Adapting barbershop harmony for the saxophone quartet

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Adapting barbershop harmony for the saxophone quartet

This thesis is presented in partial fulfilment of the degree of Bachelor of Music Honours

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Abstract

Barbershop harmony refers to a unique style of arrangement and performance for voice that is strictly in four parts and acapella. There is much untapped potential in this close harmonic genre that could be explored in instruments other than the human voice. This paper set out to explore and establish a method of arranging and performing music of the barbershop style for the saxophone quartet. To achieve this transference of the style from voices to saxophones, the harmonic conventions and arranging rules of barbershop from the existing literature were established, along with a review of the literature pertaining to effective saxophone ensemble writing.

An exegetical process was adopted utilising the Action Research Model. This detailed the processes of rearranging barbershop standards for a quartet of saxophones, drawing on the accepted traditions of the barbershop style. Specific aspects of instrumentation, dynamics, intonation, and the expression of text were considered throughout the process, resulting in the production of considered rearrangements of barbershop music for saxophone quartet, along with observations as to how to perform them in an authentic manner. This research aimed to show that the saxophone quartet is an effective medium through which to perform the music of barbershop quartets and that barbershop is a genre that should not just be restricted to voices; its unique style could be enjoyed by many different arrangements of instruments.
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Chapter 1: Introduction

Music ensembles featuring multiple parts have been a staple of the Western Art canon and one of the more popular configuration features four performers on individual parts. The quartet formation was likely popularised in the 18th century with Joseph Haydn’s string quartet canon (Stowell & Cross, 2003) and the rich history and repertoire of that ensemble contributed to the early saxophone quartets of the 19th century (Plugge, 2003 p. 148). Various saxophone quartets formed in the late 19th and early 20th century, but it wasn’t until Marcel Mule’s quartet formed in 1928 that this instrumental ensemble was brought to serious prominence and popularity (Deane, 2011 p. 1). Mule’s, alongside Sigurd Raschèr’s, quartet standardised the instrumentation of soprano, alto, tenor, baritone saxophone (Deane, 2011, p. 1).

Elsewhere, in the late 19th century of the United States, the new style of vocal quartet called barbershop was forming based on harmonic improvisation on popular tunes of the day. The name barbershop was likely taken from the African American barbershops where this type of singing was rich. These quartets utilised four-part singing to bring out the multitude of seventh chords that were essential to its identity (Abbott, 1992, p. 308). In 1938 the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, Inc., or the S.P.E.B.S.Q.S.A., was formed which eventually became the Barbershop Harmony Society that we have today (Döhl, 2014, p. 127).

As a musician, I have experience performing in both saxophone quartets and barbershop quartets through with experiences in tertiary classical saxophone studies and competitive barbershop singing. The joy of performing high level music in these ensembles led me to consider which aspects of each style I found so engaging; from the expanded sound and harmonic twists of barbershop and the timbral richness and powerful sounds of saxophone. I believe there should be a way to combine these independent, prominent styles into something potentially even greater.

Rationale

Barbershop harmony, the term given to the style of arrangements traditionally sung by barbershop quartets, has almost been exclusive to vocal ensembles with no discernible research being done on its performance on other instruments. The lock and ring sound of barbershop harmony, which is described by Averill as an expanded chord sound (1999, p. 49), as well as its many other idioms could theoretically be expanded beyond its current scope. Although there is much published research on analysing saxophone quartet repertoire and a little on transcribing for the quartet from classical
styles, there has been no research on transcribing or arranging barbershop for this ensemble. A gap similarly exists in the barbershop literature. Most research in fact deals with the social aspect of barbershop singing with some papers focusing on the musical conventions of the style but there appears to be no study pertaining to applying the genre to instruments other than voice. Saxophones are uniquely situated for this experiment as it has often been referred to as a “vocal” instrument with several composers such as Prokofiev and Rachmaninoff using saxophones to play lines originally intended for the human voice (Easton, 2006 p. 61).

My background in both barbershop singing and saxophone ensemble playing, while not at the level of seasoned professional, does place me in a unique position to write about both fields at least at the honours level of research. As a music major with saxophone being my primary instrument, I have had extensive experience in my degree with ensemble and quartet playing. This experience has instilled an intrinsic knowledge of the sound and writing style of saxophone music with personal experience on multiple saxophone parts. In the world of barbershop singing my experience is only a few years old but during this short time I have competed twice in national conventions with a mixed chorus, achieving first place in the mixed division both times, as well as singing in mixed and men’s quartets for short periods of time for education and experience. These experiences are what led me to an immense appreciation of the unique arrangement style of barbershop harmony and the drive to merge the genre with my primary instrument.

Literature review

Saxophone quartets already perform several genres including classical, jazz, tango, folk, and more (Etheridge, 2008, p. iii; Plugge, 2003, pp. 189-192; Speath, 2014, p. vii) so it would be safe to assume that this ensemble format would welcome the incorporation of another new style. Also, there seems to be little evidence of barbershop harmony being featured in anything except vocal ensembles though it did influence some early jazz (Hobson, 2017, p. 97). This is curious considering barbershop is regarded as one of the uniquely American styles (Döhl, 2014, p. 130) and has left its cultural mark on the world. It could be said that people would be at least aware of the idea of a barbershop quartet due to its prevalence in pop culture. One might think to simply just play some barbershop charts on four saxophones and be done with it but there are several questions that must be answered:

• Which saxophones will play each part?
• Can saxophones bend pitches over a large distance between notes
• Are the resonances of the saxophone similar to the voice in all ranges?
There are noticeable differences between the physical aspects of how each ensemble works that must be addressed to create an effective arrangement or transcription (Bogert, 2013, pp. 57-58; Etheridge, 2008, p. vii). Investigating the effect of barbershop techniques as performed by voice then trying to emulate those effects with saxophones will require a deep understanding of how the saxophone functions in ensemble. Easton’s (2006) publication *Writing for saxophones* provides information on how to orchestrate the saxophone ensemble for specific effects and details the qualities of each saxophone’s range. This will provide a guide for matching the desired effects of barbershop singing on the woodwind instrument.

