bandoneon standing up, because with the weights of the bandoneon on the side of his leg, it would be easier for him to open the bellows arching downwards. On the bandoneon, the sound quality is more tense when opening the bellows.

In his compositions, especially when playing rubato, Piazzolla used the extended position while opening the bellows to match the longer note values melodically. An example can be found in the bandoneon's solo segment of his *Milonga del Ángel*.⁹⁴ As seen in Figure 9, Piazzolla performed this by opening the bellows in a slow and full physical extension. This performance practice of playing almost exclusively while opening the bellows allows Piazzolla to better represent the shape of the phrase by physically controlling the extended position of the bellows.

Published score

Transcription of Piazzolla's recording (1984)

Closing the bellows

Opening the bellows

Closing the bellows

Opening the bellows

Opening the bellows

Figure 9: *Milonga del Ángel*, bars 28-30

The concept of structural tension in melody in relation to the influence of the instrument on the performer needs to be considered. The degree of emotional tension in a melody is achieved through the combination of notes, timbres, and rhythms which create the basic recognizable form of the melody. Here, by comparing the melodies as they appear in the published scores with Piazzolla's recordings, even though Piazzolla annotated all the pitches and rhythms he intended on the score,

⁹⁴ Astor Piazzolla and his quintet nuevo tango, *Milonga del Ángel*, live recording in Utrecht 1984, at 1'38-1'45, https://www.youtube.com/watch?v=h0ha2ZM0L0g&list=PL3tFrp-3cLmp6PyYyP9_bjkwpVV527IMq&index=3, 22 January 2022.

there was a level of tension in his playing that could not be reflected in the musical notation. The development of Piazzolla's rubato took place in the moment of the performance and was a form of ornamentation, although the dividing line between ornamentation and improvisation is worth exploring.

Martín Kutnowski provided a brief but astute discussion of the interrelationship between Piazzolla's rubato and rubato in traditional tango. He wrote:

“All good singers introduced some kind of rhythmic, melodic, or dynamic distortion, whether in agreement or not with the natural accents of the words, as dictated by expressive needs. Such rhythmic transformation very often consisted in arriving at the end of a phrase somehow faster than required, thus giving an impression of anxiety, as if the person were losing control over his or her own emotions.”⁹⁵

Alejandro Marcelo Drago also discussed the combination of Piazzolla's rubato and basic melodic lines in his essay, arguing that Piazzolla created a unique way of singing melodies and treating the sound of the tango. Piazzolla's new language of tango music is firmly rooted in the historical performance practice in both the classical and tango fields, and it defines the musical landscape of the new tango.⁹⁶ Only a deep understanding of this new sound will enable a musician to convey the subtle palette of emotions and to guide the performance to a successful interpretation.

From my observation of Piazzolla's performance of melodic passages, he always played a melodic phrase while opening the bellows. For the next melodic phrase, he would not play it while closing the bellows. Instead, he would use the air button to

⁹⁵Martin Kutnowski, "Instrumental Rubato and Phrase Structure in Astor Piazzolla's Music," *Latin American Music Review / Revista de Musica Latinoamericana* 23, no. 1 (Spring-Summer 2002): 108, p. 108.

⁹⁶ Drago, p. 16.

close the bellows first, and then he would play this next melody while opening the bellows.⁹⁷ This way, Piazzolla was matching his musical expectation of melodies that are similar to a singer sustaining a melodic phrase over one breath, or a violinist playing with one bow. In addition, a key reason Piazzolla preferred to play the melodies while opening the bellows was that the bandoneon's reeds sound better while opening the bellows, in comparison to closing them. Playing while opening the bellows standing up helped him to express emotions more effectively.

Similarly, Piazzolla would play rubato more often while opening the bellows. According to Kutnowski, Piazzolla often imitated the rubato in traditional tango.⁹⁸ In traditional tango, many singers reach the end of the phrase early, especially when the natural speech patterns of the words and the meaning of the text dictate this rubato. To imitate the rubato of the singers, Piazzolla distorted the rhythm and arrived at the end of the phrase early. Additionally, he would speed up to the climax of the phrase to hold the peak tone longer. This approach highlights Piazzolla's ability to blend traditional techniques with his innovative style, enhancing the emotional tension and expressiveness of his performances.

In examining this rubato technique in detail,⁹⁹ I observed that Piazzolla would accomplish a rubato like this in a single continuous opening movement. On the bandoneon, the airflow through the bandoneon correlates to sound produced: the louder the sound, the more airflow is required, and thus a sustained sound can only continue for a short duration. Therefore, due to the limited quantity of airflow in a single opening of the bellows, Piazzolla had to approach a note earlier if he wished to later emphasise it by sustaining it. He then often stretched the portamento fully near the end of the phrase — while exhausting the air supply in the bellows. As a result,

⁹⁷ An example of this is illustrated in Figure 10 of the 'Relationship of the bellows and Piazzolla's ornamentation and embellishment' section in this document.

⁹⁸ Kutnowski, p. 108.

⁹⁹ Astor Piazzolla, *Resurrección del Ángel* (Milán 1984, Vol. 1, Trova Industrias Musicales S.A., 2008).

he had to reach the end of the phrase early in order to maintain the sound (Figure 10).

Published score

Transcription of Piazzolla's recording (1984)

The phrase finished earlier to allow for a crotchet rest (for closing the bellows)

Figure 10: A demonstration of Piazzolla's reaching the end of the phrase early, from *Resurrección del Ángel*, bars 25-26

2.5.3 Ornamentation and Embellishment

This section will first give an overview of Piazzolla's ornamentation and embellishment, then detail his ornamentation and embellishment performance techniques, and finally explore his *Concierto Para Quinteto* as a case study.

Ornaments tend to be written in a published score although they can also be based on the performer's decision in the moment. A key function of ornaments is to emphasise the most important notes of the music; in this case, the ornaments are usually played while closing the bellows, as short and as sharp as possible. Another key function of the ornaments is to emphasise the melodic development; here, the ornaments are mostly played while opening the bellows to express the melody. Also, ornaments can sometimes replace the main note, serving as a form of embellishment that adds complexity and variation to the performance.

Piazzolla's published scores seldom contain notations of his ornamentation and embellishment, and he would often improvise them during performance. In general,

Piazzolla applied more ornaments and embellishments compared to the earlier traditional tango musicians — both in interpreting traditional tango music and in performing his own compositions. As an example, below is my comparison of four versions of Juan Carlos Cobián’s *Mi Refugio* performed by different tangueros, including Piazzolla’s Octet Buenos Aires (see Figure 11). In the transcriptions below, I have highlighted in red boxes all the places where ornaments and embellishments were used, which make it evident that Piazzolla’s performance used an extraordinary amount of these.

The image shows five staves of musical notation for the piece 'Mi Refugio'. Each staff is labeled A through E. Staff A is the original score by Juan Carlos Cobián. Staves B, C, D, and E show various interpretations. Red boxes are drawn around specific musical phrases in staves B, C, D, and E, indicating ornaments and embellishments. For example, in staff B, a red box highlights a triplet of eighth notes. In staff C, a red box highlights a grace note. In staff D, red boxes highlight a triplet of eighth notes and a grace note. In staff E, multiple red boxes highlight various ornaments, including triplets, grace notes, and sixteenth-note runs.

Ornaments and embellishments

A: Original reduction score by the composer Juan Carlos Cobián

B: Sung by Carlos Gardel (1923)¹⁰⁰

C: Played by pianist Juan Carlos Cobián in Orquesta Típica Fresedo (1921)¹⁰¹

D: Tutti in Aníbal Troilo Orquesta Típica (1970)¹⁰²

¹⁰⁰ Carlos Gardel, *Mi Refugio*. Recorded 1923. In *La Historia Completa de Carlos Gardel* (EMI Odeon SAIC, reissued 2001). At 0:41–0:53.

https://www.youtube.com/watch?v=zi_GWRt1rT8&list=RDzi_GWRt1rT8&start_radio=1.

¹⁰¹ Osvaldo Fresedo and his Orquesta Típica, *Mi Refugio* (tango by Juan Carlos Cobián). Instrumental recording. At 0:16–0:28.

https://www.youtube.com/watch?v=60uWg8m-CCA&list=RD60uWg8m-CCA&start_radio=1.

¹⁰² Aníbal Troilo and his Orquesta Típica, *Mi Refugio*. From *For Export*. At 0:16–0:38.

https://www.youtube.com/watch?v=hbVKZ0Bvw5M&list=RDhbVKZ0Bvw5M&start_radio=1.

E: Played by Astor Piazzolla in Piazzolla Octet Buenos Aires (1956)¹⁰³

Figure 11: Original score and four recordings of *Mi Refugio*, bars 1-8

Furthermore, the form of these four *Mi Refugio* performances reveals a significant deviation of practice from the score. *Mi Refugio* consists of three sections ABA. The form of the 1921 recording performed by Juan Carlos Cobián in Orquesta Típica Fresedo was A ||:B:|| A ||:B:||. Gardel, in his 1923 singing performance, changed the form of the piece to A ||:B:|| A (he also added an additional 14 bars of instrumental introduction before his singing segment). For their recordings in 1970 and 1956 respectively, Troilo's orchestra and Piazzolla's octet followed Cobián's form, with the same ABAB structure, without repetition of the B section. However, Piazzolla's octet has more variation. When given the autonomy, such as in a bandoneon-only performance, Piazzolla would add even more ornaments and embellishments; for example, Piazzolla's 1951 bandoneon solo recording consisted of even more ornaments and embellishments when compared to his 1956 octet recording.¹⁰⁴

Ornaments

Piazzolla's ornaments, like those of other tango bandoneon players, fall into five categories: repeated note, appoggiatura, minor second, trill, and turn.

(1) Repeated note

¹⁰³ Astor Piazzolla and his Octeto Buenos Aires, *Mi Refugio*. Recorded 1957. At 0:18–0:40. https://www.youtube.com/watch?v=SH7tEDDq0UE&list=RDSH7tEDDq0UE&start_radio=1.

¹⁰⁴ In this solo version, Piazzolla interpreted freely away from the Cobián's original score, and this solo version consists of a simple A-B structure (only two sections).

The repeated note ornament consists of two types as described below. In this section, I examine Piazzolla's repeated note ornament in slightly more detail (compared to the rest of the ornaments) because his repeated note is closely related to the bandoneon keyboard layout.

(a) Octave repetition (RO)

Piazzolla often used ornaments of octave repetition in his performance. An example of this ornament for Piazzolla is highlighted in the transcription of Figure 12.



Figure 12: Example of an octave repetition in Piazzolla's *Milonga del Angel*

The octave repetition is very typical on the bandoneon. The ornament anticipates the main note by playing the note an octave above or below. Playing an octave note is easy on the bandoneon, because the distance between the two notes is relatively short. As illustrated in Figure 13 the two E notes are located close to each other on the keyboard. Many of Piazzolla's most commonly used octave repetitions are from octaves whose notes are close to each other.

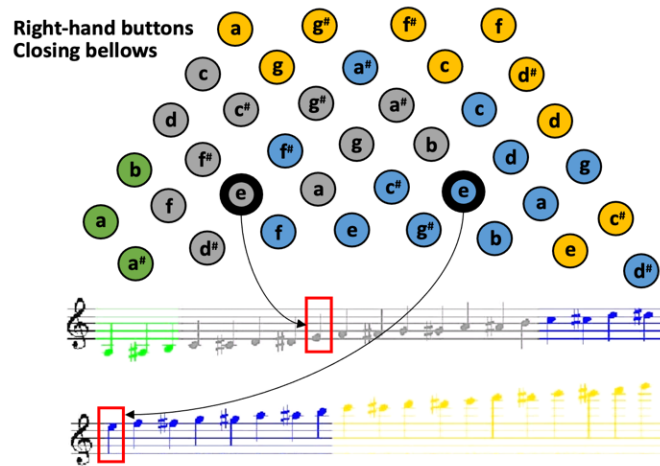


Figure 13: Positions of the two E octave notes on the 142-system bandoneon keyboard

This ornament can be played either when the bellows are opening or closing. It can take time from the previous note's value, or it can lengthen the octave note to become more important than the ornamented note. This ornament is most frequently used for expressive melodies. It is also used for rhythmic melodies, and in this case, octaves are usually written on the score.

(b) Repeated note (RN)

Piazzolla would often repeat one note with *accelerando* to interpret a long note in the score. An example of the repeated note ornament for Piazzolla is highlighted in Figure 14. This ornament consists of a repetition of the same note or chord. Its function is to give the main note or chord an energetic quality. The metrical space covered by the notes is filled with additional notes and is shaped rhythmically, e.g., the *ritardando rubato*. This ornament on the bandoneon with its penetrating timbre has a particularly cutting effect.

Published score

Transcription of Piazzolla's recording (1984)

Repeat note

Figure 14: Example of a repeat note in Piazzolla's *Adios Nonino*

(2) Appoggiaturas

Appoggiaturas are often used in rhythmic and expressive melodies of Piazzolla's performance. It is a very common ornament in tango performance on the bandoneon. There are three categories of appoggiaturas:

(a) Simple appoggiaturas (SA)

A simple appoggiatura can be an upper note appoggiatura or a lower note appoggiatura. An upper note appoggiatura consists of playing a note directly above the main note immediately before, and it takes value away from the previous note. In tango bandoneon practice, a lower note appoggiatura may consist of a minor second or a minor or major third below the main note.

(b) Double appoggiaturas (DA)

Double appoggiaturas consist of two consecutive notes — diatonic or chromatic — played before the main note. These two consecutive notes take value from the previous note with legato, and the main note has to be played on the beat.

(c) Multiple appoggiaturas (MA)

Multiple appoggiaturas are made up of three note steps — diatonic, chromatic, and arpeggio — moving towards the main note. They can be ascending or descending, and they take value from the previous note with legato.

(3) Minor second (m2)

The minor second is also an ornament often found in Piazzolla's music. It can be found either as an improvised ornament or written in the published score. It consists of a main note and its minor second note played at the same time. Piazzolla applied this ornament to emphasize a powerful rhythm.

Upon closer examination of my transcribed Piazzolla's performances, I found that, for Piazzolla, the minor second is usually used for notes of the one-line octave — because their minor second notes are close-by on the 142-system bandoneon keyboard layout. Conversely, the minor second is used less often for notes of the two-line and three-line octaves. A key reason is because minor second notes of these two octaves are further away on the keyboard, leading to challenging fingerings — resulting in lesser control of the bellows when reaching for these fingerings.

(4) Trill (Tr)

Piazzolla always employed the trill in his improvisations of the melodic phrase. It usually begins slowly and then accelerates with rubato.

(5) Turn (TR)

The turn is another characteristic feature of Piazzolla's performance, especially for producing dramatic effects. He sometimes played the lower note slightly longer, with a turn, and then delayed the resolution.

Embellishment

When Piazzolla interpreted a melodic phrase, in addition to ornaments, he also applied embellishments in his performance. This section outlines the embellishments that Piazzolla built on melodic lines.

(1) Scale Passage (eScl)

This embellishment consists of adding notes of different scales from the original melody. It can be on a diatonic scale, chromatic scale, or a combination of those two scales. It is noteworthy that most scale passages occur in the one-line octave because the added notes are located close-by on the 142-system keyboard. The diatonic and chromatic scales of the two-line and three-lined octaves are challenging to play on the 142-system keyboard.¹⁰⁵

(2) Arpeggios (eArp)

Arpeggio is also an embellishment found in Piazzolla's performance. He used this to add notes to the original melody, and this embellishment is used less frequently in scale passages. The arpeggio is made up of chord tones from the harmony that is being played, and it can start on a melody note or on another nearby chord note.

(3) Motivic Repetition (eMtv)

Piazzolla often applied motivic repetition during his improvisation. He frequently used this embellishment to emphasize a melodic pattern, either from the original melody or an added motif.

¹⁰⁵ On the 142-system keyboard, there is a missing key: there is no A# of the three-line octave.

(4) Combination with turns (CombTrn)

Turns are frequently combined with the melody in Piazzolla's performance. Some of the most common turns combinations in Piazzolla's performance are: (a) Turn + Scale (diatonic, chromatic scale, or combination of these two scales), (b) Downward leap to chord tone + turn, and (c) Downward leap to chord tone + trill + turn.

Case study: Piazzolla's Concierto Para Quinteto

To illustrate Piazzolla's usage of ornaments and embellishments more clearly, I used the solo section of the *Concierto Para Quinteto* as a case study to further analyse his way of interpretation. For a solo section of 18 bars of the *Concierto Para Quinteto*, I have transcribed three separate Piazzolla performance recordings from different periods. The recordings are from the following albums:

- Astor Piazzolla, *Concierto Para Quinteto* (1971), RCA Victor, 1994¹⁰⁶
- Astor Piazzolla & The New Tango Quintet, *Tango: Zero Hour* (1986), American Clave, 1993¹⁰⁷
- Astor Piazzolla, *The Central Park Concert* (1987), Chesky Records, 1994¹⁰⁸

Figure 15 shows the solo section of the *Concierto Para Quinteto*. In the figure, the first line is from the score published by A. Pagani s.r.l., Italy (1987), and the other three lines are from my transcriptions of the three recordings.

¹⁰⁶ Astor Piazzolla and his Quinteto Nuevo Tango, *Concierto para Quinteto* (1971). RCA Victor, 1994. At 3:06–4:04. https://www.youtube.com/watch?v=sZsZjE_T1Gw&list=RDsZsZjE_T1Gw&start_radio=1.

¹⁰⁷ Astor Piazzolla and his Nuevo Tango Quintet, *Tango: Zero Hour* (1986). American Clave, 1993. At 2:59–3:52.

https://www.youtube.com/watch?v=wyduxcwG9ow&list=RDwyduxcwG9ow&start_radio=1.

¹⁰⁸ Astor Piazzolla and his Quinteto Nuevo Tango, *The Central Park Concert* (1987). Chesky Records, 1994. At 3:03–4:05.

https://www.youtube.com/watch?v=62p3zZPR8UA&list=RD62p3zZPR8UA&start_radio=1.

Concierto Para Quinteto

Published score

Transcriptions

1971

1986

1987

5

9

The image displays a musical score for a quintet. It is divided into a 'Published score' and 'Transcriptions'. The transcriptions are for the years 1971, 1986, and 1987. The score is written in 4/4 time and consists of five staves. The first staff is the published score, and the following three are transcriptions. The score is divided into measures, with measure numbers 5 and 9 indicated. The music features various rhythmic patterns, including eighth and sixteenth notes, and rests. There are also some triplets and sixteenth-note runs. The key signature is not explicitly shown, but the notes suggest a key with one flat (B-flat major or D minor).

Figure 15: *Concierto Para Quinteto*, Piazzolla's bandoneon solo section

For examining Figure 15, it is possible to see a clear evolution in the way Piazzolla added ornamentations and embellishments to his bandoneon solo performance. In his very first recording (1971) of the *Concierto Para Quinteto*, his solo does not stray far away from the structural melody. However, in the latter two recordings from 1986 and 1987, Piazzolla applied more ornamentations and embellishments, and his solos in these two recordings were also more varied from the structural melody. Specifically, for bars 9-12 (see Figure 16), Piazzolla applied ornaments and embellishments as follows:

- In 1971: SA + DA + SA
- In 1986: RN + DA + CombTrn + SA + MA + eArp
- In 1987: MA + CombTrn + CombTrn + eArp + TR + TR + TR

The image shows a musical score for a bandoneon solo section, bars 9-12. The score is written in treble clef and consists of three staves. The first staff shows a melodic line with ornaments (SA) and embellishments (eCTR, eAR, TR). The second staff shows a more complex melodic line with ornaments (RN, DA, SA, MA) and embellishments (eCTR, eAR, TR). The third staff shows a rhythmic accompaniment with ornaments (MA) and embellishments (eCTR, eAR, TR). A legend at the bottom indicates that red boxes represent ornaments and orange brackets represent embellishments.

Figure 16: Specific ornaments and embellishments used by Piazzolla

(*Concierto Para Quinteto*, Piazzolla's bandoneon solo section, bars 9-12)

Relationship of the bellows and Piazzolla's ornamentation and embellishment

In the process of examining Piazzolla's use of ornamentation and embellishment, I also discovered Piazzolla's usage of the bellows in the melodic phrase and its relationship to the ornamentation and embellishment.

As mentioned, Piazzolla often played a melodic phrase while opening the bellows. After playing a melodic phrase, he would use the air button to close the bellows (silently), and then he would play the next melodic phrase while opening the bellows. However, closing the bellows using the air button would add an interruption between the two melodic phrases. Thus, Piazzolla would add ornaments or embellishments to the start of the next melodic phrase to make the interrupted sound more continuous.

The image displays two musical staves in 4/4 time. The top staff is labeled 'Published score' and shows a melodic line with a fermata over a half note. The bottom staff is labeled 'Transcription of Piazzolla's recording (1987)'. It shows the same melodic line but with a significant embellishment. Annotations include 'Closing the bellows' with arrows pointing to specific notes in both staves. In the transcription, 'Embellishment' is indicated by brackets under a complex rhythmic passage in bar 10, which includes a 7-measure rest and a 6-measure rest. The transcription also shows a 5-measure rest in bar 9 and another 5-measure rest in bar 11.

Figure 17: Added embellishments by Piazzolla after closing of the bellows
 (*Concierto Para Quinteto*, Piazzolla's bandoneon solo section, bars 9-14)

Figure 17 illustrates this addition of ornaments and embellishments while closing the bellows, in bars 9-14 of Piazzolla's bandoneon solo section of the *Concierto Para Quinteto* performed in 1987. In the recordings of bars 9-14, it can be clearly heard that there is a space before the start of the melody due to Piazzolla's use of the air button to close the bellows just beforehand. The length of the structure has been extended by the ornaments. There is a change of bellows on the second half beat of bar 10 to accompany the embellishment to reach the G note in the original structure, and there are two further changes of bellows in bars 11 and 13 where the original structure is brought forward (bar 11) or delayed (bar 13).

This section has examined the combination of Piazzolla's melodic phrases with his ornamentation, embellishment, and rubato. Piazzolla's performance techniques are closely related to the construction of his 142-system bandoneon. With his bandoneon, Piazzolla crafted a unique way of interpreting the sound of tango. This unique language of Piazzolla would go on to help define the musical landscape of the nuevo tango.

2.6 *Conclusion*

This chapter has traced the historical and musical evolution of tango, from its early beginnings in the "Guardia Vieja" period through to the transformative "Nuevo Tango" era pioneered by Astor Piazzolla. The bandoneon has emerged as the quintessential instrument of tango, symbolising the genre's emotional depth and cultural richness.

The exploration of Piazzolla's innovative techniques on the bandoneon has highlighted how he revolutionised tango by infusing it with various musical elements. His unique performance practices, including the use of rubato, ornamentation, and dynamic phrasing, provide a rich foundation for further musical experimentation and interpretation. By examining these techniques in details, this chapter has laid the groundwork for adapting and expanding them for the free-bass accordion, demonstrating its potential to not only replicate but also reinterpret Piazzolla's works.

CHAPTER 3: INTERLUDE — INTRODUCING FREE-BASS ACCORDION INTO NUEVO TANGO

3.1 Introduction

The free-bass accordion offers a fresh perspective on tango music, particularly within the genre of nuevo tango. As the role of instrumentation in tango continues to evolve, the free-bass accordion emerges as a compelling alternative to the bandoneon, showcasing the versatility of the accordion family in expressing both traditional and contemporary tango elements.

Beginning with a brief history of the accordion's integration into Argentine music, this chapter positions the free-bass accordion within the cultural and musical framework of nuevo tango. Although the bandoneon remains the quintessential tango instrument, the free-bass accordion presents qualities that allow for an expanded interpretive range, potentially enriching the genre with its distinct timbral palette and adaptability. As nuevo tango seeks to blend tradition with innovation, the free-bass accordion offers opportunities for expressive nuance that align with the genre's ethos.

Through this exploration, Chapter 3 sets the foundation for the subsequent analysis of performance practices and technical adaptations required to effectively incorporate the free-bass accordion into nuevo tango. By examining historical contexts, technical attributes, and cultural implications, this chapter establishes the groundwork for understanding how the free-bass accordion can be positioned as a viable and innovative instrument within tango music's evolving landscape.

3.2 *A Brief History of the Accordion*

This section provides a brief historical overview of the accordion and free-bass accordion.

Like that of the bandoneon, the development history of the free-bass accordion is a rich one, involving technical improvements, musical demands, and cultural changes. In the late 19th to early 20th centuries, the accordion became popular in Europe as an emerging instrument. Early accordions were primarily standard bass accordions, with the left hand using pre-set fixed chord buttons.¹⁰⁹ In the early 20th century, musicians and composers began recognising the limitations of the standard bass system, particularly for classical music and complex melodies. To meet these needs, the free-bass system emerged; in the free-bass system, the left hand fixed-chord buttons are replaced by buttons that play single notes, allowing performers to play melodies and polyphonic music freely with the left hand.¹¹⁰ As free-bass accordion technology advanced, free-bass accordions became more widespread. Italian and German manufacturers like Pignini, Bugari, and Hohner began producing high-quality free-bass accordions, featuring more complex mechanisms and adding additional buttons for broader ranges and greater performance possibilities.

With free-bass accordions having the ability to play complex melodies, music academies and accordion schools began teaching free-bass accordion techniques, producing professional accordion performers and educators. These institutions were particularly active in Europe, Russia, and North America. Early composers like Paul Hindemith and pioneering accordionists like Mogens Ellegaard expanded the accordion repertoire into avant-garde and classical music.¹¹¹ By the mid-20th

¹⁰⁹ Gorka Hermosa, *The Accordion in the 19th Century* (Hermosa, 2013), p.28.

¹¹⁰ Hermosa, pp.28-29.

¹¹¹ Claudio Jacomucci, ed., *Modern Accordion Perspectives* (2013), pp.10-12.

century, the accordion demonstrated its versatility by integrating into chamber music and larger orchestral works, highlighting its evolving identity from a traditional role in folk music to a flexible and sophisticated musical instrument. The free-bass accordion became an essential innovation of the accordion evolution, enabling accordionists to explore a broader range of musical expression and technical capabilities.

Accordions can be classified into keyboard and button types. Keyboard accordions have a piano keyboard for the right hand, while button accordions (also known as Bayan) have a button arrangement similar to that of the left hand. Button accordions are further divided into B and C systems.¹¹² Modern free-bass button accordions typically have five rows of buttons; standard system accordions have a left-hand keyboard with two rows of bass notes and four rows of chords, limited to one octave and fixed chords. Converter system accordions allow switching between standard and free-bass systems via a button, enabling even more versatile performance capabilities. These ongoing innovations of accordion's construction reflects the accordion's continuous evolution as a versatile instrument, enabling the accordion to be integrated into various musical styles, including nuevo tango.

In terms of accordion manufacturing, Castelfidardo in Italy is a central hub for accordion manufacturing, playing a crucial role in meeting global demand of the accordions.¹¹³ To better understand accordion manufacturing, in May 2023, I travelled to Castelfidardo, Italy, one of the most important accordion production centres in the world. During this visit, apart from visiting several manufacturers, I

¹¹² The "C system" and "B system" free-bass accordions both use a chromatic button arrangement. In the C system, the low notes are at the top and the high notes are at the bottom, descending chromatically from the first row to the third row. Conversely, in the B system, the low notes are at the bottom and the high notes are at the top, ascending chromatically from the third row to the sixth row. Both systems feature auxiliary notes in the third row to facilitate playing. Since both systems are chromatic, the differences in button layout do not impact the ability to perform pieces, as the required technique remains similar.

¹¹³ Jacomucci, pp.10-12.

also visited the International Accordion Museum where I witnessed the many varied experimental accordion constructs that accordions went through before settling into today's constructs.

Today, accordion production focuses more on custom high-quality instruments rather than mass production. Accordions have been incorporated into the curricula of major music academies worldwide, and manufacturers need to accurately interpret market demands. Currently, active manufacturers widely chosen by music academies include Pignini, Bugari, Scandalli, and Hohner. These high-quality manufacturers still mostly use traditional handmade methods, especially in producing core components like reeds, to ensure the unique tone and quality of the instruments. Each manufacturer's free-bass accordions differ slightly from those of other manufacturers; the production of accordions has not reached complete uniformity especially in terms of reed material selection and the labelling of register switches. The labelling differences do not affect the sound, and generally, higher-end accordions have more register switches and better-quality reeds.

Specifically, the accordion used in this research is the C system Sirius model manufactured by the Italian company Pignini. Pignini, located in Castelfidardo, is currently one of the best-selling accordion manufacturers in the world.¹¹⁴ Their accordions are renowned for their excellent craftsmanship and high-quality sound, which is crucial for performing the complex and expressive intricacies in nuevo tango music. Pignini's accordions not only have rich tonal expression, but their register switches are also clearly labelled, allowing performers to quickly find the desired tonal changes. I chose the Sirius model for this research not only because it is the model of my own instrument but also because many professional accordionists use

¹¹⁴ Dino Rossi, "A Comprehensive Ranking Guide of the Best Accordion Brands," Best Accordion, January 28, 2024, <https://bestaccordion.com/beginners-guides/a-comprehensive-ranking-guide-of-the-best-accordion-brands/>.

this model. This model is suited for performing music works that require high skill and expressiveness, which is also one of the reasons for choosing this model as the main instrument for this research. In short, this research chooses the Pignini Sirius model free-bass accordion for experimentation and performance analysis not only because of its technical and tonal advantages but also because of its representativeness in contemporary accordion production. This choice provides a reliable basis and support for researching the free-bass accordion in nuevo tango music.

In summary, the evolution of the free-bass accordion, with its technical advancements and cultural significance, has played a pivotal role in expanding the accordion's capabilities and repertoire. The Pignini Sirius model, selected for this research, exemplifies the highest standards of modern accordion craftsmanship, making it an ideal choice for exploring the intricate demands of nuevo tango music.

3.3 Impact of the Accordion in Tango

Although often overshadowed by the bandoneon in the world of tango, the accordion is nonetheless a part of the genre's evolution. This section explores the accordion's journey into Argentine music, particularly its integration into tango. Through historical analysis and case studies, we will explore how the accordion has contributed to the richness and diversity of tango music, challenging the traditional perception that the accordion has no place in this genre.

3.3.1 The Accordion's Cultural Journey in Argentina: Historical Significance and Adoption

The history of the accordion in Argentina began in the late 19th century with the first models known as "verdurera." One of the pioneer accordion players in Argentina was José Santa Cruz, who initially played a two-row button accordion in his early days before transitioning to the bandoneon.¹¹⁵ As time progressed, many musicians sought to innovate by adding keys and altering timbres, broadening the accordion's appeal across various musical forms and styles. Notably, in Argentine folk music, the accordion is particularly prevalent in the *chamamé* genre, which is derived from Guaraní music and blends elements of polka, mazurka, and waltz. Before the accordion's introduction, this style primarily utilised European instruments such as violins and mandolins.¹¹⁶ While *chamamé* is especially popular in provinces like Misiones, Chaco, and Formosa, its appeal extends to Santa Fe, Entre Ríos, Buenos Aires, and even Paraguay. Despite some Argentinians dismissing *chamamé* in the 1940s as "slum music" or "servant's music," it continued to gain popularity. Argentine accordionists have been influenced by Italian, Creole, and Arab musicians. Significant Arab and Jewish immigrant populations in Santiago del Estero, Corrientes, and Entre Ríos contributed to a distinctive musical culture in each region.¹¹⁷

In Argentina's musical landscape, both the bandoneon and accordion are integral to the country's cultural heritage, and their prominence rooted in the assimilation of immigrant cultures. While the accordion is primarily associated with ethnic music styles like *chamamé*, the bandoneon, supported by the skills of German immigrants, has been foundational to the evolution of tango.

¹¹⁵ Krüger, p. 65.

¹¹⁶ Accordion, *Encyclopaedia Britannica*. Encyclopaedia Britannica, Inc., 2023. Accessed June 28, 2023, <https://www.britannica.com/artifact/accordion>.

¹¹⁷ Alecia Steen, "The History and Origins of the Accordion: Uncovering its cultural Significance," Woodwind (Rime sound: February 28, 2024).

Encounter of Accordions during Fieldwork in Buenos Aires

During my fieldwork in Buenos Aires, I was struck by the prevalence of accordions, despite the bandoneon's dominance in tango. For example, during a performance at Pista Urbana, I encountered a photograph of Raúl Barboza (Figure 18), a renowned accordionist, who is celebrated for his contributions to Argentine folk music, particularly chamamé. In addition, at a local hat shop, I noticed a poster of Antonio Tarragó, a famous chamamé accordionist, with his two-row button accordion.



