

A Portfolio of Compositions with Commentary and Spectral Research

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Abstract

Prelude to a Composition by Research Thesis

*Shall I compare thee to other research?
Thou art less work and of less gen'ral use,
Or so say musicologists who perch
On piles of books which vex them and confuse.
But truth be told all this does have an aim
Involving guiding listeners through a piece
Even if you might call their ear "untrained" -
And so my work, in part, consists of this:
Spectrally analysing overtones
And the bass clarinet's multiphonics;
A pitch hierarchy using microtones
Decides a note's relation to the tonic.
If asked what my research topic may be,
I simply reply, 'my own harmony.'*

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USB Flash Drive

- *Hallowed Be Thy Name* (Workshop Recording)
- *You Can Run*
- *Minchia!* (Concert Recording)
- Spectral Analyser.pd

Research Outline

Prior to this portfolio, my work focussed on developing harmony that uses microtones in a way that is structurally functional. The exact manner in which this is achieved has evolved over time and continues to do so. The music of Kaija Saariaho in particular had a strong influence on the direction I proceeded to take as it made me consider the relationship that timbre can have with harmony, and with form in general. I became interested in how a single sound could generate scales, chords, gestures and even structure on a larger scale.

'The more I experimented with alternative tunings, the more it appeared that certain kinds of scales sound good with some timbres and not with others. Certain kinds of timbres sound good in some scales and not in others.'¹ This quote from William A. Sethares stems from the beginnings of his research in Psychoacoustics and sensory consonance, which in turn would help with my initial approach to this portfolio. Ultimately I wanted to create novel-sounding harmonic schemes originating from specific sounds for each piece and thus giving them unique and cohesive soundworlds. I felt this effect could be furthered by deriving gestural and structural qualities from these sounds, therefore linking all of these elements together to some degree.

It is important to me that the developmental trajectory of a piece of music is perceivable in order for it to remain engaging.² This portfolio seeks to expand upon the age-old concept of deriving several aspects of the music from minimal material and how it can help achieve this clear trajectory, while still allowing for music with contrast. The application of Sethares's research in sensory consonance aims to add further control of the listener's experience in this regard. I refer also to the work of Paulina E. Sundin, whose music has similar aims.³

1 Sethares, *Tuning, Timbre, Spectrum, Scale* (London: Springer-Verlag, 1998), xi.

2 Nicholas Temperley. "development." *The Oxford Companion to Music*. *Oxford Music Online*. Oxford University Press, accessed August 30, 2016, <http://www.oxfordmusiconline.com.ezproxy.york.ac.uk/subscriber/article/opr/t114/e1915>. *The Oxford Companion to Music* defines 'development' as 'a process by which musical materials, generally melodic themes, are changed and extended'; the term 'developmental trajectory' as used by myself simply refers to the course that this process takes.

3 Sundin, "Re-inventing Harmony in Electroacoustic Music: A commentary on my Recent Music," (doctoral thesis,

I wished to explore the application of these ideas in a variety of contexts; music using acoustic instruments, live electronics, acousmatic music and predominantly improvised music. The pieces included in this portfolio display all of the above, and the approach is adapted accordingly. Besides Sethares's research and Sundin's composition, these approaches do not knowingly borrow very directly or stand with total comparability to other people's work. That being said, they still form a part of the larger canon of spectral music, which features many composers and many more differing approaches still.

Of course homage must be paid to the pioneering work in France by the likes of Grisey and Murail four decades ago. While it is perhaps impossible to keep up with the methods composers use to write each and every piece, and indeed these often evolve from one piece to the next, I would cite an at least aesthetic similitude (if not to some extent a methodological one) to the music of composers such as Dai Fujikura, Patricia Martinez and Simone Movio; these three in particular are composers whose work I hold in great regard. Another is Panayiotis Kokoras, whose concept of 'Holophony' has parallels with my attempts to create cohesive soundworlds in all of these pieces, and indeed his music has had a great influence on the pieces I have written since this folio.⁴

With regards to improvisation, the relevant work discussed in this thesis, *Minchia!*, in fact signified my first serious engagement with the concept in a contemporary art music context. I have since become familiar with the work of Iancu Dumitrescu and Ana-Maria Avram, whose music often combines spectral music with improvisation. My impression suggests that their approach to this differs from mine, and indeed is given its own name; Hyper-spectralism.⁵ Certainly, however, there must exist some common ground.

There are many ways in which one can define spectral music, and many composers whose

University of Huddersfield, 2010), 13.

4 Panayiotis Kokoras, "Home," *Panayiotis Kokoras*, date of publication unknown, accessed March 1, 2016, <http://www.panayiotiskokoras.com/>. Kokoras says of Holophony that 'each independent sound (phonos), contributes equally into the synthesis of the total (holos). Thus, Holophonic musical texture is best perceived as the synthesis of simultaneous sound streams into a coherent whole with internal components and focal points.'

5 Guillaume Ollendorf, "Iancu Dumitrescu," *CTM Festival*, January 2016, accessed 2nd September, 2016, <http://www.ctm-festival.de/archive/all-artists/f-j/iancu-dumitrescu/>

work may or may not fit into the category, depending on the definition. One musical concept that predates spectralism, but has certainly been important to its development, is the prominent consideration of timbre and overall tone colour; my music is certainly growing in its sensitivity to these features. There are many important composers whose music is often said to also be rich in this sensitivity, some of whom I would like to mention as being influential to my composition and the aims of this folio; namely Takemitsu, Messiaen, Ravel and Debussy. These composers have all succeeded in writing music which feature engaging soundworlds, memorable for their harmonic and timbral colours. Ultimately, I hope to at least take steps towards achieving the same.

Acknowledgements

I would like to take this opportunity to acknowledge the input of all the performers with whom I consulted and collaborated during both the research and composition processes; without their time, skill and insight, this could not have been completed.

In alphabetical order they are: Gaia Blandina, Adam Bonser, Patrick Burnett, Desmond Clarke, Jennifer Cohen, Tomos Dylan, Andrea Mancianti and Will Ozard.

Author's Declaration

I hereby declare that the work in the thesis is my own and has not been submitted for examination at this or any other institution for another award. All sources are acknowledged as references.

Pure Data Patch and Spectral Analysis

Throughout this thesis there is mention of a patch programmed in Pure Data which was used to perform any required spectral analysis. I shall briefly describe the inner workings which achieve its functionality. A copy of the the patch itself is included on the attached USB flash drive.

The patch was programmed using Pure Data's *Pd-extended* application, which has a wider library of in-built objects. Other than those that come ready with *Pd-extended*, no external libraries or patches were used. The patch allows users to import a lossless format audio file from their hard drive and trim it down to a specific range of audio samples,⁶ which constitutes the sound to be analysed. An FFT is performed on the selected sound, with block size 4096 and four overlaps. The blocks have a raised cosine windowing function applied to them.

The core purpose of the patch is to find peaks in a given sound's spectrum and provide their frequencies and corresponding amplitudes. This function is handled by the *flatspace* library's *pique* object, which takes an array of FFT data as its input and outputs the desired information. The *pique* object has an in-built interpolation algorithm for the estimation of the exact frequencies of the peaks and so this effort was saved.⁷ The maximum number of peaks was manually set at 35. This is because I felt this would be a high enough number to capture all the peaks with remotely significant amplitudes for all of the samples. This proved to be true except in perhaps one or two cases of very low-pitched, spectrally dense sounds. The rest of the patch's function serves simply to present the desired data in a form that is easy to read and manipulate.

The purpose of the data was to derive microtonal pitch sets which can be used harmonically in the pieces which constitute the folio. The exact manner in which this is done is discussed in the

6 In this case the term 'audio samples' is used as in signal processing and refers to values obtained via the conversion from a continuous signal to a discrete signal, where $N \text{ samples} = \text{sample rate} * \text{time}$. All other uses of the word 'sample' in this thesis are as in sound analysis, sound design or electronic composition and refer to a recorded sound used as raw material for one of these processes.

7 Full documentation for the *pique* object proved impossible to find, but the results of the first six analysed samples were cross referenced with those obtained using other analysis software (namely Sonic Visualiser and Michael Klingbeil's SPEAR) and were found to be very comparable.

commentaries for each piece, but some further aspects of obtaining the initial data should be addressed here.

In order for the pitch sets to be perceived as harmony, a certain amount of consistency and stasis is required for this sense of harmony to be established. Therefore the recorded data is taken from three snapshots across each sound sample; one at the beginning, one in the middle and one at the end. The spacing of these snapshots is relative to the length of the sample being analysed. The number three was chosen for practical reasons; firstly, it produces a manageable amount of data while still providing multiple readings; secondly, it is less likely that there will be issues in cases where the samples are very short.

These snapshots are treated differently in deriving the final data used for harmonic material in each piece. *Hallowed Be Thy Name* uses the mean values of each reading as the final data for a given sample. Any peaks not present in all three readings are not considered significant enough to be part of the core of the sound and are omitted. If this remaining data is used to attempt an additive resynthesis of the original sample, while it will be recognisable, the lack of any kind of movement sounds very artificial. This clearly is a compromise, but a necessary one given how pitch was to be treated in this piece; static pools of pitches were desired for each section, and the source samples themselves are largely quite static in character, to lend to this concept.

For *You Can Run*, the evolving nature of the spectra were desired for harmonic exploration, so the three snapshots are individually treated as final pieces of data with no further averaging. This is in part due to how short the source samples were; averages of the beginning, middle and end of each couldn't reliably be taken. The data did predominantly look as expected, however. Each pitch set typically evolves into the next gradually within a section of this piece, but this effect could be achieved by taking only three snapshots and extrapolating the rest by ear; taking any more would have been redundant.

Minchia! uses a combination of both the other pieces' methods. The concept with this piece

was again to examine the evolving nature of the spectra, but because the sample was long enough multiple reading could be taken across it, each consisting of three snapshots. In the same way as *Hallowed Be Thy Name*, those snapshots were averaged for each reading to provide the most important pitch information. The averaging in this case is somewhat less of a compromise than *Hallowed Be Thy Name*, as the source material is in fact a recording from an analogue synthesiser and so has less of the fluctuation associated with human players.

Hallowed Be Thy Name – Commentary

Introduction

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Hallowed Be Thy Name deals with the subject of difficult and destructive relationships between human beings. It was necessary for different sections in the piece to present contrasting moods and characters while still summing together to form an overall structure throughout which the music develops causally. This had to occur in tandem with a further aim; the piece should make use of a pitch hierarchy that features all 24 notes of the quartertone chromatic scale (i.e. 24-tone equal temperament, or 24-TET) in a way that is structurally functional and, furthermore, is influenced by the instruments themselves. To understand the capabilities of the instruments and to ensure the music is playable, given the potential for extensive use of microtones and extended techniques, four players were consulted with for workshops, general advice and feedback on the score.

I wanted to exploit all the timbral possibilities of the four instruments, but to try and link these to the harmony (or for the harmony to result from them) so that timbre, and the gestures to which some of these timbres are inherently connected, could also be used as structure-developing factors. This decision to try and derive the harmony from aspects of timbre led to a spectrally-influenced route, as with the subsequent two pieces in this portfolio, and the need to conduct some research.

Modes

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The four instrumentalists were individually taken to a studio where samples of them playing were recorded for analysis. The samples taken were designed to cover the full range of sounds known to the players and myself that could be made with the instruments, several hundred overall. More than

two hundred of these were then analysed using the patch I programmed in Pure Data, giving the frequency of the most prominent partials of each sound and their relative amplitudes.

By rounding each frequency to match that of the nearest quartertone in 24-TET (with A at 440Hz), and then omitting repeating pitch classes, each of these sounds could produce a mode (see *fig. 1.1*). Only five sounds' modes were used in this piece, so that each lettered section would have an individual mode to use as its harmonic basis, except the final section which reuses the mode from section A. The term 'parent sound' shall be used to refer to the specific sound or playing technique from which a particular mode has been derived, and shall be used throughout all commentary included in this paper.



fig. 1.1 - An example of how a sound's spectrum is turned into a mode. Here the parent sound is a staccato Eb played in the Bass Clarinet's clarion register (sound 33, appendix 3), which yields a seventeen-note mode. The symbol '#' is used to denote a quartertone sharp, while 'd' is used for a quartertone flat.

Chord Function and Pitch Hierarchy

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The five modes chosen, of course, have not had a prominent existence over the course of music's history and will therefore be unfamiliar to a listener. This means that, rather than there being an already-established hierarchy which informs how each pitch class might function relative to the rest, the piece must construct one itself. Instead of choosing a rule for the formation of chords based simply on a pitch's ordinal position in a the mode, for example using every other note from a given starting point in a major or minor key to form triads, I wanted the chords and an associated pitch hierarchy to derive from all of the analysed sound samples somehow. That way the chords would result from the full range of sounds that the instruments could make rather than just the one parent sound. This also creates an over-arching harmonic context for the five modes to exist and develop within, tying them together.