One of the most uniquely idiosyncratic features of barbershop arrangements is the position of the melody and harmony in the parts. As stated in the *Contest and Judging Handbook* (Barbershop Harmony Society, 2018b, p. 2-1) the melody is in the “Lead” second from the top, the “Tenor” harmonizes above the melody, the “Bass” sings the lowest harmonizing notes, and the “Baritone” completes the chord. The roles of these parts are fairly rigid. Averill (1999, p. 49) points out that “the production of expanded sound is the single most important aesthetic consideration” for the barbershop style and thus of paramount importance when evaluating the performance of barbershop by saxophones. This expanded sound is achieved through carefully tuned chords according to just-intonation (Averill, 1999, p. 48). From an arranging stance, Döhl (2014, p. 124) cites the identifying features of barbershop to be its specific type of chord progression and its chromaticism. Primarily, the use of *circle of fifth* progression with generous use of dominant and secondary dominant chords is common. Up to 35-60% of a barbershop arrangement is usually dominant seventh chords (Döhl, 2014, p. 129). Historically the term barbershop commonly referred to “that barbershop chord” such as in the earliest mention of barbershop in popular music “Play That Barbershop Chord” (Lewis F Muir, 1910) The titular chord in that song is a dominant seventh on the flat sixth of the key (Döhl, 2014, p. 134).

The barbershop style also applies the rhythmic nature of the arrangement, not just the harmonic and melody. The parts in barbershop must be primarily homorhythmic and form four-part chords for every note in the melody (Barbershop Harmony Society, 2020, p. 2-1). Embellishments such as “swipes” in which a chord progression occurs while at least one part is holding the same note, are hallmarks of the barbershop style (Richardson, 1975, p. 301). Another feature often used is a portamento, or slide (Bartlett, 2011, p. 85), which can be utilised be over quite large distances between notes. Such a performance technique comes naturally to the human voice compared to woodwind instruments. However, there is evidence to suggest that with enough influence of the vocal tract the saxophone can bend several semitones below a desired note (Chen et al, 2011, p. 418) to produce a similar effect which supports what most experienced saxophone players know.
These techniques may have been formed in the style of one of barbershop’s precursors, vaudeville minstrels, who were entertaining audiences in the 19th century (Abbott, 1992, p. 312). Interestingly, those acts may have shared that stage in the same time period with some of the early saxophone quartets (Plugge, 2003, p. 88).

A saxophone quartet put simply is any four saxophones playing in ensemble. Historically the format of soprano-alto-tenor-baritone (SATB) or alto-alto-tenor-baritone (AATB) has been the most popular combination (Plugge, 2003, pp. 191-192). This is likely because it mirrors quartets of other instruments such as strings and makes arrangements from those quartets easier. As the variety of the repertoire for early quartets was vast the role of each instrument changed to suit the style of the composition (Deane, 2011, pp. 28-29; Easton, 2006, pp. 135-158). This provides a precedent to alter the roles of the saxophone to suit the barbershop style. Easton writes that the saxophone is more homogenous and easier to blend in the middle of its range. (Easton, 2006, p. 142) While this suits the spread-out writing style of traditional saxophone quartet repertoire, in order to blend well in the close harmonic writing of barbershop arrangements, perhaps a different collection of saxophones would be better suited. As the sounds blend better in the middle of the range, they are more distinctive in the upper and lower registers, so care must be taken when writing in these areas so as not to negatively affect blend.

We know from Döhl (2014, p. 129) that blend is an important consideration of barbershop arranging. Easton (2006 p. 136) mentions that the AATB quartet provides a darker, more blended sound but more interestingly he suggests that using four saxophone of the same type creates a “very pure and rich sound with better blend.” A distinctive feature of the saxophone is the frequent use of vibrato but Bogert (2013, p. 51) suggests considering the musical context when applying vibrato to transcriptions and not assuming it to be an inherent trait of the saxophone sound so one must be considerate of how vibrato can serve each arrangement. As Etheridge (2008 p. 86) reminds us, saxophone transcriptions and arrangements must be historically informed so we must consider the use of vibrato in barbershop. Barbershop style singing suggests that some vibrato, particularly in the Lead part, can enhance the emotional content of the music but too much will erode the ensemble sound (BHS, 2018b, pp. 7-3 of 7-12) a further element that should inform the performance of a barbershop by saxophonists.

It is important to note that barbershop has not remained a static genre locked in antiquity. It has a thriving scene today with new arrangements constantly being written which can be seen in the list of songs sung at the 2019 international quartet finals (BHS, 2019, pp. 1-2). The style of barbershop has changed somewhat since the inception of the S.P.E.B.S.Q.S.A in the 1950s (Abbott, 1992, p. 296). The contest rules had four judging categories which focused more on singing and
arranging technique than performance or stage presence (Hopkins, 2020, pp. 82-83). Today the judging categories are broader and feature music, singing, and performance equally. As the goal to accurately create the barbershop sound and style through saxophones is a modern innovation, I will more closely follow the modern guidelines of barbershop techniques.

