



Challenging the Saxophone's Traditional Role in Jazz and Improvised Music Through Exploration and Utilisation of Extended Instrumental Techniques

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Abstract

This artistic research report explores the functional possibilities of three extended instrumental techniques for the saxophone, uncovering and applying discovered conceptual principals for their use in composition, performance and improvisation which allow for saxophonists to occupy non-traditional roles and functions in the broad context of jazz and improvised music. The techniques of multiphonics, percussive articulation and circular breathing are at the centre of this investigation and were selected due to their inherent potential when utilised creatively to position the saxophone as an accompanying instrument by having it occupy harmonic or chordal function, rhythmic and percussive underpinnings, mood or atmospheric presence or a mixture of the above in a given piece of music.

Particular areas of enquiry include: theoretical and practical underpinnings of the chosen extended techniques, analysis of various case studies outlining certain compositional trends of their use in existing material, personal artistic application of these concepts in the form of compositions and recordings (for the duo Meatshell - featuring saxophone & double bass/vocals), personal artistic application of these concepts in a purely improvised context (in the form of recordings with vocalist Sebastian Stert). The results within have highlighted the possibilities with regard to how the saxophone can be reimagined conceptually as an instrument and how techniques which are mainly utilised in avant-garde, contemporary classical and freely improvised music could be bridged into the world of jazz.

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1. Introduction

In the context of jazz and improvised music, the saxophone is an instrument that cannot be separated from the great soloists of the genre. Masters like John Coltrane, Charlie Parker and Sonny Rollins, amongst others, were truly pioneers with regard to understanding complex harmonic and theoretical concepts and applying them to the technicality of the instrument, creating the foundation of modern jazz tuition around the world, and certainly the one I was afforded during my Bachelor studies in Australia.

Whilst it is absolutely essential for any saxophonist to be able to occupy the melodic function and be the traditional soloistic “voice” of the music, in my personal experience (and in my own music) I became frustrated with the inherent limitations a sole focus on this approach brings with regard to how I, as a saxophonist, can contribute to any given musical situation.

Out of this frustration, my primary research question, which I have been investigating over the past eighteen months, presented itself;

How can the exploration of three unconventional/extended instrumental techniques for saxophone and utilisation of these techniques as starting points for composition and performance challenge the instrument’s traditional role in jazz and improvised music?

Through this research I expect to discover new and novel ways of approaching the saxophone conceptually as an instrument and develop a personal vocabulary of techniques and applications of said techniques for the purpose of occupying non-traditional musical functions, utilising the saxophone as an accompanying instrument in the broad context of jazz and improvised music.

Why Extended Techniques?

As a musician, improviser and composer I always strive to achieve some essence of “new ground” and experimentation in my work. I think this philosophy partly manifested out of a desire to find and develop my own personal sound or voice as a jazz musician (a

virtue that has become cliché but always remains a true and noble pursuit), but also out of an inherent duty to keep progressing music forward, building upon the traditions of masters that have come before us. For this reason I find myself drawn towards the avant-garde, free improvised and contemporary classical genres of music where saxophonists are re-defining what it means to play the instrument physically and conceptually, always creating new sonic possibilities not necessarily based on melodic or harmonic concepts.

Which Techniques Will Be The Focus?

The domain of extended instrumental techniques for saxophone has grown and developed considerably over the span of the 20th century thanks to the work of composers and performers in the contemporary classical and new music fields as well as many free improvising and free jazz musicians. This field only continues to become more diverse and exciting with many performers and composers experimenting with instrumental preparations and electronic augmentations of acoustic instruments.

Whilst it would be an interesting and worthwhile pursuit to cover the entire field of sonic possibilities of the saxophone today, such a large undertaking is outside of the scope of this research. Instead, my field of enquiry was limited by focusing on the saxophone as an acoustic instrument only, without any alterations, preparations or electronic augmentations. To limit myself even further, I chose to focus on three extended techniques in particular, which if utilised creatively, each have an inherent potential to allow the saxophone to occupy non-traditional musical functions, including for instance, outlining chordal or harmonic contexts, percussive and rhythmic underpinnings, as well as providing the textural and atmospheric presence of a given piece of music. These three techniques include;

- (i) ***Multiphonics,***
- (ii) ***Percussive articulation,***
- (iii) ***Circular breathing.***

Being quite broad areas of enquiry in and of themselves, each technique is explored and tackled under an individual sub-question providing a clear structure and process for the enquiry, learning of and application of these techniques in my own musical experimentation.

ARTISTIC RESEARCH AIMS & OUTCOMES

The aim of this artistic research is to explore and analyse the current and known uses of these selected extended techniques for saxophone in recorded music, notated scores and other literature and apply this knowledge to my own composition and performance practice in a personal, experimental and intuitive way. As my research question revolves around challenging the traditional role of the saxophone as the soloistic voice in jazz and improvised music, my artistic application will be focused on duo collaboration exclusively, with the saxophone avoiding this musical function. Artistic application of these techniques in composition and arrangement will be explored through the lens of my experimental-folk/contemporary jazz duo ***Meatshell*** featuring Helen Svoboda (double bass & voice), whereas strictly improvisatory exploration will happen through a series of duo sessions with vocalist Sebastian Stert.

2. Method

As with the majority of artistic research endeavours, this research was highly qualitative in nature and the data used within was derived from a mix of action-based and descriptive design methods. Some choices in the selection of data could be considered personal or subjective but this is to be expected in this style of research and such selections and decisions were made with the primary research question in the forefront of the mind. The tables below outline the list of data used and four key areas of enquiry in the form of four separate sub-questions.

2.1 LIST OF DATA

This research took place over an 18 month period (commencing in September 2018) and encompassed the following data:

Data	Description
Literature/Theoretical	Collated information from several sources (Weiss & Netti, Snekkestad, Murphy, Taylor) detailing the learning of the selected extended techniques, referring to the physics of the instrument as well as definitions and classifications.
Case Studies	Including several recordings, transcriptions and scores of already existing musical works that utilise these techniques creatively. Used for analyses and comparison in the results section as well as inspiration for creative application.
Meatshell Recordings + Scores	Includes professional recordings and written scores of seven original compositions that were the result of the artistic application of this research.
Duo Session Recordings	Recordings of 4 sessions with vocalist Sebastian Stert (using iPhone 6S), the intention of which was to experiment with applying this research to a purely improvised context.
Blog	Used to detail process and reflection throughout the entire process of this research.

2.2 SUB-QUESTIONS

This research was divided into four distinct sub-questions so as to provide a clear structure and process with regard to presenting data related to the main research question:

How can the exploration of three unconventional/extended instrumental techniques for saxophone and utilisation of these techniques as starting points for composition and performance challenge the instrument's traditional role in jazz and improvised music?

These sub-questions are outlined in the table below:

<i>Sub-Question 1</i>	How can exploration and utilisation of multiphonics in composition and performance challenge the saxophone's traditional role in jazz and improvised music?
<i>Sub-Question 2</i>	How can exploration and utilisation of percussive articulation in composition and performance challenge the saxophone's traditional role in jazz and improvised music?
<i>Sub-Question 3</i>	How can exploration and utilisation of circular breathing in composition and performance challenge the saxophone's traditional role in jazz and improvised music?
<i>Sub-Question 4</i>	How can the exploration and utilisation of these three extended techniques be incorporated and developed into a personal improvisatory approach?

As can clearly be discerned, sub-questions 1, 2 and 3 were shaped so as to focus the inquiry on three specific areas, being the three different extended techniques chosen for this research. The procedure of analysis was then, understandably, almost identical for each sub-question and as such, instead of substantiating the process involved for each sub-question individually and repeating the same information, the section below outlines the steps and procedures which took place for all of the sub-questions, clearly outlining where different steps were necessary.

Sub-question 4 on the other hand encapsulates the intuitive application of all of these techniques combined in a purely improvised context and as such will be fleshed out in isolation below.

SUB-QUESTIONS 1, 2 & 3

A. Theoretical and Physical Underpinnings

For each sub-question, it was first necessary to **define** the particular extended technique and discuss how the **scope of inquiry** for the purpose of this research would be limited with reference to the primary research question. This step also included **description of sounds**, discussion of why these phenomena occur with detail of the **physics of the saxophone** and detailing **how the sounds are produced**, all with reference to different **literature**, most vitally *“The Techniques of Saxophone Playing”* by Marcus Weiss & Georgio Netti (2010) which is a comprehensive catalogue of modern saxophone techniques with information for performers and composers.

- NOTE: For sub-question #1 with regard to multiphonics, further steps were taken in order to re-categorise Weiss & Netti’s existing archive of multiphonics to create a personal catalogue of multiphonics more suited and tailored specifically for this research, opting to focus solely on intervallic relationships, tuning and chordal/harmonic potential.

B. Case Studies

The next step in each sub-question was describing and analysing **examples** of these techniques being utilised in **existing music**. Selection of these case studies was always made with the primary research question in mind. In other words the chosen case studies, in the opinion of the author, aim to challenge the traditional solositic role of the saxophone. The data used consisted of a mixture of **recordings**, written **scores** and **transcriptions**.

- NOTE: For sub-question #1 with regard to multiphonics, the data was analysed with regard to **harmonic and chordal function**, **compositional techniques**, **texture** and **atmospheric presence**.
- NOTE: For sub-question #2 with regard to multiphonics, the data was analysed with regard to **compositional techniques**, **rhythmic underpinnings** and **sound textures**.
- NOTE: For sub-question #3 with regard to circular breathing , the data was analysed with regard to **compositional techniques** and **chordal function**.

C. Meatshell Composition (Recording & Score) Analysis

This step was concerned with the personal **artistic application** and outcomes of the research, here with regard to **composition**. Each sub-question contains an **analysis** of relevant sections of the seven original compositions written and recorded by **Meatshell** for this research, with reference to how the specific techniques have been used creatively and if and how they challenge the saxophone's traditional role in jazz and improvised music. Some compositions contain sections that were relevant in multiple sub-questions and in those circumstances are addressed in each sub-question. Also relevant in this step was **comparing and reflecting** on how the knowledge and approaches learned in the case studies were applied and considered in the relevant compositions if at all.

NOTE: Meatshell is a project that was commenced at the start of this research with double-bassist, vocalist and composer Helen Svoboda. Helen is also currently undertaking Master of Music studeies at Conservatorium Maastricht focussing on solo double bass composition and extended techniques. The duo is an outlet for both of us to bring the knowledge and application from our respective areas of inquiry into a practical and musical context.

SUB-QUESTION 4

This final sub-question was concerned again with artistic application and outcomes of the research, although here with regard to improvisation (both free improvisation as well as improvisation in a jazz context – for example improvising over standard jazz repertoire). This sub-question was not given as much weight as the first three and served as more of a small practical experiment, putting myself into purely improvisatory

situations and seeing how and if the knowledge from this research informed my improvising and to what extent.

A. Duo Sessions w/Sebastian Stert

Over the final six months of this research project, four (4) duo sessions were conducted with vocalist Sebastian Stert in which we performed in both freely improvised as well as functional improvisations within the context of standard jazz repertoire. Having multiple sessions allowed us to experiment with different approaches and sounds as well as grow and develop our individual approaches to this kind of playing.

i. Freely Improvised Tracks

The freely improvised tracks were analysed with regard to intention, sounds/techniques utilised and what function they played in music, be it textural, chordal, percussive or mix of many. Also relevant was the interaction with Sebastian, and how the sounds complemented or conflicted his.

ii. Jazz Standards

The jazz standard *“They Say It’s Wonderful”* by Irving Berlin was chosen to be the focus with regard to functionality and as such was analysed not only with regard to sounds/techniques utilised but also with regard to how they were used to portray chordal movement, rhythmic underpinnings and any other non-traditional functions.

NOTE: Sebastian Stert (aka BAX) is a vocalist and actor from Berlin who is also currently undertaking Master of Music studies at Conservatorium Maastricht. He is an incredibly unique, surprising and open-minded vocalist which has made him an ideal collaborator for this section of the research.

3. Results

3.1 || SUB-QUESTION #1 || *How can exploration and utilisation of multiphonics in composition and performance challenge the saxophone's traditional role in jazz and improvised music?*

3.1.1 WHAT ARE MULTIPHONICS?

A multiphonic is a phenomenon where two (or more) distinctly perceivable pitches are produced simultaneously on an instrument that was built to generally only produce one pitch at a time - the saxophone being one example of such an instrument (Snekkestad, 2016). For someone who is attempting to occupy non-traditional musical roles and functions as a saxophonist, multiphonics spark the imagination because of their inherent potential to allow a saxophonist to convey harmony and provide chordal accompaniment to another musician.

Scope for this Research

The current literature generally classifies “multiphonics” as those complex sounds achieved through some kind of disruption in the tube/air-column of the instrument, primarily through using unusual “split” fingering combinations. This however is only one form of the phenomenon and a broader interpretation of the definition could also take into account multiphonics produced through manipulation of the natural harmonic series, by adding a second resonator (i.e. singing or vocalising) or by adding any other acoustic sound.

Norwegian saxophonist and composer Torben Snekkestad, in his doctoral thesis *“The Poetics of a Multiphonic Landscape”* (2016) takes the broadest possible view of what a multiphonic is, including any and all acoustic sounds that contain multiple sonics;

“Whether these are perceived as white noise, breath sounds (including traces of pitch), added percussive key noise sounds, abruptly ‘split-tones’ or active ‘quasipolyphonic layers of sounds’... growl and ‘sing and play’ technique would fit into my definition as well. Also, in the most rigorous sense, sonorities not involving the saxophone reed or

mouthpiece (playing on the neck like a brass instrument) and different kind of instrument – as long as it produces multiple sounds. (Snekkestad 2016, p.18)

Whilst in principle I agree with this extremely broad definition, the resulting wide scope would be far too much to cover in this research. It is important to note here that Snekkestad's research was solely focused on multiphonic production and utilisation of multiphonics (only) as the raw musical material for the development of solo saxophone repertoire and improvisation. Adopting the widest possible definition gave him more possibilities for creative development in an otherwise narrow field.

As such my exploration of multiphonics is limited to the following two categories of multiphonic production, which in my opinion, have the most potential to allow a saxophonist to clearly convey harmony and provide a chordal accompaniment to another musician, thus challenging the instrument's traditional role in jazz and improvised music.

- i. Multiphonics through disruption of air-column/tube**
- ii. Multiphonics through manipulation of the natural harmonic series.**

These are the two most common and recognised forms of multiphonic production and I think they are most useful to this research considering the resulting sounds have a greater uniformity of tone colour and character meaning it is more likely they could be perceived as chords and not just sounds. They are also both achieved through the normal physics of the saxophone, utilising one resonator only (the tube/reed mechanism) as such not requiring external sources of sound or learning of new techniques such as singing/vocalising etc.

How & Why Are Multiphonics Produced?

Whilst dissecting the physics of multiphonic phenomena with regard to the saxophone is not inside the scope of this research, I think a base level understanding of just how and why these sounds occur is extremely important.

Torben Snekkestad's explanation in "The Poetics of a Multiphonic Landscape" (2016) is particularly insightful. He first explains how sound is physically produced on a saxophone.

"The saxophone functions by means of a tube-reed system, where the tube is the instrument itself. The player supplies a source of air, which in turn vibrates the instrument's reed. This creates a pulse of positive pressure traveling through the instrument until an open end is reached, at which point excess pressure drops to zero and a negative pressure pulse travels back to the original source, where there is now a closed reed. The same process occurs now in reverse, as the closed reed sends a negative pulse traveling to the open end and a subsequent positive pulse coming back to the start, pushing the reed open and letting in more air. This cycle of positive feedback is what produces continual sound as long as an air stream is supplied."