Figure 18: A postcard featuring Raul Barboza and his accordion

Ariel Pirotti, a composer and pianist in the nuevo tango genre, introduced me to Gabriel Soria, the curator of the Argentine National Tango Museum (Academia Nacional del Tango Museo). Soria emphasised that while the bandoneon is more synonymous with tango, the accordion maintains a crucial role in ethnic music like

chamamé. Soria also highlighted Feliciano Brunelli, a prominent musician known for playing tango on the accordion. In the following section, I will analyse Brunelli's recordings to examine his tango performances on the accordion. Soria also recounted an interesting anecdote about Brunelli: despite the accordion's uncommon presence in tango, Brunelli audaciously approached Victor Records uninvited, armed only with his accordion. His impromptu lobby performance caught the attention of many, including the Victor Records board members, leading to the recording of four tango pieces with his quartet in 1933, showcasing his versatility across genres.

In addition, during my fieldwork in Buenos Aires, I was surprised to encounter Iñaki Alberdi, a professional Spanish free-bass accordionist whom I had known from an international accordion competition in our teenage years. Alberdi was headlining an upcoming contemporary accordion concert at the Teatro Colón, where I had the opportunity to observe a rehearsal. He was equally surprised to meet a fellow free-bass accordionist in Argentina. During a rehearsal break, he shared that speaking Spanish had facilitated his connection with the Colón Theatre, and that this was his second engagement there, performing contemporary classical repertoire.

This encounter prompted me to reflect on the contrasting cultural positions of the accordion and the bandoneon in Argentina. The bandoneon became closely associated, throughout the twentieth century, with the urban, working-class immigrant communities of Buenos Aires,¹¹⁸ and thus became deeply embedded in the formation and evolution of tango. The position of the accordion has been markedly different. Traditional piano-accordion practice in Argentina has historically been linked to rural and regional folk genres, particularly *chamamé* in the north-

¹¹⁸ García Brunelli, pp. 16-22.

east,¹¹⁹ while the free-bass system entered the country much later, mainly through contemporary classical music networks, and therefore followed a very different cultural trajectory. As a result, neither form of accordion has developed a singular or stable cultural identity within Buenos Aires' urban milieu, nor acquired the strong symbolic associations that the bandoneon holds in relation to class, place, and its long-standing role within tango. Consequently, the accordion has occupied a more dispersed and non-central role within Argentina's wider musical ecology and has not become part of tango's core instrumental tradition.

Observing Alberdi's rehearsal at the Teatro Colón further reinforced this distinction. In Argentina, the free-bass accordion is encountered most frequently within contemporary classical performance contexts rather than within tango. Even in Buenos Aires, which is widely regarded as the heart of tango culture, the potential of the free-bass accordion within tango remains largely unexplored. This encounter gave me a more immediate understanding of the cultural and symbolic differences between the two instruments, and clarified the contextual challenges that the free-bass accordion faces when entering the domain of tango. At the same time, precisely because it is not burdened by historical expectations or genre hierarchies, the free-bass accordion may offer a fresh perspective to tango, expanding the music's expressive possibilities while acknowledging its distinct lineage.

3.3.2 A Case Study Analysis of Feliciano Brunelli's Accordion Recordings

In this section, I will analyse Feliciano Brunelli's tango recordings. Although Brunelli used a traditional accordion for traditional tango music, a detailed analysis of his

¹¹⁹ Angel Romero, "Chamamé, the Folk Music of Northeastern Region of Argentina," *World Music Central*, February 24, 2023. The article identifies chamamé as a folk tradition of northeastern Argentina in which the accordion is a principal instrument.

recordings provides insights into the accordion's expressive capabilities in tango music, even in the pre-free-bass accordion era.

Brief biography of Feliciano Brunelli

Born in Marseille, France, and later moving to Rafaela, Argentina, Brunelli's musical training began with piano and accordion, under the influence of his piano teacher Luis Ricci and his father, an accordion tuner. His early career included piano and accordion performances in rural Argentine dance halls, where he played various styles, including tango. In 1928, he began recording in Buenos Aires, forming a quartet by 1933 that expanded over time to include multiple instruments. Although known for international ballroom music, Brunelli recorded tangos on the accordion, with his rendition of *La Cumparsita* becoming particularly popular.¹²⁰

Brunelli often played piano for formal tango performances due to the cultural association of the bandoneon with tango. However, his few tango recordings on the accordion demonstrate his effort to introduce the instrument to the genre despite the dominance of the bandoneon.¹²¹

Brunelli's biography is essential to contextualise his contributions to tango and the accordion's role in the genre. His background highlights the accordion's early use in Argentine music and offers a historical foundation for analysing his recordings. This context allows for understanding of how he integrated diverse musical influences into his performances and how he bridged traditional tango with other styles through the accordion.

¹²⁰ Emilio J. Pichetti, "Feliciano Brunelli," *Todo Tango*, accessed May 24, 2023, <https://www.todotango.com/english/artists/biography/1195/Feliciano-Brunelli/>.

¹²¹ Pichetti, "Feliciano Brunelli".

Case Study: *La Cumparsita*

This study centres on a comparative analysis of Feliciano Brunelli's accordion performances and Piazzolla's arrangements for Anibal Troilo's orchestra of *La Cumparsita*, as well as early tango renditions by bandoneon players Pedro Maffia and Pedro Laurenz. The aim is to dive deeply into the unique expressions these two instruments bring to tango music. We specifically analyse Brunelli's recordings of *La Cumparsita* from 1949 and 1965, focusing on the 1965 version for its superior sound quality and prominent melodic role of the accordion within the ensemble. Additionally, we consider Pedro Maffia and Pedro Laurenz's bandoneon duet versions and Piazzolla's arrangements, which showcase the nuevo tango style. This analysis focuses on several aspects:

1. **Timbre:** Piazzolla's bandoneon playing is characterised by its depth and melancholy, highlighting the sorrowful and dramatic emotions in tango; in contrast, Brunelli's accordion version is brighter and more jubilant, though it lacks the rich tonal variations of the bandoneon.
2. **Performance Style and Bellows Impact:** the bandoneon's smaller bellows limits its ability to vary dynamics within continuous phrases, typically adjusting dynamics only on single notes. Conversely, the larger bellows of the accordion allow Brunelli to freely modulate the volume across phrases, showcasing the accordion's advantage in controlling sound dynamics.
3. **Use of Ornamentation:** bandoneon players often concentrate ornamentation within the same tonal range using specific fingering techniques. The accordion, less constrained technically, employs a variety of piano-like ornamental techniques including glissandi, which are particularly evident across different recordings.

This longitudinal historical comparison not only the various renditions of *La Cumparsita*, a tango classic, but also offers a unique perspective on assessing the potential role of the accordion in traditional tango ensembles. Through Brunelli's performances, we see not only a deep respect and understanding of tango traditions but also an exploration of new possibilities beyond conventional instruments.

La Cumparsita is undoubtedly the most widely circulated tango tune, making it one of the most recorded pieces in Argentina and around the world. The song was composed in 1916 by Gerardo Hernán Matos Rodríguez, a young Uruguayan student. Initially, he wrote it for a carnival parade organised by the student federation in Montevideo. Originally a modest march, *La Cumparsita* was transformed by Roberto Firpo, who incorporated elements from the opera *Miserere* and his own tango *La gaucha Manuela*, enhancing its appeal. The piece quickly spread globally and became representative of tango dance music. Its widespread popularity cemented it as a symbol of tango music. Many renowned tango orchestras and singers, including Carlos Gardel, have performed *La Cumparsita*. Moreover, the piece has been adapted into various styles such as jazz and classical, underscoring its influence and allure.

Timbre Analysis

In analysing Brunelli's accordion and Piazzolla's bandoneon renditions of *La Cumparsita*, I observed distinct differences in timbre. Piazzolla's version is deep and melancholic, emphasising the sorrowful and dramatic emotions inherent in tango. In contrast, Brunelli's accordion version sounds brighter and more cheerful, though it lacks the rich tonal variations that the bandoneon offers.

This comparison also inspired a discussion on how the bandoneon influences the tonal colour of tango music. Since the bandoneon became part of tango ensembles,

the music's timbre has tended toward lower registers, significantly altering the mood of the tango to become more sombre. This shift, which began around 1915, marked tango's transition from its original cheerful and carefree style to a darker, more introspective expression. Jorge Luis Borges lamented the incorporation of the bandoneon, describing it as the "melancholic bandoneon."¹²² Omar Brunelli, an Argentine tango scholar and also Feliciano Brunelli's grandson, also noted that the bandoneon's timbre is inherently more melancholic, drawing this conclusion from Borges' commentary on the instrument.¹²³ By 1917, tango ensembles began incorporating instruments like the cello to continue this emotional shift. That same year, tango lyrics also began to exhibit more pronounced sadness and dramatic qualities, with Carlos Gardel's recording of "Mi noche triste" serving as a prominent example. To further support this argument, examining earlier tango lyrics reveals that elements of melancholia and reflection were present even before the bandoneon's introduction, suggesting that the bandoneon's incorporation amplified existing emotional themes in tango music.¹²⁴

Piazzolla's rendition of *La Cumparsita* accentuates the sadness and drama, showcasing his personal interpretation of tango music. Compared to Juan D'Arienzo's recording of *La Cumparsita*, which features a bandoneon-led tango orchestra, Piazzolla's version is relatively brighter and lighter. However, in terms of tonal depth and emotional expression, it still appears more melancholic compared to Feliciano's version. This comparison highlights not only the different uses of the bandoneon and other instruments but also the distinct interpretative styles and emotional subtleties brought by each artist.

¹²² Jorge Luis Borges, "Historia del tango," in *Borges cuenta Buenos Aires*, ed. María Kodama (Buenos Aires: Editorial Emecé, 2016), 120-141, [El Historiador](#).

¹²³ Omar Brunelli, email to author, discussing Jorge Luis Borges' views on the bandoneon.

¹²⁴ "Borges and the Tradition," *Tango High and Low*, November 1, 2017, accessed August 6, 2023, <https://tango-high-and-low.com/2017/11/01/borges-and-the-tradition/>.

The differences in timbre not only reveal the significance of instruments in musical expression but also demonstrate how performers can shape the mood and depth of tango music through their personalised interpretations. Therefore, it can be argued that the choice of instrument and the performer's interpretation significantly influence the overall feel and reception of tango music, providing a deeper understanding of the diversity in tango performance.

Performance Style and Instrumental Influence

Marcato

In tango music, *marcato* (accentuated beat) is a fundamental rhythmic pattern that articulates specific beats within a measure. This pattern originally followed the habanera dotted rhythm, characterised by a syncopated sequence consisting of a dotted eighth note followed by a sixteenth note, and then two eighth notes. As tango music evolved, this approach shifted from the habanera pattern to using four eighth notes per measure (notated as 4/8), and later to four quarter notes per measure (notated as 4/4).¹²⁵

From the 1940s, two main styles of playing *marcato* emerged. First, a style that evenly emphasises all four beats. Second, a style that emphasises the first and third beats more strongly. Additionally, within this time-signature model, stylistic variations in emphasis, chord voicing, touch type, and articulation of walking bass lines can be observed. Despite these subtleties, this model is generally referred to as *marcato* or simply as "in 4."¹²⁶

¹²⁵ Wolff, p.86.

¹²⁶ Wolff, p. 88.

In Brunelli's 1965 recording of *La Cumparsita*,¹²⁷ particularly from 2'07" to 2'34" during a piano solo filled with ornamentation, the *marcato* played on the accordion is as crisp and forceful as that played on the bandoneon. In terms of playing technique, the bandoneon presents challenges when articulating *marcato* differently with each hand. Unlike the piano, the bandoneon is constrained by bellows straps, requiring very short, percussive strokes with the palms and fingers, and sometimes even using leg and heel movements to enhance the effect. In contrast, playing *marcato* on the accordion is easier than on the bandoneon because the accordion's design allows the right hand to move freely without key constraints, enabling it to mimic the *marcato* technique on the piano with short, distinct, and evenly percussive chord strikes. Furthermore, from the recordings, it can be heard that Brunelli achieves such explosive chords by utilising the left hand to tighten the bellows, effectively channelling the airflow when the right hand presses the chords, enhancing the music's dynamism and making the performance more expressive and vibrant.

Influence of Keyboard on Variation

In the realm of tango music, variations serve as a fundamental means of expression, where ornamentation plays an essential role. These ornaments are sometimes notated, ensuring that musicians maintain the consistency and precision that preserve the traditional features and stylistic nuances of tango.¹²⁸ Ornamentation in performance can be categorised into 'closed' and 'open' styles. The 'closed' style tends toward brief and crisp embellishments that punctuate the rhythm, while the 'open' style offers elongated, expressive flourishes that enhance the melodic

¹²⁷ Feliciano Brunelli. *La Cumparsita / Carioca*. Edizione Jazz IT. Released February 13, 2019. Provided to YouTube by Dareto, accessed August 7, 2023, https://www.youtube.com/watch?v=XrzmchXoanw&list=OLAK5uy_kgj6CFybsZdYQ8mvRe1yigW7Ifh_j2zXg&index=15.

¹²⁸ Wolff, pp. 192-193.

contour. Musicians may select the style that aligns with their interpretive vision and emotional resonance. In solo performances, there is a greater latitude for artists to incorporate or adapt ornamentation, infusing the performance with flexibility and a personalised touch that vividly conveys their emotive range and creativity.

The bandoneon's idiosyncratic keyboard arrangement poses a particular challenge when executing certain scales, compelling musicians to devise specific ornamental techniques to surmount these obstacles and realise a breadth of variation. For example, performers might employ rapid note repetitions, leaps, or appoggiaturas to craft distinctive decorative impacts that amplify the performance's expressivity and dynamism. These constraints have given rise to a unique ornamental style within tango music. This is a foundational aspect of the bandoneon's expressiveness and its unique ornamentation. In Brunelli's accordion performances, however, the instrument has less such technical limitations and thus allows for an array of variation techniques akin to those of the piano, including glissandos that are less feasible on the bandoneon. This comparison is starkly evident across three different recordings, underscoring how varying instruments influence the application and evolving styles of ornamental play, as illustrated in Figure 19 and Figure 20.

Figure 19 displays how the bandoneon duo rendition extends the original melody into more intricate forms, incorporating octave duplications, arpeggios, and scalar passages as decorative extensions. Piazzolla's arrangement offers a richer tapestry of melody, with an expanded use of arpeggios and additional melodic flourishes, including stylised octave repetitions that hallmark his approach to new tango. His arrangement also introduces repeated arpeggiations, contributing to a sonically layered and complex piece. We will dive into Piazzolla's approach to new tango ornamentation in further detail subsequently.

The image displays three staves of musical notation for the piece 'La Cumparsita'. The top staff is the 'Original score'. The middle staff is labeled 'Bandoneon duo played by Pedro Maffia and Pedro Laurenz' and includes annotations for 'Appoggiaturas' and 'faseo'. The bottom staff is 'Piazzolla's arrangement' and includes annotations for 'Arpeggios', 'Scale', 'Octave repetition', and 'Arpeggios Repetition'. The music is in 2/4 time and features complex rhythmic patterns and melodic lines.

Figure 19: Bandoneon variation techniques of *La Cumparsita*

In Figure 20, Brunelli's accordion performance reveals a variety of techniques, showcasing the accordion's capacity for more diverse variations, starkly contrasting with the bandoneon's technical constraints. The accordion's keyboard layout facilitates an extensive array of arpeggios, spanning greater tonal expanses with rapid execution. The continuous scalar runs in the "Scale" section underscore the accordion's expansive range and ergonomic keyboard design. Moreover, the "Repetition" passage unveils a tango variation where a group of notes are played in quick succession, echoing a method comparable to Piazzolla's, and representing a signature technique in the genre. The "Glissando" segment demonstrates a slide, something challenging to achieve on the bandoneon. This is partly due to the bandoneon's restrictive strapping, which limits the movement to only four fingers per hand, and also because of the high and irregularly arranged keys that make the precise glissando motions nearly impossible.

The image displays a musical score for an accordion, consisting of four staves of music. The first staff (measures 1-7) is labeled 'Arpeggios' and 'Scale'. The second staff (measures 8-14) is labeled 'Repetition'. The third staff (measures 15-22) is labeled 'Glissando'. The fourth staff (measures 23-30) is labeled 'Arpeggios' and 'Glissando'. The music is written in a 2/4 time signature with a key signature of one flat (B-flat major or D minor). The score includes various musical notations such as arpeggios, scales, repetitions, and glissandos, with some notes marked with a 'w' symbol.

Figure 20: Brunelli's versatile variation

In conclusion, the musical fragments depicted showcase the accordion's versatility in terms of range, velocity, and technical variety. These qualities collectively enhance the music's intricacy and expressive power. Compared to the bandoneon, the accordion offers a distinct timbre and faces fewer technical limitations, making it more suitable for achieving some of the original techniques of tango. This includes the marcato, glissando, and other aspects effectively provided by the piano in traditional tango contexts. Consequently, the accordion broadens the spectrum for musical interpretation, allowing for a richer and more dynamic expression of the tango's essence.

Impact of Bellows on Dynamics

The compact size and bellows of the bandoneon restrict its capability to modulate dynamics within continuous phrases. Due to limited airflow, the bandoneon often struggles to maintain a wide dynamic range during the execution of continuous melodic lines. To compensate for this physical constraint, bandoneon players focus

on dynamically manipulating individual notes. Within a musical phrase, a player may emphasise a particular sustained note to achieve a crescendo or decrescendo, thereby introducing dynamic contrasts that enhance the expressive quality of the phrase. Despite its structural limitations, this method has developed into a distinctive expressive style within tango music, endowing bandoneon performances with profound emotional impact and expressiveness.

Contrastingly, keyboards like the one used by Brunelli offer greater flexibility and a broader dynamic range. In Brunelli's performances on the keyboard, he adeptly adjusts dynamics throughout musical sections without being hindered by the instrument, demonstrating the keyboard's capability to handle dynamic shifts effectively in continuous musical passages. For instance, Brunelli can seamlessly create dynamic fluctuations over an extended phrase, as depicted in Figure 21.

The bandoneon's specialised approach to dynamics is not merely an adaptation to its physical limitations but has also become a crucial element of tango music's unique style. This development illustrates tango musicians' profound comprehension and innovative employment of the instrument's features, including its limitations, which significantly shape the overall artistic expression and auditory experience of tango music. In contrast, the accordion, with its distinct timbre and fewer technical constraints, offers a different approach to dynamics that can achieve similar levels of expressiveness. Techniques such as *marcato* and *glissando*, which are not easy to execute on the bandoneon, are more easily performed on the accordion. This comparison highlights how both instruments contribute to the rich and dynamic expression of tango, each in its unique way.

The image displays a musical score for a piece in 2/4 time, comparing three different recordings. The score is organized into two systems of three staves each. The first system includes:

- Bandoneon duo played by Pedro Maffia and Pedro Laurenz:** Dynamics range from *sfz* (sforzando) to *mp* (mezzo-piano) and *f* (forte) to *p* (piano).
- Piazzolla's arrangement played by Anibal Troilo's Orchestra:** Dynamics range from *f* to *pp* (pianissimo) and *mf* (mezzo-forte).
- Brunelli's recording:** Dynamics range from *mp* to *f* and *mp*.

The second system, starting at measure 5, includes:

- Bandoneon duo:** Dynamics range from *sfz* to *p* and *f* to *pp*.
- Piazzolla's arrangement:** Dynamics range from *pp* to *f*.
- Brunelli's recording:** Dynamics range from *mf* (mezzo-forte) to *p*.

Figure 21: Comparison of the dynamics in three recordings

Conclusion

Through comparative analysis of Brunelli's accordion version of *La Cumparsita* with traditional bandoneon versions, we not only see the differences between the two instruments in terms of timbre and expressiveness but also understand how Brunelli offers a fresh perspective on the development of tango music by incorporating new musical elements and styles while respecting tradition.

Brunelli's practices display his profound understanding of music and technical prowess, showcasing the diversity and richness of music. Additionally, his recordings provide valuable material for studying the forms of expression in tango music, especially in discussing the accordion as an instrument less traditionally used in tango. His work demonstrates the balance between innovation and tradition within tango music.

In summary, the accordion has played a role in the evolution and diversification of tango music. Despite often being overshadowed by the bandoneon, the accordion has shown its versatility and cultural relevance. Through historical analysis and case studies, this section has demonstrated how the accordion has been part of tango.

3.4 Re-examining the Timbre of the Bandoneon and the Accordion

Piazzolla's 1988 remarks described the accordion as a 'happy' and 'sharp' instrument and implied that it was unsuitable for the essence of tango.¹²⁹ Given Piazzolla's status as perhaps the most influential figure in the development of nuevo tango, such a statement would naturally carry considerable weight within the community of accordionists. In this section, I revisit his inference from two complementary perspectives. The first considers how cultural listening habits and historical performance contexts shape perceptions of timbre, engaging with contemporary sound-studies scholarship that argues timbre is interpreted through culturally conditioned frameworks rather than determined solely by physical acoustics. The second examines the acoustic properties of the bandoneon, the Stradella accordion (standard bass accordion), and the free-bass accordion through listening analysis and visualisation tools. Together, these perspectives offer a more balanced foundation for evaluating whether the timbre of the accordion may be considered compatible with nuevo tango.

¹²⁹ Azzi and Collier, pp. 152-153.

Cultural and Historical Perspectives on Timbre

Contemporary scholarship in sound studies emphasises that timbre is not simply a natural attribute of sound but is shaped by cultural conditioning and listening traditions. Jonathan Sterne notes that auditory judgement depends upon cultural frameworks and learned patterns of hearing.¹³⁰ Richard Leppert similarly argues that music must be understood within cultural and social contexts rather than as an isolated acoustic object.¹³¹ From this perspective, Piazzolla's judgement of the accordion reflects the particular sound world in which he grew up and worked, rather than an objective description of the instrument.

In addition, this cultural context extends to the distinct regional histories of the bandoneon and the accordion in Argentina. The bandoneon developed within the urban environment of Buenos Aires, where early tango was performed in small nighttime venues before expanding into dance halls, radio broadcasts, and formal concert stages in the 1920s to 1940s.¹³² Over the course of the twentieth century, the bandoneon became increasingly identified with the sound-world of urban tango, particularly through its central role in the development of the Orquesta Típica and the growing emphasis on expressive phrasing within Buenos Aires' dance halls, radio programmes, and concert performances.¹³³ These associations accumulated through decades of musical practice and cultural memory rather than through any immutable acoustic traits of the instrument.

¹³⁰ Jonathan Sterne, "Sonic Imaginations," in *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012), p. 15.

¹³¹ Richard Leppert, "Reading the Sonoric Landscape," in *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012), pp. 410–411.

¹³² García Brunelli, pp. 13–22.

¹³³ García Brunelli, pp. 18–22.

The accordion, by contrast, flourished primarily in the northeastern Litoral region, where it became central to *chamamé*,¹³⁴ a folk tradition characterised by brightness, festivity, and rural vitality. Within this cultural landscape, the accordion came to be associated with lightness, celebration, and a communal sense of gathering.¹³⁵

Piazzolla's characterisation of the accordion as 'happy' may therefore reflect these regional and cultural associations rather than any fixed sonic limitation. His inference arises from the Buenos Aires tango tradition, not from inherent constraints of the accordion or its expressive capability.

Viewed through this cultural-historical lens, Piazzolla's statement should be understood as a subjective judgement shaped by specific listening environments. It cannot reliably determine whether the accordion, or the free-bass accordion in particular, is suitable or unsuitable for nuevo tango.

Acoustic Analysis of Bandoneon and Accordion Timbre

To explore the question of timbre in a more structured manner, I undertook a preliminary comparison of bandoneon and accordion timbre, drawing upon two analytical approaches. The first was Michel Chion's principle of reduced listening,¹³⁶ which sets aside cultural associations and focuses on perceptual attributes such as brightness, stability, grain, diffusion, and the continuity of the sonic line. The second used a basic audio-visualisation tool, *Sonic Visualiser*,¹³⁷ to produce spectrograms and brightness traces. These visualisations are not presented as engineering

¹³⁴ UNESCO, "Chamamé," Intangible Cultural Heritage (2020), accessed August 2024, <https://ich.unesco.org/en/RL/chamame-01600>

¹³⁵ UNESCO, "Chamamé."

¹³⁶ Michel Chion, "The Three Listening Modes," in *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012), pp. 101–102.

¹³⁷ Centre for Digital Music, *Sonic Visualiser*, version 4.5, Queen Mary University of London, 2024, <https://www.sonicvisualiser.org/>.

measurements but as supplementary evidence intended to clarify or support auditory impressions. Full details of this exploratory work are included in Appendix 1.

In this preliminary comparison, the timbres of the bandoneon, the Stradella accordion, and the free-bass accordion were examined. The bandoneon exhibits a focused and stable timbre with relatively consistent brightness and clearly defined articulation. The Stradella accordion displays greater fluctuation, lower brightness, and a more diffuse and noisier sound. The free-bass accordion occupies a timbral position that reflects elements of both the Stradella accordion and the bandoneon: it shows smoother transitions in brightness and a more stable structure than the Stradella system, while retaining a broader brightness range than the bandoneon (see Appendix 1 for further details). This encompassing timbral position of the free-bass accordion is perhaps not unexpected, given that it is a more recent innovation than both the bandoneon and the Stradella accordion and was designed with a broader spectral scope.

In conclusion, when considered through both cultural history and a preliminary acoustic analysis, Piazzolla's inference that the accordion is 'happy', 'acid' and 'sharp', in contrast to the bandoneon's supposed suitability for 'sad' music, is best understood as a product of culturally conditioned listening practices rather than fixed acoustic properties. Furthermore, although the bandoneon and the accordion acquired contrasting cultural identities in Argentina, the preliminary comparative evidence suggests that the modern free-bass accordion falls closer in timbral profile to the bandoneon than Piazzolla's 1988 statement implies.

3.5 Reassessing Instrumental Roles in Tango: The Case of Free-Bass Accordion

The arrival of the accordion in Argentina occurred alongside that of the bandoneon, and early twentieth-century figures such as Feliciano Brunelli demonstrate the accordion's meaningful participation in the formative soundscape of tango. Despite this, the bandoneon is widely regarded as the quintessential instrument of tango, intrinsically linked to the genre's identity. Consequently, there are views that tango should be performed on the bandoneon, and that newer instruments, such as the free-bass accordion, cannot deliver a true tango experience. In this section, I challenge these traditional views and argue that the free-bass accordion has a valid place in the future of tango.

The unique instrumentation of Argentine tango bands has defined their sound throughout history, from the early bands to the standardised creole orchestras of the 1920s, the expansions of the 1930s and 1950s, and the reductions in scale during the late 1950s and early 1960s.¹³⁸ This evolution reflects not only changes in traditional instruments but also the introduction of new elements, such as woodwinds and percussion. However, the distinctive timbre of the bandoneon is often considered key to evoking the essence of tango. The cultural significance of the bandoneon, particularly its impact on Piazzolla, underscores the importance of both returning to tango's origins and exploring new paths. By introducing the free-bass accordion, this research seeks to transcend conventional boundaries and reassess the evolving instrumental roles within tango.

¹³⁸ Link and Wendland, p. 12.

3.5.1 The Bandoneon's Central Position in Tango Music

The use of the free-bass accordion in performing nuevo tango, especially in place of the bandoneon, raises questions about the legitimacy of this instrument in tango, given the bandoneon's established role as the emblematic instrument of the genre. I argue that the evolution of tango music should not be overly fixated on the bandoneon as the central instrument, and I will support this argument from three main perspectives.

Firstly, while the bandoneon now holds a revered status in tango, it was not always central to the genre. Indeed, before the bandoneon became synonymous with tango, earlier instruments such as flutes, violins, and guitars were used to produce the vibrant and rhythmic sounds characteristic of the music's early stages. As Jessica Marie Quiñones explains in her doctoral thesis, the myth of tango is often propagated through symbolic personas and archetypes, fostering a collective national identity that resonates with the perceived essence of tango. However, it's important to recognise that the bandoneon was a later addition to this tradition, gradually becoming integral to tango music due to its resonant legato and profound bass timbres.¹³⁹ Therefore, in terms of history, the bandoneon was not the original instrument for tango.

Moreover, the bandoneon was not originally invented for tango. It was conceived as a mobile organ to accompany religious ceremonies and intimate gatherings. Its subsequent adoption into tango compositions marked a significant departure from its intended use. This transition is evident in how tango musicians adapted the bandoneon's sound to meet the emotive and dynamic demands of the genre.

¹³⁹ Zucchi, p. 126.

Secondly, invoking Gilles Deleuze's philosophical concept of "becoming,"¹⁴⁰ I propose a reframing of the bandoneon's position within tango music. Deleuze argues that all things are in a state of perpetual transformation, never static but constantly evolving, with existence comprising transient stabilities within the ongoing flux of life. This concept highlights the continual and generative evolution of tango music. While the bandoneon has played a crucial role in tango's transformation, its role need not remain fixed; in time, it could give way to new instruments that contribute to the evolution of tango, just as pre-bandoneon instrumentation once did for the bandoneon. Although the bandoneon and accordion share the same instrumental lineage, their differing musical constructs and distinct paths in tango history suggest that the accordion could, where appropriate, assume a role traditionally reserved for the bandoneon. This perspective views engaging with and appreciating music as a dynamic and interpretative process, one that offers fresh insights into musical narratives.

Thirdly, I will explore the ongoing debate between "conventional performance" and "modern performance," two perspectives that are often in tension with each other. While modern performances typically prioritise the musical score and the performers' subjective expressive choices, conventional performance is grounded in the foundational concept of "historical awareness."¹⁴¹ The "historical awareness" approach involves a deep engagement with historical scores, instrument selection, orchestration, and performance techniques, all aimed at invoking a "sense of history" and capturing the stylistic nuances of various eras.

Often, particularly in eras predating recordings, "conventional performance" cannot be equated with "historical restoration" because no recordings exist for direct

¹⁴⁰ Gilles Deleuze and Félix Guattari, *A Thousand Plateaus and Schizophrenia*, (Minneapolis: University of Minnesota Press, 1987), pp. 56-58.

¹⁴¹ Peter Walls, "Historical Performance and the Modern Performer," in *Musical Performance: A Guide to Understanding*, edited by John Rink, 17-34. (Cambridge: Cambridge University Press, 2002).

comparison. Instead, what we often encounter is “historical reconstruction,” a process that involves reimagining past practices and critically examining contemporary performance methodologies. Thus, many so-called “conventional performances” inherently involve interpretation, as they rely on reconstructing historical contexts rather than merely replicating a specific performance. This approach raises pivotal questions about the composer’s intent, desired sonic outcomes, and period-specific techniques, emphasising that such performance is not about copying a single, fixed interpretation but rather about engaging deeply with the historical and musical nuances of the time.

Moreover, the evolution of tango—from the Guardia Vieja era through the Golden Age to the Avant-Garde nuevo tango era—illustrates the individualised expressions of tangueros and orchestras. These musicians focused on assimilating and arranging the multifaceted elements of tango, a process that parallels the ongoing journey of subjective expressive choices emphasised in modern performance. In fact, unique tango techniques such as *arrastre* and *la yumba* are examples of subjective expression that deviate from more historically grounded performance practices.

Therefore, in the context of tango, we should be less constrained by the notion of “conventional performance.” Not only does such a notion fail to guarantee historical restoration, but more importantly, the evolution of tango itself represents a series of ongoing transformations and subjective expressions by successive generations of tangueros and orchestras.

3.5.2 The Free-Bass Accordion and Its Alignment with Tango

Music

The introduction of the free-bass accordion into tango music brings new timbres and performance techniques that differ from those of the bandoneon. In this subsection, I argue that using the free-bass accordion to perform tango does not challenge the essence of the genre; rather, it contributes to the evolution of tango by opening up new avenues for musical interpretation and expression.

During my fieldwork, I played the free-bass accordion alongside bandoneonists at various points in Buenos Aires. Initially, I anticipated that the bandoneonists might reject the free-bass accordion, fearing it could challenge the bandoneon's established place in tango. However, I found that they were more curious than dismissive, intrigued by what the free-bass accordion could bring to our collaboration. This curiosity underscores the inherent experimental and multicultural dimensions of contemporary tango. I later invited a leading nuevo tango composer and a prominent bandoneonist to London, where we performed together at the London Tango Festival, which I co-founded and co-hosted. Both of them were enthusiastic about the opportunity and were happy to champion the combined performance, further reinforcing the idea that tango is more than just a fixed musical genre; it is an intricate art form encompassing a wide spectrum of creative expressions.

