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THE FUTURE ROLE OF THE FRENCH HARMONIUM

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ABSTRACT

In this work, the nature of the nineteenth-century French harmonium is explored in order to identify its possible future role. It was shown that the instrument is suitable for the performance of contemporary repertoire, including newly discovered extended playing techniques, and that it has pedagogical strengths. In particular, the results indicate that a modern audience is affected by the expression of the instrument, even with a new harmonium aesthetic. Furthermore, it was discussed that the unique qualities of the instrument may be valuable for developing expressive performance among keyboard instrumentalists, and for bringing special attention to dynamic variation within composing. Today the instrument is almost exclusively known within certain spheres of enthusiasts, which is rather intriguing since its popularity once crossed many cultural and societal boundaries. The fact that the harmonium developed in different directions, and used in various contexts may explain its present anonymity. In this regard, the aim of this work was to explore its qualities from three different perspectives, namely: (1) the performer, (2) the audience, and (3) the composer. Specifically, the method consisted of (1) a comparison study, in which the same piece was performed on the harmonium and a French romantic organ, and (2) composing and evaluating new harmonium music. This work includes a composer collaboration and subsequently a composer interview. Furthermore, to include the perspective of a modern audience, two listening surveys were conducted in which the participants were asked to rate each piece on a scale and to answer a questionnaire.

Acknowledgments

To write an aesthetic thesis may be to explore one's artistic creativity in a different dimension. Possibly, the experience may lead to uncovering artistic individuality and to inspire others in pursuing such a creative task. The process may, of course, be intense and highly personal, and therefore external support and input is immensely valuable. In this regard, I would first of all like to express my gratitude to my loving husband Ola for his never-ending affection and patience, and for inspiring me to reach further. This work would not have been realized without his support and belief in me and my dreams. I would also like to thank Prof. Bengt Lundin for a successful and pleasant collaboration which has resulted in a unique new repertoire for the harmonium. Looking forward to our future adventures! I would also like to thank my mentor Dr. Joel Speerstra, most of all for the fact that he successfully introduced me to the harmonium, and that he puts up with me even while instructing me in harmonium restoration at his studio. Also, thank you for the most valuable guidance in the making of this text! My special gratitude also goes to an important harmonium artist and researcher, namely Prof. Joris Verdin, for great inspiration and wonderful harmonium performances. Furthermore, I would like to thank Prof. Hans and Dr. Ulrika Davidsson, for enthusiastically inviting me to perform and present my new material at *The Royal Danish Academy of Music*, Copenhagen. These occasions have given me the opportunity to convey my artistic work, and also the pleasure of meeting other harmonium enthusiasts. Additionally, I would like to express my appreciation for the valuable support from Prof. Karin Nelson and Prof. Johannes Landgren. Also, a harmonium performer without dedicated assistants is a lonely performer, so my thanks to all, especially Gustaf, Susanna and Julia, who have helped me changing stops and turning pages throughout the years. I am also thankful for the many harmonium transports made by Kjell Thorbjörnson and colleagues. Finally, I would like to dedicate a special thanks to my family and friends. Especially to my parents who, from the beginning, supported me in my choice of occupation. I hope this work will inspire further recognition of the harmonium and development of new repertoire, so that its inherent expressivity may evolve and live on.

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1 Introduction

The French harmonium is a free reed keyboard instrument that was considerably popular during the nineteenth century until its decline in the beginning of the twentieth century.¹ During its prime time the instrument was used in various contexts. In particular it was popular as an instrument for domestic use, perhaps due to the fact that it was one of the first to be mass-produced.

Today the French harmonium is almost exclusively known and practiced within certain spheres, mainly within academia. Even though it possesses unique qualities for a keyboard instrument it generally remains rather unknown, possibly because its revival has recently begun. However, since private music practice is no longer as widespread or as habitual in today's culture as it was during the time of the harmonium, one may perhaps within such a revival consider a *new* kind of purpose and identity for the instrument.

In this work, the *nature* of the French harmonium is therefore explored in order to identify its possible future role. The aim is to motivate a well-defined purpose of the instrument, thus strengthening its new identity and possibly even its future existence. Since the harmonium shows qualities unique for keyboard instruments, the hypothesis here is that the instrument may support and encourage musicians to explore and develop individual expressivity in music performance.

One may argue that musical expression is closely connected to dynamics, and many instruments are designed to allow musicians to manage dynamical variations. However, although keyboard instruments do, of course, inspire great expressivity in performance, a possible limitation may occur when it comes to achieving flexible dynamic changes of *sustained tones*. Only at keyboard instruments such as the organ and the harmonium can a crescendo be made after that a tone was struck.

This dilemma of dynamic expressivity was addressed during the nineteenth century when dynamic expression was deeply rooted within music culture. The many efforts of different instrument builders of the time eventually resulted in a dynamically flexible keyboard instrument known as the *harmonium*. The harmonium may therefore be considered an incarnation of the combined goal of various instrument builders to create a dynamically refined *keyboard instrument*. Specifically, the mechanical innovation of the harmonium involves free reeds and air pressure which enables a way of performing with great dynamic expression, even with sustained tones. To have access to such dynamic freedom on a keyboard instrument has long been desired by instrument builders, as

1. In this work, the *French* harmonium refers to any harmonium with an expression register built in a French speaking area between 1842 and approximately 1920.

well as musicians. Although the possibility of utilizing dynamic flexibility in a natural way indubitably requires emotional commitment, as well as expressive abilities from the performer. Arguably, one should as a musician therefore at times evaluate ones expressivity when performing on keyboard instruments. In this matter, early music critics would not fear to debate opinions of expressive music performance, such as:²

How many bravura players might one name, to whom the artistic meaning of a simple movement remains a sealed book, and who therefore perform the greatest and the least compositions, with assumption and vanity indeed, but without inward participation – without awakening joy in themselves or in their audience, but merely a fruitless astonishment at their technical cleverness! And how deep has this perversion of art into dead mechanism penetrated into artistic life!

Since a substantial part of society during the nineteenth century was actively engaged in cultural life, where emotions and dynamic expression were of central importance, one may understand why the arrival of the harmonium, with its expressive innovation, brought with it such a surge of popularity as it did. The adaptability of the instrument made it popular in various spheres and made widely different applications possible. Even though it was a popular home instrument, it was also often used for liturgical purposes, as well as by some of the most acclaimed musicians and composers of the time. Remarkably, regardless of its popularity the instrument never, in its time, gained academic recognition. In the book *Saint-Saëns and the organ* an early attempt to introduce the harmonium to academia is described:³

Nothing ever came out of the proposal made in 1846 by the harmonium manufacturer, Jacob Alexandre, to the director of Paris Conservatoire, Daniel-Francoise Auber, of creating a harmonium class with himself (Alexandre) and Lefebure-Wely in charge of it. But shortly after Widor's appointment in 1890 as professor of organ at the Conservatoire, the director Ambroise Thomas, announced his intention of creating a harmonium class which could be considered a stepping stone towards the study of organ. Widor replied: "My dear director, that's an excellent idea. Only for it to be complete it would be necessary to go further by planning a logical

2. Marx, "Musical Education and Instruction," trans. George Macirone, *The Musical Times and Singing Class Circular* 10, no. 222 (1861): 83.

3. Rollin Smith, *Saint-Saëns and the organ*, vol. 7 (Pendragon Press, 1992), 20.

gradation in the teaching of our blowing machines; accordeon, harmonium and organ!”

Arguably, since so many aspirations and efforts have been invested in the harmonium, with commendable results, its special features at least deserve to be evaluated in light of contemporary artistic aesthetics. Such an approach could be valuable for several reasons, not least for complementing contemporary music culture. Moreover, the characteristics of the instrument may show an effect on music perception and performance of musical phrases. It is important to note that the unique qualities of the harmonium may be advantageous for teaching dynamic and expressive performance.

In Sect. 2, the harmonium and its trans-formative history of development and various applications will be further illustrated. Following, in Sect. 3 the method of this work will be described including the instruments that were used within the work. The results will then be presented in Sect. 4 and discussed in Sect. 5. Finally, some conclusions will be given in Sect. 6, along with ideas about future work.

2 Background

In this section the French harmonium is portrayed in the light of the industrial and societal development during the nineteenth century. The present utilization of the instrument is also briefly described. There are, of course, many other similar instruments in different parts of the world. However, this work only considers the original nineteenth-century French harmonium. The literature used for this work was mainly digitally accessible publications available in English.

2.1 Culture and industrialism

One of the most spectacular eras throughout the history of western civilization must surely be the nineteenth century. During this time society experienced substantial social and economic changes generated by swift technological advancements in the wake of industrialism. Cities expanding in population generated a higher, and more literate middle class with a growing interest in art and culture. According to some sources⁴ communities within rural districts also endorsed cultural life. To meet the rising demands of the public, concert halls and opera houses were established, and annually monumental exhibitions were arranged. Undoubtedly, the nineteenth century was a prosperous time for artists within various domains. Accordingly, this period in western culture may account for many esteemed masters. The modern printing press, vital for the new economy,⁵ and the advanced literacy of the public gave rise to historically important authors such as Fjodor Dostojevskij, Émile Zola, and Victor Hugo, to mention a few. From the developments within the art of painting, new genres appeared such as realism, naturalism and later impressionism, represented by famous painters like Eugène Delacroix, Pierre-Auguste Renoir, and Claude Monet. Correspondingly in music culture one may find a generous quantity of outstanding and highly respected composers with influence on the growing aristocracy. Quintessential for these groups of artists was their shared striving for artistic refinement and greater expressivity. And as one may observe retrospectively, the development within art eventually lead to the formation of *expressionism*.

Alongside the professional musicianship of the nineteenth-century dignitaries, a culture of amateur music making also emerged, possibly due to the

4. E.g. Ann Bermingham and John Brewer, *The consumption of culture, 1600–1800: image, object, text*, vol. 3 (Psychology Press, 1997); John Brewer, *The pleasures of the imagination: English culture in the eighteenth century* (Routledge, 2013).

5. Samuel P Hays, *The response to industrialism, 1885–1914* (University of Chicago Press, 1995).

commencement of the mass-production of instruments, and the development of cheaper techniques for printing scores.⁶ Accordingly, a business in score subscriptions developed, where devoted subscribers were acknowledged in each edition.⁷ In this regard, one must consider that the nineteenth-century music culture thus accommodates influences from both amateur and professional musicians. Amateur composers strove to be professionals, and the professionals considered the popular tastes within amateur music.⁸ A culture of social gatherings emerged, where for example so called *soirées*, evening parties, were fashionable. This sort of gathering would be arranged in a large room called a *salon*, and would include lyric poetry readings as well as musical performances, typically on popular home instruments, such as the *pianoforte*.⁹ Often at these occasions, short piano pieces, so called *character pieces* (fr. *pièces caractéristique*) would be performed.¹⁰ Similarly as the popular lyric poetry, the purpose of the character pieces was to invoke specific feelings or visualizations of the audience. An example of a popular theme for the pieces performed during *soirées* was for example the *nocturne*, night piece. Also, as lyric and expression seemed to thrive in the world of popular culture, it was not unusual that the opera houses were frequently visited. To quote Taruskin:

[.] a mark of opera's special power: its ability to let us in through music on the unexpressed thoughts and emotions of its characters, a terrain inaccessible to spoken drama.

The increasingly strong ideals of dynamically expressive performances generated new demands on the popular keyboard instruments of the time. Critics were debating the matter, and some did not hesitate to deliver their judgment, as seen in the Musical Times Singing Class Circular from 1861.¹¹

The pianoforte is greatly inferior to bowed and wind instruments in inward feeling and power of tone or quality of sound, in the power of sustaining a tone in equality of force, in crescendo or in diminuendo [.]

The fact that these instruments could not achieve dynamic expressivity in a similar way as the human voice, or the violin, called for a new approach from

6. Richard Taruskin, *Music in the Nineteenth Century: The Oxford History of Western Music* (Oxford University Press, 2009).

7. Anita Breckbill, *Music publishing by subscription in 1820s France: A preliminary study* (Music Library Association, 2013).

8. Carl Dahlhaus, *Nineteenth-century music*, vol. 5 (Univ of California Press, 1989).

9. John Michael Cooper, "Jean-Georges Kastner's *Traité Général D'instrumentation*: a Translation and Commentary" (PhD diss., University of North Texas, 2003).

10. Taruskin, *Music in the Nineteenth Century: The Oxford History of Western Music*.

11. Marx, "Musical Education and Instruction," 83.

the keyboard instrument builders. A solution was eventually the invention of the harmonium, as illustrated in Fig. 1.