Pitch is then dictated, not by the resonator (reed) but by the length of the tube, which is altered of course by closing or opening keys on the saxophone. If all of the keys are closed, the tube of the saxophone is the longest it can be thus producing it's lowest possible pitch, as keys are lifted from the bottom, the pitch rises. He continues;

"When a woodwind instrument produces a note perceived as a single pitch, a spectral analysis of the note will reveal several partials. The frequencies of these partials will be regularly spaced and will form part of a harmonic series. That is to say; the frequencies of the partials will all be integer multiples of a 'fundamental' frequency (only pure sine wave tones lack these overtones)."



Figure 1: Overtone series on the saxophone starting from the fundamental tone of low Bb

"With a multiphonic, however, the sonority is perceived as several pitches. The multiphonic is caused by a combination of specific fingerings, oral cavity adjustments, embouchure alteration and air stream velocity. The result of these external manipulations is the sounding of two or more distinct pitches at the same time from a single resonator." (Snekkestad, 2016, p.16)

Said simply, a multiphonic occurs when the normal airflow and pressure in the instrument is disrupted, usually by creating an extra opening (i.e. lifting a key), so as to split the pressure inside the tube and create two distinct tubes resulting in multiple perceived pitches not necessarily related through the harmonic series. With that being

said, a multiphonic, under the definition above for this research, can be produced using any fingering (including standard ones), by manipulating airflow, oral cavity shape, tongue position and embouchure allowing two or more harmonic partials to be heard simultaneously.

Fingerings & Classifications

"*The Techniques of Saxophone Playing*" (Weiss & Netti, 2010) was an invaluable resource for this research. The book is written for performers and composers and outlines the extended sonic possibilities of the saxophone, how they are produced, performed and expressed on paper. Amongst other things, this book contains an extremely useful and comprehensive catalogue of multiphonic possibilities (for soprano, alto, tenor and baritone saxophones), including fingerings and classifications based on timbre, volume, ease of production, and intervallic relationships etc.

These classifications are as follows:

- **First Level**
 - **A** - layer of natural overtones over a fundamental (i.e. overtones - regular fingerings, no disruption in tube)
*****All other categories have fingerings which disrupt the air-column - effectively making two tubes.***
 - **B** - sound with strong oscillation
 - **C** - wide dyad (two notes), stable
 - **D** - aggregate of two or more partials over a fundamental
 - **E** - narrow dyad
- **Second Level**
 - **Ba** - detuned octave and twelfth, creating stable oscillation, open and fast; p-ff
 - **CE** - dyad between a fourth and fifth, stable; pp-p
 - **Ce** - dyad between a minor sixth and seventh, stable; pp-p
 - **Cb** - approximately one octave, with the possible presence of a twelfth, usually unstable; pp-p
 - **C** - between a minor ninth and an eleventh, stable; pp-mp
 - **D/B** - wide multiphonic, usually built on a minor ninth, partly oscillating; mp-ff
 - **Da** - wide multiphonic, usually built on a ninth (also tenth, third or fourth), stable; p-ff
 - **E** - thirds; ppp-p

- **E_b** - seconds, as minor seconds usually oscillating strongly with the possible presence of a low fundamental tone; ppp-mp (Weiss & Netti, 2010, p.65)

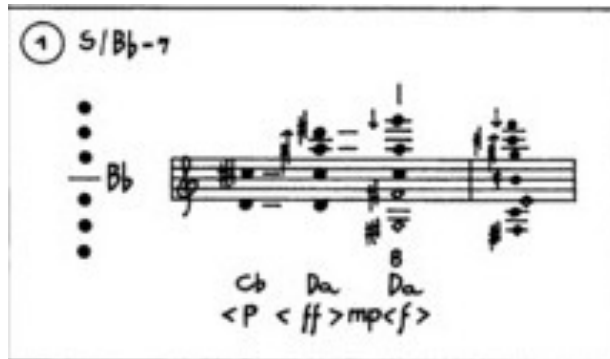


Figure 2: Example 1 from "The Techniques of Saxophone Playing" (Weiss & Netti, 2010, pg.68)

There is a lot of useful information in this written representation from the book. The specific multiphonic fingering is represented in two ways; firstly in the diagram which shows shaded circles for keys closed and "B_b" indicating the low B_b key is closed, and secondly with the code "S/B_b-7" which tells us - Soprano Saxophone, Low B_b fingering, take away the 7th finger (i.e. the low C key). Finally the multiphonic is displayed visually in terms of its intervallic make-up, its classification (listed above) and what volume and pressure is required to make the multiphonic speak.

Using this catalogue as my primary resource for discovering and experimenting with multiphonic fingerings I was able to dissect those, which in my opinion had the most potential to convey harmony on the saxophone. It is important to note that I was looking specifically for multiphonics that produce perceived pitches that fit more or less inside standard equal temperament tuning so as to be able explore how they can be used functionally as chords for accompaniment of another musician.¹

In order to make these particular multiphonics more accessible, I have charted them out in classifications based solely on the intervallic relationships of the resulting sounds,

¹ This is not to say "detuned" multiphonics or microtonal harmony in general couldn't also achieve this result but for the scope for this research is limited to (more or less) equal temperament tuning where possible.

essentially re-categorising and limiting the comprehensive catalogue of Weiss & Netti that simply lists all possibilities from lowest fundamental pitch to highest. The full sheet can be found in **Appendix F1**. My list groups multiphonics into three categories being;

1. Dyads (two resulting pitches) - ***sub-categorised into specific intervals*
2. Triads (three resulting pitches)
3. Chords containing four or more resulting pitches²

In *“Poetics of a Multiphonic Landscape”* (2016), Torben Snekkestad consciously avoids utilising the available literature and multiphonic catalogues including the extensive list from *“The Techniques of Saxophone Playing”*, instead suggesting that experimenting and making personal classifications of the sounds is a more effective strategy considering how much of an impact different saxophones, mouthpieces and reed choices have on these sounds. Whilst I agree with his premise, for this research it was essential to take advantage of this resource in particular to find out first what the harmonic/chordal possibilities are theoretically. However it could also be said that my re-categorisation is the start of a personal catalogue of these sounds.

Below is a table describing my findings with regard to my personal categorisation of these multiphonics. This table is a useful aid to help flesh out the full sheet of possibilities in **Appendix F1**.

Category	Description
1. Dyads	In general dyads can only be achieved at a very soft volume and require specific embouchures, tongue positions, oral cavity shapes & air pressures to make them speak.
a. Natural Harmonics (Perfect 5th OR 12th)	Saxophonists will be familiar with practicing overtones. Whilst normally the aim would be to isolate different partials, here, one must make stable the threshold points where two partials both sound – the most accessible and useful is the fundamental and the second partial (i.e. Octave + 5th/12th) OR the first and second partial (Perfect 5th). These can be temperamental and often the multiphonic will collapse into either the fundamental or the second partial in

² This classification sheet can be found in Appendix F1. For triads and wider multiphonics it includes some suggestions of chords which the sounds could potentially emulate or represent.

	isolation without proper air support and tongue position. In my experience, I find that I need to raise the tongue and direct my air down in order to make them speak. However when it sounds it is a very strong and grounding presence, as it resembles a "power chord". It can be achieved at different volumes and is one of the only dyads which can be produced at a louder volume in my experience - however when you get louder more partials tend to come out which defeats the purpose of treating this option as a dyad (it turns into something else).
b. Minor 3rds	These are my favourite sub-category of multiphonics because of their relative ease to produce, their stability and also the beautiful eeriness of their timbre. Also minor thirds can have a lot of use functionally as harmony. Each of these is slightly different in terms of how to produce them but in general I have found that their needs to be a feeling of space and relaxation in the mouth and lots of air is needed. It almost feels like sub-tone embouchure is necessary for some of these. Also they can only produced at quiet or extremely quiet volume. If played too loud they will either collapse into a single pitch or produce higher partials/notes (i.e. creating different category of multiphonic).
c. Major/Min or 6ths	These are useful in the same way that the Minor 3rd multiphonics above are useful due of their harmonic functionality. Essentially you can utilise them in similar ways harmonically as it's just an inversion of the 3rds however these are much more difficult to produce and are not very stable multiphonics. To produce the multiphonic you need to be at an extremely low volume and it helps to enter the multiphonic from either the bottom or top note. For that reason they could be utilised in a more atmospheric piece but if they need to be performed in time it can be very tricky.
d. Major 7ths	The same could be said for this sub-category as could be said for the 6ths above. Many of these can only be produced at such a soft volume it makes them nearly obsolete and really only useable as texture. The few with lower fundamental notes are a bit more stable.
e. Major/Min or 2nds	These are some of the most compelling and beautiful sounding multiphonics in my opinion because of the texture/timbre of the produced sound. As the notes are so close together you can really

	hear the oscillation between the two notes occurring which adds a beating pulse to the sound. Again these can only be produced at extremely low volume and most of them require the sub-tone embouchure as discussed for minor 3rds above. As far as harmonic function, minor 2nds have the possibility of outlining major 7th chords (7th + root) and a variety of others - major seconds could function the same way for minor 7th and dominant 7th chords. Of course this all depends on the context of the music.
f. Minor 9ths	In terms of stability this sub-category of dyads is one of the more stable of the bunch. Because of the physics of the saxophone, many multiphonics are built off the interval of a minor 9th, giving them their notorious distorted and dissonant sound. When some of these fingerings are used with very soft volume you can isolate this minor 9th and it can be an extremely haunting sound texture. One functional harmonic use is to consider a dominant b9 chord (giving you the root and b9). These of course could also be inverted major 7ths opening up some other functional possibilities.
2. Triads	These triads are generally achieved at a medium to loud volume and require faster air-flow, raised tongue position and a little bit of increased pressure upward and forward from the bottom jaw/lip so as to allow for the higher frequencies of the reed to vibrate more freely. There are a few of these triads that are truly in tune major triads (some in inversion), which have a brilliant tonal characteristic and bright quality. The more volume used the more “distorted” the tonal colour becomes. The other ones are a bit more vague with regard to their functionality and usually built of a minor ninth interval making them quite dissonant.
3. Chords	This final group includes those sounds that are more colloquially thought of as multiphonics. The characteristic dissonance, distortion, harshness are apparent in all of these. They are the most stable multiphonics and speak best at medium to loud volumes with a full and open oral cavity, fast air-flow, raised tongue position to accommodate the higher pitches. Most of these multiphonics containing four notes do not fully adhere to equal temperament tuning but in some cases the multiphonic can still give the “sense” of a chord despite some notes being “out of tune”.

3.1.2 CASE STUDIES :: EXAMPLES IN EXISTING MUSIC

The use of multiphonics in contemporary classical music and avant-garde jazz are numerous however for this research I have decided to focus on particular examples which aim to utilise multiphonics as a source of harmony or chordal function and not merely for textural or novel effect. There aren't too many instances of multiphonics being used in this way however in the examples that I chose to focus on, two distinct approaches or compositional techniques became apparent.

1. Use of multiphonics as harmonic/chordal punctuation
2. Use of multiphonics to represent chordal movement

The first approach utilises multiphonics within a regular monophonic (single line) phrase so as to give a harmonic context to particular notes whereas the second approach utilises multiphonics exclusively in order to represent chords and chordal movement.

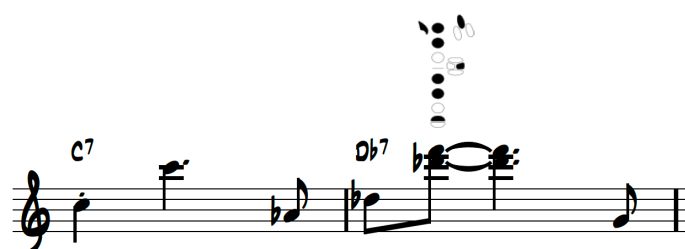
Use of Multiphonics as Harmonic/Chordal Punctuation

Example #1 || John Coltrane "Harmonique"

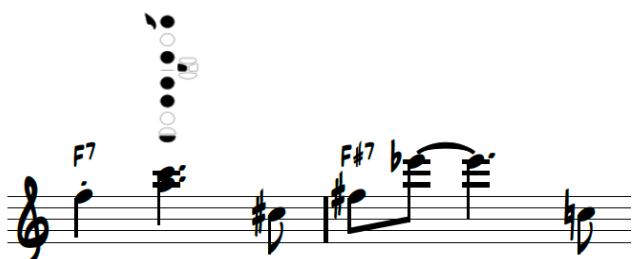
John Coltrane's composition "*Harmonique*" (see Appendix D1, E1) from his 1961 release "Coltrane Jazz" through Atlantic Records incorporates consonant and functional multiphonics into the melody of the tune, providing a harmonic context directly relating to the chord changes of the tune.

The tune is written over a 24 bar blues form and uses a common harmonic device where the chords alternate between the regular chord and the chord a half step up (e.g. C7 - Db7 instead of remaining on C7). The melody itself really emphasises this device, using only chord tones.

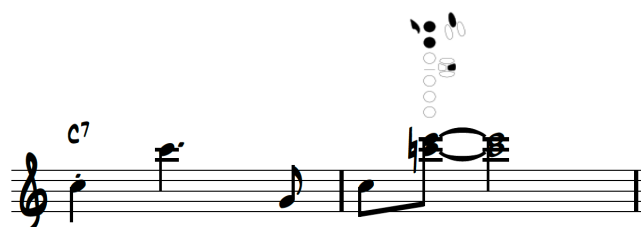
Coltrane uses three different multiphonics in this tune and their function is always to add consonant "harmony" to some particular melody notes. It is clear that the intention is function as opposed to texture given the context of their use as shown below:



(i) Bars 1 & 2 showing use of Dyad of Db-F to outline Db7 chord (root & 3rd)



(ii) Bars 9 & 10 showing use of Dyad (A-C) to outline F7 chord (3rd & 5th)



(iii) Bars 23 & 24 showing use of Dyad (C-E) to outline C7 chord (root & 3rd)

Figure 3: Excerpts from transcription of "Harmonique" by John Coltrane

Whilst it is an interesting sound, it seems as though these multiphonics are used mostly for novel effect rather than musical necessity. The tune would sound as strong or probably stronger if the top note of each multiphonic was played as the melody note. This is made more apparent considering he is playing with a quartet and the harmony is already being covered by the rhythm section. Perhaps if this were a solo or duo piece the effect would be greater. Another issue is that due to the chosen multiphonics being so difficult to produce, and having such a fragile and ethereal timbre, the melody feels compromised because the sound of the multiphonic is so different to his normal strong saxophone sound. It leaves the song feeling a bit wonky and the melody unconnected. In saying that, this piece shows the potential for how this approach could be utilised in composition to effectively portray an intended harmonic context.

Example #2 || Christian Lauba “Steady Study on the Boogie”

Another example of this approach appears in the contemporary classical piece for solo alto saxophone “*Steady Study on the Boogie*” written by Tunisian born French composer Christian Lauba (see Appendix D2).

Of particular interest is the main theme of the piece which is introduced at the top of the second page of the score, following the ethereal opening which explores extremely quiet multiphonic textures. The piece from here on, just like in “*Harmonique*” above, is essentially written over the form of a blues and utilises multiphonics within a repetitive single line phrase as chordal punctuation. Lauba develops this concept throughout the piece, adding different variations on the theme and utilising different extended techniques as well.

Below in **Figure 4**, is an excerpt from the piece showing the first statement of the theme. There are no written bar lines in the whole piece so the annotations show where the chord changes and bar lines would take place, clearly showing the blues form, here in the key of “A” (transposed for alto saxophone). The repeated phrase or ostinato is seven beats in length, representing two bars in the twelve bar blues form. The written phrasing would suggest one bar of 4/4 followed by a bar of 3/4 (as shown with the blue bar lines) but this could also be interpreted the opposite way, having the multiphonic always arriving on the strong first beat of each bar. In fact, this is the resulting effect in practice as the ear is naturally drawn to the distinct sounding multiphonic as a point of stability. Just like Coltrane in “*Harmonique*”, Lauba utilises three different multiphonics to outline the three chords of a basic blues which are;

- i. Dyad of minor 3rd (C#, E): Representing root chord “A6” (3rd & 5th)
- ii. Dyad of major 2nd (C, D): Representing IV chord “D7” (7th & Root)
- iii. Dyad of minor 3rd (B, D): Representing V chord “E7” (5th & 7th)

4 160 Respiration continue (si possible) et legato sans interruption
 simple et régulier sempre subtone etc...