The most prominent four partials of every analysed sample were taken and labelled with a number according to their position in the harmonic series. If a partial was inharmonic, the letter X was used, regardless of it's frequency. This creates a four-digit description of each sample, for example: the most prominent partials of the flute playing middle C mezzo-forte (sound 3, appendix 1) are 2, 1, 6 and 3. The numbers are rearranged in ascending order to give 1, 2, 3, 6. These four numbers correspond to the four pitches which occur at the equivalent scale degrees in the mode and make one of the chords which can be used (see *fig. 1.2*). It was decided that four-note chords would be used because there are four instruments in the ensemble, meaning this option would afford the most harmonic colour whilst still allowing full chords to be played (without constantly resorting to multiphonics).

Many of the sounds share the same first four partials, but overall there was considerable variety, leading to a total of 64 different four-digit combinations that can be used to form chords in

any mode (all of these and their source sound can be seen appendix 6). They are the equivalent of chord symbols, and shall be referred to as such.

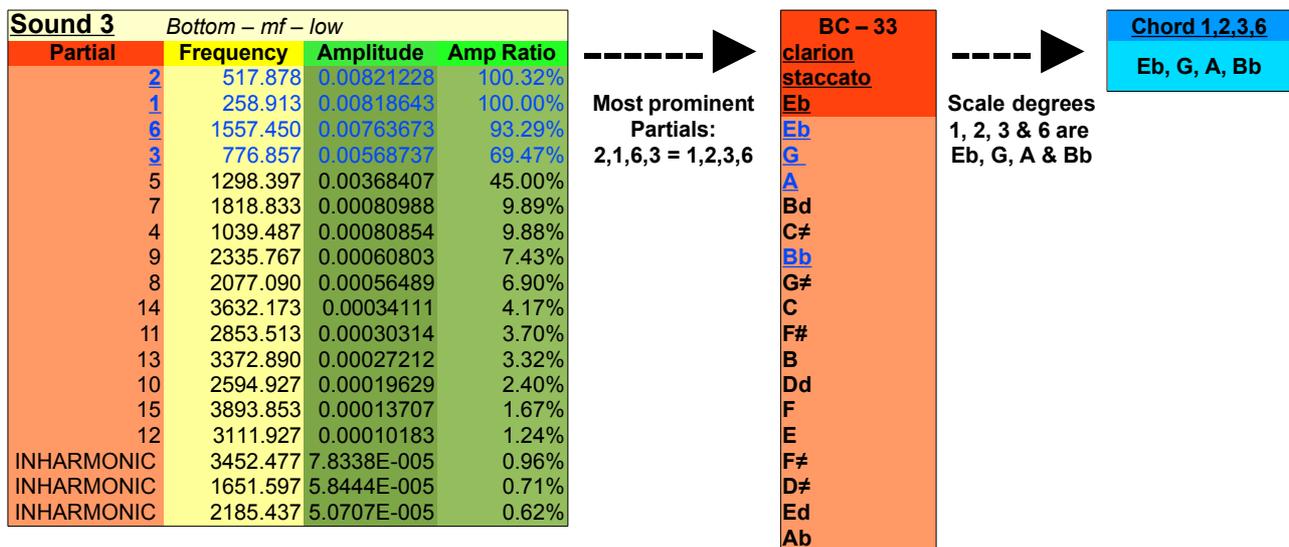


fig. 1.2 - The spectrum of the flute playing mezzo-forte at the bottom of its range is used to derive a chord in the mode shown in fig.1.

Should one of the numbers in the chord symbol be larger than the total number of pitches in the mode it's being applied to, the count simply wraps around and continues from scale degree one. For example, the chord 7,10,16,18 in the seventeen-note mode shown in fig. 1.1 is G#, B, Ed and Eb. Should one or more of the four most prominent partials of a sound be inharmonic, the X in the chord symbol may denote any pitch in 24-TET regardless of whether or not it occurs in the mode being used. This decision is to reflect the nature of inharmonicity within a context largely dominated by the harmonic series, by comparing it to chromatic harmony.

Certain numbers come up far more frequently than others in the list of chord symbols shown in appendix 6. For example, the number 1 is very common as one might expect; most of the sounds analysed contained their fundamental as one of the four most prominent partials. This affects the likely distribution of each scale degree of a given mode in a passage of music; if most of the possible chords contain scale degree 1, then the pitch class occurring on that scale degree will probably appear very frequently unless the chords are specifically chosen to avoid this. The general

trend is that the higher the scale degree, the less frequently it features in the list of possible chords, which neatly reflects the fact that the pitches associated with higher scale degrees are less prominent in the parent sound. This is not always the case, however. For example, the third scale degree is much more common than the second, due largely to a feature of the clarinets' spectra whereby the odd numbered partials are much more prominent than the even partials, especially in lower registers.

The spectra of the four instruments in the quartet affects the distribution of each scale degree in the list of possible chords, which in turn influences the pitch hierarchy, but doesn't directly establish it; this is because chords can be chosen, and others ignored, to deliberately convey a more even or skewed distribution of pitch classes. The listener can not hear the list of potential chords, only the chords which are actually used. Secondly, the list doesn't determine how pitches might function relative to each other, only how frequently they might occur. Just because a pitch class occurs more frequently than another does not guarantee it will appear as more functionally important.

Consider the case of a pitch class which occurs several times non-consecutively in the inner parts of a chord over the course of a section, compared to another pitch class which is temporarily used as a pedal note, one which is regularly doubled in octaves or one which is consecutively repeated in the same register. The latter three cases will all command more attention than the first, even if they are heard for less time overall.

A similar contextual-sensitivity applies to establishing the roles specific chords play in a section; Typical location in a phrase, frequency of occurrence and consistency of voicing are all factors that influence how prominently a chord is perceived to the listener. The combination of this and the regularity with which one chord is heard in a specific position relative to another is what creates pitch hierarchy in *Hallowed Be Thy Name*. Therefore, harmonic functionality is not completely given by the analysed sounds alone, but requires the music in each section to provide

the context which creates its own pitch relationships. That being said, the harmony is certainly derived from these sounds and is definitely specific to this instrumentation, because both the possible modes and the list of possible chords would vary with alternative instrumentation.

Gesture, Character and Interval Restriction

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The five modes were chosen because they complement the desired expressive characteristic of each section, not just in terms of harmony, but also timbre and instrumentation; not only did the inherent intervallic qualities of the mode need to suit the mood of a section, they needed to lend themselves to the gestures that were to be used - a figure consisting of descending stepwise movement would not work well in a mode whose prominent pitches did not feature such an interval between them.⁸ These pitches should also allow for the desired register of the instruments to be used in cases where this is very specific; if you want to use the harsh sound of the very bottom of the bass clarinet's range to highlight certain pitches in the hierarchy, you don't want these pitches to lie too far outside the range of Bb-Eb or so.

The parent sound too needs to complement the mood of each section and the gestures that will be used. It will feature prominently in the section using its mode because each section is essentially an exploration of certain qualities of the sound. Some of these qualities are only made apparent by spectral analysis (e.g. the pitch classes contained in the mode, although they are rounded), while others might be more obvious at face value. To further convey this, chord 1,2,3,4 is used as the primary chord of each section because it contains the four most prominent pitch classes

8 Edson Zampronha, "Gesture In Contemporary Music On The Edge Between Sound Materiality And Signification," *TRANS* 9 (2005) 17: para. 12, accessed August 30, 2016, <http://www.sibetrans.com/trans/articulo/181/gesture-in-contemporary-music-on-the-edge-between-sound-materiality-and-signification>. Zampronha writes that 'with regard to musical composition, gesture comes to be understood as a sound materiality movement that generates a delimited configuration recognizable by listening as a unit. This unity is closely associated to signification inside a work.' This definition is cumbersome, but perhaps necessarily so given the abstract nature of the subject. Nonetheless, I feel it captures my understanding of the word 'gesture', and it is with this definition in mind that I use it, along with any related words, throughout the thesis.

in the parent sound's spectrum.

Supporting this decision is the fact that 1,2,3,4 is by far the most common combination of partials yielded by taking the loudest four of every analysed sound. The second most common was 1,3,5,7 and this chord is therefore usually used as the secondary chord. Sometimes, in place of this chord, a similar chord which makes use primarily of odd-numbered scale degrees is used instead, e.g. 1,3,7,9; the way the chord sounds as it resolves onto the primary chord is what took priority in this decision. The secondary chord always features scale degrees 1 and 3, but must achieve a desired balance of similarity and difference between itself and the primary chord, in a sense borrowing from tonic-dominant relationships in Common Practice.

The 1,2,3,4 chord not only contains the parent sound's most prominent pitches, but, by extension, also it's most prominent intervals. These intervals provide the final key factor in creating distinct characters for each section and ensuring the music is constructed using an inherent trait of the parent sound. In a major or minor key, the seven possible chords all consist of similar intervals, namely classes 3, 4, 5 and, in the case of the diminished chord, class 6. While the vertical intervals are consistent in this idiom, the treatment of horizontal intervals is left to the composer's disposition. Conversely, in *Hallowed Be Thy Name*, the vast number of different chords will show considerable intervallic inconsistency (though this will depend on the make-up of each mode). Instead, the consistency lies in the horizontal motion as consecutive notes are restricted in the possible intervals that can separate them, based on those in the 1,2,3,4 chord.

Instead of the usual six interval classes, twelve are used in *Hallowed Be Thy Name* to take into account the inclusion of quartertones, show in *fig. 1.3*. The intervals between each of the pitches in the 1,2,3,4 chord are taken, up to a possible maximum of six, and used exclusively for horizontal motion in each section. These intervals are referred to as the 'core intervals' and only intervals belonging to the same interval classes as these are permitted while the mode they belong to is being used. It is these intervals in particular that affect whether or not a mode is suitable for a

certain section from a gestural point of view.

This rule is adhered to very strictly. A few exceptions are made in the form of certain broken chords, whereby only the first-sounding note follows the rule and the rest are allowed to gradually stack using the intervals of whichever chord is sounding. In these cases, however, every note can be separated from a note (not necessarily in the same part) in the preceding chord by a core interval, meaning they essentially do loosely follow the rule but with some interference. This can be seen as simply a kind of chromaticism, perhaps comparable with retardation but in horizontal form, a kind of harmonic delay.

Each of the five modes has a distinct set of core intervals, creating 1,2,3,4 chords of different qualities and inherent levels of tension, theoretically deriving from the nature of the parent sound itself. This provides the basis for the energy and character of each section. Restricting the intervals that can be used horizontally also adds to the sense of each section having a unique colour and character. The five modes are shown in full in *fig. 1.4*, as well as their parent sounds, relevant sections of the piece and core intervals.

Thus the constituent pitch classes of the spectrum, the most prominent intervals within said spectrum, the type of gesture and the aesthetic nature of the parent sound are all expanded upon to create musical discourse. Of course, the fact that the pitches are rounded to the nearest quartertone and that they do not have to sound in the specific register at which they occur in the spectra means that some of the qualities of the original sound are lost. In doing so, however, a different , interesting sound-world is created and the original aims of the piece are achieved. A list of the five modes with all their possible chords can be found in appendix 7.

Class Name	Intervals Contained (in semitones)
0.5	0.5, 11.5
1	1, 11
1.5	1.5, 10.5
2	2, 10
2.5	2.5, 9.5
3	3, 9
3.5	3.5, 8.5
4	4, 8
4.5	4.5, 7.5
5	5, 7
5.5	5.5, 6.6
6	6

fig. 1.3 - Interval classes in Hallowed Be Thy Name.

Section	A	B	C	D	E	F
Performance Direction	<i>apprehensively</i>	<i>wildly</i>	<i>furiously</i>	<i>calmly</i>	<i>aggressively</i>	<i>apprehensively</i>
Sounds Used	natural, long duration, greater emphasis on lower registers	"modulatory": glissandi, bisbigliando, trills, temolo, etc.	Staccato: slap tongue, tongue pizz., etc.	natural, long duration, leading to harmonics and multiphonics	Harsh sounds: noise, split tone, teeth on reed, singing and playing	natural, long duration, elements of each section
Mode Parent Sound	Trumpet harmon (half) double pedal	Trumpet harmon (half) valve wah (C)	Bass Clarinet clarion staccato – Eb	Bass Clarinet chalumeau high – mf	Bass Clarinet split tone (transposed +2)	Trumpet harmon (half) double pedal
Pitches	B# - 1 B - 2 Gd - 3 Eb - 4 G# - 5 F# - 6 Bb - 7 A - 8 A# - 9 C# - 10 C# - 11 Dd - 12 F - 13 Ed - 14 D# - 15	Ed - 1 Bd - 2 C# - 3 Gd - 4 B# - 5 Dd - 6 A# - 7 E# - 8 A - 9 G# - 10 C# - 11 Ad - 12 F# - 13 F - 14	Eb - 1 G - 2 A - 3 Bd - 4 C# - 5 Bb - 6 G# - 7 C - 8 F# - 9 B - 10 Dd - 11 F - 12 E - 13 F# - 14 D# - 15 Ed - 16 Ab - 17	Ab - 1 E# - 2 B - 3 Dd - 4 C# - 5 Eb - 6 E - 7 A# - 8 F# - 9 Bd - 10 B# - 11 F - 12 Ed - 13 G - 14 C# - 15 D - 16 Ad - 17	C - 1 A# - 2 D - 3 C# - 4 B - 5 E - 6 B# - 7 Ad - 8 Gd - 9 C# - 10 Ab - 11 A - 13 Dd - 14 Eb - 15 Bd - 16 F - 17 F# - 18 Bb - 19	B# - 1 B - 2 Gd - 3 Eb - 4 G# - 5 F# - 6 Bb - 7 A - 8 A# - 9 C# - 10 C# - 11 Dd - 12 F - 13 Ed - 14 D# - 15
Core intervals	(0.5, 3.5, 4, 4.5, 5)	(2.5, 3, 4, 5, 5.5)	(1.5, 2, 3.5, 4, 4.5, 6)	(2.5, 3, 3.5, 5.5)	(1, 2, 2.5, 3.5, 4.5)	(0.5, 3.5, 4, 4.5, 5)

fig. 1.4 - Each section is shown with its performance direction, a summary of the kinds of sounds featured, its mode and the associated core intervals. A clear link is visible between the parent sound of a section and the sounds used.