For barbershop contest sets, as can be seen in the 2019 BHS Quartet Finals (BHS, 2019, pp. 1-2), quartets usually sing two songs traditionally divided into a faster “up-tune” and a slower “ballad” (Richardson, 1975, pp. 295-302) to demonstrate the emotional range of the quartet. The definition of what barbershop currently is, is determined by the current music judges (Döhl, 2014, p. 130) so to follow the Contest and Judging handbook (BHS, 2018b) seems to provide an effective way to create a saxophone work that is most accurately barbershop. It would be remiss to not mention the newer innovation of mixed barbershop which features both male and female voices still written in same traditional parts but featuring different ranges to account for different voice types (Beck, 2017). Beck acknowledges in this article that mixed barbershop is a new field and groups often just sings male arrangements transposed up slightly, but some mixed barbershop arrangements might provide inspiration on how to arrange barbershop for ranges larger than the original ensemble.

The aim of this research is to determine how can the barbershop style be utilised and how rearrangements can be created to be performed by a quartet of saxophones while retaining the original qualities of the genre. Further, this research will attempt to uncover any changes needing to be made to the ensemble make-up whilst maintaining the sonorous qualities of the saxophones and highlighting the versatility of the saxophone quartet.

**Methodology**

In order to uncover possible steps needed to appropriately adapt the sound and harmonic twists of barbershop to the timbral richness and powerful sounds of saxophone, this exploration will be structured using a methodology that combines a review of the current literature, along with an exegetical discussion using the McNiff Action Research Model (ARM) to structure its investigation (McNiff, 2013, p. 22). As indicated below in figure 1, the ARM method has four parts: plan, act, observe, and reflect which presents itself as a form of reflective journal. McNiff’s model has proven its relevant application in music academia in both honours (Parry, 2017) and masters dissertations (MacDonald, 2019)
Figure 1 – Diagram of the Plan, Act, Observe, Reflect model (McNiff, 2013).

The first step of the research will be to use the model to explore the process of directly arranging existing male, barbershop arrangements for saxophone quartet in order to reflect on the best configuration of instruments to use in the quartet. Most likely, a combination of alto or tenor saxes will suit the Tenor, Lead, Baritone, Bass format of male barbershop arrangements as opposed to the SATB format that has traditionally been seen as the standard for saxophone quartet arrangements. This process may also be applied to female and mixed barbershop arrangements as well. The observation of these arrangements will be both through digital playback through music notation software and through subjective reflection from live recorded performances. The second step of the research will be to rearrange music in the barbershop style specifically for saxophone quartet. McNiff’s model will allow me to explore the results of this process and reflect on the rearrangement and its quality through similar observation to the rearrangements of the first step.

In the planning phase of the McNiff action research model (2013) the first step for the initial rearrangement process was choosing the barbershop repertoire that I could most accurately rearrange in the appropriate style for the saxophone quartet. As such, I chose repertoire I was already familiar with that also showcased a variety of barbershop arranging which included a ballad, an up-tune, and an arrangement for a mixed gender group. As is typical in the barbershop canon, each of these songs are existing tunes that have been arranged in the barbershop style to be sung by a quartet or chorus in barbershop contest. The songs used in this stage of the research are as follows. *Come Fly With Me*, originally by James Van Heusen (1958) and arranged by Kevin Keller (2002) which represents a typical male barbershop up-tune. *Mean Ol’ Moon*, originally composed by Seth McFarlane (2015) and arranged by Nick Schuurman (2019) which represents a new mixed harmony arrangement. And *Come What May*, originally by David Baerwald (2001) and arranged by Kevin Keller (2012) which represents a male barbershop ballad.
Barbershop arrangements are specifically designed to bring out a unified and expanded sound of the vocalists on all four parts (Averill, 1999 p. 48-49) whether the arrangement be for a men’s, women’s, or mixed group. As such, each arrangement considers the total range of each voice and the resonances and timbre that exist at certain ranges. For example, the Bass part of *Come What May* sits low and sombre for most of the song but soars up high at the ending to create a more rich and intense effect (See figure 2 below).

In much the same way, arrangements for the saxophone quartet must also carefully consider the lines of each part so that the range, resonance and timbral qualities of each instrument are being utilised. In a way that best reflects the strengths of the instrument.

Saxophone quartet arrangements demonstrate a keen awareness of each saxophone’s tone quality across the whole range, showcasing music that accentuates timbral blend or uniqueness where musically appropriate. The lowest and highest notes of each saxophone’s range are more difficult to produce and control than notes in the middle of the instruments’ range (Easton, 2006, p. 64).
The following example shows the maximum range of each saxophone. Notes at or near the end of each of these ranges should be avoided or used for emotional intensity.

![Saxophone Ranges]

**Figure 3** – Ranges of saxophones taken from Londeix’s *Hello! Mr. Sax* (1989 p. 4)

In contrast, the usual range of each voice part in barbershop singing, for males, can be seen below in figure 4.

![Barbershop Ranges]

**Figure 4** – Common vocal ranges for men in barbershop arrangements (BHS, 2018a)
Action Research Model #1 “Rearrangements”

Plan

The range of the barbershop voice parts vary slightly (See Figures 5-7) between styles and songs making it challenging to determine one specific configuration of saxophones that would fit every barbershop song. For example, if we were to assign a saxophone to each vocal part of Kevin Keller’s arrangement of *Come Fly With Me*, transferring the exact notes and ranges and maintaining the original key of the arrangement, we would have to use four baritone saxophones or three baritones and one tenor saxophone in order to stay within comfortable ranges for the instruments.

To achieve similar timbral and blending effects to an original vocal arrangement with a mixed harmony song such as *Mean Ol’ Moon* a different approach is required. The ranges in mixed harmony are larger due to featuring both male and female voices and as such the music would be more flexible to arrange for saxophones than non-mixed harmony. Therefore, one could include a large variety of saxophone combinations including all four instruments in this rearrangement, although the soprano saxophone would still have to play at an extreme end of its range. As Averill (1999 p. 49) writes, that blend is one of the more important considerations of barbershop writing and Easton (2006) writes that saxophones blend best in the middle of their range we can surmise that the barbershop parts should be rearranged in the comfortable middle range of the saxophones (Easton, 2006, p. 142). The process of experimentation that follows included an aspect of trial and error with different saxophone combinations, a reflection on how their ranges best suit barbershop arrangements, and a reflection on how the tone of the different saxophones suits the role of the barbershop part they are playing.