Figure 4: Annotated excerpt from "Steady Study on the Boogie" by Christian Lauba.

Whilst this excerpt has a lot of similarities to Coltrane's "Harmonique" above, the idea and concept are more effective in "Steady Study on The Boogie" for two reasons. Firstly, being a work for solo saxophone without accompaniment, the use of multiphonics here serves a more vital purpose in providing a chordal context to the melody as opposed to "Harmonique" where the chordal context is already clearly apparent because of the traditional role of the rhythm section in the music. Without accompaniment, the multiphonics actually speak as chords and occupy a focal point for the listener to perceive the intended harmonic context intended by the composer. Secondly, the specific multiphonics utilised are far easier to produce and are much closer in tone colour to the normal sound of the saxophone. As such the melody is not compromised and is actually enhanced by the use of the multiphonics.

Use of Multiphonics as Representation of Chordal Movement

Example #1 || Dai Fujikura "SAKANA"

Adopting a different approach than the two examples above, Japanese composer Dai Fujikura in his experimental contemporary classical work for solo tenor saxophone "SAKANA" (see Appendix D3, E2), utilises multiphonics exclusively to represent chordal movement. He does this in a few different ways throughout the piece but most interestingly is his use of pedal point. **Figure 5** below shows an example of this from the very beginning of the piece.



Figure 5: Excerpt from "SAKANA" by Dai Fujikura.

Here he utilises two dyads which have the same low fundamental note F# (transposed for tenor saxophone) and creates what could be considered a vamp in jazz terms with the top note alternating and the bottom note continuing as a drone beneath. Interestingly both of these dyads are achieved using the same fingering and require the performer to manipulate their tongue position and air-speed to alternate the top note.

Whilst it could be argued that in and of itself this passage doesn't necessarily represent chordal movement and is more likely intended to create an eerie atmosphere, it is equally as valid to suggest that if there were another voice or melody over the top, it would indeed begin to be perceived as such. The vagueness and openness of the the harmony could actually serve well as an accompaniment to a melody, putting the saxophone in a non-traditional musical role. For instance a melody using the F# phrygian mode or B harmonic minor scale would fit perfectly over this vamp.

3.1.3 ARTISTIC APPLICATION // MEATSHELL

USE OF MULTIPHONICS AS HARMONIC/CHORDAL PUNCTUATION

Example #1 || Carrots (in Honey)

"Carrots (in Honey)" (see Appendix A1, B1) was the first Meatshell piece to incorporate the use of multiphonics as a source of accompaniment and utilises them (albeit sparingly) as harmonic punctuation. The song has a folk-esque aesthetic and is largely centered in the key of concert pitch G major (A major for Bb transposing instruments like tenor saxophone). It also follows a traditional song form of "AABA". For the most part, the saxophone's role is designed to provide a monophonic harmony line for the main vocal melody however there are two instances where a multiphonic was utilised to fill out a chord and provide a harmonic punctuation point as can be seen below in **Figures 6 & 7**. Only one multiphonic is utilised in the piece, being a minor 3rd dyad of C# & E (transposed for tenor saxophone) however it is used in two different chordal contexts to flesh out the harmony and provide resting points for the melodic phrases.

The image shows a musical score excerpt for measures 40-43 of the song "Carrots (in Honey)". It consists of three staves. The top staff is a vocal line in treble clef, 3/4 time, with lyrics "I think of home." The middle staff is a bass line in bass clef, 3/4 time, with chord labels F, E, E(sus4), and A. The bottom staff is a saxophone line in treble clef, 3/4 time, with a key signature of one sharp (F#). The saxophone line features a multiphonic (indicated by a cluster of notes) at the end of measure 43, which corresponds to the final note of the vocal phrase.

Figure 6: Excerpt #1 from *Carrots (in Honey)* by Meatshell

Figure 6 on the left, comes at the end of the first "A" section of the song as the harmony resolves back to the tonic chord of concert pitch G major. The saxophone multiphonic is utilised here as it outlines the 3rd and 5th degree of the tonic chord as well as supporting the vocal melody by doubling the final note.

44

gro - wing tired

E A^{maj7} F^{#m}

Figure 7: Excerpt #2 from *Carrots (in Honey)* by Meatshell

Figure 7 on the left, occurs in the penultimate phrase of the “A” section. Harmonically, the phrase finishes on the relative minor chord of G major, being concert pitch Emin7. Whilst this is the same multiphonic utilised in the first excerpt, it serves a different harmonic function here outlining the 5th and 7th degree of the chord with the double bass playing the 3rd degree and the root note being heard in the vocal melody.

Whilst only utilised sparingly, these multiphonics serve an important chordal as well as textural function in this piece. The song’s lyrics describe the feeling of longing for home and as such the ethereal timbre and beautiful yet fragile sound colour of this particular multiphonic adds to the expression and vulnerability of the song. The particular sound characteristics also create a homogenous blend with the delicacy of the often-utilised double bass flageolets.

Example #2 || RJD

Unlike “*Carrots (in Honey)*” above, the saxophone part in “*RJD*” (see Appendix A2, B2) essentially provides a full rhythmic and chordal accompaniment for the vocal melody and does so, in part, through use of multiphonics as chordal punctuation. The excerpt below in **Figure 8**, shows the “A” section of the piece. As can be seen, the saxophone groove/ostinato is based on a broken chord pattern, outlining the harmony of the piece which centres around concert pitch C minor. Whilst regular broken chord patterns outline chords in a monophonic single line, this groove mixes both, adding a consonant and harmonically relevant multiphonic on the 4th beat of every bar of 5/8. Conceptually it is very similar to Lauba’s “*Steady Study on the Boogie*” considering the repetitive rhythmic aspect however this groove more clearly outlines the intended harmony by adding a strong bass note at the start of each bar using the root of the chord.

16 **C-7** **C-7** **Ebmaj6** **Ebmaj7#5**

Yours is this time, feed your self cre ate.
Who will you be? One I've known be fore,

D-7 **D-7** **Fmaj6** **Fmaj7#5**

Root + 3rd *sim.* 6th + Root #5th + 7th

23 **Bb7sus4** **Bb7b9**

Ar chi techt of fate.
now 'til e ver more.

C9sus4 **C7b9**

9th + sus4 b9th + 3rd

As can be seen in the annotated excerpt in **figure 8** above, there are two different multiphonics being used here; a minor 3rd dyad of D and F and a minor 3rd dyad of C# and E (both transposed for tenor saxophone). These two are particularly useful here given how prominent these notes are in the key of D minor and its relative keys. In the “A” section they are used to help illustrate five different chords being;

This same concept is carried through to the “B” section of the piece with the introduction of some different wider multiphonics for texture and voicing variation. These added multiphonics are triads and harmonically pair perfectly to the two original dyads in the piece.

As can be seen in the annotated excerpt in **Figure 9** below, these triads are used in tandem with the original dyads in the groove/ostinato to outline the harmony of the section, which essentially utilised chords derived from a concert pitch C harmonic minor scale.

Figure 9 displays four musical excerpts from "RJD" by Meatshell, annotated with chord names and specific triads or dyads. The excerpts are organized into four staves, each with a key signature of two flats (B-flat major/C minor).

- Staff 1 (Measures 32-39):** The first staff shows the melody for the word "live". The second staff shows the accompaniment, featuring chords **Abmaj7** and **Bbmaj7**. Annotations include **3rd + 5th** and **5th + 9th + 7th** dyads.
- Staff 2 (Measures 40-47):** The first staff shows the melody for the word "life". The second staff shows the accompaniment, featuring chords **Fdim7** and **Gdim7**. Annotations include **dim5th + dim 7th** and **dim7th + dim 5th + 9th** dyads.
- Staff 3 (Measures 48-55):** The first staff shows the melody for the word "here". The second staff shows the accompaniment, featuring chords **Ebmaj7#5** and **Fmaj7#5**. Annotations include **#5th + 7th** and **7th + #5th + 3rd** dyads.
- Staff 4 (Measures 56-63):** The first staff shows the melody. The second staff shows the accompaniment, featuring chords **G7/D** and **G7b9**. Annotations include **3rd + 5th**, **5th + 3rd + Root**, and **Root + b9th + #9th + Root 8va** dyads.

Figure 9: Annotated excerpts from "RJD" by Meatshell

There is also one final multiphonic utilised at the very end of the section which is a four note chord, a category of multiphonic that is sparingly used to represent harmony as most of them do not adhere to equal temperament tuning and sound too distorted or abrasive. In this instance however the particular multiphonic (despite the quartertones) actually quite effectively outlines the A7b9 chord. When played quietly, the higher notes are not as piercing and the oscillation between the fundamental pitch A and the minor 9th Bb is the most prominent sound. The higher notes are still there but provide more textural than harmonic value.

This broken chord groove idea when mixed with multiphonics is a very effective way of accompanying another musician or even representing multiple musical ideas or roles simultaneously on the saxophone. Here in “*RJD*” it is particularly effective given that the different texture and timbre of the multiphonics within the ostinato line actually make it sound as though there are distinct and separate interweaving parts and not just one instrument. This concept of varying texture and timbre is taken a step further earlier in the piece as each bass note is played with a secco slap tongue articulation, giving each note a thudding quality. This will be discussed more in the percussive articulation section of this research.

USE OF MULTIPHONICS AS REPRESENTATION OF CHORDAL MOVEMENT

Example #3 || Lost

The intention behind “*Lost*” (see Appendix A3, B3) was to provide a complete chordal accompaniment to the vocal melody using only multiphonics. The song’s lyrics describe the feeling of being alone and lost in an unfamiliar place and as such the multiphonic accompaniment was designed to cultivate tension and unease in the listener. The harmony is not intended to be functional but intended to give some kind of non-functional chordal context to the vocal melody. The beginning of the piece, as shown in **Figure 10** below, features the pedal point technique utilised by Dai Fujikura in “*SAKANA*”. Here it is used to create a dark and ominous undertone for the initial statement of the melody, which is sung freely and rubato. The saxophone creates a pedal point on concert pitch “D” which becomes the grounding note of the section and then utilises two different and alternating multiphonic dyads, the first an octave “D – D” and then a minor 9th “D – Eb” to create a kind of vamp where the bass note always remains “D”. The dissonant minor 9th interval and the intervallic movement of a half step are compositional devices synonymous with feelings of danger and tension and work to similar result here. What makes this even more eerie and effective is that the vocal melody uses notes from concert pitch “Eb” Lydian scale, completely juxtaposing the “D” pedal point, adding to this unsettling tension (this could also then be perceived as being a melody using notes from the locrian mode although this was not the intention).

Rubato - Melody sung freely with plenty of space

A

mp

Out - side Now I sit and won - der why, There is no - thing for me here

p

**continuous sound - ominous tone as if lurking in the woods (play freely and always follow the melody)*

Figure 10: Excerpt from "Lost" by Meatshell

The next excerpt, below in **Figure 11**, occurs after the big climax of the piece and operates as a final coda to the melody. The piece is once again grounded in a kind of pedal note, here being concert "Ab", however the interesting resulting harmonies from the combination of voice and saxophone multiphonic occur at the final note of each phrase. Firstly the melody note "A" on the syllable "sent" is harmonised with a minor third dyad "C – Eb" creating a diminished triad and then finally the melody note "Bb" on the syllable "eyes" is harmonised with a minor third dyad "Bb – Db" leaving a somewhat ambiguous ending to the piece.

17

p

Where light is ab - sent On - ly whites of eyes

p

Figure 11: Excerpt from "Lost" by Meatshell

Aside from the chordal and harmonic implications of the multiphonics being utilised as an accompaniment for the vocals, the inherent unfamiliar and ethereal sound quality, of these quiet dyads especially, really adds musical value to this piece in the way that it sets the mood for the song by cultivating an unease in the listener.

Example #4 || Stones

The intention behind “*Stones*” (see Appendix A4, B4) was to create a complete chordal accompaniment for the vocal melody utilising only multiphonics, however unlike in “*Lost*” above, the goal was to represent the harmony in a functional way and have it perceived as such by the listener. The song is centred in the key of concert pitch A minor (B minor for Bb transposing instruments like tenor saxophone) and the melody is constructed in two phrases, the first using notes from the concert pitch A natural minor scale/aeolian mode and the second using notes from concert pitch Bb major major scale. The chordal movement directly reflects this as can be seen in the annotated excerpt below in **Figure 12**, which is the final statement of the melody and the finale of the song.

The musical score for "Stones" by Meatshell is presented in three staves. The top staff is the vocal melody, starting at measure 16 with a common time signature and a half-time tempo marking. The lyrics are: "Lit - tle girl sing to me. Lost and scared re - lieve me of thie mis - er_ y._____". The middle staff shows the chordal accompaniment with blue chord labels: A- (half-time), A-11, A-, A-11, A-, G7, A-, A-11. The bottom staff shows the multiphonic accompaniment with red annotations: (Root + 5th) mp, (9th + 11th), (Root + 3rd + 5th), and (3rd + 5th). The score is in A minor/Bb major and features a variety of time signatures including common time, 6/4, and 4/4.

Figure 12: Excerpt from “*Stones*” by Meatshell

21

See my face heart-beat and soul will it make me whole?

F Bb F Bb A-

G C G C B- B-11 B- B-11

(Root + 7th) (Root + 5th) (Root + 5th) (9th + 11th)

Figure 13 (cont.): Excerpt from "Stones" by Meatshell

The chordal movement is quite static and for the most part vamps between two sounds outlining concert pitch A minor and A minor 11 chords. This is similar to the technique utilised by Fujikura in "SAKANA" above but without the use of pedal point. In my opinion the multiphonics utilised reflect and convey the chordal context quite effectively. This is mostly because of the use and manipulation of the natural harmonics of the saxophone as multiphonics which strongly ground the music in both in the keys of concert pitch A minor and Bb major respectively in each phrase as these multiphonics create a the interval of a perfect 5th or 12th which is one the strongest harmonic relationships in music. Another thing which is quite effective is the use of the two multiphonics on beats three and four of the fourth bar in the excerpt above to create a voice leading line through different voicings of the same represented chord. This is rare to find considering the inherent limitations in multiphonic possibilities but this is a great example of the possibilities.

The only curious multiphonic here occurs at the start of the second phrase as the lowest note is a concert pitch "E" when the chord is "F" major. Whilst this is functionally not an accurate representation of the intended harmony of the song, sonically, the concert pitch "F" is actually the more prominent note in this particular multiphonic giving a heightened sense of importance. The concert pitch "E" essentially functions as a suspension which resolves in the concert pitch "Bb" major chord which follows.

3.2 || SUB-QUESTION #2 || *How can exploration and utilisation of percussive articulation in composition and performance challenge the saxophone's traditional role in jazz and improvised music?*

Fundamental concepts of single tonguing and common articulations such as legato, staccato, marcato are very important starting points for developing a range of possible expressions on the saxophone. Beyond this however there are many extended forms of articulation, which allow the performer to venture into different sound worlds and occupy different functions in the music more effectively and convincingly.

"Articulation lets music speak, determines the creation of the tone and delineates the metric relationships within the musical text" (Weiss & Netti, 2010, p.143)

3.2.1 WHAT IS PERCUSSIVE ARTICULATION?

Percussive articulation is not a widely acknowledged term in the saxophonist's vernacular but in the context of this research broadly refers to any extended articulation that gives a percussive or striking effect to a note produced on the saxophone, the most common of these techniques being the "*slap tongue*". When used creatively, percussive articulations allow saxophonists to enhance the sonic capabilities of the instrument to imitate the sound colours, textures and approaches of a drum kit and bass, creating the possibility of occupying an accompanying role in the music more convincingly.