While some musicians argue for the importance of using the instruments for which compositions were originally intended, and it is true that the free-bass accordion may not produce exactly the same sound as the bandoneon due to their differing constructs, I contend that performance involves much more than simply achieving sound proximity. The subtleties and nuances of performance may be equally, if not

more, important. As Kerman articulated, “Only through mastering the skills and experience specific to an instrument can a performer reveal the subtler nuances of sound. Moreover, what I refer to as ‘interpretative mechanisms’ — including dynamics, ornamentation, articulation, and phrasing — demand a deep comprehension of the instrument's physical and musical properties.”¹⁴² In the context of our discussion, while understanding the nuances of Piazzolla's bandoneon performance is crucial — and indeed, this is why we analyse Piazzolla’s history and his bandoneon techniques in detail — it is also important to recognise that an instrument is more than just its sound and idiosyncratic techniques. It forms a performance style that transcends any specific temporal or spatial context. It is this performance style that I aim to reference and evolve upon in my free-bass accordion performances.

Additionally, while Dolmetsch asserts that “the performance of ancient music should be based on contemporary instruments,” American musicologist Bukofzer (1901-1955) cautioned that an excessive focus on instruments could lead to a superficial pursuit of musical essence. He emphasised that music is not just sound but a composite of traditional style, aesthetic preference, technical detail, and sonic form. The correct use of instruments does not automatically guarantee a musically high-quality performance; it requires a deeper understanding and skillful application of musical principles.¹⁴³

While performing Piazzolla’s nuevo tango music requires an in-depth understanding of his music and performance techniques, it is not necessarily limited to the bandoneon. Although the bandoneon holds a unique status in tango, performing tango on a free-bass accordion, despite the challenges, opens up new avenues for

¹⁴² Joseph Kerman, *Contemplating Music: Challenge to Musicology*, (London: Fontana, 1985), p. 212.

¹⁴³ Manfred Bukofzer, *On the Performance of Renaissance Music*, (Music Teachers National Association, 1941), pp.225-235.

musical interpretation. This approach demonstrates the varied paths to exploring musical meaning and emphasises listening as an active process of discovery. Different performances provoke different reflections, and entirely new performances inspire awe. The quest for music begins with astonishment at different sounds, styles, and practices, inviting us into a broader dialogue with culture and history. The process of listening requires us to deconstruct existing perceptions and rebuild future listening experiences, involving both the examination of the past and the construction of new ones, enriching our deep understanding and appreciation of music.

3.6 Conclusion

This chapter has examined the role of the free-bass accordion within the context of nuevo tango, highlighting its potential to reinterpret and enrich the genre. By introducing the history of the accordion and discussing its integration into tango, including a case study of Feliciano Brunelli performing tango on the accordion, this chapter has shown that while the bandoneon is traditionally central to tango's identity, the accordion has nonetheless been a part of the genre's history.

Additionally, this chapter has argued for the future role of the free-bass accordion in both nuevo tango and traditional tango. Despite some reservations about its roles in tango music, the free-bass accordion represents an opportunity to enhance and expand the genre by blending tradition with innovation. By addressing potential criticisms, the discussion has aimed to establish a case for the free-bass accordion's inclusion in the ongoing evolution of tango music.

In contextualising the free-bass accordion within nuevo tango, Chapter 3 has laid the groundwork for a deeper exploration of performance practices specific to the instrument. The following chapters will build on this foundation by examining the technical adaptations required to perform the works of Piazzolla and contemporary tango composers on the free-bass accordion, demonstrating how it can uniquely contribute to the genre's continued development.

CHAPTER 4: PERFORMING PIAZZOLLA'S NUEVO TANGO ON THE FREE-BASS ACCORDION

4.1 Introduction

This chapter aims to explore the techniques and adaptations necessary for performing Astor Piazzolla's nuevo tango compositions on the free-bass accordion. As discussed in previous chapters, Piazzolla's approach to tango incorporates complex rhythms, unique phrasing, and innovative use of the bandoneon, which he considered integral to his music. Translating these characteristics to the free-bass accordion requires a thorough understanding of both instruments and the nuances of their expressive capabilities.

To address these challenges, this chapter uses examples from a selection of Piazzolla's works, chosen for their stylistic diversity and technical demands. The discussion will highlight how key performance elements such as register selection, bellows control, and finger positioning are adapted for the free-bass accordion. This analysis will illuminate the ways in which the accordion's tonal versatility and expanded range can capture the essence of Piazzolla's music while also contributing new dimensions to its interpretation.

The chapter further draws on practice-based research and comparisons between bandoneon and free-bass accordion interpretations, offering insights into the technical adjustments needed to perform Piazzolla's works. Through this exploration, Chapter 4 not only demonstrates the potential of the free-bass

accordion in the realm of nuevo tango but also sets a foundation for future innovations in performing this repertoire.

4.2 *Selection of Piazzolla's Nuevo Tango Pieces for Analysis*

4.2.1 Criteria for Selection of Compositions

I used several criteria for selecting compositions for the illustrative examples for this chapter. Foremost among these is musical diversity, ensuring that the selected pieces encompass a broad spectrum of Piazzolla's musical styles and techniques. Following the approach of Argentine scholar Omar García Brunelli's thesis, I divide Piazzolla's works into academic and popular compositions.¹⁴⁴ Brunelli argues that Piazzolla's oeuvre is a product of a dynamic fusion between his academic compositional knowledge and his innovative approach to tango as a genre of contemporary popular music. Despite their independence, the interaction and mutual influence between these domains require the analyst to have knowledge of each in order fully to understand the other. As demonstrated in Brunelli's thesis, this interaction is evident in Piazzolla's use of tango elements and procedures in his academic compositions and the application of academic techniques in his popular works. Each composition, however, firmly belongs to its respective domain. My set of illustrative examples includes an equal representation of Piazzolla's academic and popular pieces, to highlight the versatility of the free-bass accordion.

¹⁴⁴ Omar García Brunelli, *Entre el tango y la música académica: Estética, procedimientos compositivos e interrelación de campos en la obra de Astor Piazzolla* (PhD diss., Universidad de Buenos Aires, Facultad de Filosofía y Letras, Área Historia y Teoría de las Artes, 2019).

Secondly, the selected pieces should demonstrate the various possibilities of the free-bass accordion in musical interpretation, such as offering a wider range of tonal options, performing complex embellishment passages to enrich variations, and showcasing special techniques like bellows shaking, effectively highlighting the instrument's capabilities.

Lastly, my selection includes both solo and ensemble works, for addressing the instrument's versatility. Specifically, two solo pieces and two ensemble pieces are chosen, with one ensemble piece being a duet with a cello and the other a quintet, a format frequently utilised by Piazzolla. Solo pieces allow for an in-depth exploration of the instrument's technical and expressive potential without the influence of other instruments. These pieces showcase the accordion's ability to handle complex passages, intricate melodies, and diverse dynamics independently, highlighting its strength as a solo instrument. Ensemble pieces, on the other hand, present different challenges and opportunities. The duet with a cello exemplifies the accordion's ability to blend and contrast with another instrument, requiring the performer to adapt to another musician's timing, dynamics, and phrasing. This interaction emphasises the accordion's versatility in a chamber music setting. The quintet format offers a richer texture and more complex interplay between the accordion and other instruments, such as the violin, piano, guitar, and double bass. This setting challenges the accordionist to navigate a more intricate musical landscape, balancing individual expression with the ensemble's cohesive sound.

4.2.2 Selection of Illustrative Examples

Tanti Anni Prima

Tanti Anni Prima was composed by Piazzolla for oboe and piano, specifically for the 1984 Italian film *Henry IV*,¹⁴⁵ and has since been arranged for various other instrumental versions, including solo bandoneon and solo free-bass accordion. This example illustrates the practical applications of bellows technique using *Tanti Anni Prima*, focusing on how the large bellows dimensions of the free-bass accordion can support the integrity of musical phrases. The research compares the original oboe and piano recording, three different bandoneon solo recordings, and my own free-bass accordion performance to analyse how bandoneon players, with their limited bellows dimensions, divide phrases, while the free-bass accordion can sustain complete phrases as in the original score.

The three bandoneon recordings were selected based on the performers' different interpretations of the piece, including two publicly available online recordings and a performance by Argentine bandoneon player Damian Foretic. Damian's recording was included to provide a reference from a professional Argentine bandoneon performer with over ten years of experience, ensuring a reliable comparison given the less certain backgrounds of the two online performers. By comparing these versions, the example highlights the free-bass accordion's ability to maintain phrase continuity and musical fluency.

¹⁴⁵ Azzi and Collier, p. 133.

Chiquilín De Bachín

Chiquilín De Bachín is one of Piazzolla's ballads setting Horacio Ferrer's lyrics; it stands out due to its lyrics and expressive melody. This example compares the use of registers and embellishments in solo versions for bandoneon and free-bass accordion, focusing on how the keyboard flexibility in the free-bass accordion allows performers to explore a wider range of notes. Additionally, the example shows solo embellishments from Piazzolla's quintet recordings in collaboration with vocalists José Angel and Roberto Goyeneche.

Verano Porteño

Verano Porteño is a well-known piece composed by Piazzolla for quintet, forming part of his 'Four Seasons' suite.¹⁴⁶ In this example, *Verano Porteño* illustrates the adaptation of bellows technique in tango performance, with a focus on how the free-bass accordion handles challenges and reflects the details found in bandoneon playing. The example will analyse two live performance videos of Piazzolla's quintet, examining how Piazzolla handles the 3-3-2 rhythm and accent patterns in this piece. It will also demonstrate how these accent patterns can be adapted on the free-bass accordion and how the instrument combines bellows shake with the 3-3-2 rhythm.

Le Grand Tango

Le Grand Tango was composed in 1982 for cello and piano, dedicated to Mstislav Rostropovich.¹⁴⁷ This example compares three versions: the original version for cello and piano, a version for bandoneon and cello, and a version for free-bass accordion

¹⁴⁶ Azzi and Collier, p. 59.

¹⁴⁷ Azzi and Collier, p. 129.

and cello. The example examines how different register and timbre choices affect the interpretation of the piece, with particular attention to the friction present in the original score for cello and piano. When using the piano in tango, Piazzolla focused on the lower range and rougher timbres, which are common in traditional tango ensembles and his works. This contrast between academic and popular music styles presents challenges for performers. Although the piano serves as an accompaniment, the focus remains on the cello. However, in performing this piece, the piano part often needs to address issues of balance and conflict. The free-bass accordion, with its range and variety of timbres, can help reduce this friction. The example also explores how the keyboard design of the free-bass accordion, when compared with the bandoneon and cello version, can more faithfully reproduce the original composition without the need to reduce notes due to keyboard limitations.

4.3 Overview of Free-Bass Accordion's Construction

In the following sections of 4.4, 4.5, and 4.6, I will provide a detailed comparison between the physical structures of the free-bass accordion and the bandoneon. The comparison will focus on three key dimensions: bellows, keyboard, and timbre.

First, the free-bass accordion boasts a more extensive range of registers than the bandoneon, each capable of producing a distinct set of timbres. I have identified three registers that produce sounds akin to the bandoneon, and these can be effectively utilised to expand the tonal palette during the interpretation of Piazzolla's works. Among these, the 4-foot register offers a more pronounced sound, making it particularly effective for highlighting the accordion's tone within an ensemble. The other two registers, the 8-foot and 16-foot, provide darker and softer tones, suitable for accompanying roles within the group.

Second, the robust construction of the free-bass accordion introduces a distinctive technique known as “bellows shake,” which imparts rapidly vibrating tones to the notes played. This technique can be particularly effective in accentuating the frequently used rhythmic 3-3-2 patterns in Piazzolla’s music, lending them a more aggressive expression. In addition, the design of the free-bass accordion’s bellows allows performers to sustain longer phrases. While Piazzolla had to segment certain passages into shorter phrases due to the limitations of the bandoneon, the free-bass accordion facilitates a more seamless and continuous interpretation of melodies. Together with the enhanced chord functionality of the free-bass accordion, these four aspects open up new interpretative possibilities for Piazzolla’s compositions.

Third, the free-bass accordion facilitates more sophisticated embellishments. Piazzolla's bandoneon embellishments are predominantly monophonic; he often employed repeated single notes to accentuate the main and high notes. The free-bass accordion, with its more organised keyboard layout and the ability to be played with all five fingers on both hands, enables more intricate and dynamic embellishments, such as expansive arpeggios and polyphonic ornamental sounds.

In sections 4.4 (registers), 4.5 (bellows), and 4.6 (keyboards), each dimension will be illustrated with examples from tango repertoire to highlight how these structural differences influence musical results. Through this comparison, I aim to demonstrate the versatility and potential of the free-bass accordion, whether in solo arrangements or ensemble settings.

4.4 *Free-Bass Accordion's Registers*

The register system of the free-bass accordion is a fundamental aspect of its construction, greatly influencing its tonal versatility and range. This section dives into the complexity and functionality of the register system, providing a detailed analysis of its role in performance. The intricate system allows for a wide variety of sounds, which is essential for adapting Piazzolla's nuevo tango to the free-bass accordion.

The free-bass accordion's register system comprises 20 registers (15 on the right hand, 5 on the left), offering performers the ability to smoothly transition between diverse timbres.¹⁴⁸ The right manual houses four distinct sets of reeds, each an independent collection that can be mixed with others, resulting in 15 possible combinations. The registers, symbolised by a circle divided into three sections with dots indicating quantity and octave, enhance the instrument's sonic palette.¹⁴⁹

4.4.1 **Bandoneon's Simplified Register System**

In contrast, the bandoneon, integral to tango music, adopts a more straightforward register system. Focusing on emotive expression, the bandoneon relies on playing techniques and bellows control rather than a complex mechanical register system. Typically lacking variable stops, the bandoneon's timbre and volume are controlled through bellows pressure and speed, necessitating a direct and focused approach to performance. This design, while limited in tonal diversity, lends the bandoneon its expressive capacity and distinct role in tango music.

¹⁴⁸ Ricardo Llanos Vázquez and Iñaki Alberdi Alzaga, *Accordion for Composers* (Lasarte-Oria: Antza, 2020), p. 3.

¹⁴⁹ Vázquez and Alzaga, p.5.

Thus, the free-bass accordion's expansive pitch range, sophisticated register system, and innovative left-hand mechanism stand in marked contrast to the bandoneon's straightforward, emotive approach. The free-bass accordion is able to adhere more closely to original compositions and to offer a more diverse timbral palette, thus enriching the interpretative possibilities in pieces like *Le Grand Tango*.

In the broader musical context, the concept of a register refers to stops, pitch ranges, or voice ranges. This term encompasses controlling a set of organ pipes, denoting a portion of the range in instrumental and vocal music, and notably, it signifies a device used in accordion performance for timbre alteration.¹⁵⁰ Registers in accordions are instrumental not only in modifying timbre and volume but also in precisely determining the correct pitch range for the notes played.

The concept of stops and registers in organs involves numerous lever mechanisms controlling different sets of pipes, thus altering the organ's timbre. In accordions, the registers, directly linked to transmission plates, enable various combinations of reed ranks, producing diverse tonalities.¹⁵¹ This functionality parallels that of organ stops, with both devices serving the same purpose in timbre modification, constituting a similar type of musical apparatus.¹⁵²

In comparison, the bandoneon, originally a European invention intended to replicate the portative organ's sound, later became emblematic of tango music in Argentina. Its distinct sonic characteristics, attributed to older or economical reed and body materials, combined with the control of the bellows and a limited reed combination, result in a deep, resonant, and somewhat nostalgic tone. This limited tonal range, while restrictive, imparts a unique charm in specific musical styles.

¹⁵⁰ Bettina Buchmann, *The Techniques of Accordion Playing* (Kassel: Bärenreiter, 2010), p. 30.

¹⁵¹ Buchmann, p. 31.

¹⁵² Llanos Vázquez and Alberdi Alzaga, *Accordion for Composers*, p.6.

4.4.2 Graphic Symbols of the Registers

The accordion's registers¹⁵³ are visually represented by and labelled with a circle divided into three tiers (as illustrated in Figure 22). This graphical representation includes dots within these tiers, signifying the quantity and octave of the sounds (reeds) produced when a button is engaged in a selected registration. This symbolic system provides an intuitive guide to understanding the complex interplay of tones and octaves achievable on the free-bass accordion.

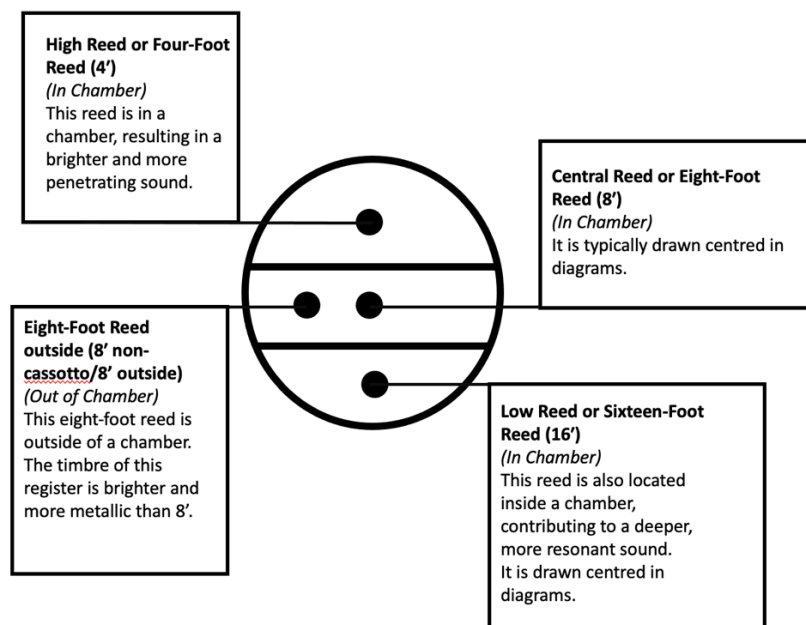


Figure 22: Details of the free-bass accordion registers

The right manual of the free-bass accordion is equipped with four distinct reed sets. Each set is comprised of a complete and independent array of reeds, offering a unique sonic palette. This design allows for the possibility of intermixing any of these sets with the other three, facilitating a diverse range of sound combinations.¹⁵⁴ Within these sets, there are two central reeds tuned to 8', complemented by a lower

¹⁵⁴ Vázquez and Alzaga, p.6.

set at 16' and a higher set at 4', cumulatively providing fifteen different tonal combinations (as shown in Figure 23). For the sake of simplicity, these are referred to as 'reeds' rather than 'set of reeds.' This nomenclature adopts the 'foot' notation from organ registration, where the 16' reed produces sounds an octave lower than the 8' reeds, and the 4' reed sounds an octave higher.¹⁵⁵



Figure 23: Position of the free-bass accordion register

Chin Registers

In the free-bass accordion design, certain registers are duplicated in the chin area, facilitating rapid register changes without interrupting play. These registers, aptly named 'chin registers' due to their location and mode of operation, can be activated using the chin, thereby negating the need to allocate time for manual activation, as shown in Figure 24.

Typically, the chin area houses a select set of registers. However, contemporary advancements in accordion engineering have led to the introduction of the 'multi-chin registers' system. This innovative system expands the functionality of chin registers, allowing accordionists to switch any register using their chin. This

¹⁵⁵ Vázquez and Alzaga, p.6.

development not only enhances the ease of play but also significantly increases the instrument's versatility, enabling a more dynamic and fluid performance style.

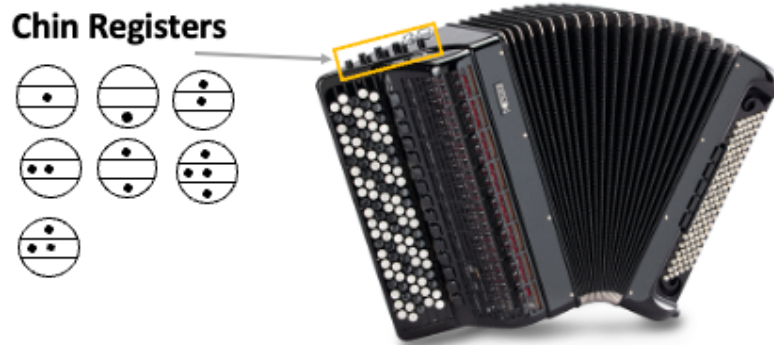

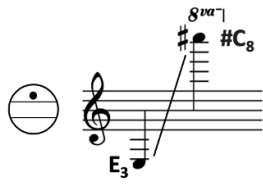
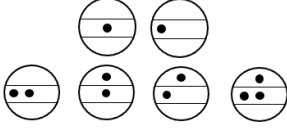
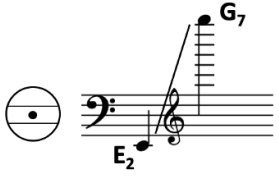
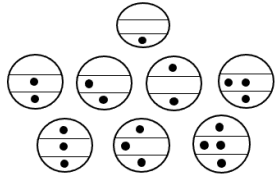
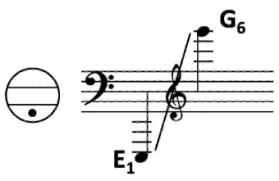


Figure 24: Position of the chin register on the free-bass accordion

4.4.3 Register and Range

The pitch range of a free-bass accordion depends on the register used. Accurate identification of the pitch range corresponding to each note is crucial for consistent musical performance. Experimentation on the instrument shows that pressing the same note with different registers produces variations in pitch. These variations highlight the importance of understanding and correctly using registers to achieve the desired musical expression. Table 1 shows the pitch ranges of different registers.

Table 1: Free-bass accordion registers and corresponding ranges

| Register group | Register | Actual range |
|---|--|---|
| 4 foot (4') |  |  |
| 8 foot (8') Those that have as lowest reed an 8' reed |  |  |
| 16 foot (16') All reeds that include 16' (the lowest point in the circle) are used as the lowest reed, namely the 16' reed. |  |  |

The range of the 8' family corresponds exactly to the single-reed 8' registers, while the 16' family is an octave lower and the 4' family is an octave higher, except for the last notes (D7 to G7), which remain unchanged. These variations occur because the perceived pitch of a register is determined by the lowest reed. In contemporary music, the standard practice is to use 'exact pitch notation', which transcribes the actual sounds produced.

There is a direct relationship between the number of reeds in a register and the volume produced: more reeds result in higher volume. For instance, under constant bellows pressure, a register with two reeds (such as 4' and 8') will produce a louder sound than a register with only one reed (4'). In practice, this principle offers an additional way to control dynamics, complementing bellows pressure. It allows accordionists to vary loudness and intensity, enhancing the instrument's expressive capabilities.

Following the discussion of register ranges, it is important to describe their timbres in detail. Timbre interpretation in the accordion community is highly subjective, with each player offering nuanced descriptions of their instrument's registers.¹⁵⁶ Table 2 lists the icons, names, and timbre descriptions of the 15 right-hand registers, each characterised by unique reed combinations and tonal qualities.

¹⁵⁶ The design of free-bass accordion registers can vary between manufacturers. In this research, I utilise a register combination from the Italian accordion manufacturer PIGINI, specifically their Sirius model with the C-system layout. To address this variability, I employ a qualitative research methodology to describe and summarise the timbres based on my PIGINI Sirius accordion.

Table 2: Graphic symbols, names and sound descriptions of the 15 registers
on the right-hand side of the free-bass accordion





















| Graphic Symbols | Name | Sound Description |
|---|-------------------------------------|---|
|  | 4' (Piccolo) | Sharp, delicate, piercing high-range tone, often used for special effects. |
|  | 8' (Clarinet) | Resembles the clarinet timbre, pure and bright, suitable for lyrical and soft passages. |
|  | 8' outside | Brighter than 8', with distinct characteristics. It rarely appears alone and is often combined with other reed ranks. |
|  | 4' + 8' (Oboe) | The timbre is soft yet bright, suitable for expressing pure and gentle musical emotions, and is also commonly used in classical music. |
|  | 8' + 8' outside (Violin) | Mid-range tremolo effect, bright tone with a wavering quality, enhanced with external resonance. |
|  | 4' + 8' outside (Bandoneon) | The timbre is similar to the mid-high range of the Bandoneon, bright and vivid, suitable for expressing distinct and lively music. |
|  | 4' + 8' + 8' outside | Complex and rich tone combining high, mid, and external resonance, suitable for diverse musical styles. |
|  | 16' (Basson) | Resembles the bassoon timbre, with responsive reeds in the mid-high range, rich, full, and it can extend the lowest range of the accordion. |
|  | 4' + 16' | Bright high-range combined with deep low-range tone, creating a wide tonal spectrum. |
|  | 8' + 16' | Full and mellow tone, combining mid-range clarity with deep resonance. |
|  | 8' outside + 16' (Bandoneon) | Similar to the mid-low range of the Bandoneon. Enhanced mid-range with deep low tones, adding richness and depth. |
|  | 8' + 8' outside + 16' | Rich and full tone combining mid-range, external resonance, and deep bass, suitable for a wide range of music. |
|  | 4' + 8' + 16' | Complex tone with high, mid, and low-range reeds, providing a full and dynamic sound. |
|  | 4' + 8' outside + 16' | Bright, rich, and full tone, combining all ranges with external resonance, suitable for complex pieces. |
|  | 4' + 8' + 8' outside + 16' (Master) | Loudest and fullest accordion sound, with all reeds sounding simultaneously, suitable for powerful performances. |

Table 2 above summarises the characteristics of the 15 free-bass accordion registers. These registers offer a broad palette of tonal colours, from sharp, delicate high tones to rich, full low tones, providing accordionists with diverse options for expressive performance and interpretation.

The left-hand manual of the accordion consists of five registers, each controlling a selection of the three reed sets. The Piccolo (2') register produces a bright, high-pitched tone ideal for melodic lines, while the Double bass (8' + 8') offers a fuller, resonant sound for stronger bass lines. Registers like 2' + 8' and 2' + Double bass combine reeds to create balanced and versatile tones, allowing for clarity and depth in performance. The Bass (8') register provides a clear, stable sound at actual pitch, making it ideal for accompaniment and foundational bass lines. As shown in Table 3.

Table 3: Graphic symbols, names and sound descriptions of the 5 registers on the left-hand side of the free-bass accordion

| Graphic Symbols | Name | Description |
|---|--------------------------|--|
|  | 2' Piccolo | Produces a bright, clear sound an octave higher than actual pitch. Ideal for high-pitched melodic lines and special effects. In newer models, it starts from E5 and extends to C#8, enhancing brightness and expressiveness. |
|  | 8'+8' Double bass | Combines two octaves of reeds to produce a fuller, resonant bass sound. Enhances left-hand depth and volume, balancing well with the right hand. Suitable for strong, rich tones, particularly in powerful and dynamic passages. |
|  | 2'+8' | Combines a high reed (2') with a central reed (8'), producing a bright, clear sound with a distinct upper register presence. Enhances clarity and sharpness, ideal for passages requiring crisp articulation with a lighter bass presence. |
|  | 2'+ 8'+8' Double bass | Combines two octaves of reeds (8' + 8') and a high reed (2'), providing a rich, resonant sound with added brightness and clarity. Balances the left hand's depth and volume with the right hand, suitable for powerful, dynamic passages. |
|  | Bass | Produces sound at the actual pitch (8'), clear and pure. Suitable for foundational bass parts, accompaniment bass lines, and harmonies, offering a stable and clear timbre. |

Having described the timbres of the registers, the following sections will explore their application in Piazzolla's tango music. This will demonstrate how these timbres enhance the richness and suitability of the music, illustrating their vital role in adding depth and versatility to musical expression. By analysing specific applications in Piazzolla's compositions, the research aims to highlight the functional benefits and

artistic possibilities offered by the diverse register options on the free-bass accordion.

Illustrating the Impact of Range and Timbre Choices and on Le Grand Tango Interpretation

While the choice of accordion registers is a matter of individual interpretation, the absence of standardised notation and variety of timbre descriptions pose challenges for composers seeking to understand the instrument. However, there is a logical framework for selecting registers, and accordionists should not shy away from this challenging aspect. In these illustrative examples, I will demonstrate my process for selecting registers, providing reasoning and examples to support my choices.

The judicious application of registers allows for a precise interpretation of musical compositions across different eras, styles, and genres, enhancing the expressive capabilities of the music. Historically, most free-bass accordionists first encountered tango music through Piazzolla, who favoured the bandoneon. The distinctive timbre of the bandoneon defines tango music. Within free-bass accordions, registers marked with symbols, such as (4' + 8' outside) and (8' outside + 16'), emulate the bandoneon's sound most closely. These reed sets are positioned closest to the soundbox, resulting in a more penetrating tone. The compact body of the bandoneon, with its shorter distance between the soundbox and reeds, naturally provides even greater penetrative power.

In *Le Grand Tango*, different musical sections use different registers. This example will illustrate the standards for selecting registers in tango music and the criteria for choosing registers when collaborating with a cello, as well as how performers can adjust to balance elements not adequately addressed in the score. I will demonstrate

my process for selecting registers, providing reasoning and examples to support my choices.

I divided *Le Grand Tango* into three parts. In the free-bass accordion version of the score, the arranger has indicated some registers, which can serve as a general reference framework during performance.¹⁵⁷ However, based on my practical experience, the use of registers can be more varied to respond to more nuanced musical changes.

The first part consists of measures 1-102, which I have further divided into four sections. The opening section (measures 1-13) comprises two elements shown in Figure 25 and Figure 26, alternating in the first half of this part, almost serving as an introduction.

The image shows a musical score for the first three measures of 'Le Grand Tango'. It is written for Violoncello (Cello) and Pianoforte (Piano). The tempo is marked 'Tempo di Tango' with a quarter note equal to 116 (♩ = 116). The key signature has one flat (B-flat). The Violoncello part is in the bass clef and starts with a dynamic marking of *mf marcato*. The Pianoforte part is in the grand staff (treble and bass clefs) and starts with a dynamic marking of *mf marcato*. The piano part includes the instruction 'su bassa' with a dashed line indicating a register change. The score shows the initial rhythmic and melodic motifs of the piece.

Figure 25: *Le Grand Tango*, measures 1-3

¹⁵⁷ Astor Piazzolla, *Le Grand Tango*, composed for cello and piano (VCL/PF), score (Berben S.R.L., 2002), in Italian.

Astor Piazzolla, *Le Grand Tango*, free-bass accordion version arranged by Elsbeth Moser, unpublished.



Figure 26: *Le Grand Tango*, measures 12-13

The second section (measures 31-45) features a highly melodic cello part, accompanied by Piazzolla’s characteristic 3-3-2 rhythm variant, creating a contrasting motif as shown in Figure 27. The third section (measures 47-57) begins with lively elements in both the cello and piano parts, contrasting the lyrical melody of the previous cello section, seemingly extending from the second section, as illustrated in Figure 28. The fourth section appears to summarise the first three sections, integrating and varying the mentioned elements, marking the end of the first part.

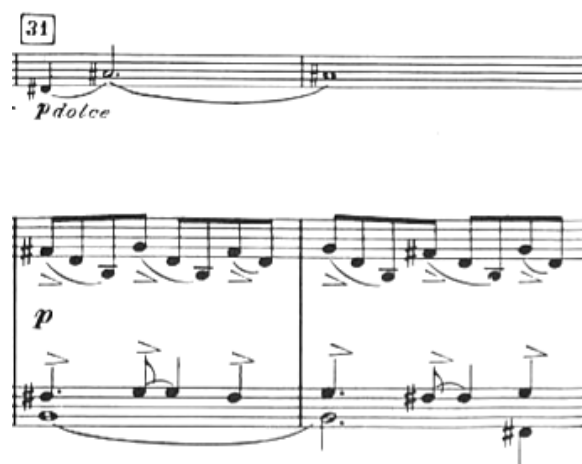


Figure 27: *Le Grand Tango*, measures 31-32

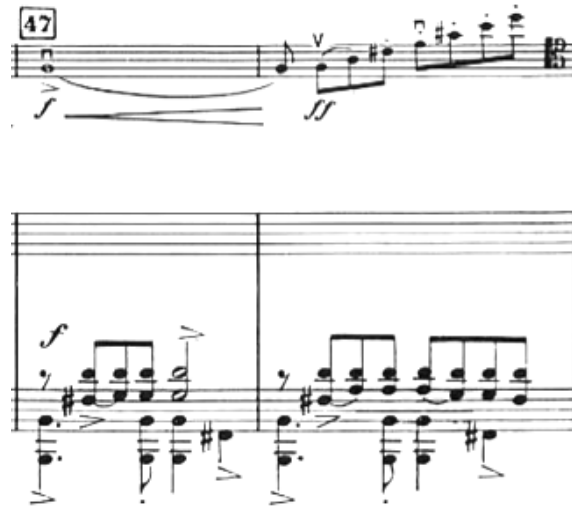


Figure 28: *Le Grand Tango*, measures 47-48

Throughout the entire piece, the left-hand part of the free-bass accordion primarily serves as accompaniment. The cello part relies on the accordion's bass line to establish the tempo of the piece. The first and third sections are composed of bass rhythms, and it is essential to ensure that the cellist can clearly hear the bass rhythm in order to maintain control over the overall tempo. This approach reflects Piazzolla's compositional technique in quintet arrangements, where the piano and double bass typically form the rhythmic foundation. I interpret the bass rhythm in the first and third sections as a variation of the 3-3-2 rhythm (as shown in Figure 29). The first "3" is represented by C, and the second "3" is composed of an eighth note G and a quarter note C, with G as an ornament to enhance the expressiveness of the second "3." To better express the accompaniment function and melodic line, a register with (8') is needed to maintain strength in the bass line. Among the five left-hand registers, four that include (8') are suitable, with the exception of (2'), which is less appropriate. The (2') register produces a thin and sharp sound; choosing this register would result in a loss of strength in the bass line, making it difficult for the cellist to clearly hear the bass rhythm line, which could affect rhythmic stability.