Act

Preliminary rearrangements of the three pieces with different instrumentations were formulated: *Come Fly With Me* in SAAT; *Come What May* in AATT; and *Mean Ol’ Moon* also in AATT as it is a slightly different writing style for a mixed harmony song. The scores were presented to the players with no alteration from the original except for changing the range and key of the piece to fit the instruments. Further, lyrics were omitted, no phrasing or articulation was added and there was no discussion as to barbershop traditions or performance practices.

In figure 5 below we can see the original ranges for each part of the original barbershop arrangement of *Come What May* in B Major followed by the ranges for each part in the saxophone rearrangement in F Major. An excerpt of what the players were presented with is also in this figure.
Figure 5 – Range comparison and saxophone excerpt from *Come What May*

Figure 6 below shows the ranges of *Come Fly With Me* (originally arranged in F Major) with an excerpt of what the players were presented with written in Bb Major.
Figure 6 - Range comparison and saxophone excerpt from *Come Fly With Me*

Figure 7 below details the same process for *Mean Ol’ Moon* originally arranged in mostly Db Major with the saxophone rearrangements ranges and excerpt an excerpt of what the players were presented with written in Gb Major.
Figure 7 - Range comparison and saxophone excerpt from *Mean Ol’ Moon*

**Observe**

In the Soprano, Alto, Alto, Tenor (SAAT) saxophone rearrangement of *Come Fly With Me*, the tenor saxophone provided a nice full Bass sound while the alto saxophones (playing what would be considered to be the Lead and Baritone voices) blend well. However, the soprano saxophone on the Tenor line did not blend as well with the group. Technically this shouldn’t be an issue, but the soprano has had a reputation for being notoriously difficult to tune (Easton, 2006 p. 77) and sections like those found in Figure 8 below were examples of it not blending within the ensemble texture.
Additionally, the *scoop* near the end of the song seen in Figure 9 was not conveyed effectively in the saxophones, likely due to the large range of scoop (Jer-Ming Chen, 2011, p. 425), a lack of sheet music direction and no knowledge of the barbershop conventions.
The 2 alto, 2 tenor saxophone (AATT) rearrangement of *Come What May* achieved an effective blend but there were obvious range difficulties in the Lead and Baritone parts as they were both written to cross over each on numerous occasions but were being played by different saxophones. Further, the performance was stilted and slow due to the performance not deviating from the starting tempo. Barbershop ballads typically stretch and pull the tempo far away from the sheet music and this performance did not feature the free-flowing momentum of the original which led to some stamina issues for the players. An excerpt of a passage severely impacted by lack of musical movement is shown in Figure 10.

![Excerpt](image)

**Figure 10 – Excerpt where performance was stilted and slow in *Come What May* (Version 1)**

*Mean Ol’ Moon’s* AATT rearrangement was expected to achieve better blend between the Lead and Baritone parts. This is due to the fact that in *mixed harmony* barbershop arranging, rarely does the Baritone part go above the Lead part. However, the tenor saxophone on the Baritone line was a bit too powerful for the Alto saxophone on the Lead line. Further, the low Bb at the end of the piece for the tenor saxophone was very difficult to sound appropriately soft and resonant (See Figure 11). As Easton (2006 p. 70) notes, “it is best to avoid writing softer than *mp* below a low E-flat if it can be avoided.” The performance lacked crisp-ness particularly with articulation leading to a lack of clarity in the ensemble sound.
Figure 11 – Example of difficult last note for tenor sax in Bass part of Mean Ol’ Moon (Version 1)

Reflect

Many of these observations were as a result of the players purposely not being informed of the performance practices of barbershop music before playing and so they performed the music from a purely instrumental stance without knowledge of barbershop conventions that dictate, among many things, a specific balance between the parts or lyrical phrasing of the music. The sheet music provided also did not accurately convey the meaning or expression of the text, the interpretation of which is an assumed barbershop performance practice. This information was left out so that any observations and reflections of the saxophonists would be representative of an instrumentalist viewing barbershop music for the first time.

From my experience singing barbershop music, there is one idiosyncrasy to the style that I found to be unique to its performance practice. There is an assumed performance practice in barbershop performance that emphasises some parts over others. The Bass often provides the foundation of the sound and so should be the most prominent sound. The Lead part contains the melody most often, so that should also be very prominent. The Tenor and Baritone parts have the role of harmonizing the melody so whilst it is important that they are heard, they are in service to the Lead part and as such, are not as fundamental as the Bass. The Barbershop Harmony Society in their document “Barbershop Performance Best Practices “(BHS, 2020) state that this balance of parts is approximately 40% on Bass, 30% on Lead, 20% on Baritone and 10% on Tenor. This concept was not conveyed in the sheet music and so the performers could not execute it in the first recording.
Another key challenge of translating barbershop performance to instruments is the rhetoric of the text which is naturally expressed by vocalists. The information contained in a line of words is vast; consonants, vowels, emphasis, and phrasing are all implicitly conveyed by the spoken or written language. It was observed that a barbershop song, rearranged for instrumentalists, must take into consideration these aspects of the text from the original song, leading to the formulation of ways of translating the lyrical intention or meaning into standard musical language using such devices such as dynamics and articulation.