Material and Development

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Hallowed Be Thy Name is a piece very much concerned with harmony, which is reflected in the fact that the three main musical ideas are simply different ways of stating chords clearly:

1. Slow chordal build-ups, introducing the pitches gradually and sustaining each one until moving to the next chord.
2. Consecutive, fairly even-spaced, homorhythmic 'block' chords, usually occurring in threes and with a descending feel.
3. Arpeggios, usually ascending first then descending again, with a triplet feel.

These three gestural figures clearly stem from the same concept of outlining chords and chord progressions, and might essentially be considered three extensions of the same musical principle. They form the basis of most phrases, and are articulated or expanded upon in ways which make them adhere to the kinds of sounds chosen to feature in each section, as outlined in *fig. 1.4*.

Using these different sound types enhances each section's individual character and, by tying them in some way to the parent sound, supports the concept that each section is an exploration of that sound's natural qualities. Though the idea of focussing on different types of sounds in different sections serves to increase structural clarity, the way that the prevailing gestures transform from one section or sound type to the next can be quite linear and organic. This is to give a listener something to engage with that might guide them through the piece.

Hallowed Be Thy Name - Final Words

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Hallowed Be Thy Name takes a sound and expands upon an aspect of it to create a section of music, giving it some context within the range of all the possible sounds of the instrumentation as a means of tying all the sections together. This is aided by a logical progression of gesture, all stemming from the same harmony-centric concept. One final factor which ties the piece together is that the focal pitches of each section, namely scale degree 1 in each mode, are separated from each other by an interval that falls into one of mode 1's core classes, as shown in *fig. 1.11*.



fig. 1.11 – The focal pitches of each section and the interval that separates them, shown in semitones.

That being said, I feel there are certainly shortcomings in this piece. While the focus on harmony did successfully create a distinct sound, I feel other aspects of the material's treatment were perhaps overlooked or not sufficiently considered, leading to a lack of variety; a large proportion of the middle of the piece suffers from this in particular and is not as engaging as desired. With the benefit of hindsight, I feel more could have been made of texture in the piece, and similarly of the metaphysical or emotional significance of the gestures; both of these could have been developed in order to create a more varied, dynamic and engaging progression of character. *Hallowed Be Thy Name* seems almost as much of a solution to a proposed harmonic problem as it does an actual piece of music. The timbral and harmonic palettes do paint an interesting picture, but overall the piece is not as engaging to the listener as was aimed, and this must be considered a failing at least to some degree.

You Can Run – Commentary

Introduction

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You Can Run deals with the topic of addiction and the different sections needed to capture the ups, downs and other moods typically associated with the subject. The piece gave me the opportunity to explore the application of similar timbrally-derived harmonic and structural frameworks as *Hallowed Be Thy Name* in a completely electroacoustic context. Given that the number of possible timbres is limited only by my sound design skills and the size of my sample library, the technique could not be applied exactly as in *Hallowed Be Thy Name*. Instead, I chose to use spectral information from a spoken phrase to generate material for the piece, namely 'you can run, but you can't hide.'

The words in this phrase were analysed individually using the Pure Data patch I programmed and spectral snapshots from the beginning, middle and end of each were taken. This data, along with other perceivable qualities of each word, such as their envelopes, was used to define the course of the music, with one word being used as the material for each section, while the phrase as a whole and its meaning were used to guide the piece's overall form and generate some rhythmic material.

The analysed phrase was spoken by myself, and thus all of the material must be derived from the nature of the words as said in my own accent. I drop the Ts in the words 'but' and 'can't', and my vowels are more clipped than someone speaking with received pronunciation. These differences will be reflected in the spectral data.

To add further limitations and to help give the piece some direction in the initial stages of the composition process, I made the decision that every sample used to create the sounds featured in *You Can Run* should also come from me. I therefore recorded myself singing several different

vowels and a humming sound on every semitone in my range. I also recorded myself beatboxing and using other vocal effects and extended techniques, including Tuvan-style subharmonics and a sound emulating a water droplet. The only sample used in the piece which doesn't come from my voice or mouth is a recording of contact between the microphone and my facial hair.

Using samples originating from a similar source does not automatically give a piece a sense of cohesion or make the development of material causal by default. The same is even true of deriving all the sounds in an electroacoustic piece from the same sample, because these sounds can be manipulated in so many ways to create a variety of results which don't necessary make sense in the context of the same piece from a listener's perspective. It does, however, provide the opportunity to refer back to a similar pool of timbres, which can be helpful in giving the piece a perceivably clear trajectory. It is, of course, not the only way to achieve this by any means, but creating limits in sound design can in fact be useful when faced with a near-infinite set of options.

From Material to Harmony and Rhythm

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The spectral snapshots were organised so that the partials of each were in amplitude order, just as in *Hallowed Be Thy Name*. Because digital synths were being used rather than acoustic instruments, pitch could be far more precise, as the samples could be pitch corrected and then shifted by increments as small as one cent. This fine control of pitch offered the opportunity to experiment with microtuning and dynamic temperament. I felt that rounding each frequency to the nearest ten cents (with A at 440Hz) would offer enough flexibility in this regard without being unnecessarily time-consuming when it came to the actual sound design process. Thus a collection of 21 pitch sets were derived from the spoken phrase, three from each word, shown in appendix 8.

These pitch sets would provide the framework for pitch-related progression throughout the piece. Each section goes through its associated word's pitch sets in order, with the exception of

moments largely featuring noise. This can be muddled as desired with chromatic pitch classes, pitch classes from the set derived from the partials with the lowest amplitudes, or using sounds which prominently suggest more than one pitch throughout their envelope.

The most prominent pitch class in each set is determined by the frequency of the loudest partial (*see fig 2.1*), and is often treated as a pitch centre while that particular set is active. Thus *You Can Run* features a progression of pitch centres derived from the most prominent frequencies of the spoken phrase as it evolves, and is therefore related to the prosody of the phrase as said by me; the loudest partial is often the fundamental frequency or related to it by close to an octave, meaning it is also the pitch that would be perceived when listening to any given point of the spoken phrase in the moments when the phonemes have clear pitch. These pitch centres are often made unclear in the piece, due to both the desired mood I wanted to create and certain qualities of the section's associated word.

Sound 1		You 1 – start			
Partial	Frequency	Amplitude	Amp Ratio	Pitch Class	
1	105.388	0.00258081	100.00%	8.3	MOST PROMINENT PITCH CLASS
2	205.433	0.00117554	45.55%	7.8	
3	310.720	0.000565917	21.93%	3.0	
4	409.777	0.00018947	7.34%	7.8	
5	515.179	9.2874E-005	3.60%	11.7	
28	2979.900	6.3337E-005	2.45%	6.1	
6	614.133	0.000039303	1.52%	2.8	
27	2885.150	3.5784E-005	1.39%	5.6	
20	2153.520	3.3058E-005	1.28%	0.5	
7	712.326	3.2904E-005	1.27%	5.3	
26	2778.730	0.000026525	1.03%	4.9	
27	2844.390	2.5925E-005	1.00%	5.3	
25	2649.000	2.0388E-005	0.79%	4.1	
20	2057.500	1.9292E-005	0.75%	11.7	
16	1647.700	1.8613E-005	0.72%	7.9	
26	2702.100	1.7460E-005	0.68%	4.4	
23	2390.280	0.000016874	0.65%	2.3	
22	2357.740	1.6364E-005	0.63%	2.1	
24	2495.730	1.5458E-005	0.60%	3.0	
8	828.586	1.4603E-005	0.57%	8.0	
21	2258.210	1.4386E-005	0.56%	1.3	
11	1131.190	1.4551E-005	0.56%	1.3	
18	1915.470	1.3925E-005	0.54%	10.5	
18	1852.780	1.3673E-005	0.53%	9.9	
21	2230.240	1.3093E-005	0.51%	1.1	
24	2574.250	1.2931E-005	0.50%	3.6	
22	2303.450	1.1893E-005	0.46%	1.7	
23	2431.320	0.000011505	0.45%	2.6	
19	2013.120	1.1267E-005	0.44%	11.3	
10	1088.240	1.0423E-005	0.40%	0.7	
12	1228.280	1.0290E-005	0.40%	2.8	
9	923.573	1.0110E-005	0.39%	9.8	
14	1496.630	9.5849E-006	0.37%	6.2	
15	1539.930	9.5722E-006	0.37%	6.7	
16	1710.280	9.2012E-006	0.36%	8.5	

fig. 2.1 – The pitch set derived from the spectrum at the beginning of the first occurrence of the word 'you'. The pitch classes are expressed as numbers, with C being 0. The decimal shows the number of cents, in tens, that this pitch class is raised by. Hence the most prominent pitch class of this set is a G# raised by 30 cents.

The sections are influenced by their governing sounds in more ways than the use of the pitch sets; more obviously perceivable features of the words have an effect too, such as envelope and noise content. The words will often also offer some guide as to what sample would be used when designing sounds to fit into that section, for example a particular sung vowel. The sections are shown in *fig. 2.2*, along with their associated word, key features and the time position at which they occur. There are seven section, one for each word, and a substantial introduction.

Section	Word	Key Features	Time
Introduction	N/A	Introduces aspects of all the material, sets the tone	0.00 – 1.38
A	You 1	Shifting and unclear pitch centre, modulating sounds, low intensity which builds	1.38 – 3.33
B	Can	Rhythmic, high intensity which gradually dies down, unclear pitch centre until end, percussive sounds	3.33 – 5.40
C	Run	Low intensity which builds slightly and then dies down, more focussed pitch centre until end	5.40 – 8.36
D	But	Rhythmic, high intensity, unclear pitch centre, all percussive and noise-based sounds	8.36 – 9.35
E	You 2	Low intensity, ethereal, more focussed pitch centre, modulating sounds, reminiscent of A	9.35 – 11.06
F	Can't	Rhythmic, high intensity which builds, reminiscent of B	11.06 – 11.59
G	Hide	Low intensity, noise which gradually becomes more harmonic	11.59 – end

fig. 2.2 – The sections in *You Can Run*, along with their respective governing sounds, timings and key features

Rhythmic material in *You Can Run* is also derived from the spoken phrase; the length of time between the start of each word was calculated and then rounded to the nearest number of significance, whilst still closely replicating the rhythm of the phrase as spoken by me, giving a set of ratios (see *fig. 2.3*). These ratios were used throughout the piece, determining aspects such as length of long sustained sounds, the time in between shorter-enveloped sounds and even vaguely influencing the length of each section relative to the rest. Though not every single instance of sound in *You Can Run* is subject to these ratios, and they are often used loosely, they provide the piece with a further element of consistency. The ratios are used in full, shortened to just the first three evenly spaced words, or to highlight the near but not exact even spacing between the last four words for interesting effect.

	1		1		3		1		1.375		1.25	
You	-	Can	-	Run	-	But	-	You	-	Can't	-	Hide

fig. 2.2 – The ratios of the lengths of time between the start of the words in the spoken phrase, used as rhythmic material in *You Can Run*.

You Can Run - Final Words

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You Can Run clearly generates pitch, rhythm, timbre and structure from the same source material, deriving these from various aspects of its sonority, including snapshots of its spectra. The piece is cohesive, with sufficient referral to similar sonorities, especially in the alternating sections of lower intensity, and the consistent use of rhythms originating from a single pattern. At the same time, it still presents contrast, variety and an engaging progression of sounds and moods.

That isn't to say that the piece is without its weaker moments; with time I've observed that I often become disinterested during section A. I suggest this is perhaps due to a lack of a perceivable development trajectory during this period within the context of the whole piece, which becomes even more apparent when there is minimal variety of material as is the case in section A. The slow panning and pitch-shifting chords of course set up a sense of familiarity for later events, and do have a fairly obvious link to some of the background material preceding it in the introduction, so I feel it is the shorter-duration foreground material that is more the root of the problem. These objects sound at time intervals governed by the previously-mentioned rhythmic ratios, with each full iteration being a diminished version of its antecedent, creating gradual rhythmic contraction. The relevance of the ratios however is not readily perceived, which I believe is due to two factors; firstly, the value of the third note's duration in the ratio is always significantly larger than all of the others, creating a noticeable break except in cases where the rhythm is sounded quickly, and so the listener may not identify the rhythm in full; secondly, the rhythmic ratio does not have a clear exposition before section A, and in fact arguably not in the piece at all, though I would cite section B as featuring a fairly clear presentation of the rhythmic material.