Tempo di Tango (♩ = 116)

mf marcato

Tempo di Tango (♩ = 116)

marcato

mf

3a bassa

3 1+2 2

 └──┘

 3

Figure 29: Bass line 3-3-2 breakdown diagram

Among the four registers that include (8'), the single (8') tone is relatively delicate and refined, the (2'+8') tone is relatively bright, while (8'+8') and (2'+8'+8') (double bass) emphasise the bass line more strongly — the former having a more muffled sound, and the latter being brighter due to the inclusion of (2'). In my performance, I chose (2'+8'+8') (double bass), as it not only maintains sufficient strength in the bass line but also utilises the (2') register to complement the intricate melodic lines in the second section of the piece.

The selection of right-hand registers in this piece is diverse, utilising six different switches. At the beginning, the arranger indicates the use of (8' + 8' outside + 16'). Since the right-hand melody in the first section needs to complement the left-hand bass line, it is suitable to choose a register combining (8') and (16'). Options include (8' + 16') for warmth, (8' outside + 16') for richness, and (8' + 8' outside + 16') for fullness. In my performance, I chose the (8' outside + 16') register, which closely resembles the mid-low range of the bandoneon. This choice reduces the brightness of the (8'), enhancing the clarity of the mid-range and the resonance of the low tones.

In bar 62 of the first section, the score does not indicate any register changes. Based on my performance experience, I chose to adjust the right-hand register to (4' + 16'), as shown in Figure 30. I made this choice because the dynamic marking at this point is *p*, requiring a softer sound. Therefore, I changed the register from (8' + 8' outside + 16') to (4' + 16'). This adjustment seemed to naturally lower the volume while maintaining a bright mid-low tone. Other register options, such as (8' + 16') or (16'), could also be considered for adjusting volume and tone. Alternatively, the (8' + 8' outside + 16') register could be retained, with the dynamics controlled using the bellows.

The image shows a musical score for three staves: a bass staff, a grand staff (treble and bass), and a cello staff. The score is for measure 62. The grand staff has handwritten fingering numbers: 2 4 3 2 in the first measure, 3 1 4 2 3 1 4 2 in the second, and 3 1 2 1 4 1 2 in the third. A red circle with a horizontal line through it is placed above the second measure of the grand staff. The cello staff has handwritten fingering numbers: 5 5 in the first measure, and 2 4 5 in the second. The score includes dynamic markings *mf* and *p*. A box labeled 'MB' is in the bottom left corner.

Figure 30: Register change to 4' + 16' at measure 62

In the second half of the first section, where the cello alternates between rhythmic and melodic passages, I chose to continue using the (4' + 16') register until the end of the section. This choice was made to avoid the tone becoming too bright, which could happen if switching back to the (8') and (16') combination. Of course, different performers may select different registers based on their interpretation and feel, so switching back to the (8') and (16') combination is also a valid option.

At the beginning of the softer second section, to emphasise and coordinate the interwoven melodies between the cello and accordion, the score indicates the use of (4' + 8' + 8' outside). Therefore, the combination of (4') and (8') registers was

considered for this section, including (4' + 8'), (4' + 8' outside), and (4' + 8' + 8' outside). In my performance, I chose the (4' + 8' outside) combination, which closely resembles the distinctive mid-high range of the bandoneon, creating a strong connection to traditional tango music. However, if a softer tone is preferred, (4' + 8') can be selected; for a brighter and more powerful sound, the arranger's suggested (4' + 8' + 8' outside) can be used.

As the second section progresses, particularly at measure 151, I introduced an additional register change, switching via the chin switch to a single (16') (Bassoon). This register produces a deep and warm tone that resonates well with the cello, enhancing its clarity (as shown in Figure 31). Performers may also choose to continue using the brighter (4') and (8') register combination or select a softer tonal blend, such as (8' + 16').



Figure 31: Register change to 16' at measure 151

The third section of the piece involves multiple register changes. In the latter part of this section, the free-bass accordion uses tonal variations to adjust the conflict between the cello and piano in Piazzolla's score. From measures 194 to 216, the arranger suggests continuing with the (4' + 8' + 8' outside) register from the second section, which can be followed. Alternatively, the (4' + 8' outside) register, which has a tone closer to the bandoneon, can be selected. This passage includes typical short

accents found in tango techniques, contrasting with the cello's rhythm, and therefore requires sufficient penetrative power. Since the reeds of the (4' + 8' outside) register are closer to the accordion's soundbox, it enhances the penetrating tone needed for these accents. Depending on the interpretation and style, either register choice could yield desirable results.

Starting from measure 216, the arranger indicates the use of the (4' + 8' + 8' outside + 16') register. At this point, the cello begins playing a rhythmic passage with numerous accents and shifts towards the mid-low range. I chose to follow the arranger's suggestion by using the (4' + 8' + 8' outside + 16') register, which creates a deeper and brighter overall tone, enhancing the clarity of the 3-3-2 accents. Additionally, at measure 231, I combined this with bellows shaking techniques to elevate the mood to its peak.

Following this, at measure 237, the free-bass accordion transitions into a 10-bar solo passage, characterised by Piazzolla's distinctive accented rhythms. The conflicting accents between the left and right hands mirror Piazzolla's masterful technique on the bandoneon. As indicated by the arranger, the register shifts to (4' + 8' + 8' outside), which reduces the overall volume while maintaining both intensity and clarity.

Immediately after, the cello joins in with the accented rhythm, as shown in Figure 32, where the conflict between the original piano and cello parts is more noticeable. From measures 247 to 262, the accents are dense, and at measure 255, the arranger suggests switching back to the (4' + 8' + 8' outside + 16') register to match the *ff* dynamic until measure 256. While following the arranger's suggestion is an option, note that although the (4' + 8' + 8' outside + 16') register meets the volume requirements, it may result in an overly strong lower register when combined with the cello, leading to potential confusion and conflict. Therefore, choosing the (4' + 8'

+ 8' outside) register is also an option, which could balance the volume and clarify the rhythm.



Figure 32: Continue using 4' + 8' + 8' outside at measure 255

Finally, in measure 271, the register switches back to (4' + 8' + 8' outside + 16'). This full-bodied register complements the cello's tone and provides increased volume, effectively driving the music toward its climax.

In performing *Le Grand Tango*, the choice of register for the free-bass accordion helps achieve a rich tone and dynamic expression. By strategically using different registers, it can also address conflicts between instruments during ensemble playing, showcasing the accordion's versatility and expressive potential. The selection of registers for the free-bass accordion should take into account factors such as the emotional expression of the piece, the tonal blend with other instruments, dynamic changes, and the clarity of accents and rhythms. The arranger's instructions provide a reference, but the performer can adjust the registers based on the specific circumstances.

4.4.4 Register Use in Solo Pieces

In solo compositions, the strategic use of registers enhances textural complexity and thus expressive potential. An example is the *Etude* adapted from *Chiquilín de Bachín* for free-bass accordion.

In the variation section of *Chiquilín de Bachín*, the use of registers is particularly notable alongside other variation techniques. Initially, the (4' + 8' + 8') registers are used, highlighting the brilliance of the introductory embellishments. The transition from (8') to (8'+8' outside+16') marks a shift in variation style and musical emotion, with the latter providing a brighter timbre compared to the initial (8'). As the composition progresses to bar 47, the register shifts to (4' + 8' + 8' outside + 16'), utilising all available reed ranks to produce the loudest and fullest accordion sound. This register change ensures the performance reaches the emotional climax of the music. Finally, at bar 53, a return to the very soft 8' register concludes the first set of variations, providing a gentle closure.

The second set of variations present a completely different style from the first set. The A+A' section of this set of variations consists of four fragmented melodic lines, as shown in Figure 33. In this section, a dialogue-like atmosphere is created by continuously switching between the registers (16') and (4' +16'), altering the timbre of each phrase. The final B section expands upon the original theme, emphasising it with rhythmic elements depicted in Figure 34. This rhythmic emphasis adds dynamism and expressiveness to the music, creating a more tense and propulsive atmosphere to the composition.



Figure 33: Free-bass accordion version of *Chiquilín de Bachín, Etude*, second set of variations.



Figure 34: Free-bass accordion version of *Chiquilín de Bachín, Etude* final B section

4.4.5 The Challenge of Timbre Penetration

While the registers of the free-bass accordion offer a greater variety of timbral options than those of the bandoneon, performing nuevo tango on the free-bass accordion presents its challenges. A key challenge lies in the weaker timbre penetration of the free-bass accordion compared to the bandoneon. In the bandoneon, the reeds are positioned closer to the surface of the soundbox, producing a brighter and more penetrating sound. In contrast, the reeds of the free-bass accordion, due to its larger size, are positioned deeper within the instrument, resulting in a less penetrating sound than the bandoneon.

In tango music, the bandoneon's penetrating timbre is often used to highlight specific notes, especially in melodic lines. An example of the difference in timbre penetration between the two instruments can be found in a 2023 performance of

Piazzolla’s *Libertango*. During the 2023 London Tango Festival, I performed the free-bass accordion as part of a tango quintet consisting of bandoneon, piano, violin, and double bass, in a rendition of *Libertango*. In that performance, my solo on the free-bass accordion was immediately followed by a bandoneon solo by Damian Foretic. Both solos concluded and began, respectively, on the same G note (Figure 35). During the performance, I noticed that the G note produced by Foretic’s bandoneon was noticeably brighter and more penetrating than the same notes produced by the free-bass accordion, a difference that was further confirmed by the live recording.¹⁵⁸



Figure 35: G Note on Free-Bass Accordion vs. Bandoneon in *Libertango* Performance

Post-performance analysis identifies several techniques that can be used to address the issue of weaker timbre penetration in the free-bass accordion. First, selecting registers positioned closer to the surface of the soundbox — such as (4’ + 8’ + 8’ outside) — can enhance timbre penetration, though these registers still do not match the proximity of the bandoneon’s reeds to the surface, due to the inherent differences in instrument construction. Second, by exerting greater control and applying increased pressure with the left-hand bellows when playing specific notes, the airflow can be concentrated as it passes through the reeds, thereby enhancing timbre penetration. Third, pre-building air pressure in the bellows before pressing

¹⁵⁸ Live recording from the 2023 London Tango Festival, featuring Qianyu on free-bass accordion and Damian Foretic on bandoneon, performed on 20 April 2023. Personal collection. <https://drive.google.com/file/d/1WkKYip519hRiyKLSQlwW-cJ96g7OkXi8/view?usp=sharing>

the keys to produce notes can also contribute to a more penetrating sound. This technique involves slightly opening or closing the bellows without pressing any keys to accumulate pressure; when the keys are subsequently pressed, the pressurised air can quickly pass through the reeds, resulting in a stronger, more penetrating sound.

Despite these techniques, the deeper positioning of the reeds within the larger construct of the free-bass accordion remains a challenge for achieving the same level of timbre penetration as the bandoneon. While the above techniques can enhance timbre penetration, they may not fully compensate for the fundamental structural differences between the two instruments. This underscores the ongoing challenges in adapting the free-bass accordion for nuevo tango performance, while also highlighting potential areas for innovation in future instrument design.

In summary, this section highlighted the opportunities and challenges of utilising the free-bass accordion's registers in performing nuevo tango: they offer an expanded palette of timbral options, yet they also underscore the instrument's limitations in achieving the same level of timbre penetration as the bandoneon. This exploration reveals that while certain registers can bring the free-bass accordion closer to the bright, piercing qualities needed for nuevo tango, they do not fully overcome the instrument's inherent structural differences. This balance between possibility and limitation is particularly evident when reinterpreting Piazzolla's works, where the bandoneon's distinctive sound has long been central. However, this challenge also opens new avenues for creative interpretation. By strategically employing the free-bass accordion's unique registers and techniques, performers can explore fresh dimensions of expression in Piazzolla's repertoire, offering interpretations that expand upon the sound world of nuevo tango. We will now proceed to the next section, where the focus will shift to exploring the bellows of the instrument.

4.5 *Free-Bass Accordion's Bellows*

The bellows of the free-bass accordion are a critical component in shaping its sound and performance capabilities. This section will explore the acoustical and dynamic properties of the bellows, comparing them to those of the bandoneon. It will also analyse various bellows techniques and their practical applications in performing tango music, particularly focusing on how these techniques can be adapted to suit the expressive demands of Piazzolla's nuevo tango.

4.5.1 A Comparison of Bellows Constructs of Bandoneon and Free-Bass Accordion

The bandoneon and free-bass accordion are both aerophones, producing sound through the interaction of air with reeds.¹⁵⁹ While both instruments have their bellows made from cardboard, the bellows of the bandoneon is noticeably smaller than those of the free-bass accordion. The bandoneon typically features 16 to 18 folds of cardboard in its bellows; the free-bass accordion generally has 18 to 20 folds of cardboard and the folds are larger as well.¹⁶⁰ Although the cardboard materials are similar and have minimal impact on the sound, the number of folds and the size of the folds determine the bellows' dimensions, which in turn affects the volume (loudness) and timbre of the instruments.

The bellows are a crucial component of the instrument, as they store and regulate the airflow that interacts with the metallic reeds. When air flows across a reed, it causes the reed to vibrate, generating sound waves. Each reed is finely calibrated to ensure its size, shape, and material correspond to the intended pitch. The airflow

¹⁵⁹ Buchmann, p. 23.

¹⁶⁰ This conclusion is based on my counting of bellows folds on both instruments.

within the bellows forms an "air column";¹⁶¹ the stability, strength, and direction of this air column determine the loudness, timbre, pitch, and duration of the sound. Consequently, the performer must precisely control the bellows to achieve the desired musical expression.

In terms of performance, the dimensions of the bellows affect the expression of musical phrasing. The smaller bellows of the bandoneon means that performers cannot play a full phrase in a single opening or closing, interrupting the continuity of musical phrasing. In contrast, the free-bass accordion, with its larger bellows, allows performers to finish a full phrase, thus maintaining the integrity of phrasing more effectively in solo performances. Additionally, due to the limited airflow in the bandoneon's smaller bellows, performers typically create dynamic variation within a single note, whereas the free-bass accordion enables dynamic variation across an entire phrase.

Furthermore, in terms of technique, the design and structure of the free-bass accordion allow performers to use unique techniques, such as bellows shake, offering more expressive possibilities.

However, in terms of timbre, the bandoneon's smaller bellows, with reeds located close to the soundbox, produce a more focused and penetrating sound when the airflow is concentrated. In contrast, although the free-bass accordion has larger bellows and greater airflow, its reeds are positioned deeper within the instrument, resulting in less penetration compared to the bandoneon.

¹⁶¹ Mauriño, p. 268.

4.5.2 A Comparison and Analysis of Bellows Techniques of Bandoneon and Free-Bass Accordion

Playing free-bass accordion and bandoneon both fundamentally involve the actions of opening and closing the bellows. These actions are denoted by symbols familiar from string instruments: ▢ indicates opening the bellows and ▽ indicates closing the bellows. Both instruments use the same notation. Opening the bellows ▢ is akin to a down-bow, utilising the force of gravity, while ▽, indicating closing the bellows, is analogous to an up-bow, moving against the force of gravity. It is easier to open the bellows than to close on the bandoneon.¹⁶²

The bellows of the free-bass accordion are controlled by the left arm and open to the left side. Due to the bellows' length and ample air capacity, the sound volume produced when opening and closing the bellows is the same. The movement of the bellows is usually planned according to the length of the musical phrases; simple melodies or softer phrases can be played across multiple phrases with one opening or closing of the bellows, while more complex phrases typically require one complete phrase per bellows movement. Additionally, passages in the mid-low range require more air, while those in the higher range demand less.

In contrast, the bandoneon's bellows require coordination between both hands. Since the bellows are smaller and have limited air capacity, it is sometimes necessary to alternate the direction of the bellows multiple times within a single phrase. The different keyboard layouts when opening and closing the bellows cause the position of the notes to change, requiring the player to quickly adjust. Additionally, due to changes in playing posture, the pressure exerted on the bellows differs when

¹⁶² Summarised by reading and extracting content from Eva Wolff, *The Bandoneon in Tango* (Buenos Aires: Tango Sinfonía, 2018), p. 16, and Bettina Buchmann, *The Techniques of Accordion Playing* (Kassel: Bärenreiter, 2010), p. 38.

opening and closing, resulting in slight tonal differences in the reeds' vibrations. Players generally prefer to play notes while opening the bellows for two reasons. Firstly, this is to maintain consistency with the same keyboard layout. Secondly, when opening the bellows, the keyboard faces downward, and the weight of the instrument helps produce a fuller sound. When closing the bellows, the player needs more force to operate the bellows, as this requires not only supporting the keyboard but also pushing the bellows, which demands more effort than opening the bellows. The player also needs to lift the keyboard section with both hands in advance to prepare for closing the bellows. This increases the difficulty of playing, especially when closing the bellows, as applying too much force can cause the air to be released too quickly, making it difficult to complete a phrase with the same length and intensity as when opening the bellows.

4.5.3 Practical Applications of Bellows

In this section of the research, the original recording for oboe and piano will be compared with three different bandoneon solo recordings to analyse the limitations of the bandoneon bellows in relation to the score. The reason for choosing three recordings¹⁶³ is that different bandoneon players adjust the bellows differently according to their understanding of the piece's style. I have chosen two publicly

¹⁶³ The recordings link to the four recordings:

- (1) Astor Piazzolla, *Tanti Anni Prima* from *Enrico IV* - Astor Piazzolla (1984), composed by Astor Piazzolla, published on February 19, 2016, by Tangofa Channel, YouTube video, 25:30, accessed May 21, 2023, https://www.youtube.com/watch?v=M6u3ZWqe_2k.
- (2) Burning bandoneon, *Ave Maria* by Astor Piazzolla, arranged for solo bandoneon, published as a practice video on March 22, 2020, YouTube video, 1:14, accessed May 21, 2023, https://www.youtube.com/watch?v=CB_tbvDF--l.
- (3) Francis Soriano, *Ave Maria* by Astor Piazzolla, arranged for solo bandoneon by Francis Soriano, published on May 25, 2019, YouTube video, 4:23, accessed May 21, 2023, <https://www.youtube.com/watch?v=7YrGKgI57x8>.
- (4) Private recording provided by Damian Foretic https://drive.google.com/file/d/1DMfF2_Xqs9TwJCYdFNByAfozR_z0_Nqn/view?usp=sharing

available online performance videos and a recording by Damian Foretic, an Argentine bandoneon player with over a decade of experience.

The excerpt compared in this section is taken from the first part of *Tanti Anni Prima*, specifically covering measures 1 to 9.¹⁶⁴ The phrases are divided according to the score. From the harmony in the piano part, it's clear that the first beat of measure 5 is actually a phrase overlap — it serves as both the end of the first phrase and the beginning of the second phrase. The second phrase begins in measure 5 and ends in measure 8 (named S1 and S2, respectively), as shown in Figure 36. In the recording of the piano and oboe, the oboe player chose to breathe at the E in measure 5.

¹⁶⁴ Figure 36 displays the original score published by A. Pagani s.r.l., Italy (1989), while figures 2-4 represent my transcriptions of the three different bandoneon recordings.

TANTI ANNI PRIMA (AVE MARIA)

ASTOR PIAZZOLLA

The image shows the first nine bars of the original score for 'Tanti Anni Prima (Ave Maria)' by Astor Piazzolla. The score is written for Oboe and Piano (Pf.). The Oboe part is marked 'Molto cantabile' and 'p'. The Piano part is marked 'p' and 'mf'. The score includes dynamic markings like 'p', 'mf', 'rall.', 'dim.', and 'A tempo'. There are handwritten annotations 'love' and 'intentional'. Two sections are highlighted with orange brackets and labeled 'S1' and 'S2'.

Figure 36: Original score of *Tanti Anni Prima*, bars 1-9

In the first bandoneon version of the recording, the performer added a four-bar introduction, named P1 (bars 1-4). In this version, there is a noticeable pause between P1 and S1, as the performer first closes the bellows and then reopens the bellows (as indicated by the two markings in the middle of the fourth bar in Figure 37, closing and then opening). As mentioned in the previous section, frequent bellows changes increase the difficulty for bandoneon players. In the phrase S2, the performer also changes the bellows direction twice in the middle section, specifically in bars 11 and 12, as shown in Figure 37.

Tanti Anni Prima-01(B1)

Bellow

The image shows a musical score for a Bellow instrument, consisting of three systems of music. The first system (bars 1-6) features a treble clef staff with a melody and a bass clef staff with accompaniment. An orange bracket labeled 'P1' spans bars 1-4, and another orange bracket labeled 'S1' spans bars 5-6. The second system (bars 7-9) continues the melody and accompaniment. An orange bracket labeled 'S2' spans bars 7-9. The third system (bars 10-12) shows the final part of the piece. An orange bracket labeled 'S1' spans bars 10-12. The score includes various musical notations such as notes, rests, and dynamic markings.

Figure 37: Transcription of Bandoneon version 1¹⁶⁵

In the second version of the recording (Figure 38), the performer also added a four-bar introduction (bars 1-4), which also resulted in a noticeable pause between P1 and S1. In S1, the performer used the opening bellows to play the entire phrase. The second phrase begins in bar 9 with the bellows closing. As mentioned earlier, when closing the bellows, if too much force is applied, it can cause the air to be released too quickly, making it difficult to complete a phrase with the same length and intensity as when the bellows are opened. Therefore, the bandoneon player opened the bellows from bars 5 to 8, but when closing the bellows, the air supply only lasted through bars 9 to 11. Then, at the beginning of bar 12, the performer reopened the bellows, quickly closed and reopened them again in bar 12, and continued playing the next phrase.

¹⁶⁵ My transcription.

Tanti Anni Prima-02(B2)

Bellow

Figure 38: Transcription of Bandoneon version 2¹⁶⁶

The third version of the recording is performed by Damian Foretic, and through our discussion, I learned that there are a lot of complex and demanding performance considerations for the bandoneon bellows. It requires extensive playing experience, and most importantly, respecting the integrity of each phrase and avoiding interruptions as much as possible. However, in his recorded performance, he also had to change the bellows in the middle of the second phrase, in bar 6 and in bar 8 (as shown in Figure 39).

Tanti Anni Prima-03(B3)

Bellow

Figure 39: Transcription of bandoneon version 3¹⁶⁷

¹⁶⁶ My transcription.

¹⁶⁷ My transcription.

The free-bass accordion version effectively addresses the issue of interrupting musical phrases due to insufficient bellows capacity. As shown in Figure 40, I only need to change the bellows once in the first section (by closing the bellows before the last note in the Bar 4). In the free-bass accordion version, due to the larger bellows capacity, I do not need to consider complex scenarios extensively. Generally, as a free-bass accordionist, I can change the bellows according to the phrase lengths indicated in the original music.

Tanti Anni Prima-04(A1)

Bellow

Figure 40: First 9 bars of the free-bass accordion version¹⁶⁸

In examining *Tanti Anni Prima* and its various adaptations, we have seen that the free-bass accordion not only aligns closely with Piazzolla's original musical intentions but also overcomes the technical limitations inherent in the bandoneon. The ability to sustain phrases without interruption and accurately reproduce the intricate nuances of the music underscores the potential of the free-bass accordion in nuevo tango performance.

¹⁶⁸ The source of the free-bass accordion score for *Tanti Anni Prima* is unclear; it is an unpublished handwritten manuscript circulated among some free-bass accordionists. I obtained it during my graduate studies at the Royal Academy of Music from the head of the accordion department, Owen Murray.

4.5.4 Adapting Bellows Techniques to Tango Performance

I turn our attention now to the characteristics of tango performance techniques. This section explores how the free-bass accordion adapts to the unique techniques of tango, highlighting its advantages and challenges.

To analyse the use of accents in tango and Piazzolla's application of them, and to explore how the accordion bellows affect these accents and how the free-bass accordion can adapt, I refer to Jessica Marie Quinones' doctoral dissertation. She points out that despite the common belief that Piazzolla's recordings are the best way to understand his scores, there is actually a lack of quantitative recording analysis on tango accents or Piazzolla's use of them. Quinones' study connects live recordings with scores, specifically focusing on Piazzolla's performance of 'Fracanapa' at the 1983 *Vienna Concert* to analyse the 3+3+2 accent pattern. She used the software Sonic Visualiser to quantitatively analyse Piazzolla's execution of accents.¹⁶⁹

Through spectrogram data, she measured the decibel (dB) levels of each accented note and found that these accented notes consistently showed sustained high peaks in the spectrogram, indicating that each accent was played with highly consistent intensity. This quantitative data reveals that Piazzolla's accents not only subjectively sound "powerful," "energetic," and "explosive," but also objectively have higher and consistent volume levels, i.e., decibel values. These high decibel levels support the qualitative description of his performance style, indicating that his handling of

¹⁶⁹ Wolff, p. 25. "The pressure accent is a technique that consists of increasing the air pressure on the bellows with a quick movement, short and powerful but at the same time controlled and relaxed. This movement is produced with the weight of the arms, and it's passed on to the bellows through the thumbs (or the palms, when playing closing), which press onto the handles. It's indicated with the notation P, for the Spanish word for pressure (presión). When a melody is written only for the RH (right hand), pressure accents can be done with the LH (left hand). This way, it's possible to achieve more control over the pressure and, at the same time, over the articulation of the melody."

accents has a high degree of uniformity and uniqueness in strength and intensity. By combining quantitative analysis with qualitative observation, Quinones' research provides a more comprehensive perspective for understanding Piazzolla's accent style. This insight supports exploring how the bellows affect these accents and how the free-bass accordion can adapt.¹⁷⁰

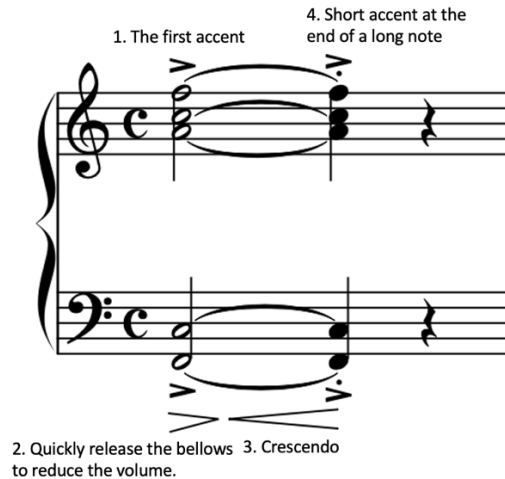
In bandoneon tango performance, various accent techniques add rich colour to the music. These accents can be categorised into long and short accents, single-note and chordal accents, as well as the dynamic 'short accent at the end of a long note.'¹⁷¹ The control of these accents is closely tied to the movement of the bellows. Each note on the bandoneon has three distinct stages: the attack, the sustain, and the release. It is common to end a phrase with a note or chord played softly, and this dynamic change is achieved through the movement of the bellows. To enliven the end of a phrase, a short accent can be added at the end of a chord. This requires applying a pressure accent¹⁷², often combined with a heel accent. If a long note begins with an accent, it usually quickly diminishes in volume after the attack. Following this decrescendo, tension begins to build again, culminating in the release of the short accent at the end.¹⁷³ The performance process is shown in Figure 41.

¹⁷⁰ Jessica Quiñones, "Constructing the Authentic: Approaching the '6 Tango-Etudes pour Flûte Seule' by Astor Piazzolla (1921-1992) for Interpretation and Performance" (PhD thesis, University of Huddersfield, 2013), pp. 102-111.

¹⁷¹ Wolff, p. 36.

¹⁷² Wolff, p. 25. "The pressure accent is a technique that involves increasing the air pressure in the bellows with a quick, short, and powerful movement that is simultaneously controlled and relaxed. This movement is generated using the weight of the arms and is transmitted to the bellows through the thumbs (or the palms when playing on the closing stroke), which press onto the handles. It is indicated in notation with the letter "P," representing the Spanish word for pressure, *presión*."

¹⁷³ Wolff, p. 37.



The performance sequence is completed according to the numerical markings 1-4 in the figure.

Figure 41: The performance process for a short accent at the end of a long note

This section will focus specifically on the dynamic accent — ‘short accent at the end of a long note.’ By elucidating this relatively complex dynamic accent, the principles can be effectively applied to other types of accents. Firstly, the unique ‘heel accent’ technique of the bandoneon cannot be performed on the free-bass accordion because the free-bass accordion's body is large and heavy, and the left leg must remain relatively stable. Most accents on the free-bass accordion are achieved through finger techniques. Therefore, techniques like the ‘short accent at the end of a long note,’ which require leg movements, are difficult to achieve and are not very effective.

In Piazzolla's performances, the ‘short accent at the end of a long note’ is very common. Although he did not explicitly notate this technique in his scores, it can be clearly heard in his recordings. This reflects his understanding of the gap between writing and performance. As Omar Garcia Brunelli mentioned in his doctoral thesis,

for Piazzolla, the score was like a script, which he respected but brought to life through performance.¹⁷⁴

In both the live performance in Utrecht in 1984¹⁷⁵ and the live broadcast of *Verano Porteño* by Astor Piazzolla y su Quinteto Nuevo Tango on Radio Caracas Televisión¹⁷⁶ in the same year, we can hear how the bandoneon adapts the 'short accent at the end of a long note,' along with the associated challenges and solutions. The beginning of this piece features a four-measure polyrhythmic pattern¹⁷⁷, as shown in Figure 42, a common rhythmic structure in tango performance. In this pattern, the bandoneon typically plays the high-pitched parts, while the violin and guitar join the bandoneon in the higher register. The bass line is performed by the low-pitched part of the piano, and the bass provides percussive sounds. The initial eight measures are created by repeating four measures. To introduce variation in this repetition, Piazzolla intermittently incorporates the 'short accent at the end of a long note' in the bandoneon part. This element reflects Piazzolla's improvisational flair in performance, as the two videos show that he does not introduce the "short accent at the end of a long note" at fixed intervals.

¹⁷⁴ Brunelli, *Entre el tango y la música académica*, p. 373.

¹⁷⁵ "The concerto in Utrecht, October 27, 1984, performed by Astor Piazzolla with his Quinteto Tango Nuevo; staged and directed by Theo Uittenbogaard for the Dutch public broadcast company VPRO-tv," accessed May 17, 2023, <https://www.youtube.com/watch?v=laPOP8YDIsQ>.

¹⁷⁶ "Astor Piazzolla y su Quinteto Nuevo Tango tocan *Verano Porteño* en vivo para Radio Caracas Televisión en 1984," accessed May 17, 2023, https://www.youtube.com/watch?v=88kwymnEj5s&list=RD88kwymnEj5s&start_radio=1.

¹⁷⁷ Wolff, p. 131.

VERANO PORTEÑO

ASTOR PIAZZOLLA

Allegro ♩=120

The score consists of five staves: Piano, Bandoneon, Violino, Chitarra el., and Contrabasso. The tempo is marked 'Allegro' with a quarter note equal to 120 beats per minute. The key signature has one sharp (F#). The score shows measures 1 through 6. The Piano part features a complex rhythmic accompaniment with many accents. The Bandoneon part has a melodic line with some grace notes. The Violino part has a melodic line with accents. The Chitarra el. part has a rhythmic accompaniment. The Contrabasso part has a melodic line with accents. There are performance instructions such as 'pizz.' (pizzicato) and 'arco' (arco) in the lower staves.

Figure 42: The original score of *Verano Porteño*, measures 1-6¹⁷⁸

In the Utrecht performance, as marked with red numbers 1 and 2 in Figure 43, during the first time through these four measures, he applied the ‘short accent at the end of a long note’ only on the first E of the second measure and the first E of the fourth measure. During the repetition of these bars, he not only repeated the

¹⁷⁸ *Verano Porteño*, original score published by A. Pagani s.r.l., Italy, 1977.

accents on the same Es but also added the accent on the second note F of the first measure, marked by red number 2.