**Action Research Model #2 “Improved rearrangements”**

**Plan**

To solve the issues of blending, momentum, and emotional understand of the text, extra steps must be taken. Firstly, the players should be informed about the basics of barbershop balance in that the Lead and Bass should be at the forefront of the texture whilst the Tenor and Baritone fulfil their harmonic role more subtly. Secondly, the sheet music must be adjusted to better convey an interpretation of the text in a way that is intuitive for instrumentalists to understand and a variety of dynamics, articulations, and expressions will be added to their scores. Special care should be taken when applying articulation markings to the score. As Londeix notes on saxophone music articulation in *HELLO! Mr. Sax* (1989 p. 98), a variety of saxophone articulations have a phonetic equivalence that represent a small handful of sounds in spoken language. Equivalent notations could be used but direct applications such as these must be considered with the goal of smooth, connected lines that express full phrases of text and music. Thirdly, different instrumental combinations should be tested to investigate what would produce the most homogenous sound.

The assumption of saxophonists in quartet settings is that the written dynamics will inform the balance of the piece, where pieces can vary greatly in texture. With specific respect to barbershop performance practices, the homorhythmic nature of the arrangements can often make it hard for a performer to distinguish which line carries the melody. In keeping with this barbershop performance style, the player on the Bass part of these saxophone recordings was instructed to increase the volume of their part and the players on the Tenor and Baritone parts were instructed to lessen their dynamic and focus on blending.
Come Fly With Me was rearranged for alto sax, two tenor saxes, and baritone sax (ATTB) to test if the ensemble would blend better without soprano sax on the Tenor line and if the inclusion of baritone sax would better emphasise the Bass line whilst still supporting a smooth ensemble sound. Dynamic markings that indicated more of the narrative form that were implied by the lyrics were added such as in bar 27-29 (See Figure 12). The key of the piece was also changed to accommodate the lower range of this instrumentation.

![Figure 12 – Come Fly With Me (Version 1) comparison with Come Fly With Me (Version 2)](image)

Come What May was rearranged for ATTB because due to Lead part sitting below the Baritone part for much of the song, it would be a far more effective choice to have both parts on the same type of saxophone rather than the saxophone on the Lead part being higher than the Baritone. Expressive features idiomatic of barbershop ballads were also codified in this second rearrangement which additional pauses, dynamics, and scoops (see Figure 13). The key of the piece was also changed to accommodate new instrumentation.

![Figure 13 – Come What May rearrangement additions (V1 and V2)](image)
Fewer amendments were required for the second version of *Mean Ol’ Moon* as the original writing already carried most of the musical intent without as much room for interpretation as the other 2 songs. However, the Bass part was not suitable for tenor saxophone and so the rearrangement was adjusted for baritone saxophone on the Bass part, making it an AATB arrangement. It was hoped that this instrumentation would prove to reflect more of the barbershop sound as the Lead and Baritone lines don’t cross as often in mixed harmony arrangements. It is expected that sound production and blending should be much better in this rearrangement as the parts stay within comfortable ranges of the saxophones (see Figure 14 below).

![Figure 14 – Mean Ol’ Moon (V2) ending featuring comfortable ranges](image)

**Act**

In this iteration, the players were informed of balance, updated sheet music was presented to them, and a second recording of each rearrangement was made. The quartet rehearsed the pieces a few times and then a recording was made of each.

**Observe**

Due to the balance changes made in the performance of *Come Fly With Me*, there was a greater clarity of the melodic line in the Lead part without any loss of harmonic clarity provided by the Baritone and Tenor parts. The alto sax on the Tenor line in particular, provided a more effective blend within the ensemble than when utilising the soprano sax. The performance was musically more interesting with the addition of dynamics and phrase markings and the ensemble was more unified as the players had markings in the sheet music to guide their dynamics and phrasing rather than guessing or even improvising these features.

*Come What May* benefitted greatly from the change in instrumentation. The baritone sax in the Bass part was louder than tenor sax in a way appropriate to barbershop balance (BHS, 2020) and had much more stability on notes in the low range of the part. The Tenor and Baritone parts also created a more effective blend blended and overall and the intonation of the ensemble improved.
Stamina amongst the players was maintained throughout the piece due to some quickened and flowing phrases, but this still did not reflect the free-flowing momentum of a well-practiced barbershop ballad. The scoop was played more similarly to a glissando but with an element of pitch bending that provided a workable approximation of a vocal portamento.

As with the other rearrangements, the balance of *Mean Ol’ Moon* was much better in this alto-tenor-tenor-baritone (ATTB) version. The baritone sax was able to play the Bass line (previously scored for the tenor sax) more effectively and appropriately in-style. With the addition of the dynamic phrase markings, the performance had more of a flow between sections and phrases ended with more crispness and unity. The final chord, which had proved difficult in the previous version because of the use of extreme range on the tenor sax, was effective in this rearrangement as it was clear all four saxophones were playing in comfortable ranges.

Reflect

From these results we can infer a number of steps that should be taken in order to successfully perform existing vocal barbershop music in a saxophone quartet context. Markings that convey the emotion of the text should be added to the existing rearrangement. If dynamics, pauses, tempo changes, and phrases are marked into the sheet music to be read by instrumental performers then the emotional intent of the music will be clearer. Barbershop arrangements generally lack dynamic markings because of the implied knowledge of performance practice and thus for instrumentalists who would lack this knowledge, the inclusion of these details is imperative. Although it would be possible to leave in the lyrics on the saxophone quartet sheet music, all the necessary information can be conveyed in the previously listed ways so that saxophonists can read and play in a manner that is familiar to them whilst still incorporating some of the barbershop style. It also would be prudent to change the dynamics of the rearrangement to clearly emphasise the melody where it appears, mostly in the Lead part, ensuring the harmonic parts are playing appropriately supporting roles around the Lead and Bass. After further reflection, the inclusion of a foreword at the beginning of the rearrangement detailing barbershop part balance conventions might also be of help to saxophonists.