Finally, I must address a comment made by composer Alejandro Viñao in an e-mail conversation we had about the piece. On February 18, 2016, he wrote to me stating that 'this type of music favours the evolution in time -the morphology- of sound events as opposed to note to note

relationships such as counterpoint, harmony etc.' It is interesting to me, especially from a textural perspective, that this piece features so much emphasis on 'note to note relationships'; in some ways it leads the piece to be as reminiscent of instrumental music, or even popular styles of music such as Metal, EDM and IDM, as it does the electroacoustic music of the composers mentioned in the research outline.⁹ While the sheer variety of contrasting sonorities can threaten the continuity and cohesiveness of the whole piece, and does allow the risk of some sections being much weaker than others, I think in this case it is also responsible for the particular energy and character at times which give *You Can Run* its identity.

⁹ This is perhaps unsurprising as up to the present I have considerably more experience working in all of these other genres than in electroacoustic art music.

Minchia! – Commentary

Introduction

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Minchia! is unlike the other two pieces in the folio in that it doesn't have any particular subject matter, but instead focussing on creating a logical progression of intensity and general mood. This is because with seven different individuals predominantly improvising, the end result is unlikely to exactly reflect my own interpretation of any themes or topics; rather, the musicians will be influenced by their own individual experiences to create something that ultimately fits the overall mood, but in ways that I hope will vary as each ensemble develops their unique group dynamic.

Composed in Sicily during the course of a residency focussing on improvised music, the title is a mild Italian profanity and makes light of the fact that the improvisatory nature of *Minchia!* theoretically creates the potential for any rendition to be either good or bad, as the word can paradoxically be used as an interjection to express both. It is also a sentimental reference to the camaraderie between the musicians who first worked on the piece as we developed our own group dynamic (as far as a word which literally translates to the male genitalia can be said to hold any great sentiment).

Once more the aim was to derive harmonic elements, including microtonal pitch classes, and structural features from the sound palette of the instruments being used, and to show how this kind of technique can be applied in improvised music. The inclusion of live electronics, in the form of the analogue synthesiser, electric guitar and vocal amplification, added an extra distinguishing feature, but also a potential dilemma; on the one hand one wants to use these instruments to their fullest without compromising the distinct aspects of their sound, but on the other hand they need to be able to sit in the same texture as the acoustic instruments without seeming out of place. The analogue synth seemed the greatest threat to this textural and sonic balance, simply because it is

significantly more difficult to finely control its output in real time compared to the others.

A final factor to consider was the extent to which notation should be used while still permitting the desired level of improvisation and interaction between the players. The correct balance between these had to be achieved; the piece needed to offer the opportunity for different interpretations unique to each ensemble and performance, but also consistently deliver a clear and logical progression of sound, intensity and character.

Material, Structure and Harmony

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Reducing control of the specific material played by the instruments, but instead prioritising the intensity of the overall sound produced by the ensemble as a whole helps to ensure a level of structural consistency between different performances. I felt, however, that this parameter alone was not sufficient to guarantee a cohesive soundworld in each interpretation. I wanted to include a harmonic scheme related to those featured in *Hallowed Be Thy Name* and *You Can Run*, linking timbre, structure and harmony together in a way that would reinforce the consistency a listener would experience.

The synth was chosen as the source from which harmonic content would be derived in order to ensure that it does not unintentionally stand out from the texture. One evolving sound was chosen and spectrally analysed using the same Pure Data patch as the previous two pieces, giving two spectral snapshots of the sound; one from the very start and one from the very end. Like in *Hallowed Be Thy Name*, the resulting two sets of partials were ordered by amplitude and their frequencies were rounded to the nearest quartertone in 24-TET (with A at 440Hz). This gives two pitch sets, one of which is far larger than the other (see *fig. 3.1*). The full results of the spectral analysis confirm that this stems from spectral saturation of the sound over time, which is certainly an audible feature, and can be seen in appendix 9.

The original parent sound is referred to in the score as the 'sweeping gesture', and has an inherent crescendo due to the linear ramp controlling the waveform envelope. It is also noteworthy that this crescendo would loop if the sound were sustained, as the ramp would jump straight back to zero once it reached its peak amplitude. Although much of the specific material is left to the performers, it is important that the sweeping gesture sounds as close to the original in every performance in order for this piece to sound the way it should and maintain its identity. Therefore a recording of the sound originally used for analysis has been made available online for reference, a link to which is provided in the score.

Pitch Set 1	Pitch Set 2
A	B
Ad	C#
C#	Bb
A	F#
C	Eb
F#	Gd
B	Dd
	Bd
	F#
	Ab
	F
	A
	D#
	E
	Ad
	Bd
	E#
	C
	A#

fig. 3.1 – The two pitch sets derived from spectral analysis of the sweeping gesture. Each is listed by order of the corresponding partial's amplitude, and repeat pitch classes have been removed. Pitch Set 1 has been transposed down by 30 cents to compensate for the effect of light frequency modulation on the signal. The symbol '#' is used to denote a quartertone sharp, while 'd' is used for a quartertone flat.

It became clear with workshopping that the best approach was to use only one sound to generate material, rather than many as in the other pieces included in this portfolio. On a basic, but important level with regards to the aims of this piece, the more frequently pitch content needed to

be detailed in the score, the more effort players would have to expend in reading it, therefore bringing their focus more towards their individual playing rather than that of the other players and the sound of the ensemble as a whole. Using multiple parent sounds, e.g. one per section as in the previous two pieces, would lend itself to outlining specific pitch or interval classes in the score multiple times throughout the piece.

The second reason for only using one parent sound is a practical one relating to the instrumentation; if the decision to use the analogue synthesiser for the source material has been made, one must consider the feasibility of recreating the relevant sounds on the synth in the context of a performance. Because these source sounds provide the framework for everything that occurs in the piece, they must be able to do so reliably, and this means they must be very similar in every performance. The difficulty in most cases of quickly and accurately changing to a specific desired sound on the synth proved a decisive factor when deciding on source material.

The final factor in deciding to use only one sound as source material rests in consistency and perceivable clarity of development. Because pitch classes, interval structure, gesture and rhythm are not controlled with the same level of detail as fully notated music, the way that these parameters refer to the original material in any given performance is likely to be blurred and not immediately clear on a surface level. Using less material effectively creates more opportunity for different aspects of it to be inferred in different ways, gradually clarifying the inner workings of the music without spoon-feeding it to a listener.

The most important qualities of the sweeping gesture with regards to generating the piece as a whole are its gradually increasing amplitude envelope and level of spectral saturation. The spectrum starts off with only a few partials, from which any notated pitch classes in the score are derived, and transitions to a sound bordering on noise. Likewise, the entire piece is essentially a long transition from a few pitches to any pitches and right the way to noise, but with some slight detours and a noisy introduction. This introduction can be considered a derivative of the looping

nature of the sound, as can the short decay to a single pitch at the very end of the piece; the sound reaches a peak directly before beginning again at a trough.

Each section, as notated by letters in the score, is itself a clearly defined hairpin, except for the very ending which is in fact a reverse hairpin. Different instrumental grouping and recommended timbres are used help ensure contrast between these sections.

Minchia! - Final Words

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Minchia! shows how material can be derived from a single source and used to generate an entire coherent piece in the context of music which is predominantly improvised. Pitch material is developed in a way that is both free and logical, and is clearly linked with timbre, spectrum and structure as a whole. The music is idiomatic, both in terms of improvised music and in terms of the roles and gestures played by each instrument.

While there is potential for a significant amount of variety in each performance, there are, one hopes, sufficient measures taken to ensure each of these interpretations has the potential to work and for the piece to maintain a sense of it's own identity; the improvisation is quite strictly controlled despite a total absence of traditional fixed notation. That being said, the fact does remain that to date this piece has only been tested by the same seven musicians, and the performances took place near to each other in time. My claims about the piece could perhaps only truly be fully substantiated with further performances by varied personnel.

Attempting to constructively critique *Minchia!* in the same way as the other two pieces in fact proves a somewhat fruitless exercise; on paper (or, in this case, in the score) there are no clear fundamental issues with the piece which I can identify. Due to amount of freedom, the work's success relies heavily on the players' skill in the relevant areas, their cohesion as an ensemble and their having sufficient and effective rehearsal. This is in a way true of all music, but in an

improvised context all of these factors are renovated by the added dimension of composing while performing; players with better individual judgement and group communication skills, both in a musical performance sense and in a social sense, will be more likely to make *Minchia!* a good piece. Their abilities, I believe, genuinely determine, to an extent, whether the work is successful or not.

Sound 1 Bottom – p – low										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	257.608	0.0064249667	100.00%	59.73	0.00		0.00%	0.00%	11.7	
2	515.490	0.0004444373	6.92%	71.74	12.01		0.05%	0.01%	11.7	
3	771.291	0.0004331983	6.74%	78.72	18.99		-0.20%	-0.04%	6.7	
5	1286.713	0.0002146427	3.34%	87.58	27.85	partial is quite sharp	-0.10%	-0.02%	3.6	
6	1564.667	0.000163663	2.55%	90.96	31.23		1.23%	0.23%	7.0	
4	1027.073	0.000135336	2.11%	83.68	23.94		-0.33%	-0.07%	11.7	
8	2095.287	3.58325E-005	0.56%	96.02	36.29	partial is quite sharp	1.67%	0.30%	0.0	
7	1815.380	3.45655E-005	0.54%	93.54	33.80		0.67%	0.12%	9.5	

Sound 2 Bottom – p – high										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	379.300	0.0038815167	100.00%	66.43	0.00		0.00%	0.00%	6.4	
2	763.928	0.0007269333	19.65%	78.55	12.12	Note that all harmonic partials are slightly sharp	0.70%	0.15%	6.6	
4	1527.877	0.000357901	9.22%	90.55	24.12		0.70%	0.13%	6.6	
3	1143.210	0.000349296	9.00%	85.53	19.10		0.47%	0.09%	1.5	
5	1907.113	0.0001386585	3.57%	94.39	27.96		0.56%	0.10%	10.4	
6	2292.227	5.66691E-005	1.46%	97.57	31.14		0.72%	0.13%	1.6	

Sound 3 Bottom – mf – low										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
2	517.878	0.00821228	100.32%	71.82	12.00	louder than fundamental	0.01%	0.00%	11.8	
1	258.913	0.0081864333	100.00%	59.82	0.00		0.00%	0.00%	11.8	
6	1557.450	0.0076367333	93.29%	90.88	31.06	Note that all harmonic partials are slightly sharp	0.26%	0.05%	6.9	
3	776.857	0.00568737	69.47%	78.84	19.02		0.02%	0.00%	6.8	
5	1298.397	0.0036840667	45.00%	87.73	27.91		0.30%	0.06%	3.7	
7	1818.833	0.000809877	9.89%	93.57	33.75		0.36%	0.07%	9.6	
4	1039.487	0.0008085363	9.88%	83.88	24.06		0.37%	0.08%	11.9	
9	2335.767	0.0006080267	7.43%	97.90	38.08		0.24%	0.04%	1.9	
8	2077.090	0.0005648863	6.90%	95.87	36.05		0.28%	0.05%	11.9	
14	3632.173	0.0003411107	4.17%	105.54	45.72		0.20%	0.03%	9.5	
11	2853.513	0.0003031417	3.70%	101.37	41.55		0.19%	0.03%	5.4	
13	3372.890	0.0002721233	3.32%	104.26	44.44		0.21%	0.03%	8.3	
10	2594.927	0.0001962863	2.40%	99.72	39.90		0.22%	0.04%	3.7	
15	3893.853	0.0001370681	1.67%	106.75	46.93		0.26%	0.04%	10.7	
12	3111.927	0.0001018284	1.24%	102.87	43.05		0.16%	0.03%	6.9	
13	3452.477	7.83379E-005	0.96%	104.66	44.85	INHARMONIC	2.57%	0.42%	8.7	
6	1651.597	5.84443E-005	0.71%	91.90	32.08	INHARMONIC	6.32%	1.17%	7.9	
8	2185.437	5.07071E-005	0.62%	96.75	36.93	INHARMONIC	5.51%	0.97%	0.7	