The image shows a musical score for Piazzolla's 'Utrecht' performance markings. The score is written for five instruments: Piano, Bandoneon, Violino, Chitarra el., and Contrabasso. The tempo is marked 'Allegro' with a quarter note equal to 120. The score consists of four measures. Red circles with numbers 1 and 2 indicate specific performance markings. Red circle 1 is placed above the first E of the second measure in the Bandoneon and Violino parts. Red circle 2 is placed above the F of the first measure in the Violino part. The score also includes markings for 'pizz.' (pizzicato), 'arco', and 'gliss.' (glissando).

Figure 43: Piazzolla's Utrecht performance markings, 1 for the first playthrough, 2 for the repeat, indicating a short accent at the end of a long note

In the Radio Caracas Televisión performance, Piazzolla increased the frequency of the 'short accent at the end of a long note.' During the first rendition of the four measures, he applied the accent on the first E of the second measure, on the E and F

of the third measure, and on the E of the fourth measure. In the second repetition, he not only repeated the accents on these notes but also applied the 'short accent at the end of a long note' on the E and F of the first measure, marked with blue numbers 1 and 2 in Figure 44, in the subsequent four measures following this repetition.

The image displays a musical score for Piazzolla's Radio Caracas Televisión performance, featuring five instruments: Piano, Bandoneon, Violino, Chitarra el., and Contrabasso. The tempo is marked 'Allegro' with a quarter note equal to 120 (♩ = 120). The score is divided into two systems. The first system shows the initial measures with performance markings: blue circles containing the number '1' and '2' are placed above notes in the Bandoneon and Violino staves, indicating a short accent at the end of a long note. The second system continues the piece, showing further performance markings such as 'pizz.' (pizzicato), 'arco' (arco), and 'gliss.' (glissando) in the Violino and Contrabasso staves. The Piano part is marked with a piano (*p*) dynamic.

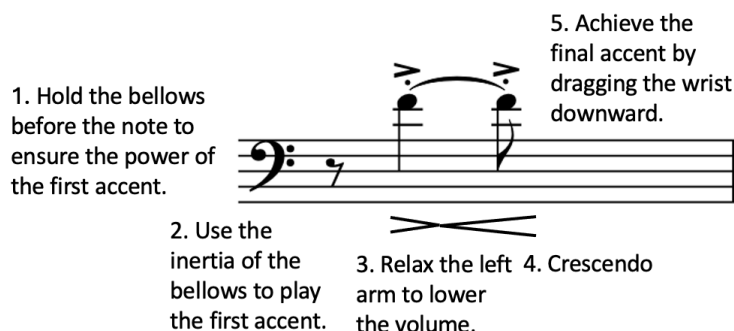
Figure 44: Piazzolla's Radio Caracas Televisión performance markings, 1 for the first playthrough, 2 for the repeat, indicating a short accent at the end of a long note

From the video of Piazzolla's performance, his unique choice of standing while playing the bandoneon is evident. Instead of using the heel accent for the final accent, Piazzolla incorporates a slight semi-squat motion with his body. The bandoneon, with its small body and flexible bellows, allows this movement to be executed with relative ease. The 5-kilogram instrument is manipulated by pulling and pushing with both hands, enabling Piazzolla to effectively perform dynamic accents. Even while standing and supporting his weight on one leg, Piazzolla achieves the desired effect by pulling the bellows with both hands and incorporating a slight semi-squat. This motion is similar to the heel accent. On the free-bass accordion, performing the 'short accent at the end of a long note' with a heel accent is ineffective. The movement of the left foot causes instability in the instrument, leading to unnecessary wobbling and loss of balance for the performer. Additionally, it is not feasible to replicate Piazzolla's method of pulling the bellows with both hands on the free-bass accordion.

In my practical experience, achieving this accent relies entirely on the dynamic changes in the strength of the left arm. To pull a 15-kilogram instrument and produce such dynamic accents, it is essential to minimise the range of the pulling motion. Fortunately, the large body and bellows capacity of the free-bass accordion allow for reduced motion without affecting the volume. Minimising the range of the pulling motion involves using a series of small but sharp and short movements of the left arm and wrist to achieve the initial and final accents.

When playing an accent note, the entire left arm must hold and open the bellows outward before beginning the performance. This ensures the realization of the first accent. After achieving the first accent, the left arm must immediately relax to minimise the volume in preparation for the next crescendo. The final accent at the

end of the note requires a downward pulling motion of the wrist, as illustrated in Figure 45.



The performance sequence is completed according to the numerical markings 1-5 in the figure.

Figure 45: The process for performing a short accent at the end of a long note on the free-bass accordion

It is important to note that I have diligently experimented with both methods: using the entire left arm (i.e., the whole forearm) and using the wrist for the pulling motion. Both methods can achieve the end accent. The advantage of using the arm is that it allows for a larger opening of the bellows; however, the disadvantage is that the force becomes dispersed, resulting in less concentrated accent power and reduced explosiveness. In contrast, the wrist pulling method, although slightly different in volume, concentrates the force more effectively, resulting in a more explosive accent. In my performance practice, I opted for the latter method to meet Piazzolla's requirements for accents to be 'strong,' 'energetic,' and 'explosive.'

To summarise, this method of handling accents is particularly suited to tango performance on the free-bass accordion. Drawing inspiration from the bandoneon's techniques in tango, the approach involves adjusting the pulling motion to fit the unique characteristics of the free-bass accordion. Although it is not feasible to pull the bellows with both hands simultaneously, as Piazzolla did with the bandoneon,

the pulling motion can be minimised to the wrist. This technique affords a sharp and dynamic accent, which is essential in tango music.

By focusing on the wrist rather than the entire arm, performers can capture the pulling sensation necessary for executing the ‘short accent at the end of a long note.’ This method provides better control and prevents the instability that can arise from larger, more forceful movements. It also allows for maintaining the expressive qualities of the music without compromising the physical stability of the instrument.

Thus, while the free-bass accordion cannot replicate the exact techniques used on the bandoneon, it can adapt them in a way that preserves the emotional intensity and rhythmic precision of tango. This adaptation leverages the instrument's strengths, such as its larger bellows capacity and the ability to produce sustained tones with minimal motion. Through careful modification and practice, the free-bass accordion can effectively interpret and perform the nuanced dynamics of tango music.

4.5.5 Special Bellows Techniques: Combining Bellows Shake and 3-3-2

The 3-3-2 rhythm pattern originates from the *milonga campera*¹⁷⁹, with its bass rhythm derived from it. This pattern has existed throughout the history of tango music, and Piazzolla transformed it into an essential tool in his musical language.¹⁸⁰

¹⁷⁹ “Milonga campera and Milonga ciudadana are two distinct forms of milonga, reflecting different cultural backgrounds and emotional expressions. Milonga campera originates from the rural areas of Argentina, with simple and rustic melodies often associated with gaucho culture, expressing the tranquility, solitude, or nostalgia of rural life. The tempo is slower, with a more restrained and natural emotional expression. In contrast, Milonga ciudadana originates from urban areas such as Buenos Aires, with a faster tempo, more complex arrangements, capturing the passion, complexity, and diverse emotions of urban life”. Wolff, p. 156.

¹⁸⁰ Wolff, p. 130.

When playing the 3-3-2 rhythm, it is crucial to emphasise energy and precision to achieve its distinctive effect. The name of the 3-3-2 rhythm pattern describes how the eighth notes are grouped according to the accents within a measure. This pattern has multiple variations in both the right hand and the left hand, making it suitable for passages of various natures. Especially in chord applications, when the 3-3-2 pattern appears in chord form, its grouping and accentuation create a strong sense of motion and rhythm.

On the free bass accordion, the use of the bellows shake affords subtle variations in airflow, enhancing the dynamism and emotional tension of this chordal rhythm pattern. Quick changes in bellows direction during the 3-3-2 rhythm pattern can create rapid dynamic shifts between notes, increasing the tightness and coherence of the rhythm. This technique allows each note to be presented not just in timing but also in precise control of intensity and timbre. We will demonstrate this difference in the following example of the 3-3-2 rhythm played on the free bass accordion, showcasing the unique energy of the bellows shake, a technique exclusive to the accordion. This special technique has brought new vitality to nuevo tango music.

Chordal 3-3-2 rhythms typically appear in specific forms. When playing the 3-3-2 on the bandoneon, mastering the accents is crucial for increasing the rhythm's dynamism and coherence. For example, in *Verano Porteño*, there is a 3-3-2 rhythm from measures 126 to 130, where other instruments support the piano's improvised solo. The violin employs some percussive techniques. The score instructs the bandoneon to play chords with the left hand and single notes with the right hand in the 3-3-2 pattern.

In Piazzolla's performance video (1984 Utrecht live performance, 45'10"-45'28"), he creates rhythmic dynamism through a long accent followed by two marcato notes. To enhance this dynamism, Piazzolla even added repetition ornaments in some "2"

beats of the 3-3-2 pattern to propel forward to the next accent. Similarly, in the Radio Caracas Televisión performance (5'10"-5'30"), while playing at a faster tempo, Piazzolla incorporated more repetition ornaments into the 3-3-2 pattern. The specific performance details are shown in Figure 46.

123

Original Score

Utrecht Live

Radio Caracas

127

Original Score

Utrecht Live

Radio Caracas

The figure displays two sets of musical notation comparing an original score with two live performances. The first set, labeled '123', shows the 'Original Score' in treble clef with a simple melody of quarter notes. The 'Utrecht Live' performance is in bass clef, featuring a more complex accompaniment with slurs and accents. The 'Radio Caracas' performance is in treble clef, showing a highly ornamented melody with triplets and slurs. The second set, labeled '127', follows the same layout, with the 'Original Score' in treble clef, 'Utrecht Live' in bass clef, and 'Radio Caracas' in treble clef with triplets and slurs.

Figure 46: Comparison of the original score and two of Piazzolla's live performances¹⁸¹

¹⁸¹ My transcriptions.

Therefore, it can be inferred that the 3-3-2 rhythm pattern requires significant dynamism and driving force. On the free bass accordion, we can combine Piazzolla's method of using sixteenth notes to increase drive with the bellows shake technique to realise the chordal 3-3-2 rhythm model.

4.5.6 Detailed Description of the Bellows Shake Technique

The bellows shake (abbreviated: B.S.) is an accordion technique that produces rapid successive pulses by quickly repeating single notes, chords, or air noises. This effect is achieved by rapidly changing the bellows direction while maintaining a constant pitch, causing the two reeds assigned to a button to alternate in vibration. The German and French terms for bellows shake derive from the term for string tremolo, which is produced by a rapid series of up and down bows, similar to the opening and closing of the bellows. In the score, clearly marking "bellows shake" and using a dotted line to indicate the exact length of the effect is necessary. The symbols "■" and "∨" or multiple slanted lines through the note stems suggest a bellows shake but can be misunderstood without the additional specification "bellows shake."¹⁸² The left forearm, responsible for controlling the bellows, needs to change the bellows direction quickly and relaxedly. Despite the instrument's size and weight, the bass side's response is slower, making the execution more challenging. The bellows shake technique is similar to the double and triple tonguing techniques of wind instruments and the tremolo of strings. Composers often use the bellows shake as a shimmering, fluctuating motion, usually following a strong action (e.g., *sf*, accent).¹⁸³ This technique has brought new energy and expressiveness to nuevo tango music.

¹⁸² Buchmann, p. 64.

¹⁸³ Buchmann, p. 65.

From my performance experience, I have found that three-shake and four-shake techniques significantly enhance the chordal effect of the 3-3-2 rhythm. However, when performing the bellows shake, it is essential to maintain the clarity and granularity of each sixteenth note, similar to the marcato treatment of the two notes following the accent in the subdivided chord of the 3-3-2 pattern on the bandoneon. Additionally, handling the accent of each note is crucial. Unlike the bandoneon, the accordion's larger size makes it challenging to use the heel to emphasise the bellows accent. Instead, the left forearm can exert force before the bellows shake begins, creating a downward pull on the first note.

For example, in *Verano Porteño*, I used the bellows shake technique to enhance expressiveness and increase musical dynamism, as shown in Figure 47. Using the bellows shake in the chordal 3-3-2 pattern aligns with Piazzolla's requirements for the dynamism in the 3-3-2 rhythmic pulse. The bellows shake can also be applied to other situations requiring a sense of rhythmic tension. For example, I applied the bellows shake in the sixteenth notes of the first section of *Le Grand Tango*. This thesis emphasises the application of the bellows shake in the chordal 3-3-2 pattern, with other potential applications to be explored in Chapter 5.

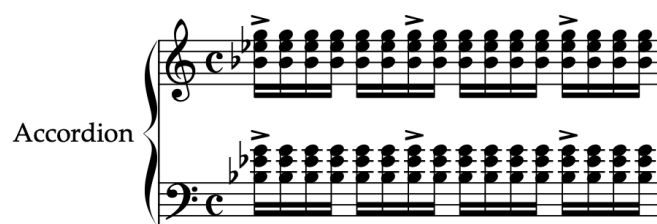


Figure 47: Accordion performance bellows shake 3-3-2 in *Verano Porteño*

4.5.7 Challenge of Performing *Arrastre* on the Free-Bass

Accordion

While the free-bass accordion bellows offer advantages in nuevo tango, particularly in maintaining phrase continuity and enabling innovative techniques such as the bellows shake, the instrument faces challenges when performing specialised tango techniques such as the *arrastre*, due to the instrument's construction and size.

The *arrastre*, meaning "dragging" in Spanish, is a technique typically used to lead into a short, powerful accented note or chord within a rhythmic melody. Performing the *arrastre* requires a sudden and rapid opening of the bellows. The player first presses the buttons on an eighth note before the intended ornamented note or chord, with the bellows remaining stationary. The player then quickly opens the bellows, creating a fast crescendo that enhances the accent and imparts the music with its characteristic dragging effect, as illustrated in Figure 48.



Figure 48: The *arrastre* technique in tango

On the bandoneon, performing the *arrastre* is relatively straightforward due to the instrument's lighter weight, smaller size, and the ability to engage both hands in opening the bellows, allowing for greater control and power. In contrast, performing the *arrastre* on the free-bass accordion is more challenging due to the instrument's heavier weight, larger size, and the limitation of operating the bellows with only the left hand. This requires significant arm strength and control, as the player must support the weight of the instrument while rapidly opening the bellows. Consequently, the resulting crescendo is less distinct, with a reduced dragging effect.

In practice, one technique on the free-bass accordion involves increasing the force and range of bellows movements to produce a more forceful sound. However, this approach tends to shorten the dragging effect, resulting in an approximation of the *arrastre* at best.

In conclusion, the bellows of the free-bass accordion and the bandoneon play pivotal roles in shaping the musical output of these instruments in nuevo tango. The free-bass accordion's larger bellows capacity and reversible airflow offer advantages in volume control and dynamic range. However, its larger size and one-handed operation of the bellows pose challenges, particularly in performing techniques like the *arrastre*. While the bandoneon's traditional bellows techniques are deeply rooted in tango music, the free-bass accordion's adaptability and innovative potential in bellows usage provide new avenues for interpreting Piazzolla's works.

Mastering various free-bass accordion bellows techniques enables musicians to achieve a wide array of expressive nuances essential for performing nuevo tango. The comparison with the bandoneon highlights the unique strengths of the free-bass accordion's bellows, particularly its ability to sustain phrases and manage dynamic contrasts.

4.6 *Free-Bass Accordion's Keyboards*

The keyboard system of the free-bass accordion plays a crucial role in its versatility and performance capabilities. This section will explore the pitch range and system innovations that distinguish the free-bass accordion from other instruments,

examining how these features enhance its suitability for performing Piazzolla's works.

The bandoneon (commonly with 142 voices from 71 buttons) has a relatively wide range, but its exact range depends on the specific model and manufacturer. Generally speaking, the range of the bandoneon is from C1 to G3. In contrast, the free-bass accordion has a broader range, typically covering from E1 to C4, and even higher notes. This extended range provides more tonal and harmonic possibilities, as shown in Figure 49.

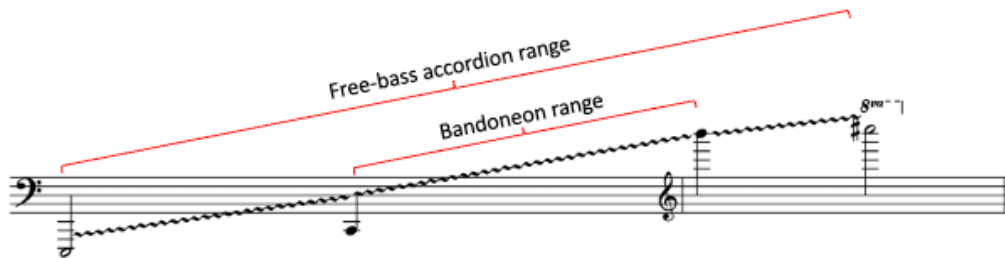


Figure 49: Range comparison chart of the free-bass accordion and bandoneon

The 142/144-key layout of the bandoneon is relatively complex and irregular, making it more challenging for players to switch octaves and handle complex harmonies. Pitches are not laid out in a linear fashion, posing challenges for improvisation and quick harmonic transitions. In contrast, the keyboard design of the free-bass accordion is more regular, with standardised arrangement allowing players to handle different octaves and complex harmonies more efficiently and accurately.

One major advantage of the free-bass accordion is its left-hand converter system. This system allows players to switch between standard bass and free bass modes with the left hand, thereby achieving a wider range and more complex harmonic structures. This converter system not only enables players to manage bass lines

more flexibly during performance but also enhances musical expressiveness by expanding the range and harmonic options.

In this section, I will dive into a detailed explanation of how this expansive range is achieved on the free-bass accordion. The range and register options of the free-bass accordion are intricately linked to its left-hand conversion system. A standard large free-bass accordion encompasses a wide range of eight octaves (E1-C#8), considerably exceeding the typical range of traditional accordions, which is usually around five octaves (C2-B6) comprising 71 notes. It thus also surpasses the traditional bandoneon's five-octave span (C2-B6) of 71 notes.

Innovations in the left-hand system of the free-bass accordion have significantly enhanced its playability. The integrated system combines the traditional Stradella (Standard) bass keyboard, with its 12 bass notes and associated pre-set chords (major, minor, dominant seventh, and diminished seventh), with the free-bass system. This dual arrangement facilitates the simultaneous use of standard bass and free-bass, allowing seamless transitions between configurations and enabling intricate musical articulation.

4.6.1 Expanded Pitch Range and Innovations in the Left-Hand Conversion System

The left-hand conversion system of the free-bass accordion represents a significant leap in accordion construction. This system integrates the conventional Stradella (Standard) bass accordion keyboard with the free-bass system, markedly expanding the instrument's versatility. The free-bass accordion's left-hand side features six rows of buttons, each playing a critical role in the system's functionality. Below, both systems are explained in detail.

Traditional Stradella (Standard) Bass Keyboard

The traditional Stradella bass keyboard, known for its characteristic 'oom-pah-pah' sound, consists of 12 bass notes (E-D# in this case) spanning a single octave, located in the keyboard's first two rows.¹⁸⁴ Each bass note is paired with a set of pre-fixed, unchangeable chords (major, minor, dominant seventh, and diminished seventh), all confined within the E-D# interval. These chords are always in close position, with no option for the player to alter the chord inversions, defining the essence of the Stradella bass system¹⁸⁵, as shown in the Figure 50 below.



Figure 50: Free-bass accordion Stradella (Standard) Bass Keyboard layout

Free-Bass System

While the free-bass system retains two rows of bass, the rear rows are arranged in a diagonal pattern, mirroring the right-hand layout across four rows. In each row, the interval relationship between a button and its adjacent lower button is a minor third ascending. The fourth row repeats the buttons of the first row for convenient

¹⁸⁴ Owen Murray, *A Safari through the Anatomy of the Free-bass (Classical) Accordion*, (lecture notes, Royal Academy of Music, London), p. 2.

¹⁸⁵ "For Composers," Erica Roozendaal, accessed May 20, 2024, <https://ericaroozendaal.nl/en/for-composers/>.

fingering, facilitating the playing of passages with wide melodic spans,¹⁸⁶ as shown in **Error! Reference source not found..**

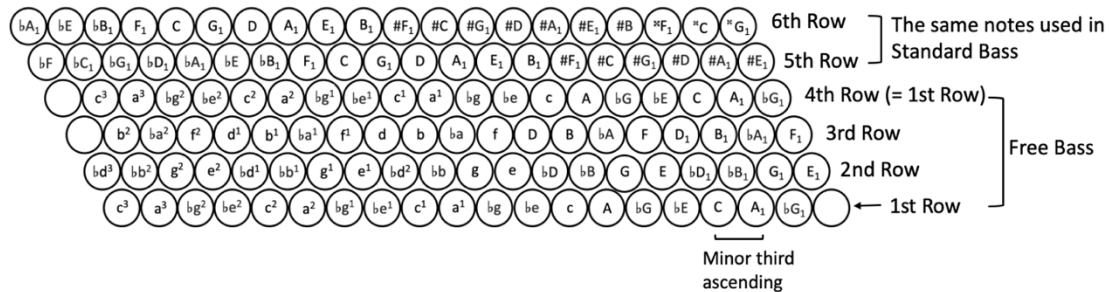


Figure 51: Free-bass system layout of the free-bass accordion

Additionally, while the left hand of the bandoneon typically uses only four fingers, the free-bass accordion allows the use of the thumb. However, the thumb's movement is somewhat restricted due to the straps controlling the bellows. Therefore, although the technical possibilities are not as limitless as with the right hand, the left thumb can be used to play notes such as C, Eb, F#, and A in the first row.

Comparative Example: Chiquilín De Bachín

In this comparative example, the free-bass accordion demonstrates a broader range and more flexible playing style compared to the bandoneon. It showcases its versatility and adaptability. The free-bass accordion's left-hand conversion system, the regular arrangement of the right-hand keyboard, and its wider range allow performers to freely explore a wider span of notes, enabling more diverse musical expressions. In the bandoneon solo versions, performers are limited to variations achieved through embellishments, modulation, and simple rhythmic changes in the theme. In contrast, the free-bass accordion version benefits from the cross-range

¹⁸⁶ Create by Qianyu Zhang.

capabilities of the left-hand conversion system, which enables the realization of multiple voice variations and enhanced embellishments. Timbral richness is achieved through the utilization of different registers.

Chiquilín de Bachín has a sharply defined musical form that consists of an introduction followed by the repeated sections A+A'+B. Originally conceived as a song, *Chiquilín de Bachín* relies on the synergy between the lyrics and the singer's interpretation to convey a range of emotions. In Piazzolla's two recordings, he accompanied two vocalists with his octet and quintet respectively. The musicians embellish the melodic phrases with ornamentation, including trills, runs and Arpeggios, variations that help to enrich the overall musical texture and highlight the personality and artistry of the performers. However, when transcribing this composition for solo instrumental arrangements, such as the forthcoming comparison between the bandoneon solo rendition and the solo free bass accordion rendition, different musicians employ different variations to convey distinct emotional expressions. Consequently, the subsequent analysis will focus on examining and comparing the variations featured in these different versions.

In the recordings of Piazzolla's Quintet and Roberto Goyeneche from 1982,¹⁸⁷ the composition commences with Piazzolla performing the introductory theme on the bandoneon, accompanied by other musicians. During this section, Piazzolla adds ornamentation and embellishments to the melodic line, enhancing its expressive qualities, as shown in Figure 52.

¹⁸⁷ Roberto Goyeneche, "Chiquilín de Bachín (En Vivo Teatro Regina 1982)." Recorded 1982. BMG Ariola Argentina S.A., 1994. YouTube video, 5:31. <https://www.youtube.com/watch?v=yyg1Lwwo1VA>, accessed 17 July 2024.



Figure 52: My transcription of the introduction performed by Piazzolla

This analysis examines two vocal versions, including recordings with Piazzolla's participation, as well as two solo bandoneon videos.¹⁸⁸ In these recordings, when the bandoneon performer plays the melody with their right hand, they often embellish the melodic lines using 'turns' and 'extensions.' Due to the constraints of the bandoneon keyboard, it is challenging to play complex embellishments after a turn. Therefore, the performer usually jumps to a higher or lower note and lingers on a certain pitch. For example, in the first solo bandoneon version, the performer employs turns and the stop on the main note during the second iteration of the variation (from 2:29 to 2:38 in the video), as shown in Figure 53. The left-hand part primarily plays accompanying chords and harmonies in both solo versions.

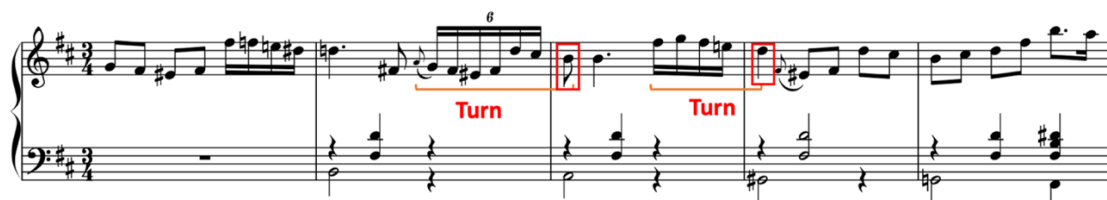


Figure 53: My transcription of the second iteration of the variation

¹⁸⁸ (1) José Angel. *Chiquilín de Bachín*. YouTube video, 4:13. October 19, 2018. <https://www.youtube.com/watch?v=RvixyUKX-fY>. Accessed 20 June 2023.
 (2) Roberto Goyeneche, *Chiquilín de Bachín* (En Vivo Teatro Regina 1982). Recorded 1982. BMG Ariola Argentina S.A., 1994. YouTube video, 5:31. <https://www.youtube.com/watch?v=yyg1Lwwo1VA>. Accessed 20 June 2023.
 (3) *Chiquilín de Bachín*, bandoneon version 1. YouTube video, 3:57. March 12, 2018. https://www.youtube.com/watch?v=PP8505IYPT0&list=RDPP8505IYPT0&start_radio=1. Accessed 20 June 2023.
 (4) *Chiquilín de Bachín*, bandoneon version 2. YouTube video, 4:22. June 19, 2019. <https://www.youtube.com/watch?v=rqlj9TZdG1g>. Accessed 20 June 2023.

Franck Angelis's arrangement for free-bass accordion, *Etude*, presents some differences compared to the two solo versions performed on the bandoneon.¹⁸⁹ Before the introduction, the free-bass version features a cadenza in which the right hand demonstrates the systematic design of the free-bass accordion's right-hand keyboard (as depicted in Figure 54). Furthermore, due to the convenience of the keyboard, it expands the flexibility of ornamentations, enabling the player to transition to different forms of notes or to add a scale following a turn. After this cadenza, the composition proceeds to the formal introduction section, maintaining the original melodic line. The proximity and regularity of the keys on the free-bass accordion's keyboard, along with the ability to free the thumbs of both hands for playing, significantly enhance the possibilities for melodic expression.

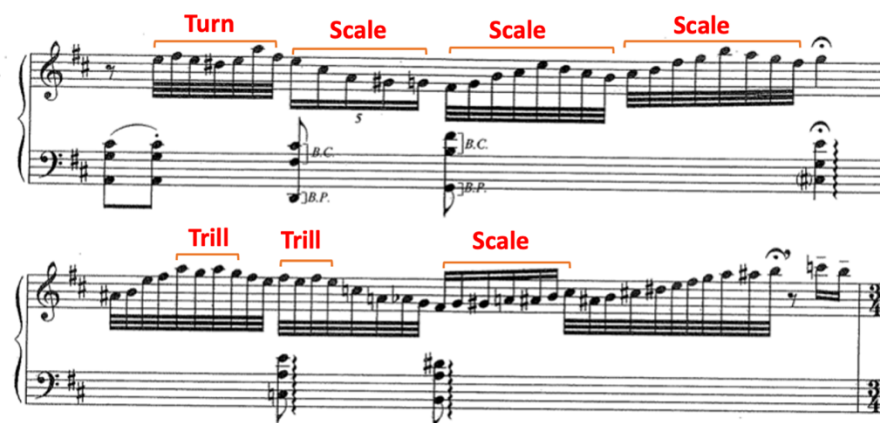


Figure 54: Cadenza of the free-bass accordion version

For instance, as demonstrated in the introduction section, there are three sustained melodic lines filling the texture, four melodic lines appearing in the seventh and eighth bar, and three sets of fast continuous lines composed of sixteenth notes in the last bar (Figure 55).

¹⁸⁹ Original score: Franck Angelis, *Etude pour Marie-Andree Joerger sur le thème 'Chiquilin de Bachin'* A. Piazzolla, 2006.



Figure 55: Introduction of the free-bass accordion

Two Contrasting Variations of the Theme

In the two solo bandoneon performances, the two musicians employ different techniques to highlight variations in the recurring theme. This is achieved through embellishments in the right hand and alterations in rhythmic patterns. The B section of the *Chiquilín de Bachín* serves as an emotional climax and represents the strongest point of the composition. In the original score, it is marked *ff*. However, in the solo bandoneon performances, due to the instrument's limited bellows capacity, it becomes challenging to achieve the intense contrast intended in this section.

The variations in the free-bass accordion version are exceptionally rich, with the single melodic theme consisting of two contrasting sets of variations. The first set of variations, as shown in Figure 56, employs arpeggiated figures in the right hand. This is made possible by the convenience of the free-bass accordion keyboard, which allows for the play of continuous arpeggiated figures that would be impossible on the bandoneon. Following these eight bars, the music progresses with a seven-bar sequence of double notes and chords, leading to the climactic section B. The left hand, using the low bass notes, provides a strong and continuous support, while the right hand's dual melodic lines ensure a rich musical texture.

Figure 56: The first set of variations of the free-bass accordion

To explore the impact of pitch range, I compared the bandoneon and free-bass accordion versions of *Le Grand Tango*. The bandoneon version, performed by David Louwse (cello) and Guillaume Hodeau (bandoneon), reveals that the bandoneon has limitations in maintaining a continuous bass line, especially in measures 9-13, where the original piano score requires the bass to descend to C2. Due to the structural constraints of the bandoneon, this low bass is unattainable, leading to a restricted range, difficulties in handling harmonies, and the need for simplified arrangements. In contrast, the free-bass accordion can easily manage this low bass range by adjusting the register switch (as shown in Figure 57).

Original score

Bandoneon version

The free-bass accordion version

SB

Original score

Bandoneon version

The free-bass accordion version

Figure 57: Comparison of measures 9-13 between the original score, the bandoneon version, and the free-bass accordion version

Additionally, due to the necessity of controlling the bellows, both the bandoneon and accordion's left hands face certain performance limitations, such as the inability to play sections with extensive range or harmonic intervals. Significant movements

can destabilise bellows control, thereby affecting musical expression. However, the free-bass accordion's left hand aids in comfortably executing wider harmonic spans. This is facilitated by utilising the first two rows for bass notes and the rear rows for higher notes. Such a design feature significantly enhances the instrument's multifunctionality, enabling it to execute the complex harmonic structures characteristic of Piazzolla's compositions.

A similar challenge arises in the third section of the piece (as illustrated in Figure 58), where the bandoneon must simplify and omit certain bass lines. In contrast, the left-hand free-bass system of the free-bass accordion can accurately play every note of the original piano score. This capability underscores the accordion's ability to faithfully recreate the breadth and depth of Piazzolla's musical intentions. In Figure 58, SB (Standard Bass) denotes that the left hand uses the first two rows for bass, and MB (Main Bass) indicates the rear four rows are used for the free bass.

In summary, the innovative keyboard system of the free-bass accordion, with its expanded pitch range and versatile left-hand conversion, greatly enhances its adaptability in nuevo tango. These advancements allow for greater harmonic possibilities and intricate polyphonic textures, enabling musicians to push the boundaries of the genre and explore new dimensions of artistic expression.

Original Score

Bandoneon

The free-bass accordion

Bandoneon

The free-bass accordion

Figure 58: Comparison of between the original score, the bandoneon version, and the free-bass accordion version

4.7 Conclusion

Chapter 4 has explored the adaptation of Piazzolla's bandoneon techniques for the free-bass accordion, demonstrating its potential to enrich nuevo tango and traditional tango performances. By comparing the structural attributes of the bandoneon and the free-bass accordion, the chapter has highlighted how these differences impact musical expression and technical execution. While the bandoneon remains emblematic of tango, the free-bass accordion introduces new harmonic and polyphonic possibilities, though not without presenting unique challenges, such as the need for advanced bellows control to maintain phrase continuity.