2.2 The development of the harmonium

It is important to consider that the harmonium is a consequence of various inventors working towards a common goal, to create a new kind of expressive keyboard instrument. An important starting point, which exceedingly influenced the direction of the development of the harmonium, was the invention of the free reed organ in 1780. It was built by the Czech organ builder Franz Kirsnik (1741–1802), alongside Christian Gottlieb Kratzenstein (1723–1795), a German physicist and mathematician.¹² Although there are documentations of much earlier instruments of this sort,¹³ Kratzenstein was supposedly the one who introduced the free reeds to the West.¹⁴ Kratzenstein used the free reed as the *voice source* in his invention of the *speaking machine*. The machine could produce five vowels,¹⁵ and contributed scientifically to the understanding of the physical principles of speech and its connections to musical instruments.

A free reed is a flexible metal tongue, usually made from brass.¹⁶ The reed is mounted on a reed plate, or frame. Through the plate there is a hole, allowing the reed to vibrate back and forth when in contact with airflow. Plainly “much like a swinging door”,¹⁷ or “following the principle of the pendulum, the frequency is independent of the amplitude”.¹⁸ As a result, the pitch is not affected by the frequency of the vibration, making it possible to vary the intensity of a sustained tone.¹⁹ Furthermore, the pitch and timbre of the

12. Douglas Earl Bush and Richard Kassel, *The organ: an encyclopedia*, vol. 3 (Psychology Press, 2006); Gorka Hermosa, *The accordion in the 19th century* (Editorial Kattigara, 2013).

13. Robert F Gellerman, *The American Reed Organ and the Harmonium* (Vestal Press, 1997); Dennis G Waring, *Manufacturing the Muse: Estey Organs and Consumer Culture in Victorian America* (Wesleyan University Press, 2002).

14. Jonas Braasch, “On the acoustical quality of free-reed organ pipes,” in *ISCA Tutorial and Research Workshop on Auditory Quality of Systems* (2003); Pat Missin, *Western free reed instruments*, <http://patmissin.com/history/western.html>, [Online; accessed 27-April-2014], 2010.

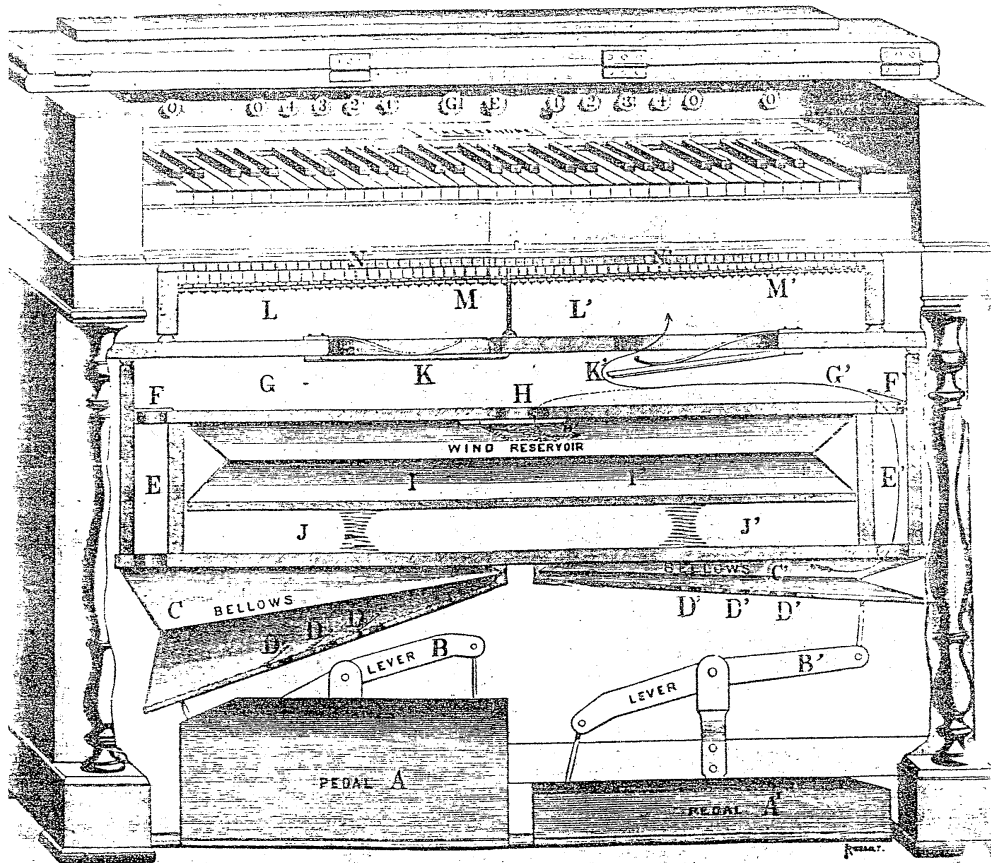
15. John J Ohala, “Christian Gottlieb Kratzenstein: pioneer in speech synthesis,” in *International Congress of Phonetic Sciences* (2011), 156–159.

16. Herbert Frank Milne, *The reed organ: its design and construction: a practical guide for craftsmen with instructions for making, including chapters on tuning and voicing, etc. With forty-two figures and diagrams by the author* (Organ Literature Foundation, 1930).

17. James Cottingham, “Acoustics of free-reed instruments,” *Physics Today* 64, no. 3 (2011): 44.

18. Joris Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression,” *GOArt Research Reports* 2, no. 2 (2000): 144.

19. Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression”; N.



- A Left Pedal (awaiting pressure).
- B Lever or Pedal action.
- C Feeder or Bellows (full of air).
- D Pallets of Feeder (open).
- E Vertical Wind Trunk.
- F Air Trunk Pallet (shut).
- G Wind Chest
- H Reservoir Pallet (shut).
- I Reservoir.
- J Spring Pressing Reservoir.
- K Stop Pallets (shut).
- L Air Chamber to Stop (shut).
- M Vibrators or Notes (bass).

- A' Right Pedal (pressed down).
- B' Lever or Pedal action.
- C' Feeder or Bellows (emptied).
- D' Pallets of Feeder (shut).
- E' Vertical Wind Trunk.
- F' Air Trunk Pallet (open).
- G' Wind Chest.
- H' Reservoir Pallet (open).
- I' Reservoir.
- J' Spring Pressing Reservoir.
- K' Stop Pallets (open).
- L' Air Chamber to Stop (open).
- M' Vibrators or Notes (treble).

Figure 1: A cross-section of a harmonium produced by *Alexandre Père et Fils*, Paris.

reed are determined by, for example, the size of the reed and the connected resonator.²⁰ The thickness and weight of the tongue regulate the pitch in a similar way.²¹ Specifically, the positions of the reeds are also essential regarding timbre and tone quality.²²

Even though the free reed organ was built in the late eighteenth century, the concept of the free reed was discovered much earlier.²³ There are, however, different theories regarding the development of the *western* free reed;²⁴ one common belief is that the inspiration came from a technique used in the early Asian mouth organs, such as the Chinese *Sheng*.²⁵ However, considering the sprawling literature of this subject, it seems that further research would be valuable.

The advantages of using the free reeds as the sound source in the mechanics of the harmonium are many. Nonetheless the small size of the reeds, that enable designs of a comparatively compact and portable instrument. Another advantage of utilizing the reed is that once it is tuned, one never has to tune it again. Though, most important is of course the fact that the properties of the free reed makes it possible to control and alter the pitch and timbre of a tone.²⁶ Supposedly, what Kratzenstein might not have known, was that he really was breaking ground for the instrument builders of the nineteenth century in their pursuit of creating modern keyboard instruments.

Many builders were inspired by the organ, especially in France,²⁷ and there were many attempts to make the organ more expressive.²⁸ Here, the invention of the *Orgue-expressif* by Gabriel Joseph Grenié (1756–1837) in 1810 was

Fehr, *Harmonium Or Organ?: The Instrumental Question in Louis Vierne's 24 Pièces en Style Libre*, D. Mus. paper (Lambert Academic Publishing, 2010), ISBN: 9783843361071.

20. Verdin, "The Aesthetic Principles of the Harmonium: the Essence of Expression"; Cottingham, "Acoustics of free-reed instruments."

21. Milne, *The reed organ: its design and construction: a practical guide for craftsmen with instructions for making, including chapters on tuning and voicing, etc. With forty-two figures and diagrams by the author*.

22. Fehr, *Harmonium Or Organ?: The Instrumental Question in Louis Vierne's 24 Pièces en Style Libre*.

23. Verdin, "The Aesthetic Principles of the Harmonium: the Essence of Expression."

24. Bush and Kassel, *The organ: an encyclopedia*; Missin, *Western free reed instruments*.

25. Braasch, "On the acoustical quality of free-reed organ pipes"; Missin, *Western free reed instruments*.

26. Arthur O St Hilaire, Theodore A Wilson, and Gordon S Beavers, "Aerodynamic excitation of the harmonium reed," *Journal of Fluid Mechanics* 49, no. 4 (1971): 803–816; Bush and Kassel, *The organ: an encyclopedia*; Cottingham, "Acoustics of free-reed instruments."

27. Gellerman, *The American Reed Organ and the Harmonium*; Verdin, "The Aesthetic Principles of the Harmonium: the Essence of Expression."

28. Roland Galtier, "La facture d'orgues en France dans la première moitié du XIXe siècle," *Musiker* 19 (2012): 281–310.

an important development.²⁹ Descriptions of this instrument present it rather like a pipe organ, although the pipes were replaced by large wooden resonators with free reeds. The instrument also allowed the player to control the airflow by pedaling, thereby providing the opportunity to vary the dynamic of a sustained tone. However, Grenié's invention was not a success, probably because the dynamic range of the instrument was rather limited.³⁰ Other organ builders followed, for example the famous Aristide Cavallé-Coll (1811–1899), who in the 1830s invented the *Poikilorgue*.³¹ The rather brindled path of instrument development eventually lead to the year 1842 when the French piano builder Alexandre Françoise Debain (1809–1877) applied for a patent on a reed organ with a compressed air mechanism, and an expression stop.³² He named his invention the *harmonium*. Supposedly, the instrument of Debain was an improvement of the Grenié invention, the *Orgue-expressif*.³³

The original Debain harmonium can be described with the following features. The sound is produced with the use of free reeds with no resonator, unlike the *Orgue-expressif*.³⁴ The reeds are instead located inside the chamber, which is filled with compressed air. To supply the instrument with air, the player has to press down two pedals in an continuous overlapping movement. Doing so, the player has absolute control over the amplitude of the sound. There are four rows of reeds, each divided into bass and treble. The split between the bass and treble is located just above middle C, between E and F; different registrations can therefore be used simultaneously for treble and bass.³⁵ The typical pitches of the reeds include two eight-foots, a four-foot and a sixteen-foot, and the compass of the keyboard covers five octaves. Special for the Debain harmonium is the unique *expression stop*, a stop which provides the musician with great dynamic freedom, as well as it increases the challenge of the performers pedaling technique. Specifically, the expression stop, when drawn, leads the wind directly to the reeds by passing the reservoir bellows which would otherwise even out the pressure, creating a steady flow.

29. Gellerman, *The American Reed Organ and the Harmonium*; Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression.”

30. Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression.”

31. James B Hartman, *The Organ in Manitoba: A History of the Instruments, the Builders, and the Players* (Univ. of Manitoba Press, 1997); Cooper, “Jean-Georges Kastner’s *Traité Général D’instrumentation*: a Translation and Commentary.”

32. Bush and Kassel, *The organ: an encyclopedia*.

33. Gellerman, *The American Reed Organ and the Harmonium*.

34. Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression.”

35. Fehr, *Harmonium Or Organ?: The Instrumental Question in Louis Vierne’s 24 Pièces en Style Libre*.

2.2.1 An emerging industry

The Debain harmonium became a prototype for many instrument builders, and their visions of what could function as a modern, dynamically flexible keyboard instrument. In the following years, there were many successors with their own versions based on the principles of the Debain harmonium, each with subtle differences.³⁶ However, the patent of Debain forced the manufacturers to use other names, such as the *Orgue-Mélodium* by Jakob Alexandre (1804–1876), which won a bronze medal at the Paris exhibition in 1844.³⁷ Alexandre was the founder of *Alexandre Père et Fils* (1829–1895), one of the leading harmonium manufacturers in France at this time. A specific mechanical feature of the Alexandre instrument is the *percussion system*, invented by Louis Pierre Alexandre Martin.³⁸ Usually the percussion system was applied to the first set of stops. Specifically, the percussion system causes an action to strike the reeds of the instrument, forcing the otherwise rather slow reeds, particularly when playing in pianissimo, to respond more directly.³⁹

Together with piano and organ building, the harmonium production is considered an important part of industrialism, partly because of its extent.⁴⁰ In fact, the harmonium is one of the first instruments to be industrially manufactured.⁴¹ In addition to the harmonium manufacturer *Alexandre Père et Fils*, innumerable harmonium firms started appearing all over Europe. In France the leading firms were Debain, Alexandre and Mustel.⁴² Moreover, an important aspect is that the firms made detailed production descriptions, valuable not only for advanced research, but naturally also for musicians, and instrument owners today. Furthermore, printed production catalogs, as exemplified in Fig. 2, would provide potential buyers with a display of different types of harmoniums being produced by a specific firm. The catalogs would show drawings of the instruments as well as lists with specifications, and the price tags would vary from cheap to reasonably expensive, depending on desired features.