Sound 4 Bottom – mf – high										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
2	773.529	0.0123939333	111.05%	78.77	12.00	louder than fundamental	0.02%	0.00%	6.8	
1	386.703	0.0111602667	100.00%	66.76	0.00		0.00%	0.00%	6.8	
3	1158.510	0.0065533067	58.72%	85.76	19.00	Note that all harmonic partials are slightly flat with the exception of partial 2	-0.14%	-0.03%	1.8	
4	1543.423	0.00491218	44.01%	90.73	23.96		-0.22%	-0.04%	6.7	
5	1928.103	0.00249586	22.36%	94.58	27.81		-0.28%	-0.05%	10.6	
6	2314.857	0.0020435823	18.31%	97.74	30.98		-0.23%	-0.04%	1.7	
8	3086.783	0.0005042967	4.52%	102.73	35.96		-0.22%	-0.04%	6.7	
9	3473.317	0.0004316267	3.87%	104.77	38.00		-0.20%	-0.03%	8.8	
7	2700.530	0.000272611	2.44%	100.41	33.65		-0.24%	-0.04%	4.4	
10	3860.157	0.0002082135	1.87%	106.60	39.83		-0.18%	-0.03%	10.6	
12	4629.807	0.0001822603	1.63%	109.74	42.98		-0.23%	-0.04%	1.7	
4	1610.067	0.0001571473	1.41%	91.46	24.69	INHARMONIC	4.09%	0.76%	7.5	
13	5016.590	0.000110683	0.99%	111.13	44.37		-0.21%	-0.03%	3.1	
15	5784.747	9.36232E-005	0.84%	113.60	46.84		-0.27%	-0.04%	5.6	
11	4245.497	7.68704E-005	0.69%	108.24	41.48		-0.19%	-0.03%	0.2	
18	6945.683	7.18878E-005	0.64%	116.77	50.00		-0.22%	-0.03%	8.8	
4	1715.143	6.18517E-005	0.55%	92.55	25.79	INHARMONIC	10.88%	1.97%	8.6	

Sound 5 Bottom – f – low										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
3	785.580	0.0119815667	247.45%	79.04	19.13	louder than fundamental	0.66%	0.14%	7.0	
5	1307.470	0.0103741033	214.26%	87.85	27.95	louder than fundamental	0.52%	0.10%	3.9	
6	1571.207	0.0082455333	170.29%	91.04	31.13	louder than fundamental	0.66%	0.13%	7.0	
2	525.602	0.00582196	120.24%	72.08	12.18	louder than fundamental	1.02%	0.24%	0.1	
1	260.145	0.0048419233	100.00%	59.90	0.00		0.00%	0.00%	11.9	
7	1833.213	0.0026718567	55.18%	93.71	33.80	Note that all harmonic partials are slightly sharp	0.67%	0.12%	9.7	
8	2093.347	0.00261536	54.01%	96.00	36.10		0.59%	0.11%	0.0	
4	1045.793	0.0025453833	52.57%	83.99	24.09		0.50%	0.10%	12.0	
10	2618.840	0.00145888	30.13%	99.88	39.98		0.67%	0.12%	3.9	
13	3404.447	0.0008648797	17.86%	104.42	44.52		0.67%	0.11%	8.4	
9	2357.100	0.0007756243	16.02%	98.06	38.16		0.67%	0.12%	2.1	
11	2878.903	0.0004418557	9.13%	101.52	41.62		0.60%	0.10%	5.5	
12	3140.807	0.0004061727	8.39%	103.03	43.12		0.61%	0.10%	7.0	
14	3664.103	0.0002569497	5.31%	105.69	45.79		0.61%	0.10%	9.7	
15	3926.627	0.000256128	5.29%	106.89	46.99		0.63%	0.10%	10.9	
15	3990.780	9.37419E-005	1.94%	107.17	47.27	INHARMONIC	2.27%	0.36%	11.2	
5	1393.263	8.60483E-005	1.78%	88.95	29.05	INHARMONIC	7.11%	1.36%	5.0	
13	3345.407	7.50015E-005	1.55%	104.12	44.22	INHARMONIC	-1.08%	-0.18%	8.1	
6	1651.880	7.46884E-005	1.54%	91.90	32.00	INHARMONIC	5.83%	1.08%	7.9	

Sound 6 Bottom – f – high										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
4	1562.857	0.0315707	355.17%	90.94	24.06	louder than fundamental	0.36%	0.07%	6.9	
3	1173.500	0.0241340333	271.51%	85.98	19.10	louder than fundamental	0.47%	0.10%	2.0	
2	784.210	0.0090837867	102.19%	79.00	12.12	louder than fundamental	0.71%	0.16%	7.0	
1	389.324	0.0088888367	100.00%	66.88	0.00		0.00%	0.00%	6.9	
5	1957.647	0.0040226567	45.26%	94.84	27.96	Note that all harmonic partials are slightly sharp	0.57%	0.10%	10.8	
7	2736.463	0.0032362433	36.41%	100.64	33.76		0.41%	0.07%	4.6	
9	3520.707	0.0012624083	14.20%	105.00	38.12		0.48%	0.08%	9.0	
10	3911.800	0.0011612997	13.06%	106.83	39.95		0.48%	0.08%	10.8	
6	2346.843	0.0008853167	9.96%	97.98	31.10		0.47%	0.08%	2.0	
15	5867.550	0.000699594	7.87%	113.85	46.96		0.47%	0.07%	5.8	
14	5476.053	0.0006407167	7.21%	112.65	45.77		0.47%	0.07%	4.7	
8	3129.583	0.000489216	5.50%	102.96	36.08		0.48%	0.08%	7.0	
16	6261.030	0.0004047367	4.55%	114.97	48.09		0.51%	0.08%	7.0	
17	7038.787	0.000362582	4.08%	117.00	50.12		0.44%	0.07%	9.0	
18	6649.707	0.0003529287	3.97%	116.01	49.13		0.47%	0.07%	8.0	
13	5087.217	0.00035118	3.95%	111.38	44.49		0.51%	0.08%	3.4	

11	4302.687	0.0002340703	2.63%	108.48	41.59		0.47%	0.07%	0.5
18	6862.273	0.0001290317	1.45%	116.56	49.68	INHARMONIC	-2.08%	-0.31%	8.6

Sound 7 Break – p – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	547.182	0.0093334367	100.00%	72.77	0.00		0.00%	0.00%	0.8
2	1088.727	0.0031001	33.21%	84.68	11.91	<i>Note that all harmonic partials are slightly flat</i>	-0.52%	-0.11%	0.7
4	2179.083	0.0015653353	16.77%	96.70	23.92		-0.44%	-0.08%	0.7
3	1636.193	0.0014206733	15.22%	91.74	18.96		-0.33%	-0.06%	7.7
6	3270.377	0.000158334	1.70%	103.73	30.95		-0.39%	-0.06%	7.7
5	2726.843	0.0001422297	1.52%	100.58	27.81		-0.33%	-0.06%	4.6
7	3812.643	0.000135459	1.45%	106.38	33.61		-0.46%	-0.08%	10.4

Sound 8 Break – p – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	612.834	0.0167651333	100.00%	74.74	0.00		0.00%	0.00%	2.7
2	1225.633	0.00568338	33.90%	86.74	12.00		0.00%	0.00%	2.7
3	1834.897	0.00239542	14.29%	93.72	18.99		-0.20%	-0.04%	9.7
4	2447.697	0.0008717257	5.20%	98.71	23.97		-0.15%	-0.03%	2.7
5	3060.760	0.0003807923	2.27%	102.58	27.84		-0.11%	-0.02%	6.6
6	3671.407	0.000162311	0.97%	105.73	30.99		-0.15%	-0.02%	9.7
8	4893.337	8.74002E-005	0.52%	110.70	35.97		-0.19%	-0.03%	2.7

Sound 9 Break – f – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1111.927	0.0211314333	176.81%	85.05	12.00	louder than fundamental	-0.03%	-0.01%	1.0
1	556.104	0.0119513333	100.00%	73.05	0.00		0.00%	0.00%	1.1
5	2781.330	0.0031977153	26.76%	100.92	27.87	heavy vibrato in sample may affect accuracy	0.03%	0.00%	4.9
3	1665.423	0.0020943367	17.52%	92.04	18.99		-0.17%	-0.03%	8.0
6	3329.947	0.000446393	3.74%	104.04	30.98		-0.20%	-0.03%	8.0
4	2067.580	0.000294443	2.46%	95.79	22.73	INHARMONIC(?)	-7.05%	-1.30%	11.8
9	4963.073	0.0002720002	2.28%	110.95	37.89		-0.84%	-0.13%	2.9
8	4446.460	0.0002640887	2.21%	109.04	35.99		-0.05%	-0.01%	1.0
5	2558.737	0.000160536	1.34%	99.48	26.42	INHARMONIC	-7.98%	-1.43%	3.5
10	5779.090	0.0001107312	0.93%	113.58	40.53	INHARMONIC	3.92%	0.59%	5.6
2	1338.707	7.68263E-005	0.64%	88.26	15.21	INHARMONIC	20.36%	3.77%	4.3

Sound 10 Break – f – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1242.793	0.0731151333	258.82%	86.98	11.95	louder than fundamental	-0.29%	-0.06%	3.0
1	623.198	0.0282499333	100.00%	75.03	0.00		0.00%	0.00%	3.0
4	2487.120	0.0068911167	24.39%	98.99	23.96	<i>Note that all harmonic partials are slightly flat</i>	-0.23%	-0.04%	3.0
3	1865.820	0.0046178667	16.35%	94.01	18.98		-0.20%	-0.04%	10.0
6	3731.723	0.0024319167	8.61%	106.01	30.98		-0.20%	-0.03%	10.0
7	4353.293	0.0018702133	6.62%	108.68	33.65		-0.21%	-0.03%	0.7
5	3108.203	0.0011771373	4.17%	102.85	27.82		-0.25%	-0.04%	6.8
11	6841.750	0.0009963297	3.53%	116.51	41.48		-0.20%	-0.03%	8.5
9	5595.113	0.000771716	2.73%	113.02	38.00		-0.24%	-0.04%	5.0
8	4976.033	0.00063071	2.23%	110.99	35.97		-0.19%	-0.03%	3.0
10	6218.670	0.00056231	1.99%	114.85	39.83		-0.21%	-0.03%	6.9
12	7458.727	0.0004568117	1.62%	118.00	42.97		-0.26%	-0.04%	10.0
17	10569.000	0.000287819	1.02%	124.03	49.01		-0.24%	-0.03%	4.0

Sound 11 Middle – p – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	688.764	0.027615	100.00%	76.76	0.00		0.00%	0.00%	4.8
2	1377.430	0.0067070267	24.29%	88.76	12.00	<i>Note that all harmonic partials are slightly flat</i>	-0.01%	0.00%	4.8
3	2066.180	0.0023903033	8.66%	95.78	19.02		-0.01%	0.00%	11.8
4	2752.770	0.0005097007	1.85%	100.74	23.99		-0.08%	-0.01%	4.7
5	3441.740	0.0004010143	1.45%	104.61	27.85		-0.06%	-0.01%	8.6
7	4819.027	0.0001068659	0.39%	110.44	33.68		-0.05%	-0.01%	2.4

Sound 12 Middle – p – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	915.346	0.0233464	100.00%	81.68	0.00		0.00%	0.00%	9.7
2	1830.537	0.0072181233	30.92%	93.68	12.00		-0.01%	0.00%	9.7
3	2745.967	0.000669828	2.87%	100.70	19.02		0.00%	0.00%	4.7
4	3661.170	0.0005096157	2.18%	105.68	24.00		-0.01%	0.00%	9.7
5	4577.153	0.0002319333	0.99%	109.55	27.86		0.01%	0.00%	1.5
6	5491.997	0.0001196352	0.51%	112.70	31.02		0.00%	0.00%	4.7

Sound 13 Middle – f – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	697.198	0.0744020667	100.00%	76.97	0.00		0.00%	0.00%	5.0
3	2093.270	0.0153930333	20.69%	96.00	19.03		0.08%	0.01%	0.0
2	1396.527	0.0113794233	15.29%	89.00	12.03		0.15%	0.03%	5.0
4	2792.270	0.0024285533	3.26%	100.99	24.02		0.12%	0.02%	5.0
5	3485.520	0.0016715497	2.25%	104.83	27.86		-0.01%	0.00%	8.8
7	4884.493	0.0006859013	0.92%	110.67	33.70		0.08%	0.01%	2.7
9	6280.500	0.0004131287	0.56%	115.02	38.05		0.09%	0.01%	7.0
1	1044.190	0.0003221047	0.43%	83.96	6.99	INHARMONIC	49.77%	9.09%	12.0

Sound 14 Middle – f – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	925.433	0.0772362667	100.00%	81.87	0.00		0.00%	0.00%	9.9
3	2780.287	0.0133829	17.33%	100.92	19.04	<i>Note that all harmonic partials are slightly sharp</i>	0.14%	0.02%	4.9
2	1851.293	0.01001723	12.97%	93.88	12.00		0.02%	0.00%	9.9
4	3703.387	0.0029464733	3.81%	105.88	24.01		0.04%	0.01%	9.9
6	5555.863	0.0012016767	1.56%	112.90	31.03		0.06%	0.01%	4.9
5	4629.880	0.000706891	0.92%	109.74	27.87		0.06%	0.01%	1.7
7	6481.330	0.0006892627	0.89%	115.57	33.70		0.05%	0.01%	7.6
3	2344.717	0.0004059333	0.53%	97.97	16.09	INHARMONIC	-15.55%	-2.90%	2.0
8	7407.450	0.0003358273	0.43%	117.88	36.01		0.05%	0.01%	9.9