Types of Articulations & How They Are Produced

Articulation #1 || Slap Tongue

As the name suggests, this technique produces an extremely harsh and percussive articulation, much more than traditional staccato or marcato tonguing. The slap tongue articulation is produced by first pressing the tongue against the reed, manipulating it to create a vacuum of air between the two. Once the tongue essentially seals the reed, it is then harshly pulled away from the reed, exploding with the "*t*" consonant sound, releasing the vacuum of air and pushing the pent-up air pressure from the diaphragm through the saxophone.

There are three different variations of the slap tongue technique, all of which have different percussive sound qualities and affect the notes on the saxophone differently. These will be discussed further below.

i. Standard Slap Tongue

The standard slap tongue articulation is essentially produced as detailed above and after the initial harsh articulation has been executed, regular breath and airflow continues. In this way, the articulation functions as an “over-the-top” emphasis and can be utilised to create an unexpected shocking accent during a long note or phrase or to make extreme accentuations on particular notes in a line akin to a drummer.

ii. Secco/Closed Slap Tongue

The secco slap tongue articulation is produced in exactly the same way as the standard slap tongue articulation with one important difference. Instead of continuing the airflow after the initial attack, the airflow is stopped immediately in conjunction with the attack. Since little to no air gets pushed through the instrument, only the sound of the percussive attack is present with a faint yet still discernible pitch. The timbre of the sound is dry and has a washed-out almost wooden texture to it. The faint pitch more or less aligns with the fingered pitch that the performer executes at the time of the attack³ and the technique is especially effective with lower pitches as the notes are clearer and speak a bit more than the higher pitches. The resulting effect is almost like a cello or double-bass pizzicato. It's also interesting to note that this articulation when used together with multiphonic fingerings produces several perceived pitches in this timbre.

iii. Open Slap Tongue

The final variation is the harshest sounding articulation of them all. The open slap is produced in the same way as the secco slap however, as the name suggests, the performer must also abruptly and fully open their embouchure at the moment of attack. This creates a violent and percussive attack. There is discernible pitch however the percussiveness of the attack somewhat covers this up and in any case it is important to note that due to the embouchure being opened, creating essentially a shorter vibrating

³ Although in my experience the resulting pitches are often quite a lot sharper than the fingered pitch. This usually has to do with the necessary increased upward pressure from the bottom jaw.

tube, the pitch that comes out will not be the same as the pitch being fingered. The resulting sound is akin to the loud crack of a snare drum or the violent snapping of the “Bartok” pizzicato technique when utilised on double bass (Weiss & Netti, 2010, p.147).

Articulation #2 || Tongue Ramming

This technique is often confused with slap tonguing but is actually achieved in the complete opposite way. Instead of creating suction against the reed and abruptly pulling the tongue away for the slap tongue technique, tongue ramming requires the performer to do just that, forcefully drive the tongue into the reed together with fast air-flow, creating a blockage in the instrument. The resulting sound is akin to something being powerfully jammed into a pipe and creates a dark thudding accent somewhat akin to the texture and sound colour of a plucked double bass (Weiss & Netti, 2010, p.152).

Articulation #3 || Breath & Air Sounds

Although not normally considered an articulation but more of an “effect”, air or breath sounds can actually add to the percussive palette of a saxophonist. Essentially these sounds are produced in the exact opposite way of normal saxophone playing, pushing air through the instrument without making the reed vibrate enough to produce a normal pitch. These sounds are usually difficult to hear but can be reinforced by forming different consonants or syllables in the oral cavity, most commonly “s”, “sh”, “hr” and “hro” (in order from brightest to darkest sound). The texture or sound colour ranges anywhere between a hiss at the brightest end and warm, slow wind at the darkest. The sounds could be utilised to emulate cymbal sounds (Weiss & Netti, 2010, p.161).

3.2.2 CASE STUDIES || EXAMPLES IN EXISTING MUSIC

Percussive articulations have become more and more prominent in contemporary classical, improvised, jazz and new music genres as a way for performers and composers to express rhythmical concepts and drum textures on the saxophone, allowing it to more convincingly occupy non-traditional and accompanying roles in the music. Below are several examples that utilise these techniques to such an end.

Example #1 | “Billy Goat Stomp” Stump Evans (solo)

An interesting example of the standard slap tongue technique being used in traditional jazz music comes from c-melody saxophonist Stump Evans’ solo on the 1927 recording of “Billy Goat Stomp” (see Appendix D4, E3) as part of Jelly Roll Moreton’s Red Hot Peppers. The slap tongue was not a widely known or used technique at this time by Evans utilised it in his solos frequently to aggressively accentuate different notes in his eighth note lines to imply or superimpose different rhythms or time feels to great effect. His solo begins at 1:38 in the recording and from 1:46 he can be heard accentuating every fourth eighth note in his line, superimposing a dotted eighth note feel against the quarter note pulse of the song and essentially outlining a four against three polyrhythm. This is depicted visually below in **Figure 13**, courtesy of a transcription by saxophonist Josiah Boorzanian. Each note articulated and accented with slap tongue is marked with a star above it, clearly showing how the eighth notes have been grouped in three, with the first note of each group being accentuated for clarity and percussive effect.

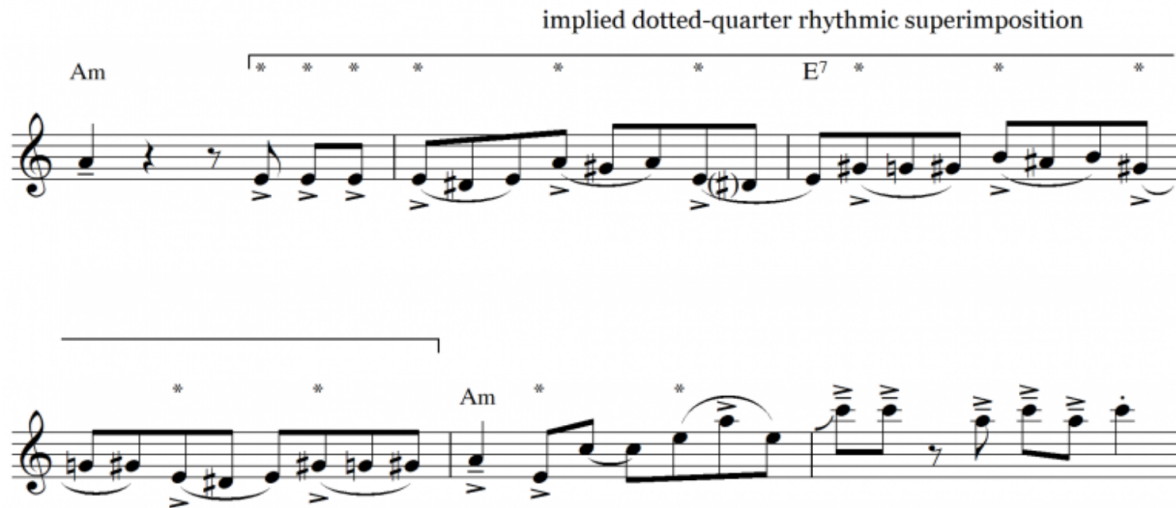


Figure 13: Excerpt from transcription of “Billy Goat Stomp” by Jelly Roll Moreton

Example # 2 | "Rock Me!" Barry Cockroft

In his 2007 composition for solo alto saxophone "Rock Me!" (see Appendix D5, E4), composer Barry Cockroft utilises various forms of percussive articulation to "capture the relentless driving energy, rhythms and beats found in many forms of rock music" (Cockroft, 2007).⁴ The piece utilises all three variations of the slap tonguing technique, amongst other extended techniques, to mimic the sounds of a full rock band. As can be seen in **Figure 14** below, the piece is built from a one bar repetitive rhythmic ostinato or groove, utilising what Cockroft refers to as a "quasi slap" articulation on the lowest note of "Bb" (for Eb transposing instruments). The "quasi slap" is in effect a less harsh "secco slap" which allows the performer to execute continuous articulations at a faster pace still with the same dry and wooden tonal colour. This ostinato is akin to the "bass line" of the piece. After the initial statement a variation is initiated by adding a multiphonic, still articulated with slap tongue, on beat two, producing a dyad of "Bb" and "Ab", strongly grounding us in Bb dominant 7 adding to the bluesy and rock atmosphere. Having this variation on beat two, or the "back-beat", also is used to imply a common rock drum groove with the low note representing the bass drum and the multiphonic representing the snare drum. This idea is then taken further later in the piece when the note on beat two is replaced with an open slap tongue, creating a loud crack or pop, more akin to the sound of a snare drum.

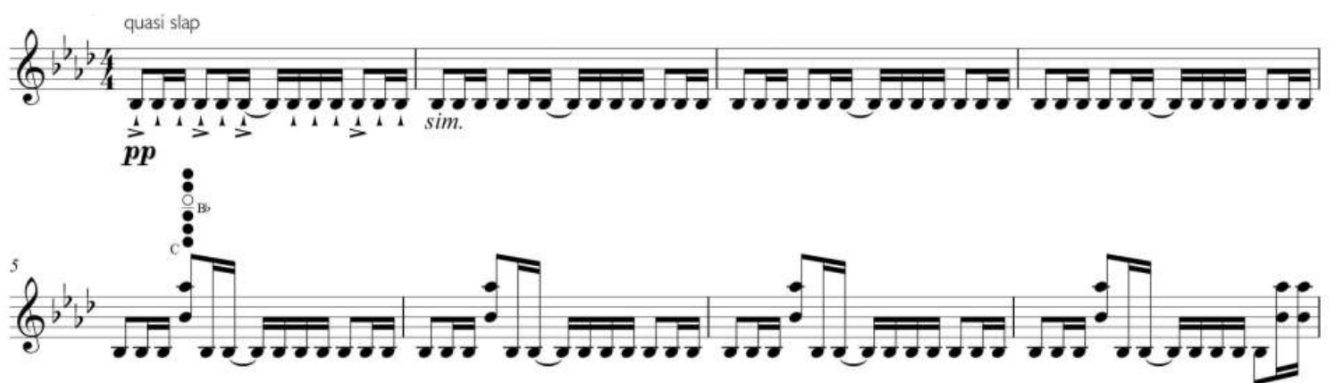


Figure 14: Excerpt from "Rock Me!" by Barry Cockroft

⁴ Taken directly from the performance notes which accompany the full score
<https://barrysax.com/composition/rock-me/>

The full effect of this compositional style and approach is that the performer becomes a kind of "one man band" as the performer takes on the function of the bass player, drummer and chordal accompaniment all simultaneously. This approach has inspired many other saxophonist and composers including Derek Brown who has developed his own unique "beat-box-sax"⁵ approach to the instrument, which essentially takes Cockroft's style to another level.

Example #3 | "Hide and Seek" Joshua Redman (intro)

In the introduction of his composition "*Hide and Seek*" (see Appendix D6) from his 1996 album "*Freedom in the Groove*", saxophonist Joshua Redman utilises percussive articulation in order to create a "call and response" dialogue with himself. Redman uses this call and response approach in many of his improvised solos in which he will play an idea in the low register of his instrument and respond with an answer in the high register, creating the illusion of interaction. The effect is heightened in "*Hide and Seek*" through the use of percussive articulation, in particular tongue ramming, to emphasise the difference in tonal colour between the call and response. As can be seen below in **Figure 15**, Redman establishes a one bar groove in the low register of the saxophone, performed with the tongue ramming articulation, and then responds with a virtuosic bluesy fill in the higher register. This idea is continued and developed further until the start of the piece where the band comes in and the double bass takes over the groove.



Figure 15: Excerpt from transcription of "Hide & Seek" by Joshua Redman

⁵ For an example of Derek Brown's approach see: <https://www.youtube.com/watch?v=WjYSSWEmOeY>

The juxtaposition of the thudding, almost plucked double bass sound of the tongue ramming technique to Redman's normal brilliant saxophone sound, allows him to more convincingly create this illusion of dialogue and essentially accompany himself.

3.2.3 ARTISTIC APPLICATION // MEATSHELL

Example #1 | Refuge

"Refuge" (see Appendix A5, B5) is a song which is built off an underlying two bar rhythmic and melodic ostinato or groove as can be seen in **Figure 16** below. The ostinato occurs accross one bar of 4/4 and one bar of 5/4 and is in the key of "Bb" (for Bb transposing instruments like tenor saxophone). For the entirety of the first song form, the saxophone occupies the accompanying role of the piece as the the vocal melody is the only other present sound.

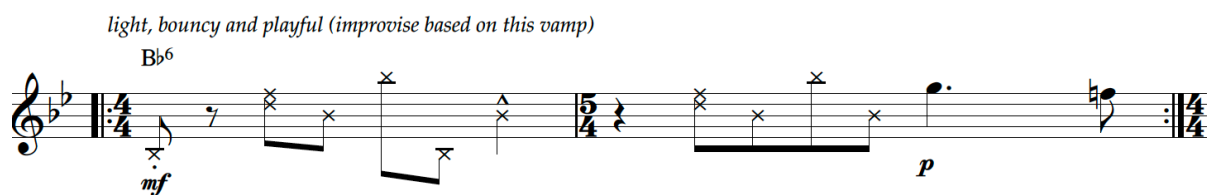


Figure 16: Excerpt from "Refuge" by Meatshell

Utilising the dry and wooden timbre of the secco slap tongue technique, saxophone emulates the tonal colour and function of a double bass, to a similar effect as Cockroft's "Rock Me!" above. There is also an abnormal and uneven sense of call and response, with the final two beats of the phrase always played with normal saxophone sound in juxtaposition with the percussive nature of the rest of the line. The groove is also played with a "back-beat" feel in mind, made apparent by placing either strong accents or juxtaposing tonal colours on beats two and four of both bars. In the first bar, a multiphonic fingering (minor 3rd dyad "D" & "F" resulting in the 3rd & 5th degree of the chord being audible) is utilised on beat two and a strong accent on beat four⁶, and in the second bar the multiphonic is again played on beat two with the normal saxophone sound resumed on beat four. This constant change of textures gives a final result which

⁶ Often in live performance I will execute an open slap tongue here to make the idea even stronger and clearer.

encapsulates, albeit abstractly, the fundamental harmonic, rhythmic and textural underpinnings of the entire piece, creating a “one man band” situation, again not unlike “Rock Me!” in its intention.

This concept is expressed even more clearly later in the piece when the tonality shifts to “F#7” (for Bb transposing instruments). As can be seen below in the excerpt in **figure 17**, The back-beat here is made much more blatant with the use of the same multiphonic (a minor 3rd dyad of “C#” and “E”, resulting in the 3rd and 5th degree of the chord being audible) played on the second and fourth beat of every bar in juxtaposition to the strong secco slap sounds on the other beats and off-beats in the bars.

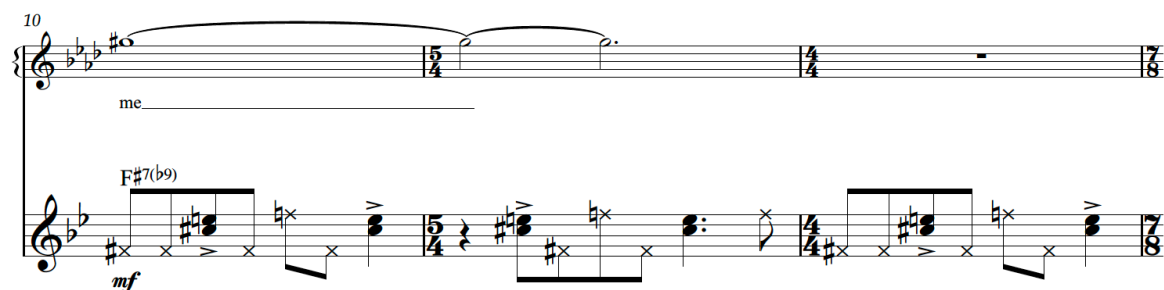


Figure 17: Excerpt from "Refuge" by Meatshell

Example #2 | F@CE

“F@CE” (see Appendix A6, B6) is a song which is abstractly based on the traditional verse-chorus form of song writing. The saxophone here, as in “Refuge” above, is once again performing the accompanying role with the vocal melody being the only other sound present. The form is abstract because although there are identifiable verse and chorus sections, both the singer and saxophonist have the freedom over the phrasing, note lengths and development of the sounds, the intention being that the song will be different every time allowing the performers to listen and react to each other in the moment to reflect the music and lyrics. This is especially true in the verses. The beginning of the first verse is shown below in **Figure 18** and as can be seen, the vocal melody is very abstract and open for interpretation. The saxophone accompaniment is based off a 6 beat long repetitive groove utilising three multiphonics to create a two part harmonic line, similar to “Stones” above. The resulting chordal movement is essentially

a vamp going from Bb major to C major with a passing chord in between (for Bb transposing instruments like tenor saxophone). The standard slap tongue technique is utilised to accentuate and articulate these multiphonics to allow the to speak instantaneously. A particularly nice effect occurs as the second multiphonic (dyad “F#” & “G”) is articulated with the slap tongue but then slurred to the next 3rd multiphonic (dyad “C” & “G”) emulating how a bass player or guitarist might use the “hammer-on” technique. Interspersed in the groove the saxophone player juxtaposes the sounds with soft altissimo register notes creating a jarring yet playful effect.