36. Hartman, *The Organ in Manitoba: A History of the Instruments, the Builders, and the Players*; Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression.”

37. Robert F Gellerman, *Gellerman’s international reed organ atlas* (Rowman & Littlefield, 1998).

38. Alain Vernet, “En parcourant la méthode pour l’Orgue-Alexandre de Lebeau et Durand,” *L’harmonium français* 2 (2007): 26–38.

39. Bush and Kassel, *The organ: an encyclopedia*.

40. Ignace De Keyser, “The Paradigm of Industrial Thinking in Brass Instrument Making during the Nineteenth Century,” *Historic Brass Society Journal* 15 (2003): 233–58.

41. Michel Dieterlen, *L’Harmonium, une aventure musicale et industrielle* (Frans van der Grijn (digital edition), 1982).

42. Pascal Auffret, “Particularités de la facture d’Alexandre Rousseau,” *L’harmonium français* 1 (2007): 16–27.

Considering that the harmonium was further refined, some instruments could be rather expensive.

The years spanning from the second half of the nineteenth century to the beginning of the twentieth century, were successful for the harmonium production firms.⁴³ Allegedly, during this time, more than fifteen thousand harmoniums were produced every year by two thousand different manufacturers.⁴⁴ Sadly though, when the harmonium had reached its peak technically, new music ideals and the arrival of electronic instruments, such as the *Hammond organ*, gradually overran its noteworthy popularity, especially within domestic environments.

As very well summed up by John Shepherd *et al.*:⁴⁵

[.] while other, older musical instruments have seen revivals within the musical mainstream, the harmonium may be the only instrument to have made the transition from popularity as a musical medium to popularity as an antique in less than two centuries.

By the postwar period manufacturers in Europe and the United States were no longer in business,⁴⁶ ending an important era within instrument production. In the late twentieth century the harmonium was already considered an antique, and an object for restoration.

2.3 Early repertoire

Clearly, the harmonium was, in its time, considered an adaptable, and diverse instrument in the sense that it was used in various environments. Also, it was used in such opposite contexts as, on the one hand for accompanying liturgical music, and on the other for performance of salon music. Refined harmoniums would be placed in salon environments for concerts, and even in opera houses when requested for certain productions, as for example in the opera *Don Carlos* by Giuseppe Verdi (1813–1901). Since the instrument was mass-produced and that it, in most cases, was relatively inexpensive, many congregations rather acquired a harmonium than the more costly organ. In this regard, there exists a substantial amount of liturgical repertoire of varied standard, arranged, or even written specifically for the harmonium. Here, one should note the prominent works *L'Organiste* by César Franck (1822–1890), and *Petite messe solennelle*

43. Dieterlen, *L'Harmonium, une aventure musicale et industrielle*.

44. Hermosa, *The accordion in the 19th century*.

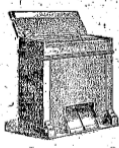
45. John Sheperd et al., eds., *Continuum Encyclopedia of Popular Music of The World*, vol. 2 (Continuum, 2003), 306.

46. *Ibid.*

10
ALEXANDRE PÈRE ET FILS, PARIS

ORGUE A CENT FRANCS

4 OCTAVES — 2 PÉDALES — CLAVIER FIXE



Instrument spécialement créé en vue de fournir aux Églises, Chapelles, Communautés, Écoles, un orgue portatif d'une force suffisante pour accompagner un chœur. Le transport en est facile, son poids n'étant que de 20 kilog. environ.

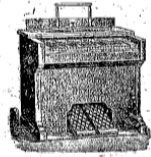
Vieux Chêne..... Prix net : 100 fr.

Largeur 0.78 — Hauteur 0.80 — Profondeur 0.30

ORGUE N° 1

1^{re} Série

4 OCTAVES — DE FA A FA — 2 PÉDALES



Instrument très solide et d'excellente sonorité, d'une force suffisante pour une salle d'école ou une classe de chant; il est surtout d'une grande utilité pour les sociétés chorales ou orphéons.

Chêne.....	Prix : 150 fr.
Acajou.....	— 190 »
Palissandre ciré.....	— 220 »
Supplément pour transpositeur.....	— 65 »

A claviers fix... Largeur 0.87, Hauteur 0.76, Profondeur 0.32
 — transp. Largeur 1.09, Hauteur 0.81, Profondeur 0.37

11
ALEXANDRE PÈRE ET FILS, PARIS


ORGUE N° 3

1^{re} Série

2 JEUX — 10 REGISTRES — 5 OCTAVES

Cor anglais	Grand Jeu	Flûte
Bourdon	Expression	Clarinette
Forté		Forté
Sourdine		Tremolo

Caisse forme pupitre en vieux chêne



Cet instrument produit des sons d'une qualité exceptionnelle se rapprochant beaucoup de ceux des orgues à tuyaux. — Les divers registres permettent de varier les effets, et lorsque le Grand Jeu est ouvert, on obtient un son rond et puissant très apprécié.

Modèle à clavier fixe..... Prix : 420 fr.

Largeur 1.25 — Hauteur 0.90 — Profondeur 0.46

Figure 2: An excerpt from a production catalog published in 1898 by the harmonium manufacturer *Alexandre Père et Fils*, Paris.

by Gioacchino Rossini (1792–1868). However, perhaps the most important application area for the harmonium was in private music-making, which might explain the quantity of low-level repertoire, and arrangements of popular tunes of the time.

Although the harmonium was a popular instrument in the eyes of the general public, and at the same time highly regarded by some of the most esteemed musicians and composers of the time, not all agreed that the harmonium should be considered an artistically refined instrument. Allegedly, the French organist and composer Louis Vierne (1870–1937) was one of those opposed to the instrument, even though having produced music to be performed on organ or harmonium, *24 Pièces en style libre*.⁴⁷ Though Vierne would not consider having a harmonium at home, many other famous organists and composers of the time did, and in addition either arranged or composed for the instrument.

Internationally, various composers included the harmonium in their compositions in one way or the other, spanning from Jean Sibelius (1865–1957) in Finland, to the Czech Antonín Dvořák (1841–1904).⁴⁸ Mostly the harmonium was used in chamber music, as for example in Dvořák's *Bagatelles* Op. 47 for

47. Fehr, *Harmonium Or Organ?: The Instrumental Question in Louis Vierne's 24 Pièces en Style Libre*.

48. Hermosa, *The accordion in the 19th century*.

harmonium and string quartet, or the *Quartet in G minor, JS 158* by Sibelius for violin, cello, piano and harmonium. Furthermore, the harmonium with its flexibility was considered a favorable instrument for accompaniment frequently adopted for vocal songs, choir works, or with other instruments in different settings. Duos in which the harmonium would interact with, for example, the piano were also typical, as the *6 Duos Op. 8* by Camille Saint-Saëns.

Some composers, here mentioned in no particular order, were especially devoted to the harmonium: Sigismund Neukomm (1778–1858), Alexandre Guilmant (1837–1911), César Franck (1822–1890), Sigfrid Karg-Elert (1877–1933), Camille Saint-Saëns (1835–1921), Charles-Marie Widor (1844–1937), and Louis James Alfred Lefébure-Wély (1817–1869). Lefébure-Wély was considered a great organ virtuoso, prominent in the French organ tradition. He frequently inaugurated organs, nonetheless those built by his close friend Cavallé-Coll.⁴⁹ Specifically, Lefébure-Wély possessed a certain fondness for the French harmonium, and may be considered one of the most famous harmonium virtuosos and composers advocating for the instrument.

Even though many different composers, most of whom are not mentioned here, admired the harmonium, and integrated it in their music, not many focused on it as a solo instrument. Therefore, original solo pieces for the harmonium are rather few.⁵⁰ And intriguingly, no significant large works have been dedicated to the instrument, like for example a concerto for harmonium and orchestra.⁵¹

2.4 The harmonium today

Today, one might argue that the harmonium is gently finding its way back to the hearts, and minds of people. Although the instrument is almost exclusively the province of enthusiasts, where fortunately, some are still devoted to restoration. Gradually, the harmonium is also progressing within academia, thanks to prominent musicians, and general curiosity both of unique instruments, and nineteenth-century music culture. Some academic works have recently been produced,⁵² which of course are imperative for the survival of the instrument.

When it comes to communities of harmonium enthusiasts, *The Reed Or-*

49. Tor Nordström, “L’Organiste moderne: Lefébure-Wély och hans musikvärld,” 1991, *Hermosa, The accordion in the 19th century*.

50. John Richard Near, “L’oeuvre pour harmonium en deux volumes, and: L’organiste: Pièces pour orgue ou harmonium (review),” *Notes* 59, no. 2 (2002): 458–464.

51. *Hermosa, The accordion in the 19th century*.

52. Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression”; Joris Verdin, *Harmonium Handboek* (ORGUE-HARMONIUM.NET, 2008); Fehr, *Harmonium Or Organ?: The Instrumental Question in Louis Vierne’s 24 Pièces en Style Libre*.

gan Society, founded in 1981, is probably one of the leading international associations. *Klaverens hus*, Sweden, as a museum of historical keyboard instruments, may be recognized in the same category. This is a society, which preserves not only a large collection of various keyboard instruments, but also historical material from instrument building. In the neighboring country, Denmark, a similar collection, however focusing on harmoniums, can be found in *Jesuskirken* in Valby, Copenhagen.

In the United Kingdom, the company *Harmonium Hire in Britain* have made a business of restoring French Mustel harmoniums and American reed organs, as well as renting them out. As it may be difficult to find harmoniums in good condition, this kind of company is important for harmonium players. Fortunately, there are also some musicians that have spent time and effort in practicing the harmonium. By conducting concerts, and recording meritorious harmonium repertoire, these musicians are essential for the survival of the instrument.

Even though the harmonium is occasionally used in concerts, examples of *contemporary* harmonium works are rather few. Probably the most noteworthy is the *First harmonium concerto* for harmonium and orchestra, by Martijn Padding. This composition is the first of its kind, as indicated in Sect. 2.3. Furthermore, the composition won the *The International Rostrum of Composers* in 2009.

3 Method

In order to motivate a well-defined purpose of the harmonium, and subsequently identify its possible role, a thorough investigation of its qualities was conducted. Furthermore, to capture a broad perspective the method involved three different actors, each with a different role: (1) the performer, (2) the audience, and (3) the composer. Firstly, the performer, through close interaction with the instrument, is likely to distinguish special technical qualities and their practical implications. Secondly, a diverse and impartial audience has the ability to contribute with a wide range of different perspectives on the overall impression of the instrument from a distance, both physically and intellectually. Finally, the composer may intimately explore the features of the instrument, and create new means of expression by the development of new music.

Practically, the method used here was divided into two parts: (1) a comparison study, in which the same piece was performed on the harmonium and a French romantic organ, and (2) composing and evaluating new harmonium music. Both parts included qualitative and quantitative elements, here referring to individual artistic evaluation, a composer interview, and listening surveys including questionnaires. The first part of the work involved a practical study of one musical piece on the harmonium and the organ. Moreover, the specific piece was performed on these two instruments in a listening survey, described in Sect. 3.3. Likewise, the second part of the work implemented a listening survey. The purpose of this survey was to evaluate the new means of expression, and the perception of the instrument and its abilities in a different context. The results from both surveys were later summarized and analyzed statistically, and the outcome supports the discussion in Sect. 5. Statistical significance (i.e. how likely the observed results are to be true) has been tested, whenever applicable, using the *independent two-sample T-test*. The test assumes equal variance between both groups, and that both populations are normally distributed.⁵³ Here, the T-test was chosen since it is rather conventional, and easy to use.

In the following sections, the method of this thesis will be described in more detail, treating the two parts: The comparison study between the harmonium and organ, and the exploration of the harmonium with new music. Finally, a description of the listening surveys, as well as the instruments used in this work is shown.

⁵³. Catherine Forbes et al., “Student’s t Distribution,” *Statistical Distributions, Fourth Edition*:183–186.