Sound 15 *Top – p – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1241.183	0.0512511667	100.00%	86.95	0.00		0.00%	0.00%	3.0
2	2482.323	0.0045870833	8.95%	98.95	12.00	<i>Note that all harmonic partials are slightly flat</i>	0.00%	0.00%	3.0
3	3719.757	0.0012779053	2.49%	105.96	19.00		-0.10%	-0.02%	10.0
4	4961.010	0.0008136083	1.59%	110.94	23.99		-0.07%	-0.01%	2.9
5	6202.173	0.00056331	1.10%	114.81	27.85		-0.06%	-0.01%	6.8
6	7443.540	0.0003740457	0.73%	117.96	31.01		-0.05%	-0.01%	10.0
1	1611.160	0.0001832483	0.36%	91.47	4.52	INHARMONIC	29.81%	5.19%	7.5

Sound 16 *Top – p – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1965.430	0.0393233667	100.00%	94.91	0.00		0.00%	0.00%	10.9
2	3927.360	0.0025249833	6.42%	106.90	11.98	<i>Note that all harmonic partials are slightly flat</i>	-0.09%	-0.01%	10.9
3	5892.770	0.00131529	3.34%	113.92	19.01		-0.06%	-0.01%	5.9
5	9822.300	0.000470487	1.04%	122.77	27.85		-0.05%	-0.01%	2.8
4	7856.650	0.0002899063	0.74%	118.90	23.99		-0.06%	-0.01%	10.9
6	11783.100	0.000231453	0.59%	125.92	31.01		-0.08%	-0.01%	5.9
5	10479.667	0.000191449	0.49%	123.89	28.98	INHARMONIC	6.64%	0.91%	3.9

Sound 17 *Top – f – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1259.573	0.0680262	100.00%	87.21	0.00		0.00%	0.00%	3.2
2	2516.450	0.0151994567	22.34%	99.19	11.98		-0.11%	-0.02%	3.2
3	3782.610	0.0081962467	12.05%	106.25	19.04		0.10%	0.02%	10.2
4	5038.100	0.00142889	2.10%	111.21	24.00		0.00%	0.00%	3.2
1	1628.523	0.0010669453	1.57%	91.66	4.45	INHARMONIC	29.29%	5.10%	7.7
6	7547.220	0.0006850743	1.01%	118.20	31.00		-0.14%	-0.02%	10.2

Sound 18 *Top – f – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	2002.363	0.1258153333	100.00%	95.23	0.00		0.00%	0.00%	11.2
2	3999.547	0.00991878	7.88%	107.21	11.98	<i>Note that all harmonic partials are slightly flat</i>	-0.13%	-0.02%	11.2
3	6003.090	0.00610883	4.86%	114.24	19.01		-0.07%	-0.01%	6.2
4	8002.453	0.0026463233	2.10%	119.22	23.98		-0.09%	-0.01%	11.2
5	10009.433	0.0010711143	0.85%	123.09	27.86		-0.02%	0.00%	3.1

Sound 19 *Bottom – Staccato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	786.732	0.0072840833	146.48%	79.06	19.17	louder than fundamental	0.88%	0.19%	7.1
1	259.964	0.0049728633	100.00%	59.89	0.00		0.00%	0.00%	11.9
2	525.873	0.0032139933	64.63%	72.09	12.20	<i>note that almost all harmonics are significantly sharper than expected</i>	1.14%	0.27%	0.1
5	1319.433	0.0021691033	43.62%	88.01	28.12		1.51%	0.30%	4.0
7	1834.403	0.001110584	22.33%	93.72	33.83		0.81%	0.15%	9.7
4	1051.697	0.0009198727	18.50%	84.09	24.20		1.14%	0.23%	0.1
9	2357.040	0.0004988573	10.03%	98.06	38.17		0.74%	0.13%	2.1
6	1574.893	0.00049672	9.99%	91.08	31.19	0.97%	0.18%	7.1	
8	2088.997	0.0001410032	2.84%	95.97	36.08	0.45%	0.08%	12.0	
11	2898.710	0.0001189663	2.39%	101.64	41.75	1.37%	0.23%	5.6	
10	2619.800	0.000097985	1.97%	99.89	40.00	0.78%	0.13%	3.9	
12	3225.277	8.01152E-005	1.61%	103.49	43.60	INHARMONIC	3.39%	0.56%	7.5
13	3118.330	7.51314E-005	1.51%	102.90	43.01		-0.04%	-0.01%	6.9
14	3545.953	5.71901E-005	1.15%	105.13	45.24	INHARMONIC	-2.57%	-0.43%	9.1
7	1899.653	4.78884E-005	0.96%	94.32	34.43	INHARMONIC	4.39%	0.80%	10.3
13	3463.247	4.58389E-005	0.92%	104.72	44.83	INHARMONIC (?)	2.48%	0.41%	8.7

Sound 20 *Bottom – Staccato – D*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	291.475	0.0072622033	100.00%	61.87	0.00		0.00%	0.00%	1.9
3	882.189	0.00429917	59.20%	81.04	19.17	<i>note that almost all harmonics are significantly sharper than expected</i>	0.89%	0.19%	9.0
2	583.103	0.0042519533	58.55%	73.87	12.00		0.03%	0.01%	1.9
5	1464.383	0.00242627	33.41%	89.82	27.95		0.48%	0.09%	5.8
4	1173.807	0.0012027227	16.56%	85.99	24.12		0.68%	0.14%	2.0
7	2048.370	0.001196994	16.48%	95.63	33.76		0.39%	0.07%	11.6
6	1759.347	0.0007944647	10.94%	92.99	31.12	0.60%	0.11%	9.0	
9	2644.327	0.0001556793	2.14%	100.05	38.18	0.80%	0.14%	4.0	
8	2256.967	0.000152436	2.10%	97.31	35.44	INHARMONIC	-3.21%	-0.58%	1.3
10	2983.277	0.0001515981	2.09%	102.14	40.27	INHARMONIC	2.35%	0.40%	6.1
9	2505.123	0.0001342815	1.85%	99.11	37.24	INHARMONIC	-4.50%	-0.80%	3.1
11	3286.810	0.0001284494	1.77%	103.81	41.94	INHARMONIC (?)	2.51%	0.42%	7.8
8	2343.537	0.0001262853	1.74%	97.96	36.09	INHARMONIC	0.50%	0.09%	2.0
9	2712.517	8.29504E-005	1.14%	100.49	38.62	INHARMONIC	3.40%	0.58%	4.5
8	2446.373	7.03464E-005	0.97%	98.70	36.83	INHARMONIC	4.91%	0.85%	2.7
12	3413.610	6.81486E-005	0.94%	104.47	42.60	INHARMONIC	-2.40%	-0.40%	8.5
11	3161.590	6.64407E-005	0.91%	103.14	41.27	INHARMONIC (?)	-1.39%	-0.23%	7.1

Sound 21 *Bottom – Staccato – E*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	657.217	0.0121351667	132.51%	75.95	12.05	louder than fundamental	0.27%	0.06%	3.9
1	327.717	0.00915768	100.00%	63.90	0.00		0.00%	0.00%	3.9
3	990.265	0.00697386	76.15%	83.04	19.14	<i>Exact same values for 2nd & 3rd reading suggests possible technical error</i>	0.72%	0.15%	11.0
5	1641.337	0.00239911	26.20%	91.79	27.89		0.17%	0.03%	7.8
4	1307.623	0.0012336767	13.47%	87.86	23.96		-0.25%	-0.05%	3.9
6	1971.343	0.0010801013	11.79%	94.96	31.06		0.26%	0.05%	11.0
7	2305.270	0.000649622	7.09%	97.67	33.77		0.49%	0.09%	1.7
8	2778.140	0.000147733	1.61%	100.90	37.00	INHARMONIC	5.97%	1.00%	4.9
9	3029.150	0.0001288947	1.41%	102.40	38.50	INHARMONIC	2.70%	0.45%	6.4
9	3087.437	0.0001198577	1.31%	102.73	38.83	INHARMONIC	4.68%	0.78%	6.7
9	2963.447	0.0001061874	1.16%	102.02	38.12	INHARMONIC	0.47%	0.08%	6.0
10	3412.527	0.000070576	0.77%	104.46	40.56	INHARMONIC	4.13%	0.68%	8.5
4	1239.500	6.13398E-005	0.67%	86.93	23.03	INHARMONIC	-5.44%	-1.10%	2.9

Sound 22 *Bottom – Staccato – F*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
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1	345.504	0.0108729333	100.00%	64.81	0.00		0.00%	0.00%	4.8
2	693.929	0.0100302833	92.25%	76.89	12.07	<i>note that almost all harmonics are significantly sharper than expected</i>	0.42%	0.10%	4.9
4	1393.203	0.00287306	26.42%	88.95	24.14		0.81%	0.16%	5.0
3	1048.597	0.0028000167	25.75%	84.03	19.22		1.17%	0.24%	0.0
5	1736.513	0.001186727	10.29%	92.77	27.95		0.52%	0.10%	8.8
7	2810.397	0.000267179	2.46%	101.10	36.29	INHARMONIC	1.68%	0.29%	5.1
8	2455.230	0.0002023037	1.86%	98.76	33.95		1.52%	0.26%	2.8
8	2768.190	0.0001992947	1.83%	100.84	36.03		0.15%	0.03%	4.8
7	2386.073	0.0001355964	1.25%	98.27	33.45		-1.34%	-0.24%	2.3
7	2555.960	0.0001100876	1.01%	99.46	34.65		5.68%	0.97%	3.5
7	2333.330	9.91568E-005	0.91%	97.88	33.07		-3.52%	-0.63%	1.9
6	1985.013	8.00344E-005	0.74%	95.08	30.27		-4.25%	-0.78%	11.1
11	3692.380	6.03445E-005	0.55%	105.83	41.01		-2.85%	-0.47%	9.8
10	3358.253	5.64717E-005	0.52%	104.19	39.37		-2.80%	-0.47%	8.2
10	3512.863	5.59945E-005	0.51%	104.96	40.15		1.67%	0.27%	9.0
6	2211.090	4.87801E-005	0.45%	96.95	32.14		6.66%	1.16%	1.0

Sound 23 Bottom – Staccato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	387.153	0.0119971233	100.00%	66.78	0.00		0.00%	0.00%	6.8
2	774.711	0.0068053933	56.73%	78.79	12.01		0.05%	0.01%	6.8
4	1550.863	0.003861133	28.22%	90.81	24.03		0.15%	0.03%	6.8
3	1162.947	0.0027633667	23.03%	85.83	19.04		0.13%	0.03%	1.8
5	1924.567	0.0017854333	14.88%	94.55	27.76		-0.58%	-0.11%	10.5
7	2702.257	0.0002105987	1.76%	100.42	33.64		-0.29%	-0.05%	4.4
8	3100.740	0.0001571943	1.31%	102.80	36.02		0.11%	0.02%	6.8
9	3459.677	5.65358E-005	0.47%	104.70	37.92		-0.71%	-0.12%	8.7
9	3351.793	5.18413E-005	0.43%	104.15	37.37		-3.81%	-0.64%	8.2

Sound 24 Bottom – Staccato – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	434.774	0.0197325	100.00%	68.79	0.00		0.00%	0.00%	8.8
2	871.796	0.00862777	43.72%	80.84	12.04		0.26%	0.06%	8.8
4	1741.147	0.00479818	24.32%	92.81	24.02	<i>Note that all harmonic partials are slightly sharp</i>	0.12%	0.02%	8.8
3	1307.260	0.0043627133	22.11%	87.85	19.06		0.23%	0.04%	3.9
6	2609.547	0.0003652187	1.85%	99.82	31.03		0.03%	0.01%	3.8
7	3050.473	0.0002500757	1.27%	102.52	33.73		0.23%	0.04%	6.5
5	2175.010	0.0002204087	1.12%	96.67	27.87		0.05%	0.01%	0.7

Sound 25 Bottom – Staccato – B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	485.720	0.0201237667	100.00%	70.71	0.00		0.00%	0.00%	10.7
2	976.755	0.00394583	19.61%	82.81	12.09		0.55%	0.11%	10.8
3	1467.833	0.00362345	18.01%	89.86	19.15	<i>Note that all harmonic partials are sharp</i>	0.73%	0.14%	5.9
4	1955.777	0.00250202	12.43%	94.83	24.11		0.66%	0.12%	10.8
6	2931.750	0.0003245233	1.61%	101.83	31.12		0.60%	0.10%	5.8
7	3442.023	0.0001281582	0.64%	104.61	33.90		1.23%	0.20%	8.6

Sound 26 Bottom – Staccato – high C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	517.007	0.0270823333	100.00%	71.79	0.00		0.00%	0.00%	11.8
3	1556.883	0.01391572	51.38%	90.88	19.08		0.38%	0.07%	6.9
4	2067.367	0.0049150967	18.15%	95.79	23.99		-0.03%	-0.01%	11.8
2	1036.537	0.0045744933	16.89%	83.83	12.04		0.24%	0.05%	11.8
5	2593.727	0.0010087503	3.72%	99.71	27.92		0.34%	0.06%	3.7
6	3103.790	0.0009038663	3.34%	102.82	31.03		0.06%	0.01%	6.8
4	2177.537	0.0001987587	0.73%	96.69	24.89		5.30%	0.93%	0.7
6	3201.140	0.0001314114	0.49%	103.36	31.56		3.19%	0.53%	7.4
1	591.218	9.98705E-005	0.37%	74.11	2.32		14.35%	3.23%	2.1