The musical score for 'F@CE' by Meatshell is presented in two staves. The top staff is for the Voice, and the bottom staff is for the Tenor Saxophone (T. Sax). The key signature is Bb major (two flats), and the time signature is 4/4. The score is marked 'VERSE 1' and 'A'. The lyrics for the Voice part are: 'Jag - ged Poin - ted Ser-ra-ted edge Watch'. The T. Sax part features a complex melodic line with multiphonics and altissimo register notes. Dynamics include *mp* (mezzo-piano) and *sim.* (sustained). The score includes various musical notations such as slurs, accents, and dynamic markings.

Figure 18: Excerpt from "F@CE" by Meatshell

The chorus of this song, shown below in **Figure 19**, is the one section which is always performed on cue of the vocalist as written and provides a strong stability and climax point in the song. The section is made up of a seven beat long melodic phrase which repeats itself. The saxophone, again performs the accompanying role albeit with a slightly different two part harmonic line utilising multiphonics outlining a vamp moving from F major (with E in the bass) to Bb major (for Bb transposing instruments). It is intended that the saxophone part more closely mimics the tonal colour a drum kit here with secco slap and open slap tongue articulations being used exclusively in this section, the open slap's utilising the pitch “F” at the top of the keyed range of the saxophone, creating a high pitched snap sound akin to a snare drum.

30 **F** **CHORUS**

Ha - ha, WOW! like, love, sad, ANG RY! Ha - ha, WOW! like, love, sad, ANG RY!

sim.

Figure 19: Excerpt from "F@CE" by Meatshell

The resulting groove is a bit unorthodox, as the snare hit happens on the second sixteenth note of beats two and four of the first bar and beat two of the second bar but the overall effect is again that of the "one man band".

3.3 || SUB-QUESTION #3 || *How can the exploration and utilisation of circular breathing in composition and performance challenge the saxophone's traditional role in jazz and improvised music?*

3.3.1 WHAT IS CIRCULAR BREATHING?

When trying to occupy non-traditional musical roles on the saxophone, one glaring issue arises; the duration of the sound is inevitably limited by breath. Depending on the note

or register of a passage⁷ the average saxophonist's duration would range anywhere between 8 - 25 seconds. This of course isn't always a problem, not all forms of accompaniment require continuous unbroken sound however on certain occasions an interruption in the sound can ruin the mood or intensity of a piece or improvisation. It also puts strict limitations on the kind of sounds and atmospheres one can cultivate.

It is because of this dilemma that traditional wind musicians from a wide variety of ancient cultures developed "*circular breathing*", a technique that allows a wind or brass player to produce continuous sound for as long as required without interruption. Some notable cultural and instrumental traditions that utilise circular breathing include Balinese "*suling*" (bamboo flute), Egyptian "*arghul*" (double clarinet) and, one that is very close to home, the Indigenous Australian "*didgeridoo*".⁸ In modern western music, the technique is being utilised more and more in contemporary classical, jazz and improvised music (McPherson & Philpott, 2016).

How Is "Circular Breathing" Achieved?

The name "*circular breathing*" is actually quite misleading. The implication is that the performer must breath in (through the nose) whilst simultaneously continuing to breath out and push air through the instrument however this is not physically possible.

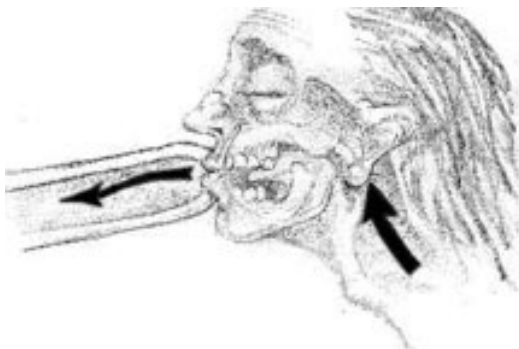
Circular breathing is actually achieved by storing pockets of air in inside of the cheeks and by pushing this stored air through the instrument using the muscles in cheeks and mouth disconnected from the normal air-flow, allowing the performer to quickly inhale through the nose and then continue blowing as normal. The stored air in the cheeks essentially operates as a secondary air supply that is utilised when the performer needs to take in more air.

The diagrams in **Figure 20** below depict this process as it applies to the didgeridoo⁹. The general principles are the same for all wind and brass instruments.

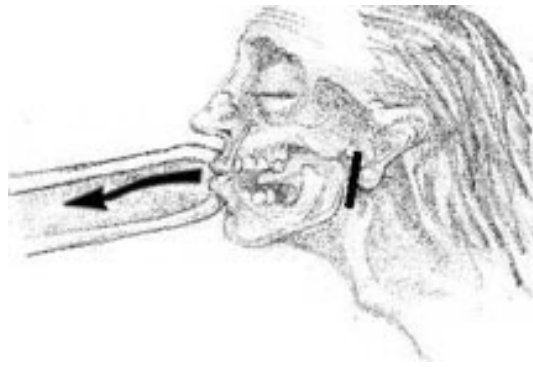
⁷ Different registers require different amounts of air pressure, speed and support to maintain.

⁸ Music in these cultures occupies ceremonial, spiritual and community (dance) functions and is often very drone heavy with the wind instrument occupying this function - the development of circular breathing allowed these musicians to serve the music in a way which was before impossible.

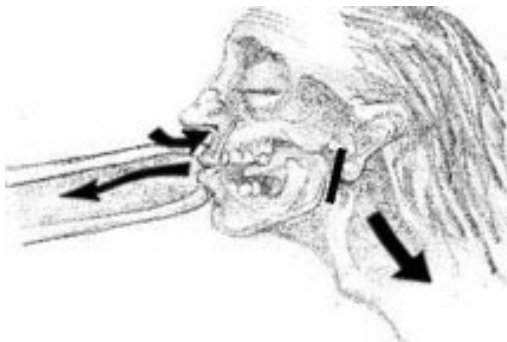
⁹ These diagrams were retrieved from <http://www.didgeridoostore.com>



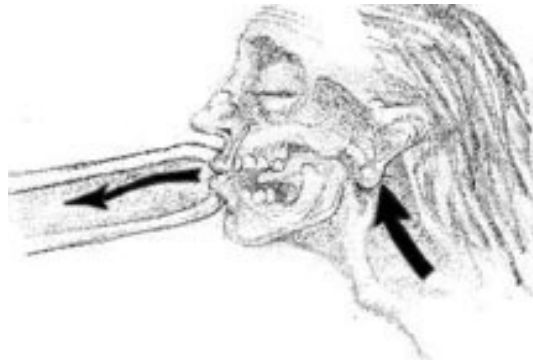
STEP 1: Play normally with regular breath whilst storing air in cheeks



STEP 2: Close off air supply from lungs and use mouth muscles to push stored air through



STEP 3: Whilst pushing stored through instrument, inhale through the nose



STEP 4: Resume air supply from lungs. Repeat all steps as necessary

Figure 20: Depiction of physical process of circular breathing as shown on a didgeridoo

Circular breathing is quite unnatural for most wind players and it often takes a quite lot of time to develop the required coordination and muscle memory to execute the technique fluently, that is keeping a smooth and continuous sound without fluctuation or break. Despite this the technique is widely acknowledged to be akin to “riding a bike”; although it takes several months to become fluent, once mastered, constant maintenance is no longer required.

Circular breathing is generally learned in steps; first away from the instrument in order to develop a general awareness of the necessary physical processes after which the transition to the instrument can occur more easily. A common preliminary exercise utilises a glass of water and a straw with the objective being to blow through the straw

and keep the water bubbling continuously without break by circular breathing.¹⁰ This is a great starting point because the straw has little to no resistance and as such less air is required to keep the bubbles going however once the transition to the saxophone occurs the performer must then be concerned with providing the necessary force, pressure and speed of air to counter the resistance of the saxophone and make the reed not only vibrate but continue to seamlessly vibrate in the same way as if the breath was continuing to come from the lungs.

3.3.2 CASE STUDIES :: EXAMPLES IN EXISTING MUSIC

The growing prominence of the circular breathing technique being utilised in contemporary (more specifically contemporary classical) saxophone repertoire over the 20th and 21st centuries has prompted many saxophone professors at conservatoriums all over the world to now consider it an “essential” technique for their students development (Taylor, 2008, pg.27). Whilst the same can not be said about jazz, improvised and cross-over music genres broadly, there are many examples of circular breathing being utilised by musicians in order occupy non-traditional functions within the music.

In the chosen examples below, there are three distinct compositional devices which benefit from the use of circular breathing being;

- i. *Drones*
- ii. *Broken Chord Patterns*
- iii. *Ostinatos (which can be manipulated using other techniques)*

All serve the purpose of utilising the saxophone provide the chordal, harmonic or atmospheric context of the piece of music as well as in many cases also providing an underpinning consistent pulse or groove.

¹⁰ There are many videos on YouTube clearly showing this exercise one example of which can be seen at the link here: <https://www.youtube.com/watch?v=qcyY0tsGm6A>

Drones

Example #1 || "SAKANA" Dai Fujikura

The full analysis of "SAKANA" (see Appendix D3, E2) can be found under the first sub-question above in **section 3.1.2** however it is important to mention here the importance of circular breathing in cultivating the atmosphere and effectiveness of the drone sections in this piece, one of which is shown in below in **Figure 21**. Drones are an effective musical tool especially in the creation of atmosphere or vague harmonic accompaniment and it is an important function that the sound is continuous and unrelenting.



cornetist then has complete freedom to solo on top of these chord changes as he sees fit. It could have also been the case that a melody could be played over the same broken chord movement.

Ostinatos

Example #3 || Colin Stetson "Like Wolves on the Fold"

Colin Stetson is one of the most innovative saxophonists today due in large to his unique and unconventional approach to the instrument and his ability to occupy many different musical roles simultaneously, most notably in his solo playing. His trademark sound and compositional approach have clear influence from electronic, house and techno genres, incorporating perpetual and driving rhythm as well as utilising one or two bar repetitive ostinatos as building blocks for an entire song. Circular breathing plays a huge role in this aesthetic as it allows Stetson to more authentically and convincingly portray these influences by having the sound and groove be continuous and unrelenting for the complete duration of each track.

One example of this approach can be heard in the track "*Like Wolves On The Fold*" (see Appendix D8, E5) for solo tenor saxophone from his 2017 solo album "*All this I do for Glory*". The piece is built off a one bar ostinato pattern in the key of C minor (for Bb transposing instruments) that is repeated continuously albeit in various forms for the entirety of the piece aside from a few small harmonic variations. This ostinato is shown below in **Figure 22**.

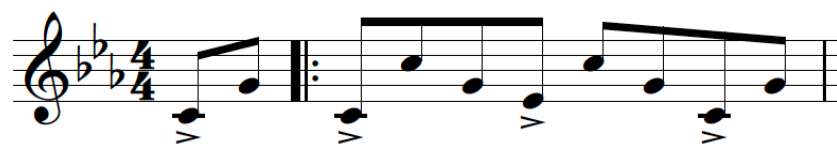


Figure 22: Excerpt from transcription of "*Like Wolves on the Fold*" by Colin Stetson

This ostinato is constructed to have the lowest notes ("C" and "Eb"), which could be considered here as bass notes, emphasised as the strong beats of the bar, creating a type of clave rhythm with two groupings of three eighth notes followed by a grouping of two

eighth notes. This is an extremely common rhythm in pop, electronic and dance music genres and serves to give a sense of forward motion and propulsion to the music. It's also important to note that Stetson utilises many contact microphones on the body of the saxophone to pick up the percussive sounds of the keys closing adding to this driving effect further. The rest of the notes are there to fill in the sound throughout the rest of the bar and create an overall finger pattern, which will remain for the entirety piece.

By itself, this line would become repetitive and boring so Stetson utilises other extended techniques to manipulate the resulting sounds whilst maintaining the continuous finger pattern and driving pulse. The first way he does this is by "*over-blowing*" the instrument resulting in higher partials in the natural harmonic series of the saxophone being audible as opposed to the fingered notes. An example of this is seen in **Figure 23** below, where Stetson creates an entirely new melody whilst still fingering the exact same notes as the initial ostinato.

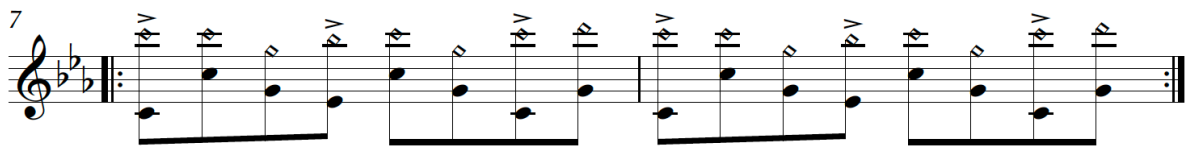


Figure 23: Excerpt from transcription of "Like Wolves on the Fold" by Colin Stetson

The second way in which Stetson achieves variation is by "*vocalising*" or singing through the instrument whilst playing. Normally, this creates a distortion type of effect to the natural sound of the saxophone, called a "*growl*". Whilst this certainly occurs here, Stetson also utilises a contact microphone strapped around his throat so the notes he sings can actually be heard as a melody over the top of the ostinato as well. As such he essentially occupies all of the possible musical functions simultaneously on one acoustic instrument.

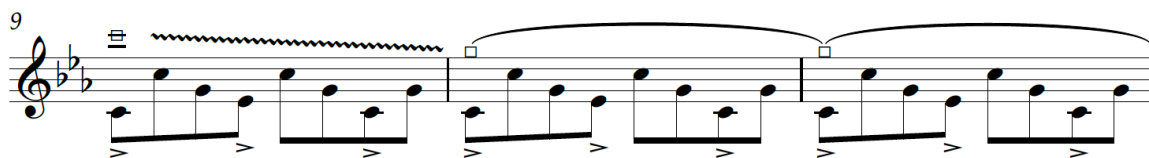


Figure 24: Excerpt from transcription of "Like Wolves on the Fold" by Colin Stetson (vocalising)

Finally, he adds some harmonic variance to the song in a few places but makes sure to maintain extremely similar finger patterns, simply transposing the ostinato up or down a half step as can be seen in **Figure 25** below where it changes from C minor to C# dominant with the dominant 7th in the bass.



Figure 25: Excerpt from transcription of "Like Wolves on the Fold" by Colin Stetson

Stetson's approach is very effective in creating a complete musical accompaniment using the saxophone. Whilst he utilises the saxophone only as an acoustic instrument, the final sound which is produced can only be achieved through creative use of many different microphones, strategically placed all over the instrument to pick up and enhance every little sound that is being made. If he were to play this completely acoustic without any amplification, the result would be very different and less effective.

Example #4 || Andrew Ball "Jengu"

Australian saxophonist and composer Andrew Ball's debut solo album "*Forbidden Languages*" extensively explores compositional applications of a whole plethora of extended techniques including instrumental preparations and augmentations.