Detailed analyses of essential tango performance techniques on the free-bass accordion, such as bellows control, fingering, and register use, have shown how these can be adapted. This examination has provided a broader understanding of the instrument's adaptability and evolution within tango music. For example, the instrument's ability to sustain phrases without interruption and accurately reproduce intricate musical details has been highlighted. These insights underscore the dynamic and innovative capabilities of the free-bass accordion in interpreting complex classical-tango fusion works.

Furthermore, the chapter has emphasised the importance of understanding bandoneon techniques to effectively perform nuevo tango on free-bass accordion. While some bandoneon techniques can be readily adapted, others present significant challenges. Overcoming these challenges requires a comprehensive understanding of both instruments, extensive practice, and engagement with bandoneon recordings and players.

The analysis of a range of Piazzolla's compositions has provided insights into the necessary technical adaptations for the free-bass accordion. By examining both solo and ensemble pieces, the research has illustrated the instrument's versatility and its capacity to handle the complex demands of nuevo tango. The selection of pieces across a broad technical spectrum has ensured a comprehensive understanding of the free-bass accordion's capabilities in this genre.

While this chapter has demonstrated the free-bass accordion's potential in performing Piazzolla's works, it also reveals that many characteristics of the free-bass accordion have yet to be fully utilised. For instance, among the 15 registers, several special effect registers, like the right-hand register 4', are seldom used in Piazzolla's works. Additionally, the full potential of techniques such as the accordion bellows shake and percussive methods has not been thoroughly explored and will be discussed further. Chapter 5 will dive into contemporary pieces, analysing how the free-bass accordion can be employed to further expand its repertoire and artistic expression in modern tango.

CHAPTER 5: PERFORMING CONTEMPORARY NUEVO TANGO ON THE FREE-BASS ACCORDION

5.1 Introduction

Building upon the analyses and techniques discussed in Chapter 4, this chapter further explores the performance techniques required for nuevo tango works inspired by Astor Piazzolla. Following from the previous chapter's detailed adaptation of Piazzolla's bandoneon techniques to the free-bass accordion, this chapter examines how these techniques are expanded and innovated in contemporary compositions. This chapter serves to validate the versatility and adaptability of the free-bass accordion in performing contemporary nuevo tango compositions. It begins by presenting collaborations with a new generation of Argentine Tango composers, showcasing how the free-bass accordion can be used to explore new interpretive techniques and timbres. These collaborations aim to highlight the expanded possibilities of the free-bass accordion in tango music, demonstrating its potential to contribute to the genre's evolution.

The first section of this chapter focuses on the collaboration process with contemporary nuevo tango composers. It discusses the theoretical frameworks of "interactive" and "collaborative" models of cooperation. These models describe how composers and performers interact, make decisions, and share creative responsibilities during the music creation process. By employing these models, the chapter illustrates how composers can gain an understanding of the free-bass accordion through written descriptions, sample recordings, and accumulated experience from the long-term creation of works for the instrument.

Following this, the chapter provides details of collaborations with contemporary composers such as Ariel Pirotti and Diego Schissi. It documents the process of performing contemporary nuevo tango pieces on the free-bass accordion and creating original compositions centred around the instrument. The section on Pirotti employs an "interactive collaboration" model, allowing for substantial discussion and exchange between composer and performer. This process involves initial online meetings and in-person rehearsals to refine the compositions. Conversely, the collaboration with Schissi follows a "collaborative cooperation" model, where both the performer and composer contribute equally to the decision-making process, resulting in a joint creative effort.

Additionally, this chapter addresses the challenges encountered during these collaborations, such as the need for composers to understand the unique capabilities and limitations of the free-bass accordion. It also highlights the technical and interpretative adjustments required to perform contemporary compositions effectively, emphasising the importance of continuous innovation and practice.

In addition, this chapter reflects on the implications of these collaborations for the future of nuevo tango. It argues that the free-bass accordion has not yet fully realised its potential within the genre, particularly in contemporary compositions. By exploring its application in modern tango, the chapter sets the stage for further research and innovation, ensuring that the free-bass accordion continues to play a dynamic and evolving role in the future of tango music.

In short, Chapter 5 underscores the significance of contemporary collaborations in expanding the repertoire and artistic expression of the free-bass accordion. Through detailed analysis and practical exploration, it demonstrates the instrument's capacity to bring new dimensions and innovation to nuevo tango.

5.2 *Collaboration Process with Contemporary Nuevo Tango Composers*

5.2.1. **Collaboration Process**

This section of the research involves collaboration between composers and performers. Theories on "interactive" and "collaborative" models of cooperation, as proposed by Keith Sawyer and other scholars, describe how composers and performers interact, make decisions, and share creative responsibilities during the music creation process.¹⁹⁰ In the interactive collaboration model, according to Sawyer, "interactive collaboration" involves substantial discussion and exchange between composer and performer, yet the composer retains final control over the work. This model emphasises that while the composer provides the basic framework and guidance, the performer realises the work based on their understanding and skills, adding personalised elements to the composition while maintaining the composer's original intent.

In contrast, in "collaborative cooperation" authorship is more collective and no one person has a dominant role in the creative process. In this model, both composer and performer participate in decision-making without a clear hierarchy, allowing all participants to contribute ideas and influence the final form of the work. This model is often found in experimental or improvisational performances, highlighting the fusion and innovation of different perspectives in the creative process.

¹⁹⁰ Barrett, Margaret S., ed. *Collaborative Creative Thought and Practice in Music*. The University of Queensland, Australia. First published 2014 by Ashgate Publishing. Published 2016 by Routledge, Taylor & Francis Group, London and New York.

During my collaboration with Pirotti, an "interactive collaboration" model was employed. This approach allowed Pirotti to freely explore the versatility of the free-bass accordion, giving him significant creative choice. In the early stages of collaboration, online meetings and materials were provided to give Pirotti a foundational understanding of the instrument and its techniques. In the later stages, an in-person visit to Argentina and inviting Pirotti to London for rehearsals and performances helped refine the collaboration. Pirotti expressed great interest in this collaborative model but also noted his reliance on the performer's expertise due to his limited knowledge of the instrument.

The research revealed that composers can gain understanding of the free-bass accordion through two main avenues: (1) initial understanding through written descriptions and sample recordings; (2) accumulated experience from long-term creation of works for the free-bass accordion. The first step typically precedes the second. Each composer's exploration of the free-bass accordion uncovers different features and styles, sometimes making it seem as if they are writing for entirely different instruments.

In my collaboration with Diego Schissi, we adopted a "collaborative cooperation" model. Diego was receptive to the idea of adapting the bandoneon parts to suit the free-bass accordion and provided me with an open score. I interpreted the music using the free-bass accordion and shared my interpretations with Diego through recordings and written notes. As the composer, he responded to my recordings and explanations, offering his insights and reflections. From the options I presented, Diego selected the interpretations that he felt best aligned with his compositional objectives. Based on his feedback, I finalised the interpretation of the piece, incorporating the choices he favoured.

5.2.2. Collaboration Challenges

Introducing the free-bass accordion to both composers presented significant challenges, as they were previously unfamiliar with the instrument and its potential for tango music. The free-bass accordion is more complex in structure and playing technique compared to traditional button accordions. For composers new to this instrument, understanding its characteristics required considerable time and effort.

In the collaboration with Pirotti, he expressed that his limited knowledge of the instrument initially affected his confidence and efficiency in composing. Additionally, certain specialised techniques posed challenges for performers. For example, playing wide-ranging multiple melody lines and harmonies with the left hand or using bellows shake techniques in the upper register requires a high level of skill and precise control. Composers faced the challenge of effectively incorporating these techniques into their works.

Another challenge was the limited presence of the free-bass accordion in tango music, despite its established position in classical music. Initially, composers often leaned towards timbres resembling the bandoneon, influenced by long-standing habits and stereotypes associated with tango music. This preference might have provided a sense of familiarity and security. However, the diverse timbral possibilities of the free-bass accordion also posed a challenge in selection. Until composers gained confidence in their understanding of the instrument's sounds, they needed extensive experimentation and communication with the performer to achieve the best results.

Despite these challenges, integrating the free-bass accordion into tango broadens the repertoire available to performers, allowing them to explore beyond Piazzolla's

works and engage with more contemporary pieces. This experience enhances the performer's technical skills and artistic expression. The collaboration laid a solid foundation for future compositions featuring the free-bass accordion, fostering the creation of works that may potentially advance the instrument's role in modern music.

5.3 Collaboration with Ariel Pirotti

The collaboration with Ariel Pirotti represents an important aspect of this research, highlighting the creative synergy between performer and composer in the realm of contemporary nuevo tango.

5.3.1. Ariel Pirotti and Collaboration Overview

Ariel Pirotti, a native of Buenos Aires, Argentina, graduated from the National University of Arts (UNA) with a bachelor's degree in musical arts. He currently serves as a composition teacher and the director of the Tango Orchestra at UNA. The tango orchestra he formed was nominated for the "Best Tango Album" category at the 2017 Latin Grammy Awards. Additionally, he was awarded the "Best New Tango Artist" at the 2016 Gardel Awards, underscoring his influence and stature in contemporary tango music.

5.3.2. Performing Pirotti's *Libertango*

In November 2022, field research was conducted in Buenos Aires, Argentina, which included rehearsals and performances with local tango musicians. On November 7, Pirotti invited my participation in two rehearsal sessions. The first took place at the

National University of Arts with its tango orchestra, preparing for a performance at the National Library of Argentina's auditorium a week later. The second rehearsal was at Pirotti's studio, in preparation for a performance three days later with his tango quartet at a local tango bar, where the audience has a deep-rooted familiarity with the genre.

The morning rehearsal with the UNA Tango Orchestra featured an ensemble of five bandoneons, four violins, two cellos, a double bass, three flutes, a piano, and a bass saxophone. The orchestra members, comprising both current students and alumni from UNA, are professional tango musicians who make a living through teaching and performing. The introduction of the free-bass accordion to the orchestra piqued the musicians' interest, particularly among the bandoneon players, who were surprised by the accordion's range and ability to mimic the bandoneon's timbre. They were also impressed by the keyboard's ease of use.

In the reimagined version of *Libertango* arranged by Ariel includes several notable aspects. Firstly, the choice of register was carefully considered; various registers were tested during rehearsals to match other instruments in ensemble sections and to highlight particular registers for thematic and solo passages. Secondly, the use of embellishment in the solo sections was another key focus, where the capabilities of the free-bass accordion were explored to create polyphonic textures. Additionally, bellows techniques were examined in the passages employing the 3-3-2 rhythmic pattern. *Libertango* is one of Piazzolla's most renowned compositions, and it has been arranged in countless versions. However, performing this piece in Buenos Aires with local tango artists, particularly with four bandoneons, was an exceptionally unique experience.

Before the rehearsals, Ariel provided a simplified score that highlighted the main melody and some of the harmonies for the accordion. This simplified version was

intended to allow more personal interpretation in the choice of registers and the use of embellishments.

Structure of Ariel Pirotti's Libertango Arrangement

Pirotti's version of *Libertango* is structured into four main sections: Intro, A, B, and C. Each section reflects Piazzolla's style, showcasing the expressive capabilities of different instruments through distinct thematic lines.

The introduction (measures 1-8) sets the rhythmic dynamics for the entire piece. It is characterised by a rhythmically engaging and repetitive melodic line, as shown in Figure 59. This piano motif establishes the foundational rhythmic pulse that drives the composition, providing a structural framework for the ensemble's interplay and setting the tone for the subsequent musical development.



Figure 59: Measures 1-8 of piano part

Section A (A-A1-A2)

This part presents the primary theme (hereafter 'Theme A') sequentially performed by the free-bass accordion, violin, and piano.

A (measures 9-24): The free-bass accordion introduces the Theme A (see Figure 60).

Figure 60: Theme A introduction by free-bass accordion

A1 (measures 25-40): The strings take over the Theme A (see Figure 61).

Figure 61: Theme A played by strings

A2 (measures 41-57): Flute and piano present Theme A (see Figure 62).

The image displays a musical score for a symphony orchestra, focusing on the flute and piano parts. The score is written in a key signature of two flats (B-flat and E-flat) and a 4/4 time signature. The flute part (Fl.) is marked *f cantabile* and features a melodic line with slurs and a triplet in measure 42. The piano part (Pno.) is also marked *f cantabile* and provides harmonic support with chords and a triplet in measure 42. Other instruments like the clarinet, band, and strings are present but mostly play sustained chords or accompaniment. The score is numbered 41 through 46.

Figure 62: Theme A played by flute and piano

Section B

The main melody of this section is a Theme B, comprising two phrases.

B (measures 57-65): The free-bass accordion plays the first phrase of the Theme B (see Figure 63).

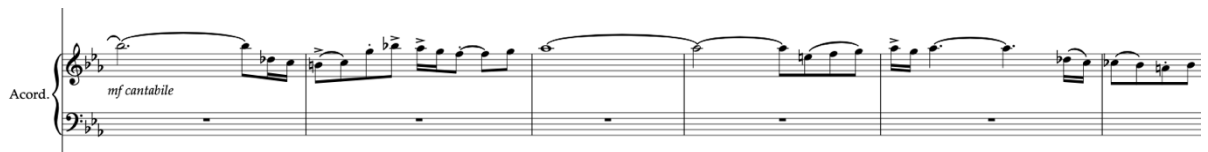


Figure 63: Theme B first phrase by the free-bass accordion

B1 (measures 66-73): Strings perform the first half of the Theme B (see Figure 64).

Musical score for Figure 64, showing the first half of Theme B performed by the strings. The score is written in a single system with four staves: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The tempo and mood are marked *p sul tasto*. The strings play a melodic line with slurs and accents, mirroring the first half of Theme B. The key signature is two flats.

Figure 64: Strings performing first half of Theme B

B2 (measures 73-81): Strings, flute, clarinet, and double bass conclude the Theme B (see Figure 65).

Figure 65: Theme B by Strings, Flute, Clarinet, and Double Bass

Section C

This part features solo passages by different instrument groups.

C1 (measures 82-97): Begins with a solo by the free-bass accordion (see Figure 66).

Figure 66: Solo section of the free-bass accordion

C2 (measures 98-105): Followed by a solo section for four bandoneons (see Figure 67).

The image shows a musical score for four bandoneons, labeled 'Band.' on the left of each system. The score is written in a single system with four staves. Each staff has a treble clef and a key signature of two flats (B-flat and E-flat). The music is in 2/4 time. The first staff begins with a dynamic marking of *mf*. The second staff begins with *mp*. The third staff begins with *mf*. The fourth staff begins with *mf*. The music consists of a series of rhythmic patterns, including eighth and sixteenth notes, with some rests. The dynamics vary throughout the piece, including *f* and *ff*. The piece concludes with a final chord in the fourth measure.

Figure 67: Solo section of four bandoneons

Ending (measures 106-122): The piece concludes with two elements played in unison (see Figure 68).

Figure 68: Ending section

Register Selection

During the first rehearsal, various register combinations were tried to achieve a balanced sound within the large ensemble and to showcase the free-bass accordion's versatility beyond its resemblance to the bandoneon's distinctive timbre, especially during solo passages. A sound profile chart for the registers and a theoretical framework for register selection were provided to Pirotti, as discussed in Chapter 4. These guidelines included considerations for tonal goals, volume and balance, range

characteristics, and technical aspects. A live demonstration of each register's sound allowed Pirotti to experience their practical effects.

Pirotti was open to experimenting with different registers. For the main melody and solo sections, he requested a bright sound, leading to the initial use of the (4'+8' outside) register for the A section (measures 9-24), the B section (measures 57-65), and the C1 section (measures 82-97). This register, which is close to the reed blocks, enhances the sound's penetration, making it suitable for highlighting the melody in a large ensemble. Pirotti agreed that this sound closely resembled the bandoneon and was appropriate for these parts.

To showcase the tonal diversity of the accordion, I explored a range of additional registers, including the relatively bright (8' outside), (4'+8' outside), (8'+8' outside), and (4'+8'+8' outside). Pirotti identified the (4'+8' outside), (8' outside), and (4'+8'+8' outside) registers as particularly suitable for performing the main melody, leaving the final choice to my discretion. We decided to use three distinct registers for the A section (measures 9-24), B section (measures 57-65), and C1 section (measures 82-97), providing 27 possible combinations. All these combinations were deemed applicable across the three sections, offering flexibility and variation in the performance. Pirotti ultimately selected specific combinations for each section, with the intention of thereby enhancing the overall expressiveness and tonal richness of the piece.

A Section (measures 9-24): The (8'+8' outside) register was used to highlight the clarity and brightness of the melody.

B Section (measures 57-65): The (8' outside) register was selected to achieve a more nuanced tonal quality.

C1 Section (measures 82-97): The (4' + 8' outside) register, which closely resembles the bandoneon's timbre, was chosen for this solo section to seamlessly transition into the subsequent bandoneon solo.

This approach not only demonstrated the tonal versatility of the free-bass accordion but also showed how even subtle changes in registers can significantly alter the character of the melody. The flexible use of registers enriched the tonal palette of the piece, providing both the composer and performer with more creative and expressive possibilities.

Solo Section

Before the rehearsal, Pirotti provided a simplified score, including a section marked for accordion improvisation, which only had basic harmonic annotations. When asked whether improvisation was a mandatory requirement during performances, Pirotti clarified that it was not. In Argentina, such sections could be improvised or pre-composed. For instance, the bandoneon parts were already written, while the accordion parts were left for personal interpretation.

I demonstrated the free-bass accordion's ability to play complex, multi-textured lines and suggested co-creating the solo section. Initially, I wrote a solo segment highlighting the accordion's capabilities. This section incorporated intricate fingerings and fast note sequences to showcase the instrument's ability to handle complex, multi-voiced textures, some of which are challenging or impossible on the bandoneon.

Pirotti and I developed a new solo section for C1 (measures 82-97), which features a scale-based melody showcasing the technical prowess of the free-bass accordion.

This addition increases the complexity and virtuosity of the performance. As illustrated in Figure 69, the incorporation of rapid arpeggios and ornamentations — common techniques in tango — enhances the expressiveness of the piece.

The image displays a musical score for a solo section of a free-bass accordion, spanning measures 82 to 95. The score is written in a key signature of two flats (B-flat and E-flat) and a 2/4 time signature. It is presented in a grand staff format, with a treble clef on the upper staff and a bass clef on the lower staff. The music is characterized by rapid arpeggios and ornamentations, typical of tango. The score is divided into five systems, each starting with a measure number: 82, 85, 88, 92, and 95. The first system (measures 82-84) features a melodic line with a slur and a fermata, and a bass line with chords. The second system (measures 85-87) includes a melodic line with a slur and a fermata, and a bass line with chords and a triplet. The third system (measures 88-91) features a melodic line with a slur and a fermata, and a bass line with chords and a triplet. The fourth system (measures 92-94) features a melodic line with a slur and a fermata, and a bass line with chords and a triplet. The fifth system (measures 95) features a melodic line with a slur and a fermata, and a bass line with chords and a triplet.

Figure 69: Solo section of the free-bass accordion

Pirotti noted that the free-bass accordion could execute this solo section at a fast tempo, enhancing the overall intensity of the segment. In contrast, if a similarly complex and rapid passage were written for the bandoneon, the ensemble would need to slow down to accommodate the bandoneon's limitations. Thus, bandoneon solos often feature long, expressive notes and simpler combinations rather than rapid, continuous scales or arpeggios. This adjustment highlighted the free-bass accordion's advantage in handling rapid passages and complex note sequences.

Application of Bellows Shakes

During rehearsals, a specific time was dedicated to exploring and refining the use of bellows shakes at the end of the A section (measures 50-57). Pirotti showed great interest in how the free-bass accordion's bellows shake technique could be integrated with the 3-3-2 rhythm pattern to enhance the tension of the piece.

An analysis of the overall rhythmic feel of Pirotti's arrangement of *Libertango*, set in 4/4 time, revealed a prevalence of repeated rhythmic motifs, especially in the strings and piano, creating continuity and a sense of flow. The piece also features the distinctive syncopated rhythms characteristic of tango, known as "syncopated accents." During the first rehearsal, a quadruple bellows shake was used, but it felt too dense and lacked dynamic variation. Before the second rehearsal, a new approach was developed to align with Piazzolla's signature 3-3-2 rhythm while maintaining the piece's dynamic continuity.

Three different bellows shake techniques were tried on the 3-3-2 rhythm pattern, as shown in Figure 70:

Figure 70: 3-3-2 with bellows shake

16th notes: this technique involves breaking each 3-3-2 pattern into 16th notes, with six bellows shakes on each "3" beat and four on the "2" beat. While this creates a strong rhythmic drive and a continuous flow, it was considered too dense and lacked dynamic variation.

8th notes on the "3" Beat: this method breaks the 3-3-2 pattern into 8th notes, with three bellows shakes on each "3" beat, and 16th notes four bellows shake on the "2" beat. Pirotti felt this approach improved the layering of textures but still did not fully convey the desired tension of the piece.

16th notes on the "2" Beat: this approach focuses the bellows shakes on the "2" beat of the 3-3-2 pattern, while maintaining a relatively simple chordal accompaniment on the two "3" beats. Pirotti was particularly pleased with this method, as it created the necessary sense of space on the initial "3" beats and enhanced the tension and compactness on the "2" beat.

Throughout rehearsals, these techniques were continually adjusted and fine-tuned. After extensive experimentation and discussion, the third method was chosen as the best option. Thus, in this collaboration, Pirotti and I explored the potential of the free-bass accordion in tango music through an interactive partnership. Our work included experimenting with various register combinations, demonstrating the instrument's ability to achieve balanced sound effects in a tango orchestra setting and its tonal versatility. The free-bass accordion showed distinct advantages over the bandoneon in solo passages, particularly in handling complex textures and ornamentation with its more systematic keyboard layout, enhancing both the tightness and expressiveness of the music without compromising tempo. Additionally, the unique bellows shake technique added a significant expressive dimension to the performance.

Our final concert at the National Library of Argentina, featuring the free-bass accordion alongside four bandoneons, was well received by both audience and orchestra members. Pirotti praised our collaboration, highlighting that the free-bass accordion's tonal qualities and expressive possibilities offer new opportunities for composing tango music, especially in the lower registers where it has a distinct advantage over the bandoneon. Through this performance, we demonstrated that the free-bass accordion could find its place in traditional tango orchestras, offering fresh sounds and vitality to this musical form.

5.3.3. Performing Pirotti's *Camino Sombreado*: A New Composition for Accordion

New Tango Composition for the Free-Bass Accordion: Camino Sombreado

After concluding the initial phase of our collaboration, Pirotti composed a tango quartet piece titled *Camino Sombreado* specifically for the free-bass accordion. This piece will be featured in my final recital, showcasing not only our musical collaboration but also the innovative use of the free-bass accordion in tango music. The quartet consists of the free-bass accordion, violin, piano, and bass. Pirotti employed various features of the free-bass accordion in this work, such as flexible register choices, the use of the converter system bass, and bellows shake techniques. These elements not only enrich the tonal layers of the piece but also highlight the unique acoustic qualities of the free-bass accordion in tango music.

Specific Details of *Camino Sombreado*

Register Flexibility: Pirotti utilised the accordion's ability to switch between different registers, allowing for a wide range of tonal colours and dynamic contrasts. This flexibility is particularly evident in the piece's varied timbral sections, where the accordion's role shifts from providing a bright melodic line to a more subdued harmonic support.

Converter System Bass: The composition takes advantage of the converter system bass, enabling a seamless transition between traditional stradella bass and free-bass modes. This feature is crucial in delivering both rhythmic accompaniment and intricate counterpoints, which are essential in tango's complex texture.

Camino Sombreado is also a tribute to Pirotti's creative talent and innovative spirit. This piece is the product of our joint effort and symbolises our shared passion for tango music and the future possibilities of the free-bass accordion. The creation of these new works – incorporating innovative harmonic, rhythmic, and textural techniques – underscores the collaborative effort between composer and performer to push the boundaries of what the free-bass accordion can achieve in modern

tango. In addition, this represents hope to inspire more composers and performers to explore the free-bass accordion and encourage them to discover its applications across different musical styles.

5.4 *Collaboration with Diego Schissi*

In addition to collaborating with Pirotti, I also worked with Diego Schissi, whose jazz background brings a fresh perspective to contemporary nuevo tango.

5.4.1 **Diego Schissi and Collaboration Overview**

Schissi has a background in jazz and studied in the United States. In the field of tango, he has referenced figures like Piazzolla, Salgán, and Troilo. After returning to Argentina in 1999, he joined the renowned local jazz group Quinteto Urbano, with whom he recorded three albums until the group disbanded in 2004. He then decided to focus on composition, creating the piece "Tren," which was recorded with the support of the Argentine National Arts Fund and released as an album in 2007. This album did not adhere to a specific genre. Schissi fully immersed himself in the world of tango with his album *Tongos. Tangos improbables* (2010), followed by two more albums, further establishing his roots in this musical genre. In this thesis, I will specifically reference his *Tongo 1, 2, 4, 6* (hereafter *Tongos*) in first album *Tongos. Tangos improbables*.

My collaboration with Schissi was structured and reciprocal, facilitated by email exchanges. At the outset, I expressed my enthusiasm for integrating the free-bass accordion into Schissi's work, particularly within the context of tango music. My focus was on performing Schissi's existing compositions, specifically his *Tongos*

pieces. I committed to sending recordings of these performances on the free-bass accordion to Schissi for his expert feedback. This step was crucial for understanding how the instrument could enhance or alter his compositions. Schissi responded positively, showing great interest in the potential of the free-bass accordion. He suggested experimenting with different sections of the music to explore the instrument's range and nuances. This iterative feedback loop was vital for refining our approach, ensuring that the unique qualities of the free-bass accordion were effectively showcased.

As our discussions progressed, we began considering the possibility of creating new works specifically for the free-bass accordion. I proposed exploring the instrument's unique technical innovations, such as tonal changes, bellows control, and dynamic expression. Schissi was very receptive to this idea, recognising it as an opportunity to combine technical exploration with creative expression.

5.4.2 Performing Schissi's *Tongo 1,2,4,6*

In the album *Tongos*, I selected *Tongo 1*, *Tongo 2*, *Tongo 4*, and *Tongo 6*. Noticing the absence of pieces numbered 3 and 5, I asked Diego about the significance of *Tongo 1, 2, 4, 6*. He explained that these are actually sketch numbers, and in the end, both *Tongo 3* and *Tongo 5* did not develop into complete compositions.

Tongo 1, 2, 4, 6 are characterised by their rhythmic complexity and steady pulse. On the surface, these works do not show any obvious influence from Piazzolla. They employ an additive rhythm, dividing it into a 3-2-3 pattern instead of the more recognisable 3-3-2, creating a nuanced and rich rhythmic texture. This texture is not contrapuntal but operates through overlapping layers. The melodies in these pieces do not exhibit the characteristic motivic features found in Piazzolla's music. Instead,

the melodic elements are repetitive, seemingly derived from the same material, with each piece modifying this material and varying the pitch organisation of the motives.

There is almost no overt rhythmic or melodic expression associated with Piazzolla or traditional tango, with only brief hints of tango-style accompaniment in certain passages. Despite diverging stylistically from traditional tango, Schissi's aesthetic stance, in a sense, inherits from Piazzolla, as he continues to occupy a cultural space identified as tango while avoiding tango clichés and creating new melodies and unique rhythmic resources. Diego acknowledges Piazzolla's influence while deliberately steering away from his techniques, further distancing himself from classical tango traditions.

In terms of timbre, Schissi expressed that he continuously seeks sounds distinct from traditional tango, aiming to highlight the individuality of each quintet member as a soloist. Thus, the Piazzolla-like elements in Schissi's work manifest in the compositional principles he uses to construct tango, akin to how Piazzolla built his tango through the gradual addition of various resources. The free-bass accordion has provided him with a diverse array of resources and perspectives.

Detailed Process and Feedback Loop: Tongo 1

In the early stages of working on *Tongo* a document was provided to Schissi detailing the principles, symbols, and textual descriptions of the timbres produced by the free-bass accordion's registers. Based on recordings, an adaptation of the bandoneon part was made, incorporating new ideas. Following the theoretical framework for register selection outlined in Chapter 4, specific approaches were applied to the introduction and thematic sections.

The A section features a solo from both the guitar and bandoneon, setting a narrative tone reminiscent of the beginning of a story. The bandoneon plays a narrative melodic line, with the guitar accompanying while also playing its melody. This section highlights the bandoneon's unique bright timbre in the middle and upper registers. On the free-bass accordion, different registers were used to showcase varied tonal effects, adding colour to the melody. Three distinct timbres were tested:

1. Softer tone: using the (8') register.
2. Bandoneon-like tone: using the (4'+ 8' outside) registers.
3. Brighter, softer combination: using the (4'+ 8') registers, producing a sound less sharp than the bandoneon.

In section B, the bandoneon repetitively plays a rhythmic pattern, the only instrument to do so. This pattern reappears in section G, with one note altered, and similar patterns emerge in sections F and H, expanding in the final section J of *Tongo 1*, as illustrated in Figure 71. The free-bass accordion offers three approaches to handling this repetitive pattern:

1. Repeating the same timbre using a single register.
2. Creating timbral contrast by using different registers.
3. Adding the same notes in the left hand but with different timbres.

The image shows a musical score for a bandoneon part, labeled 'bdn.'. It is divided into two systems. The first system features a treble clef staff with a melodic line containing a triplet of eighth notes and a fermata, and a bass clef staff with rests. A tempo marking '♩ = 100' and a section marker 'B' are present. The second system shows a more rhythmic melodic line in the treble clef with accents and a bass clef staff with rests. Dynamics include *mf* and *mp*.

Figure 71: Rhythmic pattern of B section, bandoneon part

The bandoneon's performance in this piece typically aligns with the first approach, showcasing its distinctive sharp timbre throughout the composition. The free-bass accordion can separate tones into bright and subdued zones. The bright zone primarily involves single reed (4') and combination reed (8') registers, while the subdued zone involves single (8') and combination reed (16') registers.

Introduction (bandoneon and guitar): Diego expressed appreciation for the diverse tonal capabilities of the free-bass accordion, particularly the third register option (4'+8'). He described this sound as bright and soft, without the sharpness of the bandoneon, aligning more closely with his ideal tone for this section. This richer and more pleasing timbre effectively enhanced the texture of the piece.

To replicate the bright timbre of the bandoneon, it is advisable to use single reeds (4') or reed combinations (8'). However, using 4' or 8' alone may not provide suitable volume and could be overshadowed by other instruments, such as the bass and piano in section H. To balance volume and timbre in sections B, F, H, and J, the following combinations are recommended: (4'+8'), (4'+external 8'), (8'+8'), and

(4'+8'+external 8'). For section J, considering combinations such as (4'+16'), (external 8'+16'), (external 8'+8'+16'), or (external 4'+8'+16') is advisable.

In section B, the volume should be kept at *mp* to create a quieter feeling. Diego requested a timbre that is both quiet and bright, so he chose the (8'+8'). In section F, which has a more sombre mood, the violin and bandoneon part are same rhythmic pattern in the original score. The darker timbre here needs to balance with the violin, leading Diego to select (4'+8'+ 8' outside). In section H, Diego marked the bandoneon part as "Protagonico" and explained: "'Protagonico' signifies 'taking the lead role' and indicates a more intense aspect of tango expression. Think of Piazzolla, Ruggiero... but applied to these notes. The solution may not be straightforward, but this is the approach."¹⁹¹ Based on his explanation, the timbre here should be made to convey stronger emotions, while the volume should align with the *f* marking in the score. Diego chose (8'), with an additional layer of the same melody played in the left hand using the (2' piccolo) register to make it strong. Section J contains repeated notes, corresponding with the guitar part, requiring a staccato texture. Therefore, the (8'+8') combination was selected.

Based on my discussions with Diego, different registers of the free-bass accordion were used to align with Diego's vision for the timbre, exploring the expressive potential of the accordion.

Percussive Effects in Tongo 2 & 4

In tango music, the bandoneon's percussive effects utilise the instrument's structure and unique sound characteristics to add rhythm and colour to the music. The primary percussive effects include *golpe de caja* (box tapping), *raspado de teclas* (key scraping), and cluster (tone clusters).

¹⁹¹ Diego Schissi, email to the author, [15 July 2023].

Golpe de caja involves the player lightly tapping the wooden case or bellows of the bandoneon. Depending on the tapping location, the sound can be either deep or sharp. This effect is often used to emphasise the rhythm or add a distinctive sound effect, especially in the absence of other percussion instruments.¹⁹²

Raspado de teclas is created by the player scraping their nails or another hard object along the keys, producing a rustling sound akin to a percussion instrument. This effect enhances the music's texture and rhythm, particularly in passages that require a soft background noise or when a special texture effect is needed.¹⁹³

Cluster is achieved by simultaneously pressing multiple adjacent keys and either quickly releasing or holding them. This creates a dense, dissonant sound that can heighten the drama or tension in the music, often used to highlight moments of intensity or energy. Sometimes, clusters are employed in improvisational segments to add a layer of spontaneity.