Sound 27 Bottom – Legato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	775.601	0.0091436887	130.56%	78.81	19.02	louder than fundamental	-0.02%	0.00%	6.8
1	258.588	0.0070035533	100.00%	59.80	0.00		0.00%	0.00%	11.8
2	517.060	0.00431418	61.60%	71.79	12.00		-0.02%	-0.01%	11.8
5	1292.807	0.00285194	40.72%	87.66	27.86		-0.01%	0.00%	3.7
7	1809.903	0.0016498667	23.56%	93.48	33.69		-0.01%	0.00%	9.5
6	1551.437	0.0013365063	19.08%	90.82	31.02		-0.01%	0.00%	6.8
4	1034.763	0.0010204657	14.57%	83.80	24.01		0.04%	0.01%	11.8
8	2068.650	0.0008227297	11.75%	95.80	36.00		0.00%	0.00%	11.8
9	2327.507	0.0003510747	5.01%	97.84	38.04		0.01%	0.00%	1.8
10	2585.403	0.0003049053	4.35%	99.66	39.86		-0.02%	0.00%	3.7
12	3103.377	0.0002869553	4.10%	102.82	43.02		0.01%	0.00%	6.8
13	3362.047	0.0002416183	3.45%	104.21	44.41		0.01%	0.00%	8.2
14	3623.147	0.0001966257	2.81%	105.50	45.70		0.08%	0.01%	9.5
11	2847.753	0.000123474	1.76%	101.33	41.53		0.12%	0.02%	5.3
15	3881.447	0.0001062363	1.52%	106.69	46.89		0.07%	0.01%	10.7
22	5688.297	7.29628E-005	1.04%	113.31	53.51		-0.01%	0.00%	5.3
18	4656.283	7.06169E-005	1.01%	109.84	50.05		0.04%	0.01%	1.8
17	4398.050	5.52674E-005	0.79%	108.86	49.06		0.05%	0.01%	0.9
23	5949.720	0.000051284	0.73%	114.09	54.29		0.04%	0.01%	6.1
13	3244.470	4.74953E-005	0.68%	103.59	43.79		-3.49%	-0.59%	7.6

Sound 28 Bottom – Legato – D

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	290.218	0.0106689	100.00%	61.80	0.00		0.00%	0.00%	1.8
2	870.721	0.00807177	75.66%	80.82	19.02		0.01%	0.00%	8.8
3	580.432	0.0060715	56.91%	73.80	12.00		0.00%	0.00%	1.8
5	1449.687	0.0043701633	40.96%	89.64	27.85		-0.10%	-0.02%	5.6
6	1739.593	0.00427965	40.11%	92.80	31.00		-0.10%	-0.02%	8.8
4	1161.383	0.00363073	34.03%	85.80	24.01		0.04%	0.01%	1.8
7	2028.063	0.00327195	30.67%	95.45	33.66		-0.17%	-0.03%	11.5
8	2318.470	0.000983061	9.21%	97.77	35.98		-0.14%	-0.02%	1.8
9	2608.870	0.000460795	4.32%	99.81	38.02		-0.12%	-0.02%	3.8
13	3762.627	0.0004265097	4.00%	106.15	44.36		-0.27%	-0.04%	10.2
11	3187.173	0.0004070477	3.82%	103.28	41.48		-0.16%	-0.03%	7.3
12	3477.220	0.0003739633	3.51%	104.79	42.99		-0.15%	-0.03%	8.8
8	2267.537	0.0001191473	1.12%	97.39	35.59		-2.33%	-0.42%	1.4
18	5215.437	9.89465E-005	0.93%	111.81	50.01		-0.16%	-0.03%	3.8

14	4056.403	8.71247E-005	0.82%	107.46	45.66		-0.16%	-0.03%	11.5
8	2423.263	5.65986E-005	0.53%	98.54	36.74	INHARMONIC	4.37%	0.76%	2.5

Sound 29 Bottom – Legato – E

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	647.355	0.0212673667	175.53%	75.68	12.00	louder than fundamental	-0.02%	0.00%	3.7
1	323.740	0.0121160667	100.00%	63.69	0.00		0.00%	0.00%	3.7
3	971.083	0.01044215	86.18%	82.71	19.02	<i>very little diversion</i>	-0.01%	0.00%	10.7
4	1298.370	0.00543749	44.88%	87.73	24.05	<i>across harmonic partials,</i>	0.26%	0.05%	3.7
6	1947.713	0.0029631967	24.46%	94.75	31.07	<i>almost all are sharp</i>	0.27%	0.05%	10.8
7	2271.387	0.0023842267	19.68%	97.42	33.73		0.23%	0.04%	1.4
5	1621.487	0.0021431257	17.69%	91.58	27.89		0.17%	0.03%	7.6
11	3569.893	0.000691086	5.70%	105.24	41.56		0.25%	0.04%	9.2
10	3244.100	0.0006597523	5.45%	103.59	39.90		0.21%	0.03%	7.6
8	2597.207	0.0004651813	3.84%	99.74	36.05		0.28%	0.05%	3.7
9	2918.523	0.0004455183	3.68%	101.76	38.07		0.17%	0.03%	5.8
14	4541.297	0.000216286	1.79%	109.41	45.72		0.20%	0.03%	1.4
19	6165.743	0.0001466163	1.21%	114.70	51.02		0.24%	0.04%	6.7
22	7138.480	9.95485E-005	0.82%	117.24	53.55		0.23%	0.03%	9.2
21	6812.923	9.44419E-005	0.78%	116.43	52.74		0.21%	0.03%	8.4

Sound 30 Bottom – Legato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	688.301	0.0274523667	186.25%	76.75	12.00	louder than fundamental	-0.01%	0.00%	4.7
1	344.172	0.0147391667	100.00%	64.75	0.00		0.00%	0.00%	4.7
4	1376.830	0.0096246767	65.30%	88.75	24.00	<i>only a minute amount of</i>	0.01%	0.00%	4.7
3	1032.740	0.0053421933	36.24%	83.77	19.02	<i>diversion across most</i>	0.02%	0.00%	11.8
6	2065.433	0.0020020733	13.58%	95.77	31.02	<i>harmonic partials</i>	0.02%	0.00%	11.8
5	1720.750	0.00188243	12.77%	92.61	27.86		-0.01%	0.00%	8.6
8	2749.997	0.0016189167	10.98%	100.73	35.98		-0.12%	-0.02%	4.7
9	3094.170	0.001111625	7.54%	102.77	38.02		-0.11%	-0.02%	6.8
7	2409.943	0.0010541243	7.15%	98.44	33.69		0.03%	0.01%	2.4
10	3438.720	0.0002820987	1.91%	104.60	39.85		-0.09%	-0.01%	8.6
12	4126.800	0.000190406	1.29%	107.75	43.01		-0.08%	-0.01%	11.8
14	4815.270	0.0001797003	1.22%	110.42	45.68		-0.07%	-0.01%	2.4
13	4471.140	0.0001488963	1.01%	109.14	44.39		-0.07%	-0.01%	1.1
16	5501.860	0.0001472201	1.00%	112.73	47.98		-0.09%	-0.01%	4.7
17	5847.050	0.0001398467	0.95%	113.79	49.04		-0.07%	-0.01%	5.8
18	6190.083	0.0001224723	0.83%	114.77	50.03		-0.08%	-0.01%	6.8

Sound 31 Bottom – Legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	386.617	0.0155614	100.00%	66.76	0.00		0.00%	0.00%	6.8
2	773.367	0.0146073667	93.87%	78.76	12.00	<i>very little diversion</i>	0.02%	0.00%	6.8
4	1541.177	0.0125947333	80.94%	90.70	23.94	<i>across harmonic partials,</i>	-0.34%	-0.07%	6.7
3	1156.720	0.0065914133	42.36%	85.73	18.97	<i>almost all are flat</i>	-0.27%	-0.05%	1.7
6	2314.883	0.0018164767	11.67%	97.74	30.98		-0.21%	-0.04%	1.7
5	1927.670	0.0015909153	10.22%	94.58	27.81		-0.28%	-0.05%	10.6
8	3086.413	0.0006141887	3.95%	102.72	35.96		-0.21%	-0.04%	6.7
7	2701.677	0.000463893	2.98%	100.42	33.66		-0.17%	-0.03%	4.4
9	3471.350	0.000427423	2.75%	104.76	38.00		-0.24%	-0.04%	8.8
10	3857.597	0.000360503	2.32%	106.59	39.82		-0.22%	-0.04%	10.6
15	5783.103	0.0001380583	0.89%	113.60	46.83		-0.28%	-0.04%	5.6
11	4245.057	0.0001232648	0.79%	108.24	41.48		-0.18%	-0.03%	0.2
13	5013.967	0.0001211903	0.78%	111.12	44.36		-0.24%	-0.04%	3.1
14	5400.477	0.0001188637	0.76%	112.41	45.65		-0.22%	-0.03%	4.4
6	2444.130	0.0001070567	0.69%	98.68	31.92	INHARMONIC	5.36%	0.93%	2.7

Sound 32 Bottom – Legato – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	431.619	0.0206000333	100.00%	68.67	0.00		0.00%	0.00%	8.7
2	863.300	0.0147860667	71.76%	80.67	12.00	<i>very little diversion</i>	0.01%	0.00%	8.7
4	1731.800	0.0121284667	58.88%	92.72	24.05	<i>across harmonic partials,</i>	0.31%	0.06%	8.7
3	1298.593	0.004709	22.86%	87.74	19.07	<i>all are slightly sharp</i>	0.29%	0.06%	3.7
5	2163.600	0.0020714833	10.06%	96.57	27.91		0.26%	0.05%	0.6
6	2595.187	0.0009546217	4.63%	99.72	31.06		0.21%	0.04%	3.7
7	3027.113	0.0009335637	4.53%	102.39	33.72		0.19%	0.03%	6.4
8	3460.570	0.000213624	1.04%	104.71	36.04		0.22%	0.04%	8.7
9	3895.570	0.0001518753	0.74%	106.76	38.09		0.28%	0.05%	10.8

Sound 33 Bottom – Legato – B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	484.587	0.0303243667	100.00%	70.67	0.00		0.00%	0.00%	10.7
2	969.211	0.0111464533	36.76%	82.67	12.00	<i>very little diversion</i>	0.00%	0.00%	10.7
4	1938.497	0.0085148033	28.08%	94.67	24.00	<i>across harmonic partials,</i>	0.01%	0.00%	10.7
3	1453.960	0.0038632267	12.74%	89.69	19.02	<i>almost all are slightly sharp</i>	0.01%	0.00%	5.7
5	2423.120	0.00206715	6.82%	98.54	27.86		0.01%	0.00%	2.5
7	3394.303	0.000773072	2.55%	104.37	33.70		0.06%	0.01%	8.4
6	2907.520	0.0005174977	1.71%	101.69	31.02		0.00%	0.00%	5.7
8	3878.820	0.0004210247	1.39%	106.68	36.01		0.05%	0.01%	10.7
10	4848.090	0.000166539	0.55%	110.54	39.87		0.05%	0.01%	2.5
12	5817.833	0.000154617	0.51%	113.70	43.03		0.05%	0.01%	5.7
9	4363.220	0.0001229107	0.41%	108.72	38.05		0.04%	0.01%	0.7

Sound 34 Bottom – Legato – high C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	517.621	0.0268904	100.00%	71.81	0.00		0.00%	0.00%	11.8
2	1037.437	0.01230534	45.76%	83.85	12.04	<i>very little diversion</i>	0.21%	0.04%	11.8
4	2074.553	0.0092187567	34.28%	95.85	24.03	<i>across harmonic partials,</i>	0.20%	0.04%	11.8
3	1555.287	0.0075647133	28.13%	90.86	19.05	<i>all are slightly sharp</i>	0.16%	0.03%	6.9
7	3629.210	0.0010156533	3.78%	105.53	33.72		0.16%	0.03%	9.5
5	2591.767	0.0009262893	3.44%	99.70	27.89		0.14%	0.02%	3.7
6	3109.987	0.0008751677	3.25%	102.86	31.04		0.14%	0.02%	6.9
10	5188.300	0.0003251027	1.21%	111.72	39.90		0.23%	0.04%	3.7
9	4671.110	0.0002774677	1.03%	109.90	38.09		0.27%	0.04%	1.9
12	6226.390	0.000247465	0.92%	114.87	43.06		0.24%	0.04%	6.9
11	5706.567	0.000221949	0.83%	113.36	41.55		0.22%	0.03%	5.4
13	6744.323	0.0002069387	0.77%	116.26	44.44		0.23%	0.03%	8.3