In his track "*Jengu*" (see Appendix D9, E6), Ball utilises the same ostinato approach as Stetson above, heavily utilising circular breathing to create a continuous and driving groove and chordal presence to the piece. His version, as can be seen in **Figure 26** below, utilises a one bar melodic ostinato in 7+7 (or 14)/16. The ostinato remains the same throughout a complete 6 bar form with only the bass note changing to create a

sense of chordal movement (two bars of C#, one bar of B, two bars of A# and finally one bar of B).



Figure 26: Excerpt from "Jengu" by Andrew Ball

In this piece, Ball utilises many of the variation techniques that Stetson used above in *"Like Wolves on the Fold"*, including manipulating the natural harmonic series, but also takes it in a few different directions. Aside from utilising percussive articulations, as shown in **section 3.2** above, Ball is also able to create a new melody over the the driving ostinato fingering beneath by opening certain specific keys on the saxophone, as directed in the excerpt below in **Figure 27**. By opening these keys and maintaining the ostinato fingering simultaneously, a single note is perceived as the melody while the driving pulse of the ostinato remains.

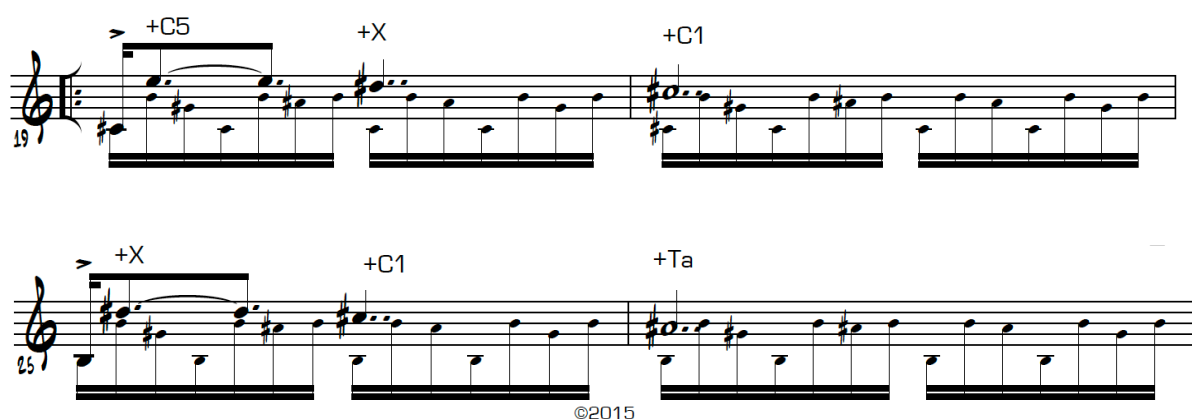


Figure 27: Excerpts from "Jengu" by Andrew Ball

3.3.3 ARTISTIC APPLICATION // MEATSHELL

Drones

Example #1 || Lost

The full analysis of “Lost” (see Appendix A3, B3) with regard to multiphonics and compositional techniques can be found in **section 3.1.2** above however it is also important to signify here the use of circular breathing in cultivating the concert pitch “D” drone that acts as not only the vague source of harmony for the opening section of the composition but also the eery atmospheric presence. If the sound were to stop or be interrupted for breath, the tension which is so vital to the piece would be instantly lost.

Broken Chord Patterns

Example #2 || RJD

As with the previous example, a full analysis of “RJD” (see Appendix A2, B2) with regard to multiphonics and compositional techniques can be found in **section 3.1.2** above. With regard to this sub-question, this piece utilises circular breathing and a continuous broken chord pattern to create the harmonic accompaniment for the vocal melody. The broken chord patterns are clearly labelled in **Figure 28** below with regard to the relevance of the chosen notes within the chordal framework of the song.

The figure displays a musical score excerpt from "RJD" by Meatshell, spanning measures 16 to 23. It consists of two systems, each with a vocal melody line and a piano accompaniment line. The vocal lines include lyrics, and the piano lines show broken chord patterns with specific notes labeled for their harmonic function.

System 1 (Measures 16-22):

- Measure 16:** Chord **D-7**. Notes: Root, 7th, Root + 3rd.
- Measure 17:** Chord **D-7**. Notes: Root, 7th, Root + 3rd.
- Measure 18:** Chord **Fmaj6**. Notes: Root, 7th, Root + 3rd, *sim.* Root, 5th, 6th + Root.
- Measure 19:** Chord **Fmaj7#5**. Notes: Root, 5th, #5th + 7th.

System 2 (Measures 23-29):

- Measure 23:** Chord **C9sus4**. Notes: Root, 7th, 9th + sus4.
- Measure 24:** Chord **C7b9**. Notes: Root, 7th, b9th + 3rd.

Figure 28: Excerpt of “RJD” by Meatshell

Ostinatos

Example #3 || Broken Things

"Broken Things" (see Appendix A7, B7) was written with the style and approach of the two examples above from Andrew Ball and Colin Stetson in mind. The intention here was to provide a simple accompaniment as well as a homogenous blend with the double bass by maintaining a continuous ostinato finger pattern, circular breathing and utilising the variation techniques discussed above to develop the music. The chosen ostinato is a one bar repeated phrase in the key of "E" minor (for Bb transposing instruments). Instead of beginning with this ostinato in its pure and unmanipulated form, the piece starts with the saxophone creating a melody using the key opening variation technique employed by Andrew Ball in "Jengu". The constant rhythmical drive is still very much apparent but a clear single line melody can be perceived through this instead of the regular notes of the ostinato.

The effect of this technique is shown below in **Figure 29**, as the specific key to be opened in conjunction with the continuation of the repetitive finger pattern is displayed with a "+" in front of it.¹² For instance, when the key "X" (front "F") is added, the resulting pitch revolves closely around the pitch "E". Starting the piece in this manner actually created a lot of tension as there was a lot of fast movement but no clear harmonic context. This tension served to set up the "drop" of the raw version of the ostinato in the following section.

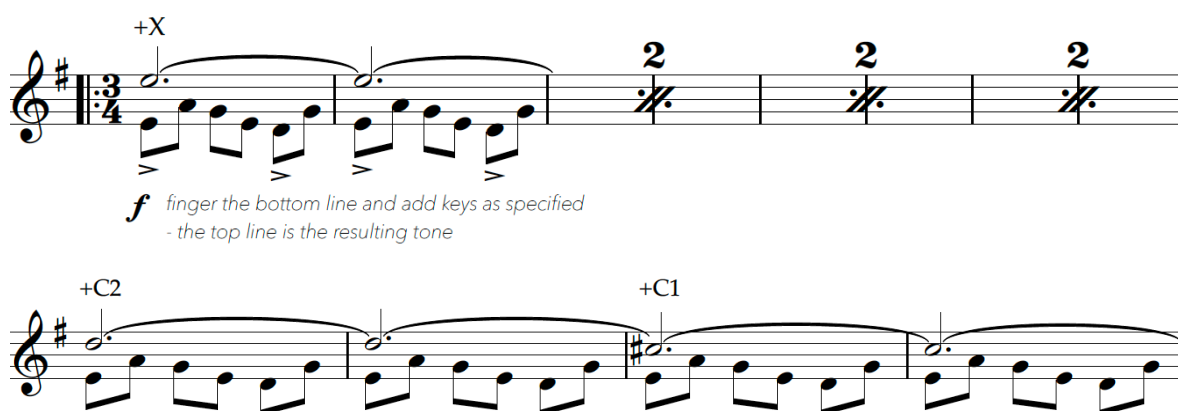


Figure 29: Excerpt from "Broken Things" by Meatshell

¹² The shorthand for the specific keys has become quite uniform over the years and for clarity has been taken directly from the fingering/key diagram in "The Techniques of Saxophone Playing" (Weiss & Netti, p.10)



Figure 29 (cont.): Excerpt from "Broken Things" by Meatshell

The piece develops in few different ways, including a breakdown section and a build-up where the ostinato is continuously transposed higher and higher¹³ however another variation technique utilised is vocalisation as per Colin Stetson in "*Like Wolves on the Fold*". Unlike with Stetson, there was no enhancement of the vocal sounds through close or contact micing so the resulting effect of this vocalisation simply creates a distortion in the normal saxophone sound. This does however provide significant variation on the ostinato, adding intensity and texture.



Figure 30: Excerpt from "Broken Things" by Meatshell

Despite the actual sung notes not being audible, the performer is still required to sing specific pitches as can be seen in **Figure 30** above. This is because singing different pitches interferes with the saxophone sound differently, thus creating different types of distortion.

¹³ See Appendix A7 for the recording timestamp 3:39

3.4 || SUB-QUESTION #4 || *How can the exploration and utilisation of these three extended techniques be incorporated and developed into a personal improvisatory approach?*

As a kind of “*side-project*” for this research, four (4) duo sessions were conducted between vocalist Sebastian Stert and myself. Aside from the enjoyment of improvising with a friend and collaborator, the intention behind these meetings was to explore an alternative and purely improvised artistic application of the knowledge and practical skills learned from this research project and to see if and how my intuitive approach to free improvisation as well as improvising over jazz standards has changed or developed to perhaps incorporate the techniques and compositional approaches above as a result.

This sub-question was tackled from a purely intuitive and practice based approach. The full sessions and resulting tracks, links to which can be found in **Appendix C**, are analysed in the following sub-sections, outlining not only the theoretical underpinnings of the musical outcomes but also with regard to how the three chosen extended techniques of this research project were or were not utilised and whether they allowed the saxophone to occupy non-traditional musical functions more effectively.

The table below shows the full resulting track list from the four separate sessions with Sebastian. There were two distinct focuses being (a) free improvisation, and (b) improvisation over jazz standards. We decided to focus on one standard in particular, being “*They Say It’s Wonderful*” by Irving Berlin in order to document how our approach evolved over time.

SESSION	TRACK	DESCRIPTION
Session #1 <i>14 OCT 2019</i>	Track 1:	Free Improvisation #1
	Track 2:	Free Improvisation #2
	Track 3:	Free Improvisation #3
	Track 4:	They Say It's Wonderful #1
	Track 5:	They Say It's Wonderful #2
Session #2 <i>17 DEC 2019</i>	Track 6:	They Say It's Wonderful #3
	Track 7:	Free Improvisation #4
Session #3 <i>15 JAN 2020</i>	Track 8:	Free Improvisation #5
	Track 9:	Free Improvisation #6
	Track 10:	Free Improvisation #7
	Track 11:	Free Improvisation #8
Session #4 <i>28 JAN 2020</i>	Track 12:	They Say It's Wonderful #4
	Track 13:	They Say It's Wonderful #5

3.4.1 FREE IMPROVISATIONS

SESSION #1

The improvisations from our first session were approached completely freely without any musical limitations or parameters. Personally, I was determined to utilise the techniques that have been the subject of this research and as such I decided to focus on one particular technique in each improvisation.

Free Improvisation #1 (see Appendix C1) revolved exclusively around the use of multiphonics as an underlying chordal vamp and bed of continuous sound for Sebastian to sing freely over the top of. The chordal movement in this improvisation was actually

later developed into the song “*Stones*” for Meatshell as discussed above in **section 3.1.3**. There was no real musical development in this track and for the most part the mood, sounds and vibe stay stagnant throughout with Sebastian switching between, soloistic melodic phrases, homogenous long tones and pulsating bass notes.

Free Improvisations #2 & #3 (see Appendix C2-3) were based mostly on percussive articulation, featuring short and sharp attacks and dynamic rhythmic interplay between Sebastian and myself. Shared pulse and grooves were also strong features of these improvisations. Sound-wise, Sebastian and I complimented each other here, creating a homogenous mix of sounds, Sebastian utilising “popping” and “breathy” vocal textures and myself exploring the juxtaposition of the thudding tongue ram technique, hollow secco slap and violent open slap tongue. I also experimented here with using slap tongue articulation with multiphonic fingerings adding a subtle level of chordal function to the improvisation akin to the style which became the basis for the accompaniment in the Meatshell song “*F@CE*” discussed above in **section 3.2.2**.

Interestingly, in all of these initial improvisations neither Sebastian or myself adopted a traditional melodic or jazz soloist role, both instead exploring texture and reacting to each other to create homogenous sound worlds.

SESSION #2

For our second session we approached our free improvising using some abstract thematic material which was to be considered and expressed personally and creatively within the context. We decided upon two ideas or themes being (i) “ping-pong” and (ii) “water flowing through a hose”. The idea was to actually picture images and movements relating to the themes in your mind and play sounds in response to what that picture means to you in that moment. In *Free Improvisations #4* (see Appendix C7) we used these two themes to create a structure, agreeing to begin and end with the “ping-pong” idea and at some point move to the “hose” idea in the middle. At the beginning Sebastian’s idea of “ping-pong” manifested in a groovy constant bass line with particular notes being emphasised whereas I was picturing a slow and measured build-up, swing and eventual strike of a ball which manifested in multiphonics starting very softly and building in volume and intensity to a climax point. We then got into an idea where we were kind of grooving together percussively but harshly accenting different notes as if

we were hitting the ball back and forth mostly with percussive and abrasive articulations. At about 3:40 it seems as though we changed to the “hose” idea as we both started playing long tones with a general mood shift from hectic to serene as if water was flowing smoothly in a stream. At 4:30 it seemed to me as if Sebastian was going back to the “ping-pong” idea so I also went back to this more hectic texture from the beginning but we then surprisingly went back to the “hose” idea at 6:00 firstly with long tones but then also with Sebastian improvising some lyrics. At 7:30 we finally went back into the original “ping-pong” idea to finish.

We found having these abstract themes, agreed intention as well as structure really helped create a solid arc and flow for the improvisation, allowing us to play for longer and better develop ideas. The use of multiphonics and percussive articulation was mostly used here for textural and atmospheric effect. This extended sonic palette allowed me to more effectively and creatively approach the improvisation.

SESSION #3

Our third session together occurred during a trip to New York with Conservatorium Maastricht, where we attended the 2020 Jazz Congress at the Lincoln Centre amongst other things. During this session, we decided to develop the “ping-pong” idea from above in Session #2 as well as use the city itself as a new abstract theme to play with.

Free Improvisation #5 & #6 (see Appendix C8-9) were both based thematically on the city of New York itself, its relentless noise and hectic energy. I tried to capture this by making sure the sound was constant and frantic with an overwhelming feeling of stress. At the start of *Free Improvisation #5* through the frantic sound you can hear echoes of police and fire truck sirens, cars, jackhammers, subway sounds, achieved through frequent changes and use of juxtaposing sounds created utilising circular breathing, harmonics, fast passages of notes and slap tongue textures. After the breakdown at around 12:00, there is a shift in mood as the improvisation took on a bluesy and more traditional jazz tone. During this second half of the improvisation Sebastian and I constantly changed our roles, both taking on more soloistic and accompanying functions as well as fully homogenous parts. A clear moment of the saxophone playing an

accompaniment is around 21:00 where there is a clear groove established with percussive slap-tongued bass notes juxtaposed with very high notes. Sebastian used this groove to riff over the lyrics of "New York, New York". This bluesy idea became the concept for *Free Improvisation #6*. We used a general "bluesy" tonal framework and played a lot with texture, going for very expressive and "dirty" sounds. There is a clear groove initiated by the saxophone around 1:00, using a strong bass note and responding bluesy line with occasional expressive fills, allowing Sebastian to improvise in a soloistic fashion over the top.

The use of the extended techniques here again was mostly for textural and atmospheric effect as opposed to functional purposes. In the moments where I took on a traditional accompanying role, it was mostly achieved through traditional modes of playing and simply playing a groove or repeated ostinato in an expressive way.