3.1 Studying the harmonium by comparison

As discussed in Sect. 2, the harmonium is already known for its unique dynamical qualities. However, one may also assume that the instrument possesses more features to be discovered and used. One way to identify such features is to compare the harmonium to a similar keyboard instrument. In this work, this kind of comparison was conducted by the practice and performance of a single musical piece on a French harmonium and a French symphonic organ. The instruments used for this purpose are further described in Sect. 3.4. Used for the comparison was the *Sonata № 4* in D-minor, Op. 61 by Alexandre Guilmant (1837–1911). The sonata is a four-movement composition intended for either organ or harmonium, and was performed twice in a listening survey, as described in Sect. 3.3.

3.2 Exploring the harmonium with new music

The purpose of the second part of the thesis was to explore the harmonium with *new* instrument-specific music. Particularly, the aim was to use the process of creating new music to explore unique qualities of the instrument that may have an emotional influence on the modern audience. For this purpose, music within the following categories were developed: (1) traditional character music, (2) video-game music, and (3) contemporary art music. The new character music and video-game music, was composed by the harmonium instrumentalist. However, the contemporary art music was developed within a collaboration between the harmonium instrumentalist and an external composer.⁵⁴ The collaboration was an iterative process where the composer presented parts of the work for review from the instrumentalist. In this case the composer had no prior experience of playing the harmonium, and therefore a continuous dialog was crucial. Also in this context, a similar listening survey, as mentioned in the previous section, was implemented. An interview with the composer was conducted at the end of this work, and the answers are presented in Sect. 4.4.

3.3 Listening surveys

Listening surveys were conducted two times during this work, firstly for the harmonium and organ comparison, and secondly for the new harmonium music. The purpose of the surveys was to identify the specific qualities and overall impression of the harmonium in a broad sense with help from a modern audience.

⁵⁴ Bengt Lundin, Professor of music theory at the Academy of Music and Drama, Gothenburg University.

<i>Treble</i>	
①	Percussion et flute, 8 foot
②	Clarinette, 16 foot
③	Fifre, 4 foot
④	Hautbois, 8 foot
Ⓒ	Voix celeste, 16 foot
<i>Bass</i>	
①	Percussion et cor anglais, 8 foot
②	Bourdoun, 16 foot
③	Clairon, 4 foot
④	Basson, 8 foot
<i>Effects</i>	
①	Forte 3–4 (bass and treble)
Ⓓ	Tremolo
Ⓔ	Expression
Ⓖ	Grand Jeu
Ⓕ	Sourdine

Table 1: Disposition of the Alexandre harmonium used in this work.

At the beginning of each listening survey, specific information about the code of conduct was presented to the audience, e.g the participants. Here, the participants were asked not to applaud during the surveys, and to avoid discussing the pieces or movements. During short pauses between each movement, the audience was asked to rate their experience on a scale from one to six, one meaning that they have *not* been moved by the music experience and six meaning they have been *very* moved. Meta data was also gathered from each participant, such as: (1) *age*, (2) *gender*, (3) *musical skill level*, and (4) *if familiar with the purpose of the study*.

At the event of the first listening survey, the participants were seated *facing away* from both instruments, in order to avoid visual influences. Here, the sonata by Guilmant, as mentioned in Sect. 3.1, was performed twice, first on the French romantic organ, then on the French harmonium. After the listening survey the participants were asked to fill out a questionnaire, with questions such as: (1) *which instrument appeals to you most, and why*, (2) *what is your impression of each of the instruments (please describe your idea of the instrument features)*, (3) *as the sonata by Guilmant was performed twice on different instruments, did you experience any differences in the performances*, and (4) *do you have any previous experience of the harmonium*.

At the second listening survey, the participants were, in contrast to the

first one, facing the instrument, which in this case was only the harmonium. Just as during the first survey, the participants were asked to rate each piece or movement based on the same criteria, and on the same kind of scale. However, as an addition, they were asked to write down *one* word describing their experience of the character of each piece of music. Also here the participants were asked to fill out a questionnaire before leaving. The following questions were formulated: (1) *what is your impression of the instrument (describe your idea of the instrument's features)*, (2) *what differences did you experience between A (1 and 2) and the rest of the program*, and (3) *do you have any previous experience of the harmonium*.

The following program, consisting of only harmonium music, was performed during the second listening survey:

- Guilmant, *Sonata № 4*, Op. 61
 1. Allegro assai
 2. Andante
- Benderius, *Puppetry*
- Benderius, *Betrayal of the Æsir*
 1. Main theme
 2. Village life
 3. Hymn of the betrayed
 4. Giants lurking
- Lundin, *Modi*
 1. Irregular
 2. Surface
 3. Rondo Chorale
 4. Serene
 5. Tribute
- Benderius, *Puppetry*

As shown, this program mainly presents the newly developed harmonium music, but also the two first movements from the sonata by Guilmant, which here would function as a link between the two surveys, making it possible to compare the results from both surveys. Also, as seen in the program, the piece *Puppetry* was performed at two occasions, as a way to further test the method.

3.4 The instruments used

Two related keyboard instruments were used within this work, namely (1) a French harmonium, and (2) a French symphonic organ. The harmonium was produced by the firm of *Alexandre Père et Fils*, and is a regular type of harmonium with a usual five octave keyboard spanning from CC to ccc. It has four rows of reeds divided between treble and bass with the break located, as standard, between middle E and F; a specific disposition of the instrument is to be found in Table 1.

The French symphonic organ, also used in this work, was built by *Verschueren Orgelbouw BV*, Netherlands, in the tradition and working methods of Cavaillé-Coll. The organ, which was inaugurated in 1998, was designed to sound like a nineteenth-century symphony orchestra, with the individual, dynamical solo instruments represented in 43 different stops. Furthermore, the instrument has mechanical key action, pedal and three manuals distributed in *Grand-Orgue*, *Positif*, and *Recit*. A detailed disposition of the instrument is listed elsewhere.⁵⁵

⁵⁵. Göteborg Organ Art Center, *The French Symphonic Organ at Artisten* (Göteborg Organ Art Center, 1998).

4 Results

This section presents the results acquired from the different parts of this work, including (1) a brief summary of the newly developed works for the harmonium, (2) plots summarizing the results of the two surveys, (3) answers from the questionnaires, and (4) the composer interview.

4.1 New works for the French harmonium

Within this work, three stylistically varied compositions for the harmonium have been completed; two of which are collections of movements of different character. Here, the work *Modi*, representing the contemporary art music, was composed within the composer and instrumentalist collaboration. *Modi* is a collection of five comparatively short movements of different character in *neo-classic* style. The movements are entitled as follows: (1) *Irregular*, (2) *Surface*, (3) *Rondo Chorale*, (4) *Serene*, and (5) *Tribute*.

In contrast to *Modi*, the motif of the video-game suite, *Betrayal of the Æsir*, express illustrations of different settings, and is intended for an upcoming video-game. The theme for the video-game is treating nineteenth-century vikings, protecting villages from resurrected old giants. *Betrayal of the Æsir* includes four movements, each with a different character. Here, the first movement is the *Main theme*, a heroic motif that urges the vikings to prepare for battle. The second movement, *Village life*, on the other hand is supposed to evoke images of commerce and ordinary life in small country villages. *Hymn of the betrayed*, which is the third movement, is to be played when the character of the game enters a church. Here, the expression is intended to elicit pensive thoughts about being forsaken by the *Æsir*, their Gods that have abandoned earth. The fourth, and last, movement of the suite, *Giants lurking*, illustrates how the giants approach the villagers for attack, and how the large bodies of the giants stumble around the landscape.

Finally, a character piece entitled *Puppetry*⁵⁶ was developed. The composition was based on traditional aspects of nineteenth-century composing, and is stylistically inspired by the character piece *Chant sans paroles* for the piano by Pyotr Tchaikovsky (1840–1893). In Sect. 5.2.1, the background for choosing this specific piece is given. Scores from all the pieces created within this work can be found in Appendix 6.1. Furthermore, the illustrative words collected from the participants during the second listening survey are listed in Table 2.

⁵⁶. Named after the words collected during the second listening survey, see Table 2.

<i>Sonata № 4, Op. 61</i>	
Allegro assai	twentieth century, grand, life cycle, winter, French, Gypsy music, hatred, harbor, symphonic, drawing, hopeful, troubled, powerful, silent film, suffering, dramatic, worry, energy, nostalgia, bombastic
Andante	sea, heartfelt, Christmas spirit, Russia, tepid, lullaby, homely, flowering, idyllic, gramophone, sweet, tranquil, charming, sleepy, harmonic, longing, calm, expressive, Paris, idyllic
<i>Puppetry</i> (1 st)	apes, cunning, puppetry, happy bird, autumn, rambunctious, breakup, toy dance, scherzo, flying, blonde, machineous, funny, happy, playful, playful, happiness, playful, puppets
<i>Betrayal of the Æsir</i>	
Main theme	film music, cool, production, sunny, wanderer, adventure, development, crowded, traveling, life, heroic, folkloristic, adventure, majestic, driven, stress, vivace, anticipation, Robin Hood
Village life	introduction, epic, dissatisfied, road, textural, power of nature, saga, awakening, morning, still, funny, curious, tale, Zelda, laughing, theatrical, saga, persuasion, many different
Hymn of the betrayed	Russian, melancholic, death, market, undelivered, disharmonic, powerful, autumn evening, dark, warning, people, bleak, interesting, sleepy, heavy, calm, sorrow, pain
Giants lurking	Mussorgskij, exotic, dance delight, dance, dormant, accordionlike, struggle, storm, dance, ticking, Gothic, dance, Dracula, euphoric, mystical, journey
<i>Modi</i>	
Irregular	paintings, magical, water, worried, colored, narrative sense, hectic, ant hill, workshop, tangle, frightening, magical, conversation
Surface	Satie, enormous, boat ride, train, cold, sad feeling, to enjoy, coral reef, agitation, clear, otherworldly, wonderful, sea, dreamlike, tingling, water, winter
Rondo Chorale	Holst, ironic, run, big city, spring feeling, worry, locomotive, promenade, giddy, tense, fun, kite flying, humorous, singing, factory
Serene	chords, desolate, tired, sunset, liturgical, doomsday feeling, rest, insight, winter morning, restful, stillness, alarm clock, creepy, midnight, sorrow, dramatic, fog
Tribute	Barosso, dramatic, summer meadow, film, rebellious, curiosity, drama, rain cloud, indecision, flock of birds, frenetic, long live J. S. Bach, headache, energetic, worrying, rage, discussions
<i>Puppetry</i> (2 nd)	encore, carefree, happiness, birches, encore, happiness, sailor, harmonium, quick, lovely, wishful, thank you, encore, happiness, dansant, harmony, silent film

Table 2: Words collected for each piece or movement at the second listening survey.

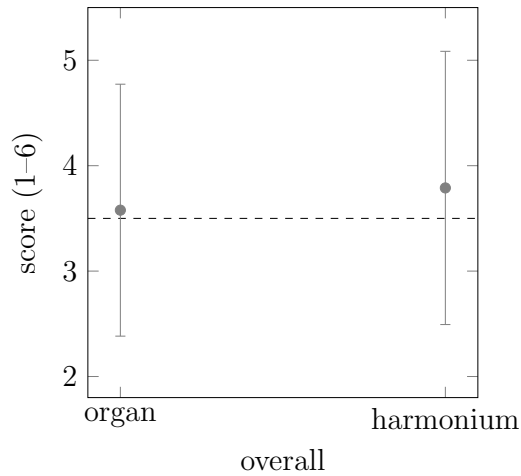


Figure 3: From the first survey: An overall comparison between the organ and the harmonium.

4.2 Statistical analysis

In this section, the results from the listening surveys are summarized and presented in Figs. 3–9. Figs. 3 and 4 treat the first survey, Figs. 5, 6 and 9 the second, and Figs. 7 and 8 both. Since only the first two movements of the *Sonata N^o 4*, Op. 61 were performed during the second survey, the comparison in Fig. 5 was restricted to include the first two movements in *Betrayal of the Æsir* and *Modi*. In the cross-survey comparison between traditional and new harmonium music, presented in Fig. 8, *Puppetry* was omitted since it might be difficult to clearly assign to any of the two groups (see the previous section).