Each of these rearrangements featured a scoop on one or more of the parts which proved to be somewhat of a challenge for the performers on saxophone. Although the saxophone can bend pitch it is often only by a very small amount unless at the very high end of the instrument’s range (Easton, 2006; Jer-Ming Chen, 2011). After a brief discussion, the performers agreed to bend the pitch a little but to mostly rely on a standard *glissando* to achieve the scoop effect. This effect would also temporally take place towards the end of the held note to maintain unity across the parts.
On the topic of instrumentation, it seems that the ATTB instrumentation is suited to more effectively portraying barbershop arrangements in which there is significant overlap of the ranges of the Lead and Baritone parts. In mixed harmony where the Baritone does not overlap the Lead as much the AATB instrumentation is also suitable. However, it has been stated by Easton (2006) that four saxophones of the same type can achieve excellent blend. This raises another question which would need to be answered: could the use of four of the same saxophones create an effective blend in the rearrangement of a barbershop song, whilst keeping the parts within a comfortable and easy-to-blend range of the saxophone? In an attempt to address this final hypothesis, a four of a kind experiment was enacted.

**Action Research Model #3 “Four of a kind”**

**Plan**

As the range on *Mean Ol’ Moon* is larger than the standard two and half octave of a saxophone’s range, it was decided that only *Come What May* and *Come Fly With Me* should be rearranged for four saxophones of the same type. Alto saxophone ought to be used as it is the most played and readily available instruments among saxophonists. The rearrangement will be the same as the second version of the charts but transposed into a different key.

**Act**

*Come Fly With Me* was rearranged in the key of concert Bb Major (G Major for alto saxophone). As can be seen in Figure 15 below, this suits the ranges of the alto saxophone well.

![Figure 15 – Come Fly With Me rearranged for four alto saxophones (AAAA)](image-url)
Come What May was rearranged in the key of concert Ab Major (F Major for alto saxophone). The ranges as seen in Figure 16 below are larger than in the previous rearrangement but still somewhat within the comfortable range for alto saxophone.

![Figure 16 – Come What May (Version 2) rearranged for four alto saxophones (AAAA)](image)

Observe
Upon listening to the recording, the homogeneity of the sound was markedly improved from rearrangements with different saxophones, and the effect was very similar to four human voices singing together.

Reflect
There were some unwanted outcomes of this instrumentation. Having a saxophone consistently play in the extreme of its range either high or low seemed to have an effect on the ensemble intonation. Saxophones can have difficulty maintaining control of their sound in these ranges (Easton, 2006, p. 64) and this had quite a noticeable effect on the quality of the performance. This effect could be mitigated over time and with practice, but it certainly presented a hurdle to this formation of barbershop saxophone instrumentation. Despite this, the sound of four alto saxophones was, to my ear, the closest texture to barbershop singing that I had heard thus far. With more preparation and perhaps in the context of originally arranged music for the ensemble,AAAA instrumentation could most accurately portray the sound of barbershop harmony.
Chapter 3: Arranging new barbershop harmony for saxophones

Now that experimentation has been conducted rearranging existing barbershop arrangements for four saxophones, how can we utilise this information to further the development of barbershop harmony for the saxophone quartet?

From the previous chapter, it seemed that the most effective combination of saxophones to recreate the barbershop sound through rearranged barbershop songs, was alto-tenor-tenor-baritone (ATTB). This combination proved most conducive to keeping the expected ranges of the barbershop parts within the comfortable range of each saxophone. The majority of existing barbershop arrangements are written for male voice (Beck, 2017), so whilst alto-alto-tenor-baritone (AATB) proved to also be suitable for mixed arrangements, for this final part of the experiment, ATTB will be utilised. This will allow for comfortable saxophone writing in which the Baritone part will sit above the Lead part when the harmony requires it, as both parts will have the same range. However, I do not wish to discount the potential for an excellent blend that was exhibited by the experimentation with four alto saxophones (AAAA). An AAAA arrangement could prove to be the most authentic creation of the barbershop sound as long as the writing for each alto saxophone allows the instrument to play within its comfortable range and one conducive to a sound that is easy to tune according to just-intonation.

When it comes to barbershop harmony, the creation of an “expanded sound” from “just-intoned chords” is the crux of the style. This aesthetic principal may be the reason behind the common harmonic choices in barbershop arrangements (Averill, 1999, p. 48). Major chords and dominant seventh chords dominate the landscape of barbershop music (Döhl, 2014, p. 129) and this is likely due in part because they are easier chords for singers to tune according to just-intonation. Saxophones are also an instrument that, like the voice, can adjust the tuning of notes in order to achieve just intoned chords so it is presumable that similar arranging approaches can be made when writing barbershop harmony for saxophone. An advantage of writing for saxophones over the human voice, however, is the flexibility and speed at which they can change notes whilst still achieving clarity on the discrete identity of each note. This could allow saxophone barbershop arrangements to feature slightly more rhythmic complexity than vocal arrangements whilst still maintaining the core barbershop principals.
In this final section, I will be creating new works for saxophone quartet in the barbershop style that are not rearrangements of existing barbershop charts. Rather I will go through the process that a barbershop arranger does when creating new music for voices, that is, taking the melody and structure of an existing song and arranging it, applying the norms and standards of barbershop harmony, whilst considering the specific strengths and weaknesses of the saxophone.