In *Free Improvisation #7 & #8* (see Appendix C10-11) we further developed the "ping-pong" idea from our second session, actually in a sense simulating actual points or matches, reacting only to the other person's sound with regard to the speed and power of the shot or return. In *Free Improvisation #7* we played four different "points". The concept was to play a point to its end, play one sound at a time, only playing again in reaction to the other person. This was of course very difficult to do when in the moment as often we got carried away and would play multiple notes or sounds. In each point we decided to move into a new "sound world" to try and create variation and get away from the obvious slap-tongue and percussive sound range that the "ping-pong" idea normally inspired in us. This brought up the concept of melodic ping-pong where we tried to make a melody one note at a time in *Free Improvisation #8*. Whilst I like the result, it was extremely difficult to make it sound like there was one melody and not two melodies interacting with each other.

3.4.2 IMPROVISATIONS OVER “THEY SAY IT’S WONDERFUL”

SESSION #1

In our first session together we performed two takes of Irving Berlin’s “*They Say It’s Wonderful*”. With Sebastian responsible for singing the melody, I had an opportunity to try and fully occupy the accompanying role in the music. In *They Say It’s Wonderful #1* (see Appendix C4), I found it extremely difficult to break away from my natural instinct which was playing “jazz” lines which outline the chordal framework of the song. Whilst this is certainly a good tool which could be used to represent chordal movement, used in isolation it simply sounds as though I am filling in the space around the vocal melody instead of actually accompanying it. It also doesn’t require any use of the extended techniques which have been the focus of this research.

As a way to escape outlining all of the chords, we decided in *They Say It’s Wonderful #2* (see Appendix C5) to move into a free improvisation section after the melody instead of soloing over the normal chord changes. This was actually quite effective as I was able to establish a continuous vamp utilising two multiphonics dyads which Sebastian then improvised over. The essence of the song was still apparent harmonically considering the chosen multiphonics were two major 7th dyads, the first Eb & D, which outlines the root and major 7th in the key of the song, and finally another major 7th dyad a semi-tone up.

On the whole I found this initial experience quite difficult on a number of levels. Firstly, I found it challenging to escape traditional notions of playing jazz music and find creative ways to implement the extended techniques which are focus of this research in a functional way. In fact the only time a multiphonic was used functionally in these takes was the very last note in which I utilised the major 7th dyad of Eb & D, outlining the root and major 7th of the final chord. This was very enlightening with regard to just how limited these sounds are when trying to represent chords. Secondly, I found it very difficult to fully follow Sebastians phrasing of the melody. Too often my impulse to lead the time in rubato sections took over and I would find myself ahead or behind the melody.

SESSION #2

As was the case for the free improvisations in this second session, we decided to approach this tune here more abstractly and thematically. After listening to the famous version of this song by Johnny Hartman & John Coltrane we both expressed an image that was cultivated in our minds. For me it was looking out of a window on a moving train and for Sebastian it was a farmer working in a big field. We tried to picture these images in our minds for the duration of the take. Aside from this we also decided to play with the two intervals which, really define the melody, being a descending minor 6th (Bb down to D) followed by a descending major 6th starting a tone down (G# down to B). These are the two intervals with which the lyrics “Wonderful” are sung in the melody. I can be heard playing around with these intervals in the introduction of the song, transposing them around the horn. I found it very difficult to really picture the farmer and the train for the whole song and after a while I just started improvising and reacting as I normally would. I think this is clear after the melody around 3:00 (see Appendix C6) as we moved into a more percussive and groovy approach seemingly out of nowhere. With that being said I like what happened here. Sebastian was being very playful with the words and the whole interaction was very fun and a bit “tongue-in-cheek”.

Whilst this version was much more interesting and interactive than our first attempts, I still noticed that I struggled to find a functional application of the extended techniques which worked in the context of the song and again the only functional extended technique was the multiphonic utilised for the final chord.

SESSION #4

For this final session we approached the tune in two different ways. Firstly in *They Say It's Wonderful #4* (see Appendix C12) we decided to focus on constant tempo and feel variation as a concept. This required Sebastian to sing each phrase in a different tempo or feel and I was to respond and react to his changes in my accompaniment. I found it extremely difficult to keep the music flowing and too often the momentum is halted as we waited for each other or hesitated. Whilst my accompaniment style was akin to previous takes we did of this song, in the last “A” section of the melody at 2:14, I played a fast and continuous broken chordal line using circular breathing to outline the chord changes akin to piece “Woman” by John Carter & Bobby Bradford which was discussed

above in **section 3.3.2**. This style of accompaniment provided an interesting textural shift whilst also expressing the chordal movement in a different way.

Secondly, in an attempt to get away from our habitual approach to the song, we decided to create a different style of sound bed for Sebastian to sing over and as such created an ostinato pattern based on the melody notes of the “A” section performed as a continuous stream of eight notes (see Appendix C13). This created a two bar loop (1 bar of 4/4 and 1 bar of 7/8) over which Sebastian sang the melody, free to phrase it how he desired. The resulting sound creates an interesting juxtaposition between the irregular, continuous and driving ostinato and the free, rubato phrasing of the melody. It also in an essence reharmonises the melody.

4. Conclusion & Discussion

Through the exploration and creative application of three unconventional and extended instrumental techniques, this research has shown that the saxophone's traditional soloistic role can be challenged in a variety of different ways, expanding upon the conceptual and sonic potential of the instrument in the broad context of jazz and improvised music. The results and analysis covered in **section 3** show how multiphonics have and can be utilised to convey and represent chordal and harmonic frameworks, how percussive articulation has and can be utilised to more effectively and convincingly convey groove and rhythmic underpinnings and how circular breathing has and can be utilised to provide uncompromised and consistent accompaniment in a given piece of music.

The above statements ring truest with regard to the compositions written for Meatshell however the inherent limitations of these techniques created problems when trying to use them functionally in jazz and improvised music generally which has made me reconsider my initial assumptions and expectations. With that being said, learning about these techniques and how they have been used has been invaluable to the development of my personal artistic voice and approach to composition, performance and improvisation. The sub-sections below aim to flesh out these conclusions taking each examined technique into consideration, discuss the limitations and value of this research generally and suggest areas for further enquiry.

Interpretations of Findings

1. Multiphonics

From the analysis of the data collected, including the resulting artistic outcomes of this research discussed above in **section 3.1**, my original expectation and assumption that multiphonics could be utilised to allow saxophonists to occupy non-traditional functions by conveying harmony and chordal movement has been proven accurate, albeit within a fairly limited scope. That is to say, at the very least in the case studies presented and in the original works written for Meatshell, multiphonics have been used to portray the chordal movement and the underlying harmonic context in the music.

From the analysis of the various case studies, two clear compositional and conceptual trends emerged for the harmonically functional use of multiphonics being (i) multiphonics as complete chordal representation and (ii) multiphonics as chordal punctuation. The former aims to utilise these sounds in isolation, finding multiphonics with resulting intervallic relationships that could represent and be interpreted as specific chords whereas the latter incorporates these multiphonics into regular monophonic phrases, adding a subtle level of harmonic context to the line.

In the compositions written for Meatshell, dyads were by far the most utilised category of multiphonic with the wider and denser multiphonics used only sparingly. In the development of the music it was discovered that although the intervallic relationships of certain wider multiphonics theoretically correspond very well to consonant chords, the resulting distorted and often abrasive timbre made it difficult to find a use for them that made musical sense. Operating exclusively within the musical context of a duo, it was especially important to be able to control volume and timbre so as to find balance with the other musicians and dyads provided are more flexible dynamic range potential from a whisper to about *metzo forte* as well as allowing more potential chordal representations given the vague identity of the sounds as simple two note intervals.

Whilst it has been shown here that multiphonics can be utilised to allow a saxophonist to portray chordal movement and context, the inherent limitations associated with these sounds makes it extremely unlikely that a systematic and complete chordal approach for the saxophone based on multiphonics alone could ever be achieved. There is simply not enough variation and too limited a bank of harmonically functional multiphonics to choose from. This was made clear for me during the improvised duo sessions with Sebastian Stert, discussed in **section 3.4**, where I was only able to contribute one multiphonic to the whole song of “*They Say It’s Wonderful*” and had to resort to other methods of playing to effectively accompany him.

Torben Snekkestad mirrors and amplifies this point further in “*Poetics of a Multiphonic Landscape*” proposing that multiphonics are better thought of purely as sounds as opposed to chords as “*our perceptual experience of them is more about a harmonic event – containing unique tone colour qualities*” (2016, pp18-19). That is to say, the timbre and unusual sonic makeup of a multiphonic is so foreign to the ear, that even though pitches and intervals can be perceived, the sounds as a whole are more likely to be perceived as

noise and not harmony. I now more or less agree with this take on the phenomenon whilst maintaining that in limited circumstances their use can still be an effective tool in providing a chordal context or accompaniment as well as provide strong and interesting textural and atmospheric foundations.

2. Percussive Articulation

Analysis of the results in **section 3.2**, serve to also prove my initial assumptions and expectations correct with regard to use of percussive articulation allowing the saxophonist to more effectively and convincingly convey rhythmic underpinnings and groove in jazz and improvised music. In the case studies analysed, the use of the different slap tongue techniques and breath sounds on the conservative end allowed the performer to more aggressively accentuate certain notes in a monophonic line, creating strong polyrhythmic tensions and at the extreme end thrust the saxophone into uncharted sonic territory, effectively mimicking the sounds and function of a full drum kit.

The most frequent percussive articulations featured the Meatshell compositions and improvisations were the secco and open slap tongue techniques, used predominately to create strong underlying grooves. The thudding and striking textures created through use of these techniques better equip saxophonists to tackle this kind of function with the same physical intensity as a bass player or drummer. Furthermore, considering the pitches are in a sense “strangled” and restricted from fully resonating, the resulting sonic textures are more likely to be perceived as backing, groove or accompaniment and not melody, which might be the case if conventional saxophone technique was used instead. This variation and juxtaposition in sonic texture between the percussive articulation and regular saxophone sound is perhaps the most important finding with regard to this sub-question and is clearly on display in the two Meatshell compositions “*Refuge*” and “*F@CE*” discussed in **section 3.2.3** above.

In my own composition and performance I consciously avoided using percussive articulation to attempt fully mimic a drum kit or “beat-boxer” like artists such as Derek Brown. Whilst I find this approach extremely impressive and novel, on a musical level I never found an example that I considered, in my personal opinion, musically tasteful. That is not to say the techniques couldn’t necessarily be applied differently and with

more nuance and perhaps this style of playing could be the focus of further research in this field.

3. Circular Breathing

Perhaps most unsurprisingly, my initial assumptions with regard to the circular breathing technique allowing for saxophonists to play continuously without breaks in the sound thus providing an uncompromised bed of sound have also been proven accurate in this research, specifically through the analysis and application in **section 3.3**. I say this is unsurprising because this technique has been utilised for exactly this purpose in a wide variety of traditional music from all over the world for centuries.

The analysis of various case studies revealed three compositional and conceptual trends which have allowed saxophonists to occupy non-traditional musical roles in the context of jazz and improvised music being, (i) drones, (ii) broken chord patterns and (iii) continuous ostinatos which are developed and varied through overtone manipulation and vocalisation amongst other techniques. All three of these trends were exploited to some degree in the three Meatshell songs *“Lost”* (drones), *“RJD”* (broken chords) and *“Broken Things”* (continuous ostinato).

In each of these songs, the use of circular breathing coupled with the particular compositional trend, allowed for the saxophone part to convey the fundamental harmonic and chordal structure of the piece as well as the intended mood. The drone section in *“Lost”* for instance not only rooted the composition in the general key area of “D” but also establishes a sinister and unnerving atmosphere. The same could also be said for *“Broken Things”* which not only establishes the key of “D minor” utilising a continuous two bar ostinato but also the fast, driving and perpetual rhythmic underpinnings of the piece.

Whilst it could be argued that circular breathing isn’t essential when it comes to occupying this role, through this research it has become apparent that sometimes a break in sound has the potential to immediately and irreparably disrupt the essence and flow of certain pieces of music. This of course can also work in the opposite way where the technique is overused, never allowing for the music to breath.

Contribution to Existing Literature

During this project I never encountered another research paper focussed on functional use of extended techniques for saxophone in a jazz and improvised music context so on some level this research does break “new ground” at very least in it’s subject matter, collection of data and artistic output. Extended techniques are more commonly discussed in the terms of texture and experimental composition in the fields of contemporary classical, improvised and new music and as such this research aimed to bridge the gap between the avant-garde and jazz genres.

The compositional outcomes, in the forms of recordings and scores, for the duo Meatshell are valuable examples of how these unconventional techniques can be applied functionally. Also the insights gained through analysis of various case studies with regard to trends in compositional devices and conceptual underpinnings should prove to be of value and significance not only to saxophonists but also composers and arrangers interested in unconventional and novel forms of orchestration.

Limitations

When reaching and discussing any conclusions about any type of artistic research, including this project, it is important to acknowledge the inherent and inescapable personal connection of the author to the decisions made within and the overall artistic outcome of the project. If another saxophonist undertook the same project it is highly likely their analysis and conclusions would differ vastly from mine.

On a more practical note, it is important to note that an inherent limitation of this research is that it was undertaken with only one musical context in mind being that of a duo and more specifically the duo Meatshell featuring saxophone and double bass. Of course this was done on purpose but perhaps the knowledge would have been applied differently in different musical contexts and might have been more or less successful as a result.

Areas of Potential Further Study

The primary goal of this enquiry was to challenge the traditional soloistic role of the saxophone in jazz and improvised music by exploring and applying certain extended

techniques. From this, two paths of investigation present themselves, one more focussed on the extended techniques aspect and the other more focussed on what non-traditional roles are for the saxophone. I think this research did a good job of tackling the technical part of the problem but took a more intuitive and shallow approach to the question of roles in jazz and improvised music. To go further in this enquiry might be to focus solely on the jazz rhythm section as well as traditional accompanying styles and techniques, exploring how these things could be applied to the saxophone in the context of a duo where the saxophone is not the melody instrument.

Another possibility would be to go deeper into one technique in isolation and attempt to produce artistic outcomes, improvised and composed and in many different settings, based solely on that technique. This would be akin to the work of Torben Snekkestad in *"Poetics of a Multiphonic Landscape"*. I could fathom an in depth enquiry into percussive articulation for instance.

Finally, it would be very interesting to explore how electronic instrumental augmentations could enhance the possibilities of the saxophone to occupy non-traditional or accompanying roles in jazz and improvised music. Whilst I am not aware of research dealing with this area, there are certainly artists¹⁴ who are currently working with these concepts and finding new potentials for the instruments. With technology improving all the time and electronics becoming entrenched in the modern jazz idiom, this area of enquiry would certainly be beneficial.