These percussive effects leverage the bandoneon's physical properties to enrich the music's expressiveness and add layers of complexity to the composition. Similarly, the free-bass accordion offers a range of percussive effects that not only mirror those of the bandoneon but also provide additional expressive capabilities:

Diverse Tapping and Scraping Sounds

Bellows tapping: tapping on the bellows, which are larger on the free-bass accordion, produces varying sounds depending on the area struck. Tapping the centre of the

¹⁹² Wolff, p. 210.

¹⁹³ Wolff, p. 211.

bellows generates a deep, bass drum-like sound, while tapping the upper or lower edges results in a thinner drum sound.

Case tapping: Similar to the bandoneón, using fingers, knuckles, or the palm to lightly tap different parts of the accordion's case. Tapping the front of the case (facing the audience) usually produces a deeper sound, while tapping the top creates a crisper sound. These variations in tapping location alter the resonance, mimicking percussion instrument tones.

Bellows and case scraping: using fingernails to scrape along the textured surface of the accordion's case. This action produces a sound similar to the guiro (scraped gourd) effect in the bandoneon. The resulting sound can range from a soft rustling to a more intense scraping noise, depending on the pressure and speed applied.

Use of the air button: quickly pressing and releasing the air button while moving the bellows back and forth. This produces a sound akin to breathing or wind. The intensity and rhythm of the sound can be modulated by controlling the speed and force of the action.

Clusters (tone clusters): simultaneously pressing multiple adjacent keys, either quickly releasing them or holding them down. This creates a dense, dissonant sound. Unlike the bandoneon, the free-bass accordion allows for the adjustment of timbre through register switches, offering a range from deep, rich tones to bright, contrasting ones. This effect is particularly useful for enhancing dramatic moments or emphasizing musical tension.

Simultaneous performance and percussive effects: the free-bass accordion enables performers to play melodies while simultaneously creating percussive effects, allowing for greater versatility in live performances and compositions. These features

make the free-bass accordion an exceptionally versatile instrument for both traditional and contemporary musical expressions, particularly in the context of expanding the stylistic boundaries of tango music.

The free-bass accordion allows performers to generate percussive effects while playing melodies, adding diversity to live performances and compositions. These characteristics make the free-bass accordion a versatile instrument for both traditional and contemporary musical expressions, particularly in expanding the stylistic boundaries of tango music.

In the E section of *Tongo 2*, Schissi showcased his unique 3-2-3 rhythm, with the violin and bandoneon playing the main melody, while other instruments emphasised the first beat of the 3-2-3 rhythm through percussive effects, as illustrated in Figure 72. On the free-bass accordion, the melody line was played with the left hand, while the right hand created percussive effects. Two types of percussive sounds were provided: one produced by tapping the bellows with the right hand and another by scraping the case with the right hand.

E

The musical score for Figure 72, titled '3-2-3 rhythm of E section', is arranged for five instruments: Violin (Vln.), Bandoneon (bdn.), Guitar (Gtr.), Piano (Pno.), and Bass. The score is divided into two systems. The first system begins at measure 54, marked with a box containing the letter 'E'. The second system begins at measure 60. The 3-2-3 rhythm is explicitly marked with brackets and numbers above the guitar and bass staves. The Violin part features a melodic line starting at measure 54 with a dynamic marking of *mf*. The Bandoneon part has a rhythmic accompaniment starting at measure 54. The Guitar and Bass parts provide a steady 3-2-3 rhythmic pattern, with the guitar marked *fp* and the bass marked *fp*. The Piano part is mostly silent, with some notes appearing in the second system.

Figure 72: 3-2-3 rhythm of E section

This synchronised percussive effect not only enhanced the rhythm but also added layers of texture and expressiveness to the music. Schissi opted to tap the bellows while playing with the left hand, as he preferred the bass drum-like sound produced by the larger bellows of the accordion compared to the bandoneon.

Tone Glissando

Tone glissando is a unique technique achievable on the free-bass accordion, allowing for the gradual lowering of a single note's pitch, a feature not possible on the bandoneon. Unlike keyboard glissando, which involves sliding between distinct pitches, tone glissando focuses on one note, finely controlling the pitch change. This technique relies on the precise manipulation of airflow and key pressure: reducing the airflow through the reed slows its vibration, lowering the pitch. Concurrently, the key is partially pressed, and the bellows pressure is gradually increased, resulting in a crescendo while the pitch decreases.

Tone glissando has certain limitations. Due to the physical structure and airflow characteristics of the free-bass accordion, tone glissando is primarily effective in the lower registers (great octave or suboctave ranges). In the higher registers, controlling the airflow becomes challenging, making the glissando effect less pronounced. When performing tone glissando in polyphonic passages, careful coordination of bellows pressure and key control is required, especially when distributing multiple glissandos across both hands. During the glissando, the tone may become thinner, more nasal, and accompanied by airflow noise and reed buzzing.

Schissi requested a sound akin to a violin's glissando. This effect was applied in *Tongo 4*, particularly in the 16 measures leading up to section A, where the bandoneon plays an A-flat note, as illustrated in Figure 73. In recordings, the bandoneon attempts to press this note deeply and introduce subtle variations. By employing tone glissando on the free-bass accordion, a more nuanced and delicate expression of this A-flat note was achieved, closely aligning with Schissi's vision for this subtle effect. The use of tone glissando allowed for a gradual pitch shift and a

richer tonal colour, emulating the expressive qualities of a violin's glissando, thus enhancing the emotional depth and dynamic texture of the piece.

The image shows a musical score for five instruments: Violin (Vln.), Bandoneon (bdn.), Guitar (Gtr.), Piano (Pno.), and Bass. The score is in 4/4 time and features a key signature of one flat (B-flat). The Violin and Bandoneon parts are mostly rests, with a few notes in the lower register. The Guitar part features a complex, rhythmic pattern of eighth and sixteenth notes. The Piano part features a complex, rhythmic pattern of eighth and sixteenth notes. The Bass part features a complex, rhythmic pattern of eighth and sixteenth notes. A dynamic marking of *sfz* (sforzando) is present in the Bandoneon part, indicating a strong accent. The score is marked with a rehearsal sign '10' at the beginning of each system.

Figure 73: *Tongo 4-A flat*

Palm Glissando

Palm glissando is a specialised technique on the free-bass accordion that involves sliding or scraping the palm across the instrument's surface to create a distinctive sound effect. This technique is not achievable on the bandoneon. In palm glissando, the performer can use various parts of the palm, such as the heel, centre, fingertips, or even a fist, to scrape across the keyboard. Depending on the position and pressure applied, the sound produced can range from a subtle rustling to a pronounced scraping noise, adding a raw, textured quality to the music. This effect is especially effective in conveying dramatic or intense emotions.

The dynamic range of the palm glissando can be controlled by adjusting the rhythm and pressure, allowing performers to craft dynamic layers within the music and enhancing its depth and complexity. In measures 54 to 65 of *Tongo 4*, the guitar, bass, and violin use similar scraping techniques, while the piano maintains a rhythm that conveys a sense of collision. During this passage, the left hand continues to play the chords originally written by Schissi for the bandoneon, while the right hand employs palm glissando to amplify the piece's chaotic and dramatic atmosphere, as shown in Figure 74. This technique not only enhances the expressive potential of the music but also demonstrates the innovative capabilities of the free-bass accordion in the context of tango music.

The musical score for measures 54-57 of 'Tongo 4' is presented in five systems. The first system includes the Violin (Vln.) and Bandoneon (bdn.) parts. The Violin part features a melodic line with accents and dynamic markings of *f*. The Bandoneon part consists of chords in the left hand and a right hand with palm glissando, indicated by a series of slanted lines and dynamic markings of *fp*. The second system includes the Guitar (Gtr.) and Piano (Pno.) parts. The Guitar part shows a complex texture with palm glissando in the right hand and chords in the left hand, marked with *f*. The Piano part features a rhythmic pattern of chords in the left hand and single notes in the right hand, marked with *f*. The third system includes the Bass part, which features a melodic line with accents and dynamic markings of *f*. The score is written in 2/4 time and includes various musical notations such as accents, dynamic markings, and slanted lines for palm glissando.

Figure 74: *Tongo 4*, measures 54-57

Conclusion

The collaboration with Schissi has been instrumental in refining this project, particularly in aspects such as tonal adjustments and the application of specialised techniques, including register selection and unique percussive effects. Schissi's feedback and active involvement have greatly contributed to this process, especially in exploring the tonal possibilities of the free-bass accordion. Our partnership has not only achieved technical advancements but also introduced new elements of artistic expression into tango music, showcasing the potential of the free-bass accordion.

Through the exploration and adaptation of pieces like *Tongos*, the free-bass accordion has successfully complemented and expanded the sonic landscape of the compositions, offering new possibilities for the future of tango music. This innovative approach underscores the importance of creativity and experimentation in tango music and highlights the value of the free-bass accordion as a versatile instrument capable of enriching the genre's expressive range.

5.5 Future Directions

The exploration of the free-bass accordion's potential in tango music, as demonstrated in this chapter, suggests several avenues for future research and creative endeavours. There is a need to encourage more composers to write specifically for the free-bass accordion, exploring its unique tonal and technical capabilities. Continued collaborations with established and emerging tango composers could help create new works that blend traditional and contemporary styles, thereby expanding the repertoire.

Developing and refining performance techniques specific to the free-bass accordion in tango music, including advanced use of registers, percussive effects, and bellows techniques, will be crucial. Additionally, documenting and sharing best practices and innovative techniques with the broader music community can enhance the understanding and appreciation of the instrument's role in tango.

Pedagogical development is another important direction, involving the creation of educational resources and curricula for teaching the free-bass accordion with an emphasis on its application in tango music. This could include method books, instructional videos, and workshops.

The collaboration with Schissi and Pirotti has demonstrated the versatility and potential of the free-bass accordion in tango music, highlighting its ability to enhance and innovate within the genre. Through detailed analysis and experimentation with tonal adjustments, specialised techniques, and new compositions, the free-bass accordion has proven to be a powerful tool for creative expression and artistic expansion.

5.6 Conclusion

Chapter 5 has explored the contemporary applications of the free-bass accordion in nuevo tango through collaborations with modern composers Ariel Pirotti and Diego Schissi. This chapter has demonstrated the instrument's adaptability and potential for innovation within the genre, particularly through selected pieces of Pirotti and Schissi, building on the foundational techniques established in previous chapters.

The detailed analysis of collaborative processes has shown how interactive and collaborative models of cooperation can lead to innovative compositions and performance techniques. These collaborations have not only expanded the free-bass accordion's repertoire but also highlighted its unique tonal and technical capabilities. The exploration of contemporary compositions has revealed that the free-bass accordion can capture the essence of nuevo tango while introducing new harmonic possibilities and intricate polyphonic textures.

Through collaboration and performance experiences, this chapter has underscored the importance of understanding both traditional bandoneon techniques and the specific challenges of adapting these techniques to the free-bass accordion. Techniques such as advanced bellows control, precise articulation for rapid passages, and effective use of registers have been critically examined and adapted to enhance the expressive range of the free-bass accordion.

Moreover, this chapter has identified that many characteristics of the free-bass accordion, such as its special effect registers and techniques like the bellows shake and percussive methods, remain underutilised. These findings point to the vast untapped potential of the instrument in nuevo tango and underscore the need for further exploration and innovation. Looking ahead, the integration of the free-bass accordion in contemporary compositions promises to contribute to the evolution of tango music.

In summary, Chapter 5 has established the free-bass accordion as a versatile and expressive instrument for performing contemporary nuevo tango. The collaborative efforts and technical innovations discussed herein not only broaden the instrument's repertoire but also contribute significantly to the ongoing evolution of tango music. The findings advocate for continued exploration and encourage musicians to embrace the free-bass accordion's potential in nuevo tango.

CHAPTER 6: CONCLUSION

6.1 Introduction

This concluding chapter synthesises the insights gained from exploring the free-bass accordion's role in performing and innovating within the genre of nuevo tango.

Through a detailed examination of the instrument's technical capabilities, as well as its application to both traditional and contemporary compositions, this thesis has aimed to challenge conventional views and expand the interpretive possibilities for nuevo tango.

Chapter 6 will revisit the research objectives, evaluating the extent to which the free-bass accordion can capture the expressive essence of Piazzolla's work and contribute to the genre's ongoing evolution. It will also reflect on the original contributions of this study, from broadening the instrument's repertoire to enhancing the understanding of its potential within tango. Finally, this chapter considers the implications of these findings for future research and practice, highlighting new directions that may inspire further exploration of the free-bass accordion in tango and beyond.

6.2 Evaluation of Research Objectives and Outcomes

This section discusses how the research objectives have been approached.

The primary objective of this research is to explore the performance techniques of the free-bass accordion in nuevo tango music, highlighting its distinctive capabilities and distinguishing it from the bandoneon. This research has shown that while many

techniques can be adopted from the bandoneon, the free-bass accordion offers expanded and distinctive tools for nuevo tango performances of both Piazzolla and contemporary nuevo tango pieces. This is thanks to its expanded register sets, larger bellows, and vastly improved keyboards. In Chapters 4 and 5, I have demonstrated how the free-bass accordion introduces more harmonic possibilities and intricate polyphonic textures to both Piazzolla's and contemporary nuevo tango performances.

The secondary objective is to explore innovative approaches to performing nuevo tango on the free-bass accordion by collaborating with contemporary Argentine composers, with the aim of performing new contemporary tango pieces. For this, I collaborated with two contemporary Argentine nuevo tango composers to reinterpret their existing pieces; in addition, as a result, one of them composed a new nuevo tango piece dedicated to the free-bass accordion. Reflecting on the collaboration process, I realised that longer-term collaborations are necessary for composers to familiarise themselves with the free-bass accordion to produce further breakthrough pieces.

Furthermore, there are four specific objectives, and I will address how this research has achieved these objectives, including acknowledging any shortcomings:

- i. **Analysing and challenging Astor Piazzolla's perspective on the accordion in tango:** The research shows that the free-bass accordion, with its comprehensive set of registers and timbres, includes registers suitable for nuevo tango. The history of tango demonstrates its continuous evolution, as seen in Piazzolla's own experiments, such as incorporating an electric guitarist in his later years. While the bandoneon has remained stable in its construct, the free-bass accordion continues to evolve, adding functionality, techniques, and timbres. The free-bass accordion used in this research has 20 registers,

compared to fewer than 10 in many older generations. I have identified registers suitable for Piazzolla's nuevo tango and presented performance techniques incorporating additional methods. Furthermore, collaboration with contemporary composers has led to the development of new sounds for nuevo tango.

- ii. **Exploring the functional capabilities of the free-bass accordion in nuevo tango:** This research has extensively explored the functional capabilities of its registers, bellows, and keyboard in both existing and new nuevo tango pieces. By analysing the use of various registers, we have identified how they contribute to the rich tonal palette of nuevo tango. The larger bellows of the free-bass accordion allow for sustained phrases and dynamic contrasts that enhance the musical expression. Additionally, the improved keyboard layout offers greater flexibility and precision in executing complex polyphonic textures, further expanding the instrument's potential in contemporary tango compositions.
- iii. **Collaborating with composers to create a new tango composition:** I have worked with Pirotti to produce one new composition, and more are expected to follow now that the collaboration has begun. These collaborations have provided valuable insights into the creative process, highlighting the importance of dialogue between composer and performer. While in this research, I have yet to collaborate with Schissi to produce a new piece, future collaborations are anticipated.
- iv. **Demonstrating the free-bass accordion's role in the evolution of tango:** My collaborations with Pirotti and Schissi have shown the potential for interpreting existing pieces and creating new compositions that contribute to the evolution of tango. This is particularly evident in the new timbres and sounds made

possible by the improved bellows and keyboards. These efforts underscore the dynamic nature of tango and the continuing relevance of the free-bass accordion in its development.

In conclusion, this research has achieved its primary and secondary objectives, demonstrating the free-bass accordion's versatility and innovative potential in nuevo tango. The findings encourage further exploration and long-term collaborations to continue evolving the genre.

6.3 Original Contributions

6.3.1 Laying Foundation

This research has contributed to lay a foundation for future research and creative endeavours in tango using the free-bass accordion. Field research in Argentina traced the early presence of both the accordion and the bandoneon in tango music, demonstrating that these instruments appeared almost simultaneously in the country. Although the selection of the bandoneon as the primary instrument in tango was historically unclear, it influenced the emotional tone of tango's early development. Despite the accordion not being initially chosen, its development over the past decades cannot be overlooked. This research examines the accordion performance in tango of Brunelli, an early Argentine pioneer of accordion in tango. Also, this research advocates for integrating new instruments and technologies in tango music while maintaining sensitivity to cultural traditions, emphasising the evolution and diversity of cultural and musical practices.

Most current academic research focuses on Piazzolla's historical background and his contributions as a composer. While there is extensive research on his compositions, there are few analyses of his skills as a bandoneon player, particularly his performance techniques. This research dives into Piazzolla's bandoneon techniques by analysing his recordings, focusing on ornamentation and embellishment techniques. These analyses enrich the understanding of Piazzolla's musical style and offer practical guidance for performers seeking to perform these stylistic features on the free-bass accordion.

Beyond analytical discussion, this study contributes a set of original transcriptions of Piazzolla's bandoneon performance. These transcriptions extract, notate, and organise performance details embedded in recordings into readable, analysable score-based materials. While existing scholarship acknowledges Piazzolla's musical achievements, it has not documented in detail the fine-grained nuances of his bandoneon playing; as a result, many stylistic features remain preserved only in audio form, making them difficult to compare, examine, or employ pedagogically. By rendering these details in written notation, this research enables scholars and performers to observe Piazzolla's performance style in a clearer and more replicable way, thereby offering more concrete analytical pathways and practical interpretative references.

Despite some free-bass accordionists performing Piazzolla's works, there is little research on related performance techniques, including systematic studies of free-bass accordion performance methods. This research proposes a practical framework for selecting registers, indicating that while register selection often reflects the performer's personal aesthetic, there are practical albeit sometimes subtle considerations. Additionally, adapting bandoneon performance techniques to the free-bass accordion is necessary, with this research offering specific techniques for accentuation. By employing academic research methods, this research re-examines

performing nuevo tango on the free-bass accordion, providing a critical analysis of the instrument's technical strengths and weaknesses. This critical analysis suggests a way forward, especially in utilising aspects of the free-bass accordion more fully.

Finally, through collaborations with Pirotti and Schissi, this research showcases how performers and composers can work together. The research suggests that for composers to gain a deep understanding of the free-bass accordion, long-term collaboration is necessary, in addition to systematic textual explanations and audio recordings. This research has confirmed that there are Argentine composers who are not only open to but welcoming of the free-bass accordion, contributing several new tango compositions for the instrument. These collaborations have not only brought new works to the tango repertoire but also provided valuable practical experience in expanding instrumental diversity and innovation within tango music.

6.3.2 Practical Implications

This research also holds practical implications for both performers and composers within the realm of tango music.

For performers, it unveils the technical potential and expressive capabilities of the free-bass accordion in nuevo tango, offering a new avenue for artistic exploration. Mastering techniques such as complex ornamentation, precise bellows control, and intricate polyphonic playing allows performers to expand their repertoire and bring fresh vitality to tango music. For instance, advanced bellows techniques facilitate dynamic phrasing that mirrors the emotional intensity of the bandoneon, while enhanced keyboard capabilities enable more sophisticated harmonic progressions and counterpoint. By incorporating techniques such as rapid articulation and the expanded use of registers, performers can achieve greater expressiveness and

technical proficiency. These developments encourage performers to explore the full capabilities of the free-bass accordion, thereby enriching the overall performance practice of tango music.

For Argentine tango composers, this research provides valuable insights into exploring the application of the free-bass accordion in nuevo tango and other musical genres. The research demonstrates how the instrument's extensive range and diverse timbres can be utilised to create innovative compositions. Collaborations with contemporary composers such as Pirotti and Schissi have highlighted the instrument's ability to merge traditional tango elements with modern musical influences. This illustrates how the free-bass accordion can contribute to the evolution of tango by introducing new textures and expanding the genre's sonic palette.

Additionally, the study research underscores the potential for the free-bass accordion in various musical contexts beyond tango, including classical, jazz, and contemporary experimental music. This encourages composers to explore new sonic possibilities, leading to a more dynamic and evolving musical landscape. By showcasing successful compositions and performances that integrate the free-bass accordion, the research provides a framework for composers beyond tango to innovate and expand upon.

6.4 Reflective Insights on the Research Journey

This research journey has been instrumental in deepening my understanding of both the free-bass accordion and the broader context of nuevo tango. Reflecting on the methodologies and processes employed provides valuable insights that can inform

future studies and practical applications. In particular, the ethnographic and anthropological activities, including fieldwork, rehearsals and performances in Buenos Aires, help to inform the reflective perspectives developed in this section.

Field Research and Cultural Immersion: The field research I conducted was pivotal for me in uncovering the historical and cultural nuances of the accordion and bandoneon within tango music. Engaging with local musicians, scholars, and archival materials enriched my perspective and grounded the study in Buenos Aires, where tango was born. I learned about tango music by visiting and performing with tangueros in tango bars, where the audience and other performers grew up with the genre, providing a deeply immersive experience — revealing cultural and experiential dimensions that recordings and written sources alone could not offer. Rehearsal methods, approaches to improvisation, and the distinct performance environments in Buenos Aires afforded me direct and embodied encounters with tango practice. These experiences enabled me to approach phrasing, articulation, accentuation and rhythmic nuance in a manner more closely aligned with established tango conventions.

Understanding Instrument Construction and Its Impact on Expression: I discovered the significance of the free-bass accordion's manufacturing process during additional field visits to the free-bass accordion manufacturers. The lack of standardisation in the instrument's keyboard arrangement and registers among manufacturers poses a challenge for the future development of the free-bass accordion, as it hinders the establishment of standardised learning pedagogy and performance techniques. At the same time, analysing the structural differences between the bandoneon and the free-bass accordion, including bellows direction, reed positioning, keyboard layout and timbral characteristics, broadened my understanding of how instrumental design shapes tango expression. These differences revealed that the free-bass

accordion can generate an expressive method distinct from that of the bandoneon, yet capable of fully serving the stylistic demands of nuevo tango.

Collaborations with Contemporary Composers: Working with Pirotti and Schissi highlighted the importance of composer-performer interactions. These collaborations not only facilitated the adaptation of nuevo tango compositions for the free-bass accordion but also demonstrated the instrument's potential for innovation. Through iterative discussions and creative exchanges, we explored new expressive possibilities and refined performance techniques. I learned that different circumstances may dictate different collaboration techniques, as Pirotti and Schissi, both very experienced tango composers, interacted with me differently. This process underscored the necessity of long-term collaborations for deeper integration and better mutual understanding.

Challenges and Solutions: The research faced several challenges, primarily due to the relatively unfamiliar role of the free-bass accordion in tango. These initial challenges were addressed through enhanced information exchange, progressive exploration, and eventually technical innovation. Providing composers with detailed information about the instrument and engaging in live demonstrations were critical steps in overcoming these challenges in creating new interpretations and developing the new free-bass accordion tango piece. Additionally, adopting a gradual approach in collaborative projects allowed for incremental learning and adaptation, ensuring that both composers and performers could effectively contribute to the creative process.

Technical Innovation and Adaptation: Experimentation with new techniques, such as advanced bellows control and unique tone selections, required adjustments to my usual playing methods. Continuous feedback and iterative practice were essential in optimising these techniques for performance. This adaptive process highlighted the

dynamic nature of musical innovation and the importance of flexibility in artistic practice. Understanding the construction of the accordion, such as the polishing of the reeds and the drying process of internal wood pieces to achieve certain sound qualities, has been particularly enlightening. This appreciation allows me to adjust my playing technique to suit specific pieces better.

Towards the end of this research, I endeavoured to play several Piazzolla's pieces that were not included in the analysis of this thesis. I was pleasantly surprised to find that I could manage them better, even after playing them only a few times. In the past, my improvement depended on repeatedly practising a piece over days or weeks. However, this time, my progress was more rapid, attributable to the systematic performance approach and new techniques developed during this research. Moreover, my enhanced understanding of the tango genre and Piazzolla's music, combined with insights into the history, context, and construction of the bandoneon, significantly improved the quality of my performance.

Reflecting on this research highlights the importance of interdisciplinary approaches, collaborative creativity, and continuous innovation. I hope that the lessons learned from this journey not only validate the research's findings but also pave the way for future explorations in tango music and beyond.

6.5 Further Directions

I hope that this research has laid a foundational framework for understanding and performing nuevo tango on the free-bass accordion and also opened several avenues for future research and artistic exploration. Future research can build on this foundation by exploring extended collaborations with composers, deepening the

analysis of bandoneon performance techniques, developing systematic free-bass accordion techniques, conducting historical and cultural studies, advancing pedagogical practices, and exploring the versatility of the free-bass accordion in other musical genres.

Extended Collaborations with Composers: Future research could focus on expanding collaborative efforts with contemporary composers. This research has shown the fruitful outcomes of working with composers like Pirotti and Schissi. Long-term projects could foster a deeper understanding and integration of the free-bass accordion's unique features into contemporary compositions. Collaborations with composers should be designed to allow them to fully immerse themselves in the instrument's capabilities, leading to the creation of innovative pieces that push the boundaries of nuevo tango. Additionally, exploring collaborations with composers from diverse musical backgrounds could further enrich the tango repertoire, introducing novel elements and expanding the genre's horizons by blending traditional tango elements with modern musical influences through the free-bass accordion.

In-depth Analysis of Bandoneon Performance Techniques: A comprehensive examination of Astor Piazzolla's bandoneon techniques is crucial for further understanding and refinement of performance practices. Future detailed research could focus on how Piazzolla's techniques evolved over different periods, particularly the transition from his early to later stages, which featured more improvisation and experimentation. Specific aspects such as his *fraseo* melody handling techniques, rhythmic variations, and unique ornamentations that define his performances could provide valuable insights for both scholars and performers. By thoroughly analysing Piazzolla's recordings and live performances, researchers can document and codify these techniques, offering a rich resource for both bandoneonists and free-bass accordionists seeking to learn from his style.

Systematic Technique Development for Free-Bass Accordion in Tango: Building on the initial findings of this research, future research could dive into the systematic development of performance techniques for the free-bass accordion in tango music. This involves creating a detailed methodology for using registers in various scenarios, exploring different accentuation techniques, utilising half-button keyboards, and mastering advanced bellows shake techniques. Each of these components requires thorough exploration and documentation to create a comprehensive guide for performers. For instance, research could examine the optimal use of registers to achieve the desired tonal quality in different pieces or how specific bellows shake techniques can enhance expressiveness in performance. This systematic approach would significantly enhance the expressiveness and technical proficiency of performers, enabling them to fully exploit the capabilities of the free-bass accordion in tango.

Historical and Cultural Studies: A comprehensive historical study of the bandoneon and accordion, tracing their origins and evolution, understanding their introduction to Argentina, and examining their structural changes over time, is essential. Such knowledge can deepen performers' appreciation and execution of tango music by providing a deeper connection to the instrument's heritage and development. Additionally, it gives better context on the current materials to be performed as well as informs the performance techniques that are required. Investigating the role of the accordion in Argentine music history and its future potential, including examining why the accordion diverged from the bandoneon and studying figures like Brunelli who used the accordion in tango, can help chart a better future for the instrument.

Pedagogical Development and Practical Applications: Developing structured curricula and instructional materials based on the findings of this research could support the next generation of musicians. Workshops, masterclasses, and academic

courses focused on the free-bass accordion in tango music would ensure that these techniques and insights are widely disseminated, fostering a community of well-informed and skilled performers. This will groom a more informed generation of free-bass accordionists who will hopefully bring this instrument to greater heights and contribute to various music genres.

Exploration of Free-Bass Accordion Versatility in Other Genres: The versatility of the free-bass accordion extends beyond tango. Future research could explore its application in genres such as jazz and classical music, demonstrating the instrument's adaptability and expanding its repertoire. For instance, transposing baroque compositions or integrating the accordion into modern jazz ensembles could reveal new artistic possibilities and enhance its role in contemporary music.

In sum, this research has provided a solid foundation for further research and artistic exploration in nuevo tango and beyond. Continued exploration, innovation, and collaboration will enable the full potential of the free-bass accordion to be realised, enriching both the academic study and practical performance of music.

6.6 Final Thoughts

Reflecting on this research journey, I am profoundly grateful for the opportunities to explore and expand the capabilities of the free-bass accordion in the realm of nuevo tango. This journey has not only enriched my understanding of the instrument but has also reinforced the significance of collaboration, innovation, and cultural and historical appreciation in music.

Throughout this research, I have endeavoured to challenge the traditional limitations and perceptions of the free-bass accordion, exploring its potential to introduce new dimensions to tango music. It is my hope that this research on the free-bass accordion in tango will serve as a catalyst for further exploration of the instrument across various musical genres.

Moreover, while aiming for the free-bass accordion's versatility to contribute to the evolution of diverse musical genres, I also sincerely hope that these efforts will result in the development of new compositions and techniques for future generations of free-bass accordionists. This, I believe, will enable the free-bass accordion to flourish alongside other instruments, further enriching the multicultural global musical landscape.

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APPENDIX 1: Preliminary Timbre Comparison of the Bandoneon, Stradella Accordion, and Free-Bass Accordion

This appendix presents a preliminary comparison of the timbres of the bandoneon, the Stradella accordion (standard bass accordion), and the free-bass accordion. Its purpose is to provide supplementary material to the discussion in Section 3.4, offering an indicative rather than definitive assessment of how these instruments differ in brightness, stability, and harmonic–noise balance. The analysis combines basic audio-visualisation methods with listening-based description and should be understood as exploratory in scope. It is not intended as an engineering-level acoustic study, but as a point of accessible reference that supports the timbral discussion in the main body of the thesis.

Before turning to the spectral comparisons, Appendix 1.1 outlines several constructional features of the three instruments. These details do not form part of the acoustic analysis itself; rather, they provide background for understanding how reed materials, plate mounting and structural design can shape the timbral tendencies of each instrument. Appendix 1.2 then presents the preliminary acoustic observations, using two simple spectral descriptors: centroid, interpreted as an indicator of brightness, and flatness, interpreted as an indicator of the balance between harmonic and noise-like components, as implemented in a basic audio-visualisation tool, *Sonic Visualiser*. The aim is to sketch typical trajectories and relative tendencies without implying that these findings constitute universal timbral definitions.

1.1 *Constructional Factors Shaping Timbre*

From an instrument-construction perspective, the timbral differences between the bandoneon, the Stradella-system accordion, and the free-bass accordion arise largely from how their reeds are manufactured, mounted, and coupled to the wooden structure of the instrument. Historically, many bandoneons employed steel reeds mounted on zinc plates that were screwed directly into wooden soundboards, creating a close mechanical connection through which reed vibrations passed efficiently into the wood.¹⁹⁴ By contrast, modern accordion construction typically uses aluminium reed plates attached with wax to detachable wooden reed blocks, enabling the reed units to be removed for cleaning and tuning.¹⁹⁵

Structurally, the bandoneon's right-hand keyboard often uses paired reeds that sound in octaves (commonly labelled 8' + 4'), producing a focused and organ-like sonority.¹⁹⁶ By contrast, accordions are built with multiple reed ranks that can be combined through register switches. These ranks typically include 16', 8', and 4' reeds, sounding respectively an octave lower, at written pitch, and an octave higher. Such configurations enable a range of timbral settings, from dry and pure tones to slightly tremulous or reinforced combinations.¹⁹⁷ Generally employ dry tuning. In many free-bass and bayan models, the bass mechanism uses longer reed plates on which several reeds are mounted. This approach differs from the small individual

¹⁹⁴ George Bachich, *How to Repair Accordions 1: Does Your Accordion Need to Be Re-Waxed?*, *Accordion Revival*, accessed 23 August 2025.

¹⁹⁵ "Removing and Reinstalling Accordion Reeds," *Concertina.net Forums*, posted 23 April 2022, accessed 23 August 2025.

¹⁹⁶ Olaf Aasland, "Bandoneons with Argentinean tuning are always octave tuned ... 8' and 4'," *Bandoneon: Information about free-reed musical instruments – Technik*, accessed 23 August 2025, <http://www.oabandoneon.com/technik>.