4.3 Questionnaires

As mentioned in Sect. 3, the participants of the listening surveys, were also given questionnaires. In some cases the answers were translated. During the first survey, fourteen participants chose to answer the questionnaire. From these, eight preferred the organ and five the harmonium. Some of the reasons for preferring the organ were that the organ was considered to offer a larger spectrum of different sounds, tone colors, and variations, achieved with combinations of different registrations. Also the fact that the organ may achieve a more powerful sound, seemed to have an emotional influence on the participants. Further, it was stated that the tones were on the one hand more deep, and on the other more brilliant. Some of the reasons for preferring the harmonium were that musical lines come out clearly on the harmonium, and its

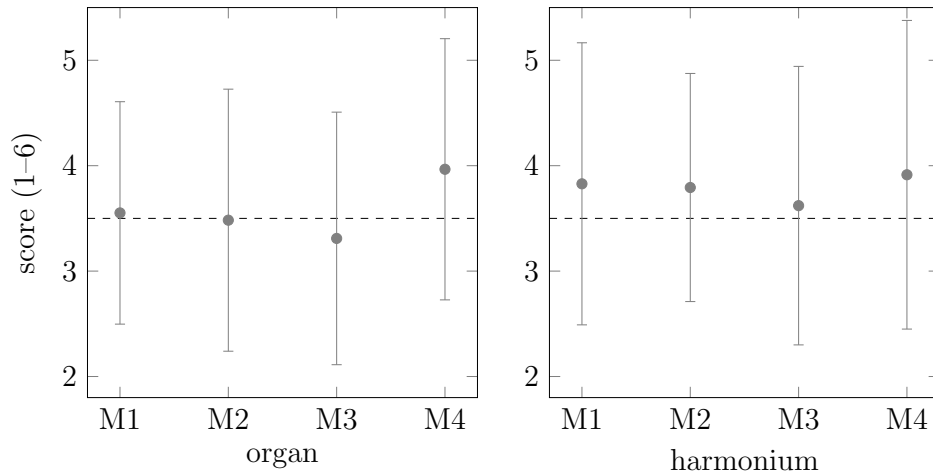


Figure 4: From the first survey: A comparison of each movement of the *Sonata N^o 4*, Op. 61 played at the organ and the harmonium.

sound is softer and warmer than the sound of the organ. The expressivity due to dynamic possibilities was also acknowledged as a special feature of the harmonium; it was stated that the music seemed more alive. When describing the impressions of both instruments the organ was generally described as powerful and a source of large contrasts, possessing a more extended timbre palette. The harmonium was for the most part described as clear and lyrical, with great dynamic capabilities. Also, the expressive qualities of the harmonium were described as more natural than those of the organ. Here, the harmonium's more seamless change of sound quality was also acknowledged. Though not as strong as the organ measured objectively in decibels, the harmonium was also perceived as an instrument with intensive sound.

Nine participants experienced differences between the two performances that were conducted, however one did not notice any differences. A few of the participants did not notice the change of instruments, or even that the same piece was performed twice. The noticed differences between the performances were diversely described. Some stated that the organ performance was more effective because of its powerful sound, and variations in dynamics. Others answered that the harmonium performance was more clear. Specifically, the rapid decrescendi within the third movement were considered better and more unhindered when performed on the harmonium.

At the event of the second listening survey, eleven participants chose to answer the questionnaire. From these, six described the features of the harmonium using the word *expressive*. Two described the instrument as versatile, and

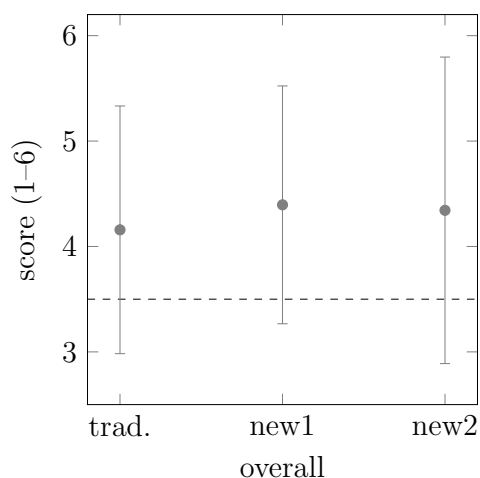


Figure 5: From the second survey: An overall comparison between the *Sonata N^o 4*, Op. 61; *Betrayal of the Æsir*; and *Modi*.

one claimed that the instrument offered *few* possibilities of variation. Some other characteristics were also mentioned, such as the fact that some of the levers make much noise, and that staccati notes sometimes almost disappear. The instrument was also described as dynamic, *human*, and colorful.

The second question urged the participants to name any differences experienced between the two first two movements and the rest of the program. Here, it was stated that the sounds in the second half of the program were more unexpected. Furthermore, one of the participants wrote “the rest of the program felt better adapted to the harmonium.” Otherwise, the different tonal languages were recognized, and the first three pieces were defined as genuine romantic repertoire. As the piece *Puppetry* was performed twice, the first time it came third in the program and the second time it came as the last piece, the participants were asked if they noticed anything special concerning these two performances. Here, seven recognized that the same piece had been performed two times. One answered that the interpretation was different, in the sense that it seemed more sad the second time. Furthermore, two participants thought the piece was shorter the second time. The last four participants did not notice that it was performed twice.

4.4 Composer interview

Within this section, the questions and answers from the composer interview are presented. The interview took place *after* the premiere of the new har-

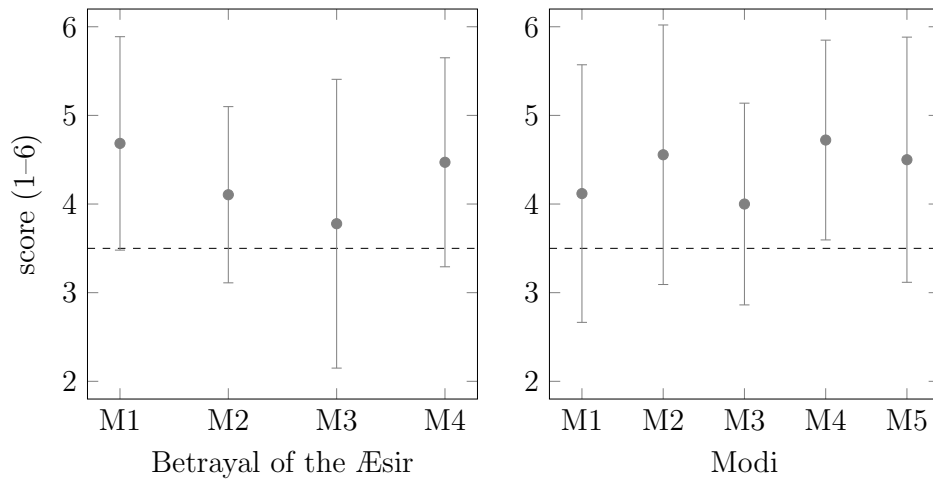


Figure 6: From the second survey: A comparison of each movement from *Betrayal of the Æsir* and *Modi*.

monium works, i.e. the second listening survey, and the interview subject was Prof. Bengt Lundin. Furthermore, the interview was conducted in Swedish, but was later translated to English. The translation, as presented below, was approved for publishing by Prof. Lundin.

1. What was your first, early impression of the French harmonium?

The first introduction with the French harmonium for me was at a concert when you performed *Trois esquisses musicales* by Georges Bizet (1838–1875). I found the music surprising and full of effects. It was rather a new discovery for me, and many of my prejudices came to naught.

2. How did you think when deciding composition style?

Since we talked about trying to create something new but still with traditional influences, I decided the style should be Neo-classic. I thought about integrating firm rhythms of many kinds. Actually more rhythm than timbre. Harmonically, I thought about using double chords and undertones and work with a lot of seconds and clusters. It felt rather restricted sometimes to be limited to composing two-handed music. At times I longed for a pedal as well since a stable ground was hard to accomplish. At the piano for example you have the

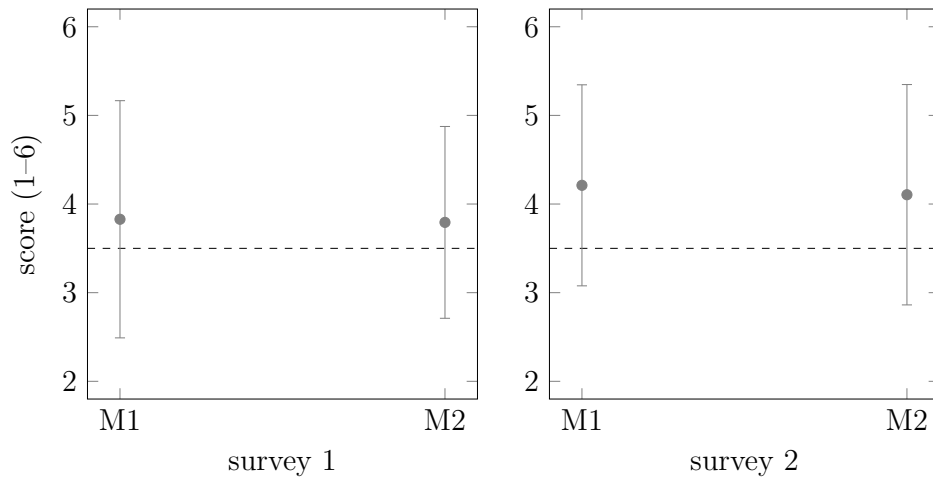


Figure 7: From both surveys: A comparison of the *Sonata N^o 4*, Op. 61 (two movements) *between* the surveys.

sustain pedal which in this case is very useful. I never thought about changing composition style. It was hard to create a good musical form. In my opinion the second movement came out best when it comes to musical form.

3. You have composed a lot of vocal music, did you experience any similarities when composing for the French harmonium?

Well, phrasing. But phrasing is of course always important, nonetheless when it comes to the harmonium. I feel that this composition actually could well be performed by other wind instruments.

4. Did you experience any difficulties in composing for the French harmonium?

Considering the range of the French harmonium, it feels rather limitless and the breaking point I consider beneficial.

5. Did you experience that something made it easier to compose for the French harmonium?

No!

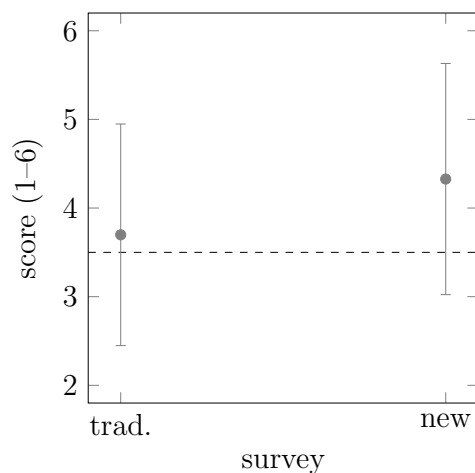


Figure 8: From both surveys: An overall comparison of the traditional, and new *harmonium* music. The first group includes the *Sonata N° 4*, Op. 61 from both surveys (six movements), and the second group of *Betrayal of the Æsir* and *Modi* from the second survey (nine movements). The difference is statistically significant; $t(334)=-4.513$, $p=0.000$.

6. What is your impression of the French harmonium now, at the end of this project?

I have discovered great potential in the instrument. It is well accomplished, especially when it comes to dynamics of course.

7. What is your impression of what you have heard so far regarding traditional repertoire for the French harmonium in comparison to what you yourself have composed?

First of all, my experience of traditional harmonium repertoire is limited. But from what I have heard, I feel that there has been no specific, idiomatic harmonium music.

8. Have you made any artistic or aesthetic discoveries during the process of composing for the French harmonium?

Well, I had to think a lot about handling the dynamic possibilities of the instrument. I think many composers miss out on that point.

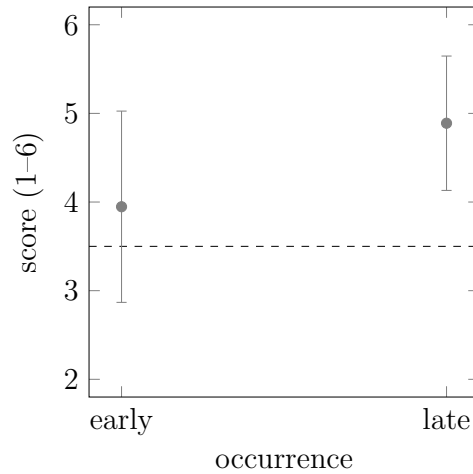


Figure 9: From the second survey: A comparison between the first and second occurrence of *Puppetry*. The difference is statistically significant; $t(35)=-3.055$, $p = 0.004$.

9. Have the effects achievable on the instrument been most important when you composed, or was anything else of more importance?

The effects have of course been in my thoughts during the process. I thought that it would be good to use them. Perhaps, even using them more than only the expressivity of the instrument. I never composed by the harmonium, since it is rather impossible to play on it.

10. How do you think one might bring attention to the French harmonium today and in the future? Do you have any ideas concerning potential applications?