¹⁴ For example Niels Klein (see the track *"Perpetual Waves"* from his 2017 album *"Life in Times of the Big Crunch"*)

5. Cited Works

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6. Appendix

Appendix A (Audio) & Appendix B (Scores):

Meatshell Compositions

Appendix A: Meatshell Recordings	File Name	Appendix B: Meatshell Scores	File Name
A1	"Carrots (in Honey)"	B1	"Carrots (in Honey)"
A2	"RJD"	B2	"RJD"
A3	"Lost"	B3	"Lost"
A4	"Stones"	B4	"Stones"
A5	"Refuge"	B5	"Refuge"
A6	"F@CE"	B6	"F@CE"
A7	"Broken Things"	B7	"Broken Things"
<i>Link to Google Drive: Appendix A</i> https://drive.google.com/open?id=1MTUFv9AzfBq5u5TWbXyXEJADMw0hzFHN		<i>Link to Google Drive: Appendix B</i> https://drive.google.com/open?id=1P-Em85kBOoTfskGfaQNu--dPPuRux9O	

****NOTE:** All Meatshell scores also attached to back of this document

Appendix C (Audio): *Duo Sessions w/Sebastian Stert*

Appendix C	File Name	Soundcloud link
C1	Free Improvisation #1	https://soundcloud.com/andrew-saragossi-1/free-improvisation-3
C2	Free Improvisation #2	https://soundcloud.com/andrew-saragossi-1/free-improvisation-1
C3	Free Improvisation #3	https://soundcloud.com/andrew-saragossi-1/free-improvisation-2
C4	They Say It's Wonderful #1	https://soundcloud.com/andrew-saragossi-1/they-say-its-wonderful-3
C5	They Say It's Wonderful #2	https://soundcloud.com/andrew-saragossi-1/they-say-its-wonderful-4
C6	They Say It's Wonderful #3	https://soundcloud.com/andrew-saragossi-1/wonderful-1
C7	Free Improvisation #4	https://soundcloud.com/andrew-saragossi-1/free-improvisation-4
C8	Free Improvisation #5	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-3-nyc-2
C9	Free Improvisation #6	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-3-nyc-3
C10	Free Improvisation #7	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-3-nyc
C11	Free Improvisation #8	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-3-nyc-1
C12	They Say It's Wonderful #4	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-4-1
C13	They Say It's Wonderful #5	https://soundcloud.com/andrew-saragossi-1/duo-w-sebastian-stert-4

Appendix D (Audio) & Appendix E (Scores):

Case Studies & Mentioned Musical Influences

Appendix D	File Name	Online Link
D1	"Harmonique" John Coltrane	https://open.spotify.com/album/1rYvimVGwIQgc5IhBwLBuX?highlight=spotify:track:1Fxi3EKIUeBy04JQ0ySJ5N
D2	"Steady Study on the Boogie" Christian Lauba	https://open.spotify.com/album/4X9tgOHNyRaJrWFDquee6x?highlight=spotify:track:1ZK44p285KjawaZwM8RrSo
D3	"SAKANA" Dai Fujikura	https://open.spotify.com/album/4EplnGe3Jfij4dYYNb5nDE?highlight=spotify:track:1epCVX2FAHY8Uzvz1AKSCr
D4	"Billy Goat Stomp" Jelly Roll Moreton	https://open.spotify.com/album/7eb3oQwz20ZpSLNDpHhuPj?highlight=spotify:track:4fSEuJ7l3WWr3rFKvwvoQi
D5	"Rock Me!" Barry Cockroft	https://www.youtube.com/watch?v=om4bPR9cLFs
D6	"Hide & Seek" Joshua Redman	https://open.spotify.com/album/4vImHwVHl2iu7hKG18j4gu?highlight=spotify:track:5dMGTMxOOp4JDCI0ImTvRI
D7	"Woman" John Carter & Bobby Bradford	https://drive.google.com/open?id=10eWC_wfZM_03oPuDMSn-wFmOZ_r_Z7TN
D8	"Like Wolves on the Fold" Colin Stetson	https://open.spotify.com/album/5IQhNr6Vn3cq03bPty6Cpe?highlight=spotify:track:3uLKMZ9WaX5hVqGERLgJkt
D9	"Jengu" Andrew Ball	https://andrewball.bandcamp.com/track/jengu

Appendix E	File Name
E1	"Harmonique" John Coltrane Transcription
E2	"SAKANA" Dai Fujikura Full Score
E3	"Billy Goat Stomp" Jelly Roll Moreton – Stump Evans Transcription by Josiah Boornazian 2017
E4	"Rock Me!" Barry Cockroft Excerpt
E5	"Like Wolves on the Fold" Colin Stetson Transcription
E6	"Jengu" Andrew Ball Full Score
<i>Link to Google Drive: Appendix E</i> https://drive.google.com/open?id=1ZuF5_iSnJP12IXlrNewcC7qSpamJZtVb	

Appendix F (other):

Appendix F	File Name
F1	Multiphonic Re-Categorisation Sheet (Andrew Saragossi)
<i>Link to Google Drive: Appendix F</i> https://drive.google.com/open?id=1dmoqsbW6bq0evCOuh-LT7-PUheXaTmoV	

Carrots (in honey)

Helen Svoboda arr. Meatshell (H. Svoboda & A.Saragossi)

A *Rubato*

Voice

At night I lie a wake so far a-way A-way from some thing

A

Contrabass

A *Hauntingly - (follow phrasing of melody)*

T.Sax

pp

5

known I close my eyes I think of home.

F E E(sus4) A

9

My mind it drifts through mem-ories red to blue

8va ----- 1

F#m E E F#m F#m E E A

12

A slide show of re - call I'm gro - wing tired I think of home

A/C# D A/C# Bm Bm E Amaj7 F#m F E E(sus4) A

17

B

Rooms with laugh ter Fee - ling warm It shel - ters me from harm

B Bm E F#m E/G# Bm Bb Bbmaj7 A

22

Rest - less and young Chan - ging fee - lings eve - ry

accel.

Voice cue

D E F#m E

accel.

26

days Days I feel so far a - way

Bm F E(sus4) E7 A

*accel.
subitop*

29

C C C C C C C C C C

F#m E E F#m F#m E E A

8va

31

A/C# D A/C# Bm Bm E A maj7

35

D

p

D

D **OPEN - T.Sax Solo**

Bm/D

Bm⁶

F#m

1.

building, open rpt

1.

38

2.

2.

2.

D

accel.

2.

RJD

Meatshell (A.Saragossi & H.Svoboda)

OPEN Free Improvisation

***Use melodic fragments below as you wish - vaguely in the key of C minor*

***Use melodic fragments & multiphonics below as you wish - vaguely in the key of D minor*

3 **A** ***Saxophone sets up groove first time - vocals enter when ready (TEMPO ♩ = 75-80)*

Who could you be? One I've known
Things are un - seen Ges - tate take

A **alternate fingering for ease of playability*

**secco slap* *sim.*

***trill to timbral fingering + 4 (OR "F" Key)*

9

be - fore Now 'til ev -
— your time Stum - ble seek

13

1. 2. **Faster!**

— er - more.
— and climb.

1. 2. **Faster!**

16

Yours is this time,
Who will you be?

feed your - self cre - ate.
One I've known be - fore,

sim.

23

Ar - chi - techt of fate.
now 'til e - ver - more.

27

Trust no fu - ture

32

B

live

B

40

life

B

48

here

56

now

63

C
Cm

Bass takes over groove: Sax solo

Who could you be? One I've known

C
Dm

Dm C/E

69

E♭maj7 B♭7 B♭7/A♭ G7(b9)

be - fore now 'til ev - er more.

Fmaj7 C7 C7/B♭ A7(b9)

75

Cm Dm7(b5) E♭maj7(#5) Fm7

Trust no fu - - - ture

Dm Em7(b5) Fmaj7(#5) Gm7

Keep soloing

79 $A\flat\text{maj}7$

live

$B\flat\text{maj}7$

87 F°

life

G°

95 $E\flat\text{maj}7(\sharp 5)$

here

$F\text{maj}7(\sharp 5)$

103 $G7(b9)/D$

now

$A7(b9)/E$

D

110 **Rubato (slow & delicate) - phrase together*

p

D

p

112

The image shows a musical score for two staves, measures 112 and 113. The key signature has two flats (B-flat and E-flat). The top staff is in treble clef and contains a melody of eighth notes in measure 112, followed by a half note in measure 113, and a whole note in measure 114. The bottom staff is in treble clef and contains a bass line of eighth notes in measure 112, followed by a half note in measure 113, and a whole note in measure 114. The score ends with a double bar line and repeat signs in both staves.

Lost

Meatshell (A.Saragossi & H.Svoboda)

Rubato - Melody sung freely with plenty of space

A

mp

Out - side Now I sit and won - der why, There is no - thing for me here

p

**continuous sound - ominous tone as if lurking in the woods (play freely and always follow the melody)*

5

Out - side now I sit and won - der why.....

sim.

***wait for vocals*

8 **B**

f

I don't know my - self I don't know where to go I'm lo - sing my way.....

p

p

sim.

p

***Hold this multiphonic fingering and isolate next pitch by altering tongue position (up and back)*

11 **C** //

p In - side Now I'm see - ping fur - ther in There is no - thing for me here

p

1st TIME ONLY
(Vocals Only)

15 **D** //

f I am lost!

f trill

****Saxophone Leads Last Section**

**Trill to same note
but timbral fingering
(use index and middle
finger on right hand to
trill the "F" key OR "key 4")

17

p Where light is ab - sent On - ly whites of eyes

p

Stones

MEATSHELL // A.Saragossi & H.Svoboda

CELL 1. OPEN FREE IMPROV
- based on phrase below

CELL 1. OPEN FREE IMPROV
- based on phrase below

CELL 1. OPEN FREE IMPROV
- based on phrase below

Voice

Contrabass

T.Sax

CELL 2. CHANGE WHEN YOU ARE READY
- use melody fragments as you wish

CELL 2. CHANGE WHEN YOU ARE READY
- use melody fragments as you wish

Continue CELL 1.
- build and drop out suddenly

2

Continue CELL 2.
- eventually fade out to nothing

Continue CELL 2.
- eventually fade out to nothing

CELL 2.
- fade in and take over (fast/driving tempo)

3

pp

4 **A**

Sto - ic stone, push and heave. Spite our migh - ty de -
Tic - king bomb, stressed and raw. One word stray de -

7

you will ne - ver see or__ leave. See my face heart beat and soul__
struct - ion lasts for - ev - er__ more. See my face heart beat and soul__

11

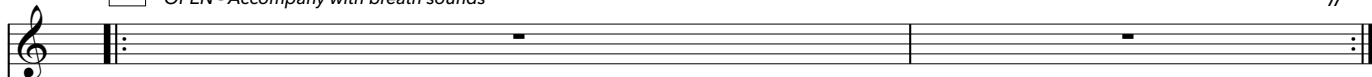
__ years have paid their__ toll.
__ will it make me__ whole?

14

B

OPEN - Accompany with breath sounds

//

**B**

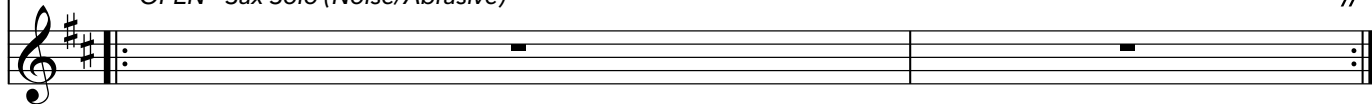
OPEN - Sax Solo

//



OPEN - Sax Solo (Noise/Abrasive)

//



16

C

(half-time)

← ♩ = ♩ →



Lit - tle girl

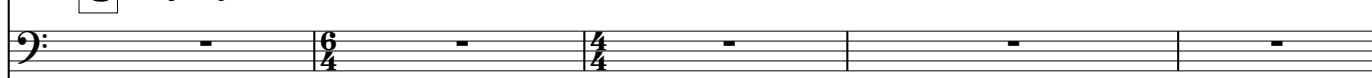
sing to me.

Lost and scared re - lieve me of thie mis - er_ y._____

*mp***C**

(half-time)

← ♩ = ♩ →

*mp*

21



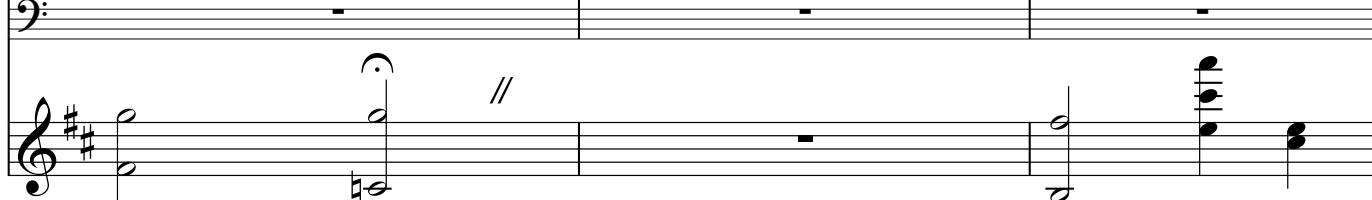
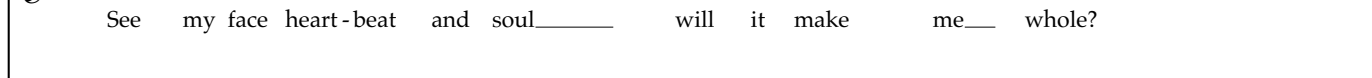
See my face heart-beat and soul_____ will it make me_ whole?



25



See my face heart-beat and soul_____ will it make me_ whole?



28

A tempo

f

A tempo

f

f

The musical score consists of three staves. The top staff is in treble clef, the middle in bass clef, and the bottom in treble clef with a key signature of one sharp (F#). Measures 28-29 feature a melodic line in the top staff and chords in the bottom staff. Measures 30-31 show a rhythmic pattern in the top and middle staves, with the bottom staff continuing the chordal accompaniment. Dynamics include a forte (f) marking in measure 30.

Refuge

Meatshell (H.Svoboda & A.Saragossi)

OPEN Repeat (Saxophone Intro)

LAST X only

I find the

light, bouncy and playful (improvise based on this vamp)

Bb⁶

mf

p

3

A

lit - tle things keep me hap - py in this mo- ment

A

Bb⁶

E(#9)

mp

sfz

mp

6

8

it tastes un fa - mi - liar to

C⁶

Dm

10

me _____

mf

F#7(b9)

13

sear - ching loo - king for for for for for for for..... *Dissolve and fade*

Bb *Em* *Fmaj9*

17

a place for re - fuge _____ to -

Bm *D/A#*

p

21

night _____

mf

F#7(b9)

Appendix B6

Saxophone Techniques Key:
* = slap tongue
x = secco slap (closed)
o = secco slap (open)

F@CE

MEAT SHELL // A.Saragossi & H.Svoboda

A

VERSE 1

Voice

Jag - ged Poin - ted Ser-ra-ted edge Watch

T. Sax

mp *sim.*

4

the waves.... Crashhhhh be - low Watch the waves....

Continue groove and develop as you wish (reacting to vocalist)

B

VERSE 2

7

Cop - per Brass - sssillll - ver

mp

10

Gold Heads or tails Un - min - ted odds

Continue (as above)

14

C VERSE 3

Two Hands Short! THICKK Long Thin thin thin thin thin thin

Continue (as above)

mp *sim.*

20

D INTERLUDE

One Two Three Four Five Six

cresc.

accel.

23

accel.

Se - ven Eight Nine... Ten! E - le - ven Twelve

ff

Continue idea - getting louder and more abraasive until vocalist cues "E"

ff

VERSE 4

E A tempo

26

I have... Twāthou-sand Four-hun-dred and fif - ty six friends

Continue groove and develop as you wish (reacting to vocalist)

F CHORUS

30

Ha - ha, WOW! like, love, sad, ANG RY! Ha - ha, WOW! like, love, sad, ANG RY!

sim.

G

34

Loooo ooooooo ve Looo oo oo oooo oooooo_ veee

mp

H VERSE 5

39

Fre - ckled Egg Shaped Pu-ump-kin - esque Take off your

mp

sim.

44

Fleshhh mask Be hold what lies be - neath...

Continue groove and develop as you wish (reacting to vocalist)

49

I CHORUS

Ha - ha, WOW! like, love, sad, ANG RY!

51

Ha - ha, WOW! like, love, sad, ANG RY!

53

J

Loo oo oooooo ve Loo oo oo oooo oooooo veee

Continue groove - fragment line and eventually drop out

mp *sim.*

Broken Things

MEATSHELL // (A.Saragossi & H.Svoboda)

A Repeat 3X vocals enter last time

Voice

A A.H.

D. Bass

Repeat 3X +X

T. Sax

f finger the bottom line and add keys as specified
- the top line is the resulting tone

9

+C2

+C1

13

+Ta

21 **B** arco

Sing/Vocalise Top Line
Whilst Playing Bottom - Distortion Effect

25

29

33

37 arco

41

45

Musical score for measures 45-48. The bass staff contains a continuous eighth-note pattern. The treble staff features a melodic line with slurs and a repeat sign with a second ending bracket labeled '2'.

49

Musical score for measures 49-52. The bass staff contains a continuous eighth-note pattern. The treble staff features a melodic line with slurs and a repeat sign with a second ending bracket labeled '2'.