¹⁹⁷ Accordion Hub SA. "Registers." *Accordion Hub SA*. Accessed 23 August 2025. <https://accordionhubsa.co.za/registers/>

reed blocks used in standard Stradella systems and supports a stable and well-projected low register.¹⁹⁸

In terms of craftsmanship, traditional hand-made (a mano) reeds are still valued for their responsiveness, especially in very soft playing (pianissimo) and during quick note attacks, which allows more subtle timbral shading.¹⁹⁹ By contrast, modern reeds produced with laser-cutting and experimental materials such as titanium are praised for their consistency, more even response, and greater clarity in the higher frequency range.²⁰⁰

With this constructional backdrop, we move to the preliminary timbre comparison.

1.2 *Comparing Timbres through Centroid and Flatness*

In order to evaluate timbre in a way that is both perceptually meaningful and analytically straightforward, this section adopts two descriptors that are widely used in music signal analysis. The spectral centroid is commonly applied as a quantitative proxy for perceived brightness, while spectral flatness reflects the relative balance between harmonic content and noise-like components.²⁰¹ These measures were selected because they correspond closely to perceptual dimensions that are central to distinguishing the timbres of the bandoneon and the accordion, and because they

¹⁹⁸ Friedrich Lips, *The Art of Accordion Playing: Technique, Interpretation, and Performance of Playing the Accordion Artistically* (Bergkirchen: Musikverlag Schott, 2000), pp. 62–64.

¹⁹⁹ Voci Armoniche. "Concept of Construction." *Voci Armoniche*. Accessed July 13, 2025. <https://www.vociarmoniche.it/en/concept-of-construction/>.

²⁰⁰ Harmonikas s.r.o. "Reeds." Harmonikas s.r.o. Accessed July 13, 2025. https://www.harmonikas.cz/?id_kategorie=11&language=en&s=nabidka.

²⁰¹ Kirchhoff H. and Lerch A., 'Evaluation of Features for Audio-to-Audio Alignment', in *Journal of New Music Research* 40/1 (Taylor & Francis, 2011), pp. 27–41.

can be readily extracted and visualised in *Sonic Visualiser*²⁰², making them suitable for a clear, accessible comparison framework.

In support of this perceptual framework, two widely used spectral descriptors, centroid and flatness, are introduced as reference points to support the listening-based analysis.²⁰³ The spectral centroid is interpreted as an indicator of perceived brightness; spectral flatness reflects the balance between tonal focus and noise, contributing to impressions of grain or smoothness.²⁰⁴ These parameters are not regarded as objective measures, but as supporting cues that reflect aspects of how timbre is perceived and described in practice.

For this analysis, both parameters were extracted using the *Sonic Visualiser* software. Identical window and step sizes were used across all excerpts to ensure comparability. The interpretation of the resulting curves does not rely on absolute numerical values but on relative ranges and overall trajectories, providing a descriptive framework for comparing the timbral behaviour of the instruments.

It should be emphasised again that this is not an engineering-level acoustic study: no complex modelling or laboratory measurement was attempted. The comparison is confined to centroid and flatness values as implemented in *Sonic Visualiser*, used solely to provide a clear and accessible point of reference.

²⁰² *Sonic Visualiser* is a free, open-source software application developed at the Centre for Digital Music, Queen Mary University of London, designed for the analysis and visualisation of audio recordings. For further information, see <http://www.sonicvisualiser.org/>.

²⁰³ Caetano M., Saitis C. and Siedenburg K., 'Audio Content Descriptors of Timbre', in Siedenburg K. et al. (eds.), *Timbre: Acoustics, Perception, and Cognition*, Springer Handbook of Auditory Research, vol. 69 (Springer, 2019), pp. 297–333.

²⁰⁴ Dubnov S., 'Generalization of Spectral Flatness Measure for Non-Gaussian Linear Processes', in *IEEE Signal Processing Letters* 11/8 (IEEE, 2004), pp. 698–701.

1.2.1 Case Selection and Recording Contexts

Three case studies were selected in order to examine timbre across different recording situations, instrument types and historical contexts. Each case highlights a distinct set of conditions under which the instruments can be compared, drawing upon both controlled recordings and historically significant performances. The first two cases compare the bandoneon with the Stradella accordion, while the third introduces the free-bass accordion within the same comparative framework.

Case 1: Libertango (controlled modern recording)

In the first case, I compared the timbre of a German *Alfred Arnold* bandoneon (a 142-system instrument of the same manufacturer used by Piazzolla) with that of a *Hohner BR72R* Stradella-system accordion, using a solo melodic line. The excerpt selected was half a phrase from Piazzolla's *Libertango*. Hohner accordions were widely used in Argentina during Piazzolla's era and were played by musicians such as Feliciano Brunelli.²⁰⁵ Because detailed documentation of the exact accordion models from that period is lacking, the *Hohner BR72R* was chosen as a representative modern equivalent. To ensure fair comparison, I recorded both instruments myself in the same room under identical conditions, with microphone positions kept constant and a *Zoom H6* recorder used for all takes.²⁰⁶

²⁰⁵ Ernesto Martínez Frausto, "Programa 15 de agosto 2014. Feliciano Brunelli interpreta 'Morir soñando,'" *El Cuerpo Aguante Radio*, accessed August 3, 2025, <https://www.elcuerpoaguante.com.mx/programa-15-de-agosto-2014-feliciano-brunelli-interpreta-morir-sonando/>.

²⁰⁶ I recorded both instruments (Alfred Arnold bandoneon and Hohner BR72R Stradella accordion) under identical conditions, using a Zoom H6 recorder with matched microphone placement. Audio files are available at

(1) <https://drive.google.com/file/d/11trcuVAzq-TQFbFrqbrDb8Ylph8EYSQ2/view?usp=sharing>;
(2) <https://drive.google.com/file/d/1Jfw9B8Ng-r44ZCQOdfdFLik2vL7XWsDe/view?usp=sharing>

Case 2: Adiós Muchachos (historical comparison)

In the second comparison, a historical recording approach was taken to approximate how Piazzolla himself distinguished the two instruments and to explore why he perceived them as producing such contrasting effects. For this analysis, Piazzolla's bandoneon playing was compared with Brunelli's accordion performance. The excerpt selected was the introduction of *Adiós Muchachos*, in which both bandoneon and accordion feature prominently within the first 20 seconds. Although other instruments provide accompaniment, the timbral qualities of each instrument, such as brightness and noisiness, remain clearly audible in this passage.

This historical comparison draws on two source recordings: Piazzolla's 1958 New York studio recording of *Adiós Muchachos*²⁰⁷ and Brunelli's 1951 recording of *Adiós Muchachos* from RCA Victor's studio in Buenos Aires.²⁰⁸ The recording conditions of these two sources were not equivalent. However, because the solo melodic line is foregrounded with minimal accompaniment in both, the distinct timbral characteristics of each instrument remain perceptually clear. The purpose of this comparison is therefore strictly indicative, intended to provide a suggestive contrast rather than a definitive assessment of the instruments' sounds under identical conditions.²⁰⁹

Case 3: Oblivion (solo line, mixed sources)

²⁰⁷ Astor Piazzolla, *Adiós Muchachos* (Tico Records, catalogue no. [unknown], 1958), available at: <https://www.youtube.com/watch?v=TSolRYPIMC8> (accessed 18 July 2025).

²⁰⁸ Feliciano Brunelli, *Adiós Muchachos* (RCA Victor; reissued in *Feliciano Brunelli 1939-1951*, EU 16008, 1951), available at: https://www.youtube.com/watch?v=W1yYB9p_dVU (accessed 18 July 2025).

²⁰⁹ McAdams & B. L. Giordano, 'The Perception of Musical Timbre', in *The Oxford Handbook of Music Psychology* (Oxford University Press, 2009), pp. 72–80; M. Katz, *Capturing Sound: How Technology Has Changed Music* (University of California Press, 2010).

In the third case, a solo-line comparison was undertaken between the bandoneon, the Stradella-system accordion, and the free-bass accordion, using both historical and contemporary recordings. The material selected was the opening phrase of Piazzolla's *Oblivion*. As with the previous cases, it was not possible to ensure identical recording conditions between Piazzolla's version and my own performances. Piazzolla's recording comes from his 1982 orchestral recording in Italy.²¹⁰ For the modern recordings, I performed the same passage on a *Hohner BR72R* Stradella-system accordion and on a *Pigini Sirius* free-bass accordion.²¹¹ Both performances were recorded under controlled conditions using a *Zoom H6* recorder. Despite the inevitable differences in recording context, this case allows for a comparative examination of the solo-line timbral characteristics of the bandoneon (archival recording), the Stradella accordion (modern recording), and the free-bass accordion (modern recording). It therefore bridges a historical example with present-day replications.

1.2.2 Comparative Results Analysis

This section presents the comparative outcomes of the spectral analysis. The discussion focuses on two descriptors: spectral centroid, which serves as an indicator of relative brightness, and spectral flatness, which reflects the balance between harmonic and noise-like components. The comparison examines the bandoneon, the Stradella-system accordion, and the free-bass accordion across selected excerpts. The intention is not to report absolute timbral values, since these vary with

²¹⁰ Astor Piazzolla, *Oblivion* (Italy, orchestral recording for Enrico IV, 1982), available at: https://www.youtube.com/watch?v=dF-IMQzd_Jo (accessed 18 July 2025).

²¹¹ I recorded both instruments (Hohner BR72R Stradella accordion and Pigini Sirius free-bass accordion) under identical conditions, using a Zoom H6 recorder with matched microphone placement. Audio files are available at:
(1) https://drive.google.com/file/d/126Hsl0nwBZsMNzaRy21vOovv-yy_ehBi/view?usp=share_link;
(2) https://drive.google.com/file/d/1hFnbOB15_EJTQ2sq7Sb4zl99N3jrWqya/view?usp=share_link.

recording conditions and repertoire, but to emphasise relative trajectories, ranges, and recurrent tendencies. These observed tendencies form the basis for interpreting the figures in the following sections and for situating the timbral behaviour of the instruments within a consistent comparative framework.

In all figures, the horizontal axis represents time in seconds, aligned with the duration of the excerpt, while the vertical axis shows the chosen descriptor (centroid on a log-frequency scale, flatness on a 0–1 scale).

Results of Case 1

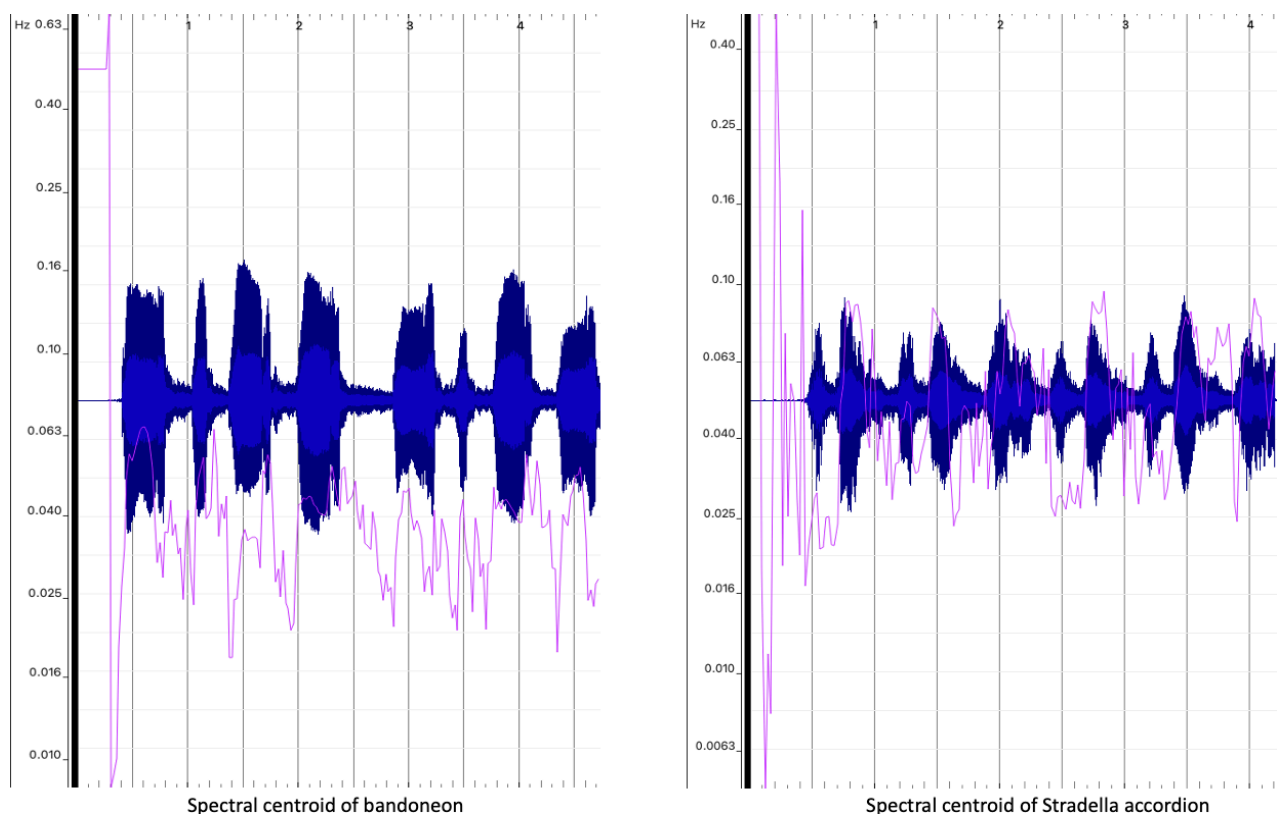


Figure 75: Spectral centroid comparison of *Libertango*: bandoneon vs. Stradella accordion

In *Libertango*, as shown in Figure 75, the spectral centroid trajectories (purple line, log-frequency scale) highlight clear differences between the bandoneon and the

Stradella accordion in the opening phrase of *Libertango*. For the bandoneon, the centroid begins with a sharp transient peak at the onset and then gradually falls to a lower, more stable level. This pattern reflects a bright initial attack that quickly diminishes into a darker and softer sustained tone. The trajectory remains relatively smooth, with gentle oscillations aligned with the phrasing. For the Stradella accordion, the centroid remains lower overall and shows more irregular fluctuations throughout the phrase. The curve rises and falls more frequently, with fragmented peaks and troughs that point to greater instability in brightness. Compared with the bandoneon, the Stradella accordion sustains a darker spectral profile and a less even trajectory, consistent with its multi-reed construction.

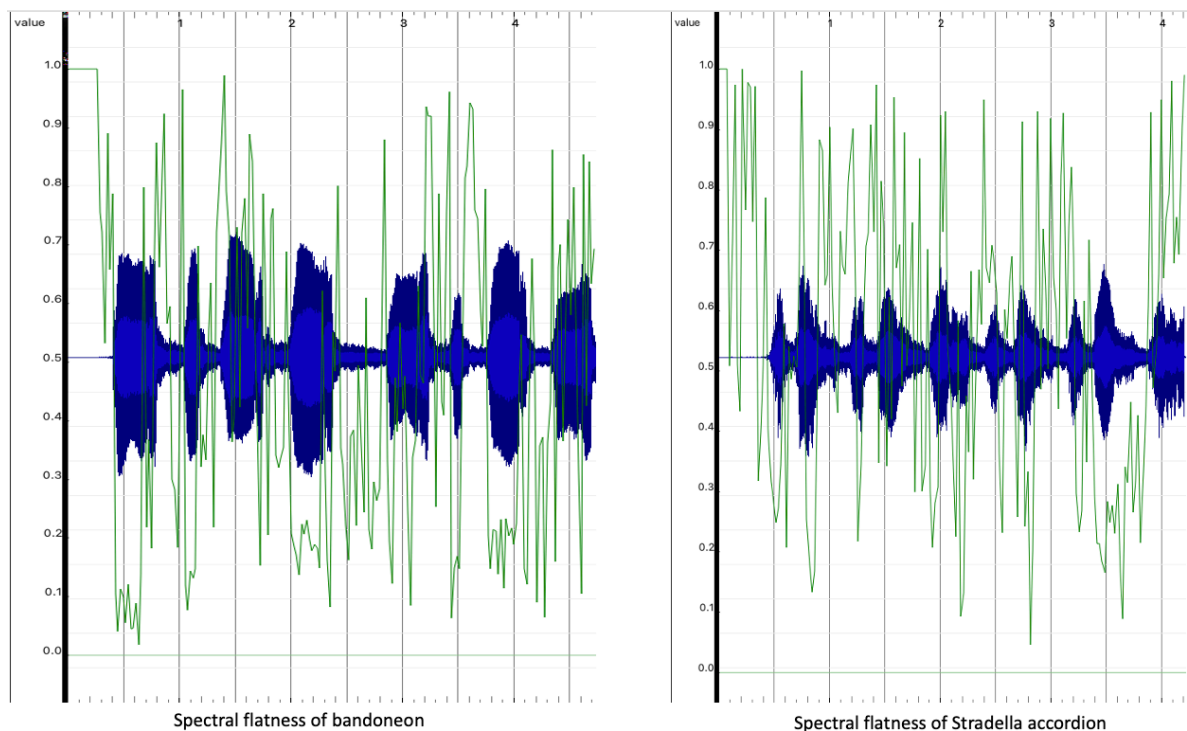


Figure 76: Spectral flatness comparison of *Libertango*: bandoneon vs. Stradella accordion

Figure 76 presents the spectral flatness trajectories (green line, 0–1 scale) for the bandoneon and the Stradella accordion in *Libertango*. For the bandoneon, the flatness curve remains mostly in the lower-to-mid part of the scale, with occasional short spikes at note onsets. This indicates that the sound is dominated by harmonic

energy, punctuated by brief noise-like components when the reeds are first activated. For the Stradella accordion, the flatness values are generally higher across the phrase, even in sustained segments, and the curve shows less harmonic stability. This suggests a greater proportion of non-harmonic energy in the signal. The result corresponds with the instrument's multi-reed design, which enhances brightness but also reduces spectral purity compared with the bandoneon.

Results of Case 2

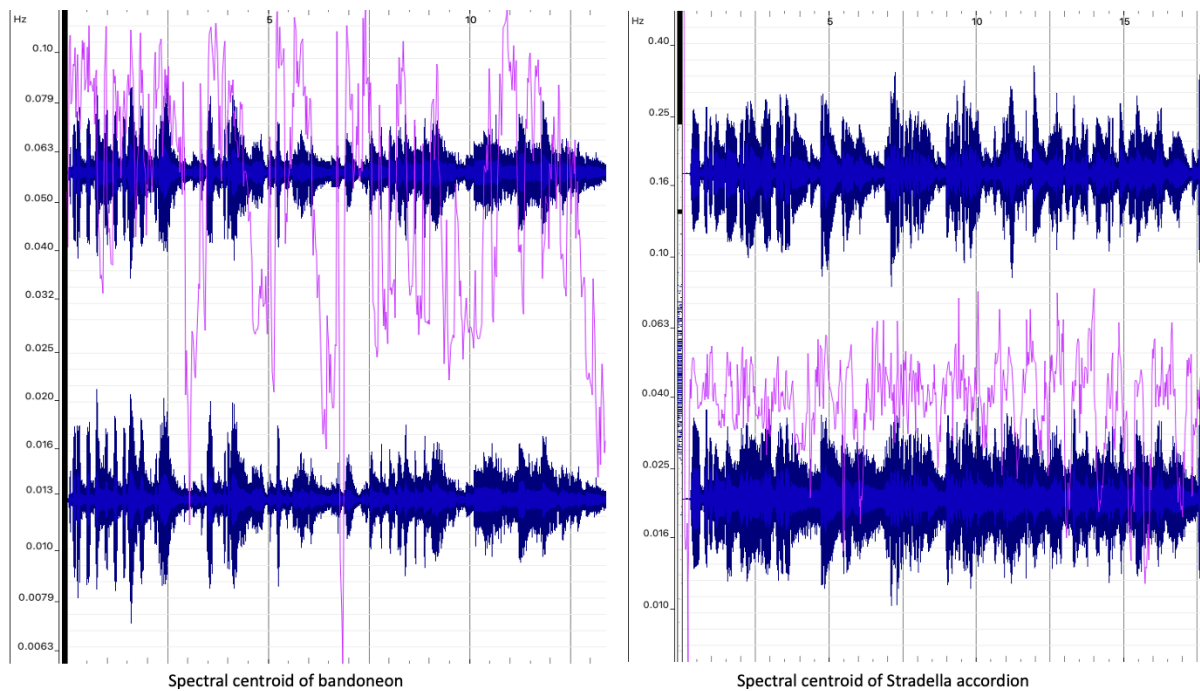


Figure 77: Spectral centroid comparison of *Adiós Muchachos*: bandoneon vs. Stradella accordion

Figure 77 illustrates the spectral centroid trajectories (purple line, log-frequency scale) for the bandoneon and the Stradella accordion in *Adiós Muchachos*. For the bandoneon, the centroid remains at a relatively higher position within the mid-to-low range and shows smooth oscillations that align with the phrasing. Occasional rises at key points contribute to a timbre that is consistently brighter and moderately stable. For the Stradella accordion, the centroid lies lower overall and is marked by more frequent small fluctuations and irregular peaks. This behaviour points to a darker spectral profile with reduced stability compared to the bandoneon.

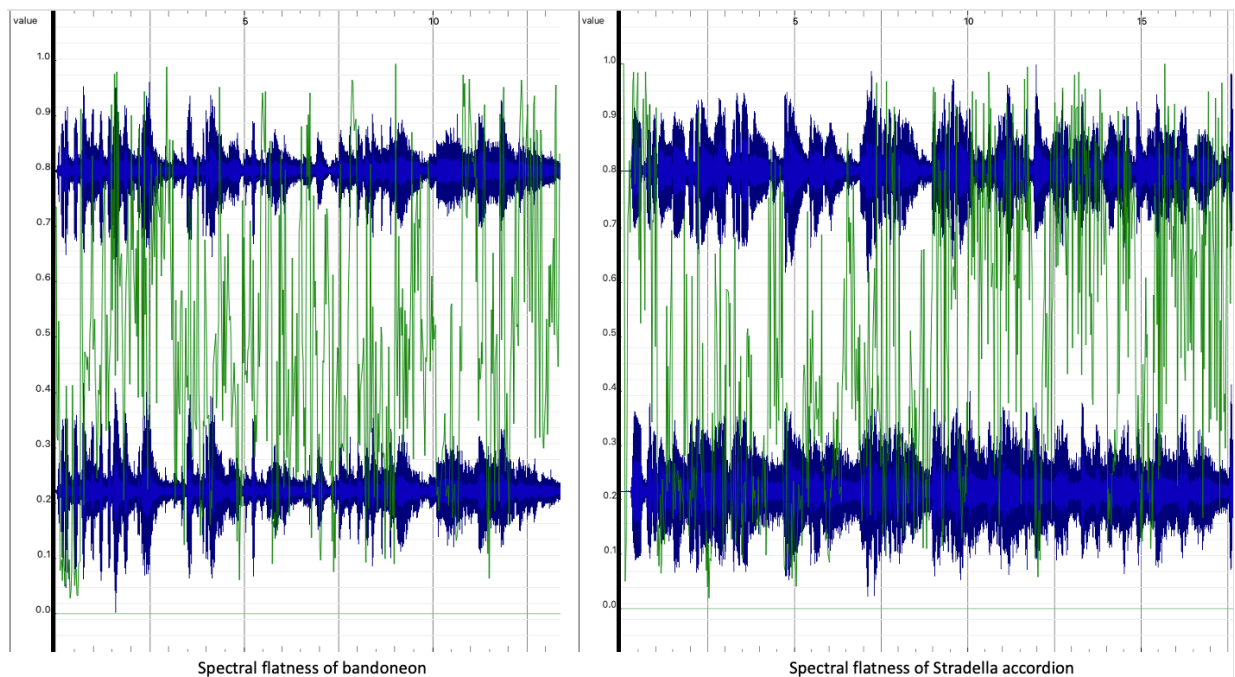


Figure 78: Spectral flatness comparison of *Adiós Muchachos*: bandoneon vs. Stradella accordion

Figure 78 presents the spectral flatness trajectories (green line, 0–1 scale) for the bandoneon and the Stradella accordion in *Adiós Muchachos*. For the bandoneon, the flatness curve stays mostly in the lower-to-mid region of the scale, with occasional short rises at note onsets. This indicates that the sound remains predominantly harmonic, interrupted only by brief bursts of noise-like energy when new tones are attacked. For the Stradella accordion, the flatness levels are noticeably higher overall, even in sustained passages, and the trajectory shows less stability. This suggests that the signal contains a greater proportion of non-harmonic components. Such a pattern is consistent with the instrument’s multi-reed construction, which enhances brightness but reduces spectral purity compared with the bandoneon.

Results of Case 3

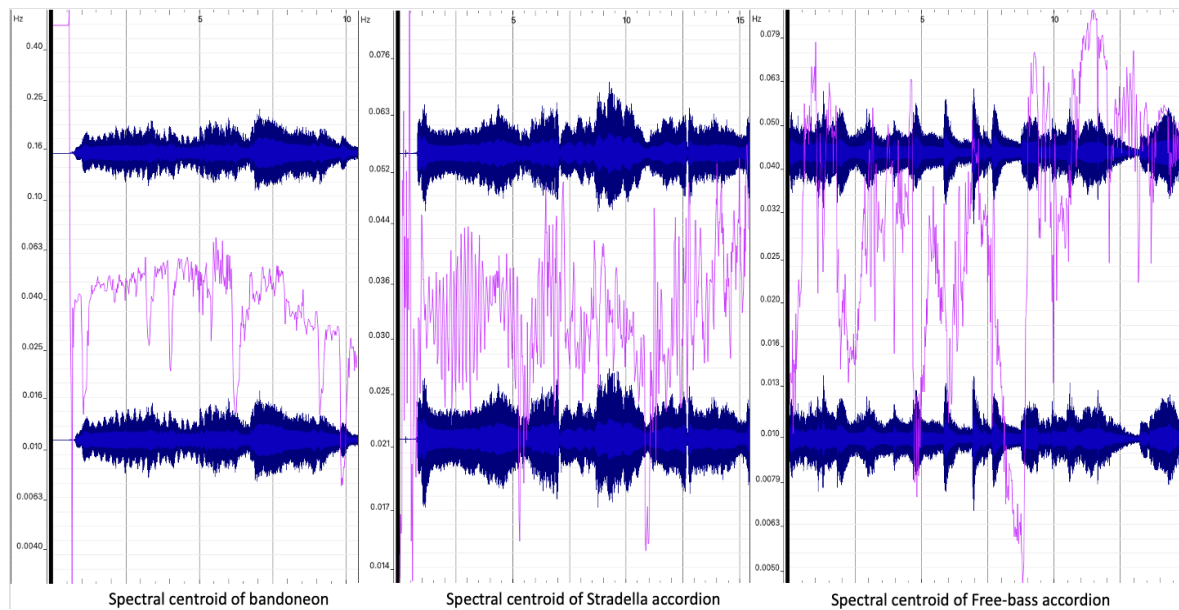


Figure 79: Spectral centroid comparison of *Oblivion*: bandoneon vs. Stradella accordion vs. Free-bass accordion

Figure 79 compares the spectral centroid trajectories (purple line, log-frequency scale) for the bandoneon, the Stradella accordion, and the free-bass accordion in the opening phrase of *Oblivion*. For the bandoneon, the centroid remains at a relatively higher position within the mid-to-low range and shows smooth oscillations that align with the phrasing. This pattern reflects a stable spectral balance with consistent brightness across the passage. For the Stradella accordion, the centroid is positioned lower overall and displays more fragmented fluctuations. The frequent rises and drops indicate a darker timbre combined with reduced stability in spectral brightness. For the free-bass accordion, the centroid covers a broader range than the other two instruments. It begins with relatively darker values and then rises noticeably towards the end of the phrase, suggesting a greater capacity for dynamic shifts in timbre.

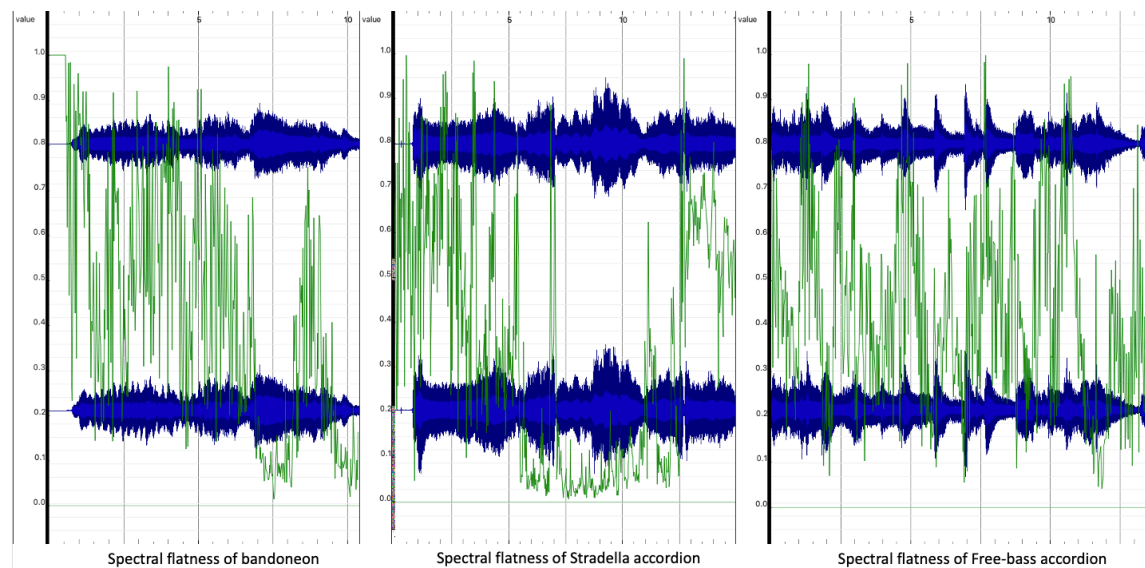


Figure 80: Spectral flatness comparison of *Oblivion*: bandoneon vs. Stradella accordion vs. Free-bass accordion

Figure 80 shows the spectral flatness trajectories (green line, 0–1 scale) for the bandoneon, the Stradella accordion, and the free-bass accordion in *Oblivion*. For the bandoneon, the flatness values remain mostly in the middle region of the scale, with occasional short bursts at note onsets. This pattern indicates a timbre that is largely harmonic in nature but consistently coloured by a trace of noise-like energy. For the Stradella accordion, the trajectory is less stable and more segmented. It begins with relatively high values, then dips noticeably in the middle of the phrase before rising again. This fluctuation points to unstable timbral behaviour and a greater presence of non-harmonic components. For the free-bass accordion, the flatness curve stays in a narrower and more consistent band across the phrase. This relative stability suggests a balanced profile between harmonic and noise-like energy, without the pronounced contrasts observed in the Stradella accordion.

Figures 75–80 use spectral centroid (brightness) and spectral flatness (harmonic versus noise balance) to compare the timbral behaviour of the bandoneon, the Stradella accordion, and the free-bass accordion across *Libertango*, *Adiós Muchachos*, and *Oblivion*.

The bandoneon shows relatively higher and smoother centroid curves, with flatness levels that remain low to moderate apart from brief spikes at note onsets. This points to a timbre that is harmonic in content and stable over time. The Stradella accordion produces lower and more fragmented centroid trajectories, together with consistently higher and sometimes unstable flatness levels. These features indicate greater non-harmonic content and reduced stability, which align with its multi-reed construction. The free-bass accordion occupies a middle ground. Its centroid extends across a broader range than the other two instruments, while its flatness values stay relatively steady. This suggests a flexible timbre that can shift dynamically yet remains balanced between harmonic and noise-like components.

Taken together, a clear pattern emerges. The bandoneon is harmonic and stable, the Stradella accordion is noisier and less stable, and the free-bass accordion provides a versatile intermediate profile. Both descriptors also highlight the difference between attack and sustain, with centroid peaks and flatness bursts marking the onsets of notes.

These results demonstrate the value of spectral centroid and flatness as simple tools for identifying instruments, comparing performances, and assessing recording or orchestration choices. At the same time, the findings are shaped by recording conditions, performance dynamics, instrument setup, and historical context. They should therefore be regarded as case-based observations rather than universal rules, with broader conclusions requiring larger and more controlled datasets.

Conclusion

Appendix 1 re-examined Piazzolla's 1988 remarks on timbre by combining constructional considerations with a preliminary acoustic comparison. Across the three case studies, broadly consistent tendencies emerged: the bandoneon exhibited relatively focused and stable trajectories with a more harmonic balance, the Stradella accordion showed darker and less stable patterns with greater non-harmonic content, and the free-bass accordion displayed a timbral profile that occupied an intermediate position bridging aspects of the other two instruments. These observations provide a supplementary point of reference for understanding the contrasting behaviours of the instruments, while also underscoring that the findings are indicative rather than conclusive.