Nowadays, people seem to get more and more interested in the origin and past. When putting the original sounds of instruments in relation to present digitalized sounds it is easy to realize that the sound of for example a real violin can not sound real when produced in other ways. The same goes for the harmonium of course. The small nuances and intricacy when it comes to the natural dynamics, the percussion stop and so on are hard to simulate. Furthermore, since the French harmonium can be considered closely related to the organ and the playing techniques are in some cases similar, I see another

application for the instrument. Namely in academia, where it could be used for preparatory studies before learning to play the organ. The benefits being that you can concentrate on manual playing, learning to play a proper legato. As I also understand, the French harmonium offers means of practicing different kinds of articulation.

11. Describe your thoughts on *Modi*:

I'm very intuitive in my composing. Almost all of the movements in *Modi* are built considering timbre. It is like writing a book, you don't know how it will end. The last movement *Tribute*, is of course with the B-a-c-h motive. Mainly the purpose was to create some sort of form, and that the movements should relate to one another and be diverse. Also I thought about rhythmical and harmonic themes. Chose to compose short pieces since the time given for the task was rather limited, and that very long pieces can be perceived as challenging for both the composer and the contemporary audience.

5 Discussion

Historically, it is rather challenging to define the identity and role of the harmonium, as discussed in Sect. 2. Intriguingly, even a term for the player of the harmonium is not well-defined.⁵⁷ Accordingly, one may assume that in the past there have been few musicians with the harmonium as their main instrument.⁵⁸ This, and the fact that the instrument had such a short but intense time of popularity, may be important reasons for the rather limited amount of harmonium-specific music, old as well as new. In this regard, one may also argue that it is understandable that the instrument, since its decline in the early twentieth century, generally still remains unknown. However, it is somewhat remarkable and sad to think that so many wishes and efforts have been invested in creating this artistically stimulating instrument, only for it to be abandoned. Therefore by the extension, the aim and purpose of this work may be considered an important course of action for the future existence of the harmonium; the ambition has been to find an identity for the instrument by exploring its nature and thereafter discuss how its qualities could be used to showcase a more well-defined role. For this purpose, certain approaches were assessed such as a comparison between the harmonium and a similar keyboard instrument. New harmonium music within different categories were also developed. During both processes a somewhat unconventional approach was implemented, here referring to the two listening surveys described in Sect. 3.3.

In this section the different approaches will be discussed together with the results. The first topic here is the comparison study, where the impression of the harmonium is targeted. Here, some of the plots from the survey are also discussed. The same section also treats the experiences from practicing the sonata on the two instruments, i.e. the organ and the harmonium. On the same topic, music accents are discussed, as well as in what way the instruments evoke different interpretations. Accordingly, in Sect. 5.1.1 there are also particular examples of scores related to discussions regarding some of the individual movements of the sonata.

Furthermore, different aspects concerning the development of new music for the harmonium will be discussed. For instance, findings from the listening surveys will be treated, and the experience from conducting a composer collaboration will be discussed. Finally, harmonium aesthetic principles are considered, leading to conclusions in regard to the future role of the harmonium based on what was observed within this work.

⁵⁷. There is no common term for the harmonium player. Examples of used terms include: harmonium interpreter, harmonium performer, harmonium player, and harmoniumist.

⁵⁸. The instrument was often used by organists and generally for private music practice.

5.1 The organ–harmonium comparison

Throughout the course of this work, two specific terms have appeared frequently, namely *dynamics*, and *expressivity*. The formal meaning of dynamics is *continuous change, activity or progress*. However, in *music*, dynamics can refer to: (1) the volume of a sound, and (2) the stylistic or functional execution of a piece. One might argue that dynamics and expressivity are linked, as musical expression is often closely connected to dynamic variation. Fortunately, many music instruments are designed to support such expressivity. However, one might argue that the nineteenth-century demands of a more dynamically refined *keyboard* instrument were legitimate. On most keyboard instruments a tone can not be sustained indefinitely, and, although the technical features of the pipe organ surely enables tones to be sustained, it lacks the gentle continuous dynamic variation offered by many other *non-keyboard* instruments. As the organ and harmonium are keyboard instruments that have many properties in common, the idea was to use them in a comparison study to establish any quality differences, and to identify the specific features of the harmonium.

Generally, the prevailing impression from this comparison concerns the different dynamic aspects of the two instruments. As mentioned earlier, the design of the harmonium supports continuous dynamics directly managed by the performer. Whereas at the organ the performer must actively choose to use either the swell mechanism or to change registrations in order to create dynamic variation. One may illustrate this as *directly* and *indirectly* controlled dynamics. Acknowledging these factual differences in handling the instruments may deepen the awareness of treating any music instrument as a medium, and as such, how it may provide the musician with more or less freedom of artistic expressivity. Or, in other terms, a music instrument may provide the musician with *different kinds* of artistic powers, powers that are, ultimately, the subjective responsibility of the musician to embrace. Since the mechanics of the organ and harmonium are similar in many ways, with basic components such as for example the resemblance in timbre qualities, one may argue that the harmonium may be useful for future organ students. In this regard, the composer in this study even discussed the applicability of the harmonium within academia for preparatory studies before organ practice, specifically treating extended practice of techniques such as legato, portato, and staccato, see Sect. 4.4.

Even though the harmonium has here been portrayed as a music instrument offering great freedom of dynamical interpretation, the instrument also introduces some restrictions. The limited tonal range, and small delays of the onset of a tone, impose certain limits when it comes to for example the distribution of voices. On the other hand, the organ typically affords more flexibility with its wide tone range and large timbre palette, together with a faster speech. Still,

the lack of distinctive touch on the harmonium may partially be compensated by its seamless dynamic qualities, combined with its characteristically intense timbre. That being said, one should *not* underestimate the variety of music accents a harmonium player can achieve. On the contrary, various accents and attacks are more effective when performed on this refined instrument. In an article treating the *essence of the harmonium*,⁵⁹ the short sforzando accent is mentioned as an effect commonly used in the mid of the nineteenth century. In this context the early organ swell-pedal called *cuillière*, allegedly also allowed the player to perform dynamic attacks. Thereby, one can assume that it was not only common to make sforzandi within harmonium music, but also when playing the organ. Here, of course the action of the swell-pedal available is essential for implementing such effects, as discussed in the following section. Undoubtedly, the sforzando is one of many dynamic and articulated accents that are musically convincing on the harmonium, as it is so freely and naturally handled due to its mechanics. Further observations of accents and their application within the *two* interpretations of the sonata, are highlighted in Sect. 5.1.1.

From the listening survey, see Sect. 4.3, some interesting observations were made. First of all, as seen in Fig. 3 and Fig. 4, the instrumental qualities of the harmonium, as expressed through the performance of the musician, seemed to emotionally influence the participants at least slightly more, although not significantly so, than the perceived qualities of the organ. However, the answers of the corresponding questionnaire indicate that the participants generally preferred the *organ* over the harmonium, as presented in Sect. 4.3. Of course, one must consider that not all of the survey participants chose to answer the questionnaire. However, generally the stated reasons for preferring the organ were that it possesses a larger, and more powerful sound with more options concerning registration. Here, one may question if the appreciation of instrumental sound quality is separated from the appreciation of the performances emotional impact. Furthermore, perhaps the essence of expressivity does not lie in variations of sound or deep sound qualities. One may also discuss if a clear and simpler sound is actually beneficial for expressivity to be communicated, something which was also noted by some of the participants of the survey.

Interestingly, in Fig. 4, one may observe a similar pattern in the graphs for both instrument performances. Namely, that in both cases the third movement ranks slightly below the first and second, and the fourth is rated highest. Presumably, this indicates that the musical expression is retained between performances and instruments. Furthermore, the fact that such indications can

59. Verdin, “The Aesthetic Principles of the Harmonium: the Essence of Expression.”



Figure 10: The organ-version of Guilman's *Sonata No. 4*, Op. 61, Menuetto. Opening bar introducing a theme that re-appears in bar 25.

be distinguished supports the approach of listening surveys as a method. Also, the fact that some of the participants did not notice the change of instrument may indicate that the performances were of similar quality. Arguably, this is also a reason for conducting the survey with the participants seated away from the instruments. However, as some participants did not notice that the same piece was performed twice, one may argue that the performances were different in some ways. A possible explanation could be the psychological effect of listening to two performances of the same piece. As a final remark, it may be interesting to conduct a similar survey with the participants facing the instrument and the performer, to test if there would be any notable differences.

5.1.1 Examples from the Sonata

In this section, aspects of instrumental influences on the musician in terms of different interpretations of the same piece will be discussed. Furthermore, the discussion will cover the issues of voice distribution and how music accents can be produced with different levels of credibility on each instrument. As discussed in the previous section, the harmonium offers the possibility to perform a great range of music accents. The sonata considered here contains frequent



Figure 11: The organ-version of Guil mant's *Sonata N^o 4*, Op. 61, Allegro Assai, bars 21–22.

use of such accents, supporting a substantial comparison. For instance in the opening of the third movement, *Menuetto*, Guil mant introduces a repeated theme initially consisting of a quarter-note chord marked with staccato, followed by a half-note chord, see Fig. 10. When the theme returns in bar 25, as seen in the figure, the two chords are marked with staccato and tenuto accents, which might suggest that the latter expression is connected with the one in the opening bar. Here, in this performers view, the two instruments enable different interpretations. On the harmonium, the staccato quarter-note chord followed by the half-note chord, encourages the performer to make a sforzando accent to enhance the expression from bar 25, whereas the organ does not allow such effect. The commendable performance of the sforzandi in the harmonium performance, was also noticed by some participants of the survey although described as rapid decrescendi, see Sec. 4.3. One may also argue that the accents in bar 25 in the organ version have another purpose, namely to complement the theme appearing in the pedal with clear and light fragments of the theme as accompaniment.

When looking further into the third movement, other aspects of instrumental influences regarding the performers interpretation can be discussed, such as timbre. This performer clearly noted that different timbre qualities influence interpretation, not least considering the third movement. Here, the trio part starting at bar 33, demands a more active, *dansant* interpretation when conducted on the organ, however the harmonium in the same place encourages the performer towards a more gentle expression. Perhaps a reason for the more gentle interpretation can, apart from the continuous dynamics of the instrument, be found in its clear and intense timbre.

The limited range of the harmonium has frequently been recognized by the performer, as well as the composer, and the participants of the listening survey.

This is especially noticeable within the first movement of the sonata, which to the performer, is more approachable on the organ than on the harmonium. Overall, this movement requires an instrument with a sense of depth, and the possibility to create a substantial sound, as may be achieved on the organ. For instance, within the sonata, the organ provides the forte fortissimo in bar 21, see Fig. 11, with a depth and substance, unachievable on the harmonium. Here, the grounded half-notes in the pedal collaborate with the distribution of the remaining voices, together creating a powerful and wide sound. Furthermore, the quarter-note rests between each chord, alongside the heavy pedal notes, create a profound depth, and at the same time an unobstructed distinctiveness, even as the pedal line is to be performed legato. Here, one may argue that the harmonium instead promotes expressive melody lines in both bass and treble, which could be explored by taking advantage of the break point.

5.2 Developing new repertoire

As discussed in Sect. 2.4, Generally, composers today are not familiar with the harmonium, and presumably harbor some prejudices of it due to the extent of sad examples of pump organs, also known as Swedish school organs, and are often mistaken for the harmonium. This was in fact the case for the composer within this work, see Sect. 4.4. Furthermore, harmonium performers perhaps rather interpret its traditional repertoire than develop new music. Therefore, progress in this area is rather slow. However, by developing new repertoire for the harmonium, several benefits may be gained, such as: (1) a profound relation to the instrument due to a deeper understanding of its nature, (2) an evaluation of its applicability in different, contemporary concepts, and (3) possibly even a new expressive language in dialogue with harmonium aesthetics. By moreover including an external composer in such a process one may increase the chance of finding new sounds in the harmonium. Essentially, one may also argue that the advantage of composer collaborations with a focus on the harmonium, is a way to inform and inspire more composers to recognize the instrument and therefor possibly support its reintroduction to contemporary consumers of music culture. The work presented here has shown the importance of initiating this kind of collaboration, as evident from Sect. 4.4. Here, the composer expressed that he initially thought of the instrument as rather unsophisticated, and now, on the contrary, he recognizes its high potential. Also, the composer specified that he had to focus on dynamic aspects when composing for the instrument, something which he expressed may generally often be overlooked by contemporary composers. In this regard one might even consider adopting the harmonium as an educational tool for future music

making. Arguably, performers should undertake the important task of promoting the instrument in a modern society. For example, this can be done within education, as well as recurring public performances. The ambition within the composer collaboration in this work was to integrate artistic proficiency with the practical handling of the instrument. Here, it was important to establish a receptive relationship between the instrumentalist and the composer where the instrumentalist would embrace the ideas of the composer and still remain faithful to both the qualities and limits of the instrument.