**Action Research Model #4 “New tags for saxophones”**

**Plan**

Two new arrangements were created from scratch exclusively for saxophones. As there was focus in the previous chapter about adapting songs with text to saxophones, the songs that were arranged are vocal in origin. *It’s Over Isn’t It*, originally composed by Rebecca Sugar (2017), was arranged for alto-tenor-tenor-baritone saxophones (ATTB) and *Send In the Clowns*, originally composed by Steven Sondheim (1973), was arranged in the barbershop style for four alto saxophones (AAAA). These songs were chosen due to my own familiarity with them. The arrangements of them were not full songs but instead just “tags”, an additional ending of a song that completes a satisfying arrangement and often introduces new harmonic concepts (BHS, 2020) (Richardson, 1975, p. 301). From my experience in barbershop singing and arranging, tag arranging is a common way for new barbershop arrangers such as myself to test their ideas and gather feedback before committing to an entire song.

I began by placing the melodic line of each song in the Lead parts then arranged the other parts to fill in the harmony, trying to balance the harmonic conventions of barbershop with the harmonic progression of the original versions. Fortunately, the nature of tag writing allows for experimentation with harmony outside the song’s original structure. The parts should be primarily homorhythmic with some unified movement allowed in the other parts when the Lead is holding a long note. Care should be taken to achieve correct part balance with the use of written dynamics and further dynamics should be introduced in the piece that match the emotional intent of the text. Certain articulations according to Londeix (1989) can be utilised to match words sounds of the text as well. This would also be an excellent opportunity to showcase how scoops can be achieved with saxophones so such an effect should be added on a chord movement in which the saxophones are playing in their upper registers.
After arranging the songs with an emphasis on the text, several steps needed to be taken that made it suitable to be played by saxophones. Incorporating improved rhythmic expressions, including dynamics that reflect the balance of the barbershop performance style, and removing the text that would usually inform these aspects for a singer. I opted to use traditionally noted dynamics for the saxophone quartet as this will allow for any saxophonist without specialist barbershop knowledge to accurately interpret the music.

Ideally through the creation of barbershop music for saxophones, more instrumentalists will begin to learn about barbershop performance practices, but this information can be attained through social education as is traditionally done in barbershop singing. For the rhythms, the original performances of each song were listened to and transcribed. This allowed me to understand the emotional push and pull of the rhythm and with my knowledge of what is digestible to read for a saxophonist I wrote different rhythms and added pauses to achieve the desired effect.

**Act**

Excerpts from the new arrangements are presented here with lyrics as if they are intended to be sung by barbershop singers. Originally in Eb Major, *Send In The Clowns* is arranged for four altos (AAAA) in concert Bb Major which can be seen below in Figure 17. Care has been taken to mostly utilise major, major sixth, and dominant seventh chords to allow for simpler just-intonation. Although one augmented chord has been used for tension.

![Send in the Clowns](image)

Figure 17 – Send in the Clowns (Version 1) for AAAA Saxophone Quartet
It’s Over Isn’t It, originally in C Major has been rearranged in concert F Major for ATTB saxophone quartet (See Figure 18 below). Harmonically it features more minor chords, minor seventh chords, and a couple of major seventh chords, but is still primarily consonant and also finishes on a major triad in order to serve the goal of achieving just-intonation.

Figure 18 – It’s Over Isn’t It (Version 1) for ATTB Saxophone Quartet

Changes are then added to both tags. In Send In The Clowns additions can be seen below in Figure 19. Most notably the lyrics have been removed and their emotional inflection had been added to the notation.
In *It’s Over Isn’t It*, additions seen below in Figure 20 similarly consist of different dynamic markings and tempo variations, but some different approaches have also been taken to *Send In The Clowns*.

Figure 19 - Send in the Clowns (Version 2) for AAAA Saxophone Quartet

Figure 20 – It’s Over Isn’t It (Version 2) for ATTB Saxophone Quartet
Observe

The rhythms in version 1 of both tags seen above were presented more simplistically than how they were intended to be played. This is similar to how rhythms are arranged in traditional barbershop arrangements. Both of these songs, typical of an emotional barbershop ballad, should be performed with an emotional “stretch and pull” that conveys the emotion of the text, perhaps in a similar way to how a jazz singer would play with the rhythms of a song in the jazz canon.

No articulations or dynamics were added to either tag for version 1. Singers would rely on the text accompanying the notes to inform the attack and decay of each note but music for saxophones needs to be more explicit in the articulation of notes. Similarly, it is standard for saxophone ensemble music to feature dynamics to inform both balance, as mentioned in the previous chapter, and phrasing of the musical line.

In version 2 of Send In The Clowns, seen in Figure 19, the additions consisted of different dynamic markings for the four parts, crescendos towards the end, slurs over multiple notes that consist of a single word, short pauses to some notes, and tempo variations in the form of ritardando and a tempo.

In version 2 of It’s Over Isn’t It, Figure 20, phrase markings or slurs were used to indicate sentences rather than held words. Different articulations under the slurs such as staccato and tenuto were also used to affect the decay of the “words” in those phrases for emotional effect. (E.g., the staccato tenuto used in the Tenor part in bar 2 of Figure 20 above to accentuate the words “you’ve been gone.”) Rhythmically, this version was very different and reflects the way the singer of the original stretches the phrase in a very literal way on the sheet music.

Reflect

To make the sheet music easily understandable to the saxophonist who may not know the performance practices of barbershop singing, the rhythms should be rewritten in order to better reflect the emotional intent of the text. Transcribing the rhythms of the original performances of these songs provides a suitable starting point.

With regards to dynamics and balance, there seems to be two different options to facilitate a more authentic barbershop performance with saxophones with these tags. Firstly, the same approach to the rearrangements or the previous chapter can be taken, in which the parts are marked with different dynamic markings such as mezzo piano or forte to achieve the desired balance of 40%, 30%, 20%, 10% (BHS, 2020). Conversely, as was mentioned in the reflection of Action Research Model #2, a foreword explaining this distribution of balance amongst the parts can be
added to the sheet music. The latter option would be more authentic to barbershop performance practice, but the former would be more in line with what is expected of musical notation for saxophone quartets. However, as much as it would be preferable to include a foreword in the sheet music about part balance, it is more accessible to simply include this effect through written dynamics in the music. For future explorations, I would perhaps recommend that anyone attempting to play barbershop music on other instruments be aware of the performance practice of part balance in addition to this notation.