One may also discuss how a modern audience may receive newly composed repertoire in comparison to the traditional repertoire. To the author's knowledge, this work is the first to treat such a topic. In this work two listening surveys were conducted, the first treating traditional music, and the second mainly treating new music. From only the second survey, see Fig. 5, *no* significant differences could be found between the way that traditional and new music were received. However, the data from this survey alone is quite limited, but by also including data from the first survey a significant difference could in fact be detected, as indicated in Fig. 8. Arguably, this cross-survey analysis is valid since Fig. 7 shows no significant difference.

Further, it is also important to consider the expressivity in the new repertoire. Even though it is the composer's and musician's responsibility to convey specific emotions, it might be a good idea to at times also include the audience reception in the process. In that way one can assess if the intended expression is transmitted. Basically, in the type of survey used here, there are two ways to compare the impression given by different performances: Either by looking at the mean answer or, perhaps more importantly, the variance. A large variance may show that the audience perceives a piece very differently, and a small variance may show that the audience is unified in its emotional experience. For example, such clear differences in the standard deviation can be seen for the pieces presented in Fig. 6. However, it might be insufficient to assess the emotions invoked by a music performance on a numerical scale. Therefore, in the second listening survey the participants were asked to write one word in connection with each performance, as listed in Table 2. This is another way to assess how well an intended expression is transmitted and received. In the table a clear example can be seen, where all movements in *Betrayal of the Æsir* show distinct unity in the meaning of the words. Interestingly, this suite was developed as modern character music, intended for transmitting specific emotions. Then by combining all information, the mean and variance of the numerical assessments and the collection of words, the composer and performer might gain insight for further works.

In a similar way, it is important to assess the layout of concert programs.

A clear example may be found in the collected data from the second listening survey, specifically when looking at the piece *Puppetry* which was performed at two times during the survey. It was found that this piece got significantly different ratings, as indicated in Fig. 9. Arguably, this might show that surveys of this kind can be problematic. In this particular case, one might also argue that the piece got a higher rating the second time due to recognition, as indicated in the questionnaire, or the novelty of the experience (i.e. of hearing the same piece twice). Another possible explanation may be that the first occurrence of this piece was right after pieces within the same genre. However, the second time it was performed in connection to a newer genre with different expression, thus the piece might have been perceived as a fresh contrast. Therefore, this observation may indicate the importance of the exact layout of concert programs.

From the questionnaire in the second survey the participants described the harmonium as versatile, but this was not the case regarding the first survey. This discrepancy might be due to the fact that more registrations are utilized in the new repertoire compared to the traditional. Overall, it seems that this audience favored a varied timbre. However, rapid change of registration is, at least on the instrument used here, somewhat problematic because of the noise generated by moving its stops, as was also noted by the participants. Furthermore, frequent and quick change of registration require one or two assistants. During concerts this can interfere with the artistic stage picture since the harmonium is usually positioned close to the audience, with the performer facing away. Furthermore, the instrument is rather inconspicuous and therefore almost disappears behind performer and assistants. Traditionally, the harmonium player was expected to change registration without assistance.

From the second survey the harmonium was described as expressive, showing that the new music was successful in conveying emotion, thus honoring the original purpose of the instrument. Also, the fact that the sound it self was described as unexpected indicated that the new music showed innovation. It was also mentioned that the new repertoire was experienced as better adapted to the instrument compared to the traditional repertoire. Specifically, less virtuosity was here acknowledged as something beneficial for the instrument, supporting the discussion in Sect. 5.1.1.

The image shows two staves of musical notation. The first staff, labeled with a circled '1', is for measures 1-16. It is in 2/4 time and marked 'Allegro moderato' and 'p con anima'. The right hand has a melodic line with slurs and ties, while the left hand has a rhythmic accompaniment of chords on the off-beat. The second staff, labeled with a circled '1' and starting at measure 17, is marked 'mf'. It continues the melodic and accompaniment patterns from the first staff.

Figure 12: Examples of two themes from *Chant sans paroles* by Tchaikovsky. A piano piece found to be suitable for the harmonium.

5.2.1 Aesthetic principles

During the course of this work, an intriguing coincidence occurred down in the basement of *Göteborg Organ Art Center* (GOArt).⁶⁰ As it happened, the author was searching for harmonium repertoire within a pile of old scores that had recently been donated to the center. While clearing away dust from the covers of various editions, the author by chance stumbled upon *Au village* from *12 Morceaux*, Op. 40, which are a collection of character pieces for piano composed by Tchaikovsky. The performers first impression was that this music would be very suitable for the harmonium. As the piece was performed on the Alexandre harmonium used in this work, the assumptions proved to be accurate, and further pieces from the collection were explored. Here, several pieces measured up to expectations, especially *Chant sans paroles* which, in fact, became the model and inspirational source for *Puppetry*. Later, two different harmonium arrangements of *Chant sans paroles* were found: One by August Reinhard (1831–1912) edited by Sigfrid Karg-Elert (1877–1933), and another by Rudolf Bibl (1832–1902).

Possibly, the discovery amid the dusty bindings in the basement of GOArt was an example showing that there are indeed certain harmonium aesthetic principles. In *Chant sans paroles*, as exemplified in Fig. 12, the clear, bowed melody lines, together with the off-beat, short-chord accompaniment, are by themselves natural gestures for the harmonium. Here, the voice distribution is

⁶⁰ The research center for interdisciplinary studies of the organ and related keyboard instruments, connected to the University of Gothenburg.



Figure 13: From *Betrayal of the Æsir*, Giants lurking, bars 3–4 and 7–11. Note the sforzato accents enhancing the falling diminished sixths, and that the accompaniment changes to the melody from bar 8.



Figure 14: From *Betrayal of the Æsir*, Giants lurking, bars 14 and 32. The first shows accents produced by eighth-note chords, and the second a recurring melody line with an effect suitable for the harmonium.

also delicate and lies within a preferable range for the instrument. The bowed accompaniment in the later part of the piece almost imitates the dynamic line of a cello. Otherwise, the dynamic specifications, as well as the frequent tenuto markings, and accents indicate harmonium aesthetics. Accents were also used in the video-game suite *Betrayal of the Æsir*, as in the fourth movement entitled *Giants lurking*. For example, the introduction to the falling diminished sixth in bar 3 and 4 is enhanced with sforzato accents, as seen in Fig. 13. In this movement, the melody is also enhanced with an accompaniment that consists of staccato-dotted, arpeggiated chords. This pattern in the accompaniment becomes the melody from bar 8, as also seen in the figure. Instead, the accompaniment is moved to the treble, and consists of whole-note, compressed chords that brings forward the staccato melody effectively. Furthermore, the sixteenth-note sequence in bars 14 and 17 is beneficially accentuated with

♩ = 240

① ③ ④ ① ② Second voice is to be played marcato
Pump one pedal in eighth notes

③

Rinforzando

7

Figure 15: From *Betrayal of the Æsir*, Main theme, bars 1–14. A novel harmonium playing technique.

38

8

Figure 16: From *Modi*, Surface. The final chord will, as struck, produce a unique percussion effect, bars 38–40.

eighth-note chords in the bass, as exemplified in Fig. 14, following the movement of the treble, and leading to a new motif in bar 18. Here, there is a rhythmical pattern within a low, arpeggiated chord in the bass. However, the registration for the bass is rather bright. The sixteen-foot register is used in the treble for a melody in whole-notes. This melody is used again in a different, effective manner from bar 32, seen in the figure. Here, the alto voice has a series of rhythmical apoggiaturas resolving with a major third. The accompaniment here is also very aesthetically suitable for the harmonium, as it is supposed to be performed vividly, with a variety of accentuation and tempo.

In the *Main theme*, shown in Fig. 15, a completely new effect was introduced. The effect is presented in the prelude of the piece, and instructs the performer to hold down the chord in order to create the chords in an indicated



Figure 17: From *Modi*, *Surface*, bars 3–5 and 28–31. The alternation of melody line between bass and treble.



Figure 18: From *Modi*, *Tribute*, bars 30–32. Lyrical melody line together with effectual minor ninth-chords.

registration, and pump one of the pedals in a steady rhythmic manner. At the same time the melody line is to be performed with distinct finger action, and in this way actively engage the percussion register. The registration, and the pedaling technique, along with the layout of the chord and melody, enhances the hammering percussion sound in a unique way. In *Surface*, which is the second movement of *Modi*, another percussion effect is used in the final chord, as seen in Fig. 16. Here the performer is to press down the chord at the beginning of a crescendo, and since the percussion stop is drawn the result is an interesting plucked start of the long chord.

A recurring idea in many of the movements of the video-game suite, is the alternation of melody lines between treble and bass, see Fig. 18, using different intense timbres as leading, singing voices. This idea is also used within *Modi*, as for example the elegantly expressive melody line in the beginning of *Surface*. An even more lyrical melody line may be found in the fifth movement, *Tribute*,

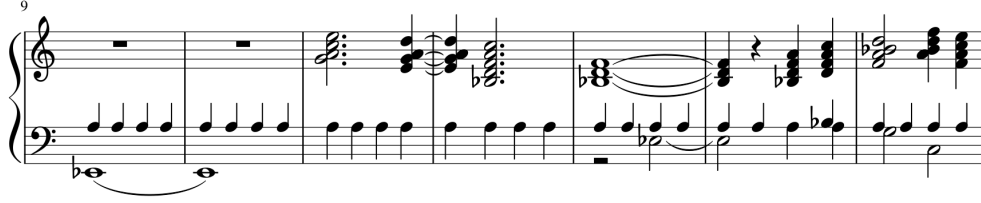


Figure 19: From *Modi*, *Serene*, bars 9–15. Static expression together with a suggestive affect.

from bar 29, where the soft registration of the accompaniment in the treble is also important. Here, the expressivity of minor ninth-chords are also effective for enhancing the lyrical sound quality of the instrument.

In movement four, *Serene*, expressivity and static rhythmical patterns collaborate in an interesting way, as seen in Fig. 19. Here, the melody lies within dense, half-note chords that change from soft to intensive expression within the movement, while the steady forth-notes continue statically. This is an intriguing effect, that is artistically convincing on the harmonium. One may discuss if this way of connecting a static, hollow expression together with suggestive affect, can even be considered a modern harmonium aesthetic.

To conclude, the special experienced qualities at the harmonium support performance of music that is comparatively clear in structure and voice distribution, and that does not require an extensively wide tonal range or depth. Moreover, the instrument appears to be well adapted for performance of different kinds of musical accents, and most of all for conveying *seamless dynamic* varieties. Generally, regardless of genre, the harmonium has shown to offer great possibilities for musicians and composers to explore different means of expression, even though it has limits in range and power. And even when a comparatively simple harmonium is used, such as the one within this work, the special timbre quality of the registers provide the musician with options to create contrasts and effects, both dynamically, and in terms of accents.

6 Conclusions

By looking at the past and the present, and by involving the composer, the performer, and the audience, this work has explored the nature of the French harmonium in different contexts, and from different angles. All things considered, the work has indicated that there is a distinguishable future role for the harmonium, some of which in fact was suggested in the past, see Sect. 1. Firstly, it was demonstrated that new, contemporary harmonium repertoire can be successfully developed. Particularly, the special qualities of the instrument are rather easily handled in such an undertaking, thus artistically reflecting its special character. Therefore, it seems appropriate to consider the harmonium as a contemporary concert instrument, and consequently to encourage more development of contemporary repertoire. Secondly, possibly the most important aspect is that the harmonium has shown to possess qualities that may be beneficial and relevant for the education of keyboard instrumentalists, as well as composers, as discussed in Sect. 5.2. The special dynamic qualities may be useful within a context of developing a refined expressive performance practice for the education of musicians, perhaps specifically addressing keyboard instrumentalists. Composers may also benefit from the dynamical qualities of the harmonium, since it may inspire them to incorporate more dynamic initiatives in their aesthetics. Furthermore, the dynamic properties, and particular timbre of the instrument may encourage musicians to embody melody lines, emphasize musical phrasing, and explore articulation of various accents. Specifically, the instrument may be used for preparatory studies before organ practice, since it offers a possibility to (1) practice legato performance, and (2) practice keyboard technique separately, but still practice pedal performance, as discussed in Sect. 5.1.

Interestingly, this work has also shown that a large variety of timbre, and a powerful sound are not factors that are essential to move audiences. Arguably, a softer and more clear sound is even more beneficial for effective expressivity, as discussed in Sect. 5.1. Whether the instrument has any impact on the musician, is of course a subject which surely is worthy of further research. However, as a keyboard instrument it is unique with its authentic resonance and special qualities and could very well play an important future role as a tool for developing expressive music performance.

6.1 Future work

Firstly, the comparison between the French romantic organ and the French harmonium presented in this work is a subject for further studies. In such an effort an extended and thorough analysis of each movement should be given,

as well as illustrative recordings.

From the perspective of this work, the French harmonium should *not* be considered an antique. Instead, it should be explored as a potential contemporary concert instrument. Its features should also be evaluated for academic and pedagogical purposes. Furthermore, the instrument may very well permit the development of new artistic expression. As an extension to this work, future work should aim to explore the *nature* of expressive performance, and how to establish a close symbiosis between the harmonium and performer. Ultimately, there should be a goal of finding a novel theoretically grounded method for teaching expressive performance by using the harmonium as a tool.

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Appendices

Scores

31 *mp*

f

34

37

mp

41

45

49

mf

♪ = 380 ♩ = 240

52 3

f *mp*

56

62 *mf* 4 2

67 4 *mp* 2 2

72

78

82

mp

This system contains measures 82 through 85. The right hand features a melodic line with eighth-note patterns and a half-note chord with a sharp sign. The left hand plays a steady eighth-note accompaniment. A dynamic marking of *mp* is present in the second measure.

86

G *ff*

This system contains measures 86 through 89. The right hand has a melodic line with eighth-note patterns and a half-note chord with a circled **G** and a dynamic marking of *ff*. The left hand plays a melodic line with eighth-note patterns.

90

This system contains measures 90 through 93. The right hand features a melodic line with eighth-note patterns and a half-note chord with a sharp sign. The left hand plays a melodic line with eighth-note patterns.

94

This system contains measure 94. The right hand has a half-note chord with a sharp sign and a dynamic marking of *ff*. The left hand plays a half-note chord with a sharp sign.

Village life

Betrayal of the Æsir

Lisa Benderius

① ④

Harmonium

E

S

5

Harm.

④ ①

10

Harm.

14

Harm.

17

Harm.

20

Harm.

23

Harm.

27

Harm.

30

Harm.

33

Harm.

37

Harm.

39

Harm.

42

Harm.

46

Harm.

49

Harm.

52

Harm.

56

Harm.

59

Harm.

63

Harm.

68

Harm.

71

Harm.

74

Harm.

77

Harm.

80 Harm.

Musical score for measures 80-82. Measure 80 features a treble clef with a series of chords and a circled '3' above the staff. The bass clef has a single note in measure 80 and chords in measures 81 and 82. A circled '3' is below the bass staff in measure 81.

83 Harm.

Musical score for measures 83-85. Measure 83 has a treble clef with a melodic line and a bass clef with chords. Measure 84 has a treble clef with a melodic line and a bass clef with chords. Measure 85 has a treble clef with a melodic line and a bass clef with chords. The key signature changes to three sharps (F#, C#, G#) and the time signature changes to 2/4.

86 Harm.

Musical score for measures 86-88. Measure 86 has a treble clef with a melodic line and a bass clef with chords. Measure 87 has a treble clef with a melodic line and a bass clef with chords. Measure 88 has a treble clef with a melodic line and a bass clef with chords. The key signature changes to two sharps (F#, C#).

89 Harm.

Musical score for measures 89-91. Measure 89 has a treble clef with a melodic line starting with a forte (*f*) dynamic and a bass clef with a whole rest. Measure 90 has a treble clef with a melodic line and a bass clef with a whole rest. Measure 91 has a treble clef with a melodic line and a bass clef with a whole rest.

92 Harm.

Musical score for measures 92-94. Measure 92 has a treble clef with a melodic line starting with a fortissimo (*ff*) dynamic and a bass clef with a whole rest. Measure 93 has a treble clef with a melodic line ending with a fortississimo (*fff*) dynamic and a bass clef with a whole rest. Measure 94 has a treble clef with a series of chords and a circled 'G' above the staff, and a bass clef with chords.

95 Harm.

Musical score for measures 95-97. Measure 95 has a treble clef with a series of chords and a bass clef with chords. Measure 96 has a treble clef with a series of chords and a bass clef with chords. Measure 97 has a treble clef with a melodic line and a bass clef with chords. The key signature changes to three sharps (F#, C#, G#) and the time signature changes to 2/4.

98
Harm.

101
Harm.

104
Harm.

108
Harm.

112
Harm.

Hymn of the betrayed

Betrayal of the Æsir

Lisa Benderius

① ④ ⑦

Harmonium

⑤

⑥

Harm.

⑪

Harm.

②

⑫

Harm.

⑫

Harm.

④ ③

④ ②

21
Harm.

23
Harm.

25
Harm.

27
Harm.

30
Harm.

34
Harm.

40

Harm.

Musical notation for measures 40-46. Treble clef has notes with circled fingerings 0, 3, 4, 3, 4, 0. Bass clef has chords and rests.

47

Harm.

Musical notation for measures 47-50. Treble clef has a melodic line with slurs. Bass clef has chords and rests.

51

Harm.

Musical notation for measures 51-55. Treble clef has notes with slurs and a fermata. Bass clef has chords and rests.

56

Harm.

Musical notation for measures 56-60. Treble clef has notes with slurs. Bass clef has chords and rests.

61

Harm.

Musical notation for measures 61-65. Treble clef has notes with slurs and a fermata. Bass clef has chords and rests. A circled "+2" is at the bottom.

Giants lurking

Betrayal of the Æsir

Lisa Benderius

① ④ $\text{♩} = 140$

Harmonium

① ④

5

Harm.

④ C

9

Harm.

② ④

13

Harm.

②

16

Harm.

② ④ ③

19
Harm.

24
Harm.

29
Harm.

32
Harm.

34
Harm.

36
Harm.

39
Harm.

Musical score for measures 39-40. Treble clef has eighth notes with slurs and accents. Bass clef has chords and eighth notes with slurs and accents.

41
Harm.

Musical score for measures 41-44. Treble clef has a long slur over a melodic line. Bass clef has chords and eighth notes with slurs and accents.

45
Harm.

Musical score for measures 45-48. Treble clef has a long slur over a melodic line. Bass clef has chords and eighth notes with slurs and accents.

49
Harm.

Musical score for measures 49-51. Treble clef has eighth notes with slurs and accents. Bass clef has chords and eighth notes with slurs and accents.

52
Harm.

Musical score for measures 52-55. Treble clef has chords with slurs and accents. Bass clef has chords with slurs and accents. Includes a circled G and a forte (f) dynamic marking.

56
Harm.

Musical score for measures 56-59. Treble clef has a long slur over a melodic line. Bass clef has chords with slurs and accents. Includes a fortissimo (ff) dynamic marking.

57

Harm.

58

Harm.

60

Harm.

62

Harm.

64

Harm.

Harm.

31

-4

Harm.

39

+4

Harm.

48

+4

Harm.

54

8va

Harm.

59

63
Harm.

69
Harm.

76
Harm.

84
Harm.

90
Harm.

Harm.

95

Harm.

100

Harm.

104

8va

The image shows three systems of piano accompaniment, each labeled 'Harm.' and consisting of two staves. The first system begins at measure 95 and contains two circled '-4' markings. The second system begins at measure 100. The third system begins at measure 104 and includes an '8va' marking above the treble staff. The music is written in 3/4 time and features various rhythmic patterns, including eighth and sixteenth notes, and rests.

1. Irregular

1, 4

$\text{♩} = 120$

Organ

f

5

(-4)

8va-----|

mp

pp

8va-----|

(+3)

pp

10

f

f

(-4)

f

15

p

mf

(+0)

mf

19

(+G)

(-G)

f

p

f

23

(+G)

8va-----|

f

mf

f

27 *8va*-----| (-G)

p *mf* *p* *mf*

31 (+G)

f *f* *f* *f*

35 *8va*-----| (-G)

pp *pp* *ff*

38 (+G)

p *mf* *mf* *mf*

42 *8va*-----|

f *f* *f* *f*

46 (8)-----|

f *f* *f* *f*

50

f *mp* *pp* *pp*

-G -3

8va-----|

-3

+3 +4

55

p *p* *p* *p*

8va-----|

+3 +4

59

pp *pp* *ppp*

-3

62

pp *pp* niente

8va-----|

2. Surface

BL

① C

♩ = 72

8va

Organ

mf

① ④ ⑩

5 (8)

-1

+1

-0

p

+0

9

8va

f

f

12 (8)

-C +4

+G

-1

-0

p

+1

+0

16

f

2

18 (- G)

ff *p*

20 (+ 0)

f *p*

22 (+ G)

ff *f* *ff*

24 (- 0)

p

28 (- 4) (+ C)

p

32 (+ 4) (+ 0)

p

36

8^{va}-----3

8^{va}-----3

Rondo chorale

① $\text{♩} = 200$ ③ +3

Organ

④ mf p

5 mf ① -1

9 f ① +1 ③ -3 ① +C

13 $8va$ ff p ① -C ③ +3 ① -3

17 ff mp ① +G ① -G

2

20

Musical score for measures 20-22. The piece is in 5/8 time. Measure 20 features a piano (*pp*) dynamic. Measure 21 includes a *pp* dynamic and a circled '+ G' marking. Measure 22 features a forte (*f*) dynamic.

23

Musical score for measures 23-25. The piece is in 4/4 time. Measure 23 features a forte (*f*) dynamic. Measure 24 includes a circled '- G' marking. Measure 25 features a mezzo-piano (*mp*) dynamic and a circled '+ 3' marking. A circled '+ G' marking is also present at the end of the system.

26

Musical score for measures 26-28. The piece is in 4/4 time. Measure 26 features a forte (*f*) dynamic. Measure 27 includes a sforzando (*sfz*) dynamic. Measure 28 features a fortissimo (*ff*) dynamic.

29

Musical score for measures 29-32. The piece is in 5/8 time. Measure 29 features a mezzo-piano (*mp*) dynamic and circled '- G' and '- 3' markings. Measure 30 features a piano (*p*) dynamic. Measure 31 features a piano (*p*) dynamic. Measure 32 features a fortissimo (*ff*) dynamic.

33

Musical score for measures 33-35. The piece is in 5/8 time. Measure 33 features a piano (*pp*) dynamic. Measure 34 features a piano (*pp*) dynamic and a circled '- 4' marking. Measure 35 features a piano (*pp*) dynamic.

4. Serene

Organ

② ① *p*

8va

7

13

19

25

② -2 ① -C ③ +4

31

④ -4 ⑤ +C

pp

pp

37

pp

pp

Detailed description: This system contains six measures of music. The first measure has a treble clef with a key signature of one flat and a whole note chord. The second measure has a treble clef with a key signature of two sharps and a whole note chord. The third measure has a treble clef with a key signature of two sharps and a whole note chord, with 'pp' written below. The fourth measure has a treble clef with a key signature of one flat and a whole note chord. The fifth measure has a treble clef with a key signature of one flat and a whole note chord, with 'pp' written below. The sixth measure has a treble clef with a key signature of one flat and a whole note chord.

43

(+3)

(-3) (+2)

8va--

8va--

Detailed description: This system contains six measures of music. The first measure has a treble clef with a key signature of two sharps and a whole note chord, with '(+3)' in a circle above. The second measure has a treble clef with a key signature of one flat and a whole note chord. The third measure has a treble clef with a key signature of one flat and a whole note chord. The fourth measure has a treble clef with a key signature of one flat and a whole note chord. The fifth measure has a treble clef with a key signature of one flat and a whole note chord, with '8va--' written above. The sixth measure has a treble clef with a key signature of one flat and a whole note chord, with '8va--' written above.

49 (8)---

Detailed description: This system contains five measures of music. The first measure has a treble clef with a key signature of one flat and a whole note chord, with '(8)---' written above. The second measure has a treble clef with a key signature of one flat and a whole note chord. The third measure has a treble clef with a key signature of one flat and a whole note chord. The fourth measure has a treble clef with a key signature of one flat and a whole note chord. The fifth measure has a treble clef with a key signature of one flat and a whole note chord.

54

Detailed description: This system contains five measures of music. The first measure has a treble clef with a key signature of one flat and a whole note chord. The second measure has a treble clef with a key signature of one flat and a whole note chord. The third measure has a treble clef with a key signature of one flat and a whole note chord. The fourth measure has a treble clef with a key signature of one flat and a whole note chord. The fifth measure has a treble clef with a key signature of one flat and a whole note chord.

25 *8va*

Org. *poco rit.* *p*

29 $\text{♩} = 66$ *8va*

Org. *p*

34 (8)

Org. *p*

40 (-C +4)

Org. *p*

45 $\text{♩} = 84$

Org. *ff* *mf* *f*

49

Org. *pp*

51 $\text{♩} = \text{♩}$

Org.

ff

p