The application of the articulation techniques written above does well in mimicking the attack and decay of the human voice singing text. Slurring between notes when those notes carry the same held word is an obvious example. But even leaving the notes bare of any added articulation is a specific choice. Lack of articulation markings create a certain effect of a slight delay between notes in saxophone music (Londeix, 1989). This is particularly desirable for moments like the last three chords of It’s Over Isn’t It which recreates the repeated statement of “I can’t move on” in the lyrics.

While these changes seemed to provide some tools that might aid instrumentalists in beginning to recreate the barbershop sound, it is important to note that barbershop is more than just the singing of words in four parts. Its performance practice and harmonic language that emphasises the blended sound production and “ringing” chords as a result of just-intonation.

The research thus far has mostly focused on the creation of barbershop sheet music for the saxophone quartet and less on the barbershop sound of the ensemble. On further reflection, perhaps a different approach the research is needed; one that teaches saxophonists how to ring chords in the barbershop style with a focus on achieving just-intonation through aural skills. This does not discount the experimentation thus far; the basis of sheet music is a common practice for all saxophone quartets. Practice-led research into more performance-based experiments could be the next step for the barbershop saxophone quartet.
Chapter 4: Findings and conclusions

This paper has explored the relationship between the music of saxophone quartet and barbershop quartet in order to propose a method of combining them by way of performing barbershop with saxophones instead of voice. As there has been no academic research into adapting barbershop harmony for instruments beyond the human voice, this paper represents an exploration into a new field of research and musical experimentations. It is hoped that the problems encountered, and methods utilised to overcome them proves useful as a basis for any other instruments that wish to experiment with performing barbershop harmony.

From the ranges of the barbershop arrangements seen in chapter 2, we can see at the high end that the Tenor parts stick mostly to the C4 to C5 octave and at the low end the Bass parts stay within F2 to C4. This supports the instrumentation of alto saxophone (Db3 – A5 maximum range) on the Tenor part and baritone saxophone (C2 – F4) on the Bass part. Due to the similar ranges and frequent crossing of the Lead and Baritone parts, it makes sense to for the same instrument to be on them both; thus, the tenor saxophone making an ATTB quartet formation. Of course, the close harmonic writing of barbershop also means that some songs, like *Come Fly With Me*, have fairly limited ranges (Ab2 – C5). As previously discussed, this opens the possibility of barbershop quartets with only one type of saxophone being used. The blending benefits of which have already been mentioned but it should be noted that this effect could also be achieved with all four sopranos, four tenors, or four baritones as Easton (2006, p. 163) did not restrict this blended sound to just altos.

Barbershop singing is a medium which is centred around conveying emotion and story through text. This is not achieved purely through language alone but through inflections, embellishments and dynamic and rhythmic emphasis. We have found that a major challenge to converting the style to saxophone has been the transference of these factors to saxophone, an instrument that does not communicate with text. Through a variety of methods that involve detailed additions to the sheet music of the arrangements, this hurdle has been somewhat overcome or at least mitigated.

Something the saxophonists found particularly unique to the barbershop style throughout this process was the balance of volume across the parts. The 40-30-20-10% split for Bass-Lead-Baritone-Tenor, respectively, is a performance practice that is not notated anywhere on traditional barbershop sheet music. Though barbershop saxophone performers should be aware of this, just as a rhythm section player is aware to stay out of the soloist in a jazz ensemble, we have found that it is also appropriate to codify this balance in the dynamics of the sheet music.
The most important consideration when adhering to the aesthetics and style of barbershop harmony is just-intonation (Averill, 1999) and it is upon this topic that further research is most required. The sound of a barbershop chord tuned correctly is likely what interested me in the genre to begin with. “Lock and Ring” is synonymous with the style and much more could have been done to work on achieving this effect with saxophones. The woodwind instrument is more than capable of tuning according to just-intonation but the skill of performing barbershop in a quartet comes from years of practice tuning these chords and honing that aural skill.

In light of both the challenges and success of performing barbershop music with saxophone quartet, we can say that this research topic has much fruit to bare but almost certainly requires more investigation. Barbershop harmony has almost been exclusively for the voice; this research supports the idea that it can, and should, be expanded outside the vocal realm. The versatility of the saxophone as an instrument and saxophone quartet as an ensemble should be viewed as effective mediums to incorporate barbershop harmony.
Bibliography


Bartlett, J. K. (2011). *Healthy performance practice for male barbershop singers* [University of Nebraska].


Döhl, F. (2014). From harmonic style to genre: The early history (1890s-1940s) of the uniquely american musical term 'Barbershop'. *American Music*, 32(2), 123-171. [https://doi.org/10.5406/americanmusic.32.2.0123](https://doi.org/10.5406/americanmusic.32.2.0123)


Hopkins, R. G. (2020). From “the chord was king” to “a dynamic journey”: Changes in the barbershop quartet style in contests since the 1950s. *American Music, 38*(1), 78-101. [https://doi.org/10.5406/americanmusic.38.1.0078](https://doi.org/10.5406/americanmusic.38.1.0078)


Spaeth, C. (2014). *A performer's analysis of selected jazz works for saxophone quartet* [DMA, University of Kansas]. KU Scholarworks. Lawrence, Kansas. [http://hdl.handle.net/1808/14887](http://hdl.handle.net/1808/14887)


Appendices

The Appendices are not available in this version of the thesis