Sound 35 Break - Staccato - C#										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	552.964	0.0170976667	100.00%	72.96	0.00		0.00%	0.00%	1.0	
2	1109.227	0.01096929	64.16%	85.01	12.05		0.30%	0.06%	1.0	
3	1665.250	0.0038861167	22.73%	92.04	19.09		0.38%	0.07%	8.0	
4	2218.690	0.00334774	19.58%	97.01	24.05		0.31%	0.06%	1.0	
5	2774.587	0.0004873553	2.85%	100.88	27.92		0.35%	0.06%	4.9	
6	3313.050	0.0004814807	2.82%	103.95	30.99		-0.14%	-0.02%	8.0	
7	3868.200	0.0001674967	0.98%	106.63	33.68		-0.07%	-0.01%	10.6	
4	2059.873	0.000123266	0.72%	95.72	22.77	INHARMONIC	-6.87%	-1.27%	11.7	
6	3230.117	0.0001164252	0.68%	103.51	30.56	INHARMONIC	-2.64%	-0.45%	7.5	
6	3398.497	9.59882E-005	0.56%	104.39	31.44	INHARMONIC	2.43%	0.40%	8.4	
7	3675.283	9.07465E-005	0.53%	105.75	32.79	INHARMONIC	-5.05%	-0.84%	9.7	
9	4992.350	9.07135E-005	0.53%	111.05	38.09		0.31%	0.05%	3.0	

Sound 36 Break - Staccato - D										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	588.475	0.0188166	100.00%	74.03	0.00		0.00%	0.00%	2.0	
2	1180.277	0.0136002333	72.28%	86.08	12.05		0.28%	0.06%	2.1	
3	1766.153	0.0118424267	62.94%	93.06	19.03		0.04%	0.01%	9.1	
4	2353.563	0.0032749867	17.40%	98.03	24.00		-0.01%	0.00%	2.0	
5	2946.167	0.0010080823	5.36%	101.92	27.89		0.13%	0.02%	5.9	
6	3521.630	0.0004490143	2.39%	105.01	30.97		-0.26%	-0.04%	9.0	
3	1504.643	0.0004422947	2.35%	90.29	16.25	INHARMONIC	-14.77%	-2.97%	6.3	
7	4120.110	0.0002912957	1.55%	107.73	33.69		0.02%	0.00%	11.7	
4	2263.117	0.000286329	1.52%	97.35	23.32	INHARMONIC	-3.86%	-0.69%	1.4	
8	4708.863	0.000275257	1.46%	110.04	36.00		0.02%	0.00%	2.0	
5	2759.290	0.0001837043	0.98%	100.78	26.75	INHARMONIC	-6.22%	-1.09%	4.8	
9	5298.080	0.0001757283	0.93%	112.08	38.05		0.03%	0.01%	4.1	
9	5211.207	0.0001011524	0.54%	111.79	37.76	INHARMONIC	-1.61%	-0.25%	3.8	

Sound 37 Break - Staccato - Eb										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	620.178	0.0298857333	100.00%	74.94	0.00		0.00%	0.00%	2.9	
2	1238.300	0.0099905067	33.43%	86.91	11.97	<i>Note that all harmonic partials are slightly flat</i>	-0.17%	-0.03%	2.9	
3	1856.047	0.00850919	28.47%	93.92	18.98		-0.24%	-0.04%	9.9	
4	2476.363	0.00171175	5.73%	98.91	23.97		-0.18%	-0.03%	2.9	
6	3710.873	0.000594642	1.99%	105.91	30.97		-0.27%	-0.04%	9.9	
5	3089.543	0.000496407	1.66%	102.74	27.80		-0.37%	-0.06%	6.7	
7	4327.763	0.0002318167	0.78%	108.58	33.63		-0.31%	-0.05%	0.6	
5	2796.803	0.0001927853	0.65%	101.02	26.08	INHARMONIC	-9.81%	-1.74%	5.0	
4	2409.013	0.0001512557	0.51%	98.43	23.49	INHARMONIC	-2.89%	-0.51%	2.4	
4	2339.977	0.0001448853	0.48%	97.93	22.99	INHARMONIC	-5.67%	-1.02%	1.9	

Sound 38 Break - Staccato - E										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	657.008	0.0310763567	100.00%	75.94	0.00		0.00%	0.00%	3.9	
2	1313.773	0.0118591367	38.16%	87.94	12.00	<i>Note that all harmonic partials are slightly flat</i>	-0.02%	0.00%	3.9	
3	1967.620	0.0085830933	27.62%	94.93	18.99		-0.17%	-0.03%	10.9	
4	2624.310	0.0016018667	5.15%	99.92	23.98		-0.14%	-0.02%	3.9	
5	3280.340	0.0011183457	3.60%	103.78	27.84		-0.14%	-0.02%	7.8	
3	2296.760	0.0008974533	2.89%	97.61	21.67	INHARMONIC	16.53%	2.79%	1.6	
6	3939.660	0.0006078173	1.96%	106.95	31.01		-0.06%	-0.01%	10.9	
3	1646.763	0.000605978	1.95%	91.85	15.91	INHARMONIC	-16.45%	-3.28%	7.8	
4	2950.903	0.0004027937	1.30%	101.95	26.01	INHARMONIC	12.29%	2.01%	5.9	
5	3607.897	0.000398967	1.28%	105.43	29.49	INHARMONIC	9.83%	1.56%	9.4	
7	4596.553	0.000386212	1.24%	109.62	33.68		-0.05%	-0.01%	1.6	
8	5252.990	0.0002492973	0.80%	111.93	35.99		-0.06%	-0.01%	3.9	
8	5576.750	0.0002516	0.81%	112.97	37.03	INHARMONIC	6.10%	0.92%	5.0	
5	3153.787	0.0001486533	0.48%	103.10	27.16	INHARMONIC	-4.00%	-0.68%	7.1	

Sound 39 Break - Legato - C#										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	549.663	0.0199207	100.00%	72.85	0.00		0.00%	0.00%	0.9	
2	1098.937	0.0049687367	24.94%	84.85	11.99	<i>very little diversion across harmonic partials.</i>	-0.04%	-0.01%	0.8	
4	2202.393	0.0028417067	14.27%	96.88	24.03		0.17%	0.03%	0.9	
3	1651.087	0.00135289	6.79%	91.89	19.04		0.13%	0.02%	7.9	
6	3301.950	0.0005096163	2.56%	103.89	31.04		0.12%	0.02%	7.9	
5	2751.753	0.000469212	2.36%	100.74	27.88		0.13%	0.02%	4.7	
7	3850.540	0.0001991683	1.00%	106.55	33.70		0.08%	0.01%	10.6	
4	2328.847	0.0001153169	0.58%	97.85	25.00	INHARMONIC	5.92%	1.03%	1.8	
7	3808.107	0.0001083951	0.54%	106.36	33.51	INHARMONIC	-1.03%	-0.17%	10.4	
8	4401.893	0.0001063691	0.53%	108.87	36.02		0.10%	0.02%	0.9	
4	2401.593	0.000101108	0.51%	98.38	25.53	INHARMONIC	9.23%	1.58%	2.4	
6	3043.513	6.95592E-005	0.35%	102.48	29.63	INHARMONIC	-7.72%	-1.34%	6.5	

Sound 40 Break - Legato - D										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	582.763	0.0172819667	100.00%	73.86	0.00		0.00%	0.00%	1.9	
2	1167.003	0.01170515	67.73%	85.89	12.02	<i>very little diversion across harmonic partials. all are slightly sharp</i>	0.13%	0.03%	1.9	
3	1751.693	0.0081333833	47.06%	92.92	19.05		0.19%	0.04%	8.9	
4	2336.537	0.0038080333	22.03%	97.91	24.04		0.24%	0.04%	1.9	
6	3505.680	0.0009130433	5.28%	104.93	31.06		0.26%	0.04%	8.9	
5	2920.667	0.0006244777	3.61%	101.77	27.90		0.24%	0.04%	5.8	
8	4673.270	0.0004050733	2.34%	109.91	36.04		0.24%	0.04%	1.9	
7	4087.770	0.0002985227	1.73%	107.59	33.72		0.21%	0.03%	11.6	
10	5838.623	0.000241695	1.40%	113.76	39.90		0.19%	0.03%	5.8	
9	5259.763	0.0002046613	1.18%	111.95	38.09		0.28%	0.04%	4.0	
11	6136.623	7.59857E-005	0.44%	114.62	40.76	INHARMONIC	-4.27%	-0.65%	6.6	

Sound 41 Break - Legato - Eb										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	618.007	0.0370335667	100.00%	74.88	0.00		0.00%	0.00%	2.9	
2	1237.780	0.0111971633	30.24%	86.91	12.02	<i>very little diversion across harmonic partials. all are slightly sharp</i>	0.14%	0.03%	2.9	
3	1856.020	0.0101383633	27.38%	93.92	19.04		0.11%	0.02%	9.9	
4	2473.687	0.00172742	4.66%	98.89	24.01		0.07%	0.01%	2.9	
6	3711.587	0.000874232	2.36%	105.92	31.04		0.10%	0.02%	9.9	

5	3094.073	0.0006975787	1.88%	102.77	27.89	0.13%	0.02%	6.8
8	4949.463	0.0004317207	1.17%	110.90	36.02	0.11%	0.02%	2.9
10	6189.987	0.0003365493	0.91%	114.77	39.89	0.16%	0.02%	6.8
7	4333.833	0.0002647107	0.71%	108.60	33.72	0.18%	0.03%	0.6
12	7425.793	0.000142329	0.38%	117.92	43.04	0.13%	0.02%	9.9

Sound 42 Break – Legato – E

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	655.978	0.0407845667	100.00%	75.91	0.00		0.00%	0.00%	3.9
2	1310.317	0.01400921	34.35%	87.89	11.98	<i>very little diversion</i>	-0.13%	-0.02%	3.9
3	1966.347	0.00592397	14.53%	94.92	19.01	<i>across harmonic partials,</i>	-0.08%	-0.01%	10.9
4	2620.660	0.00211152	5.18%	99.89	23.98	<i>all are slightly flat</i>	-0.12%	-0.02%	3.9
5	3275.003	0.00072328	1.77%	103.75	27.84		-0.15%	-0.02%	7.8
6	3932.733	0.000624699	1.53%	106.92	31.01		-0.08%	-0.01%	10.9
7	4588.367	0.000306148	0.75%	109.59	33.68		-0.08%	-0.01%	1.6
10	6553.660	0.000291318	0.71%	115.76	39.85		-0.09%	-0.01%	7.8
3	2286.020	0.000158432	0.39%	97.53	21.61	INHARMONIC	16.16%	2.73%	1.5
12	7863.513	0.000154689	0.38%	118.92	43.00		-0.10%	-0.02%	10.9

Sound 43 Middle – Staccato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	698.371	0.0445228	100.00%	77.00	0.00		0.00%	0.00%	5.0
2	1395.450	0.0274578	61.67%	88.98	11.98	<i>very little diversion</i>	-0.09%	-0.02%	5.0
3	2092.097	0.00852888	19.16%	95.99	18.99	<i>across harmonic partials,</i>	-0.14%	-0.03%	12.0
4	2789.137	0.00499987	11.23%	100.97	23.97	<i>all are slightly flat</i>	-0.16%	-0.03%	5.0
5	3485.410	0.000946323	2.13%	104.83	27.83		-0.18%	-0.03%	8.8
7	4877.917	0.0005197463	1.17%	110.65	33.65	<i>Note negligible subharmonic</i>	-0.22%	-0.03%	2.6
8	5576.977	0.0003962637	0.89%	112.97	35.97	<i>(Cells L689, O689 & R689)</i>	-0.18%	-0.03%	5.0
9	6273.233	0.000363709	0.82%	115.00	38.01	<i>similar was present in sounds</i>	-0.19%	-0.03%	7.0
6	4187.747	0.0002427637	0.55%	108.01	31.01	<i>38 and 42 but not registered</i>	-0.06%	-0.01%	0.0
10	6976.657	0.0002311567	0.52%	116.84	39.85	<i>in data due to low amplitude</i>	-0.10%	-0.01%	8.8

Sound 44 Middle – Staccato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1051.023	0.0498885	100.00%	84.07	0.00		0.00%	0.00%	0.1
2	2099.377	0.0207157	41.52%	96.05	11.98		-0.13%	-0.02%	0.1
1	1547.523	0.0016557377	3.32%	90.77	6.70	INHARMONIC	47.24%	7.97%	6.8
4	4199.253	0.00158193	3.17%	108.05	23.98		-0.12%	-0.02%	0.1
6	6298.860	0.0011609737	2.33%	115.07	31.00	<i>very little diversion</i>	-0.12%	-0.02%	7.1
5	5250.557	0.0011163683	2.24%	111.92	27.85	<i>across harmonic partials,</i>	-0.09%	-0.01%	3.9
3	3158.233	0.0005540073	1.11%	103.12	19.05	<i>all are slightly flat</i>	0.16%	0.03%	7.1
7	7350.080	0.000478904	0.96%	117.75	33.67		-0.10%	-0.01%	9.7
3	2656.050	0.0003409277	0.68%	100.12	16.05	INHARMONIC	-15.76%	-2.88%	4.1
8	8394.750	0.0002541217	0.51%	120.05	35.97		-0.16%	-0.02%	0.0
11	11553.233	0.0001804747	0.36%	125.58	41.50		-0.07%	-0.01%	5.6

Sound 45 Middle – Legato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	689.864	0.0473736333	100.00%	76.79	0.00		0.00%	0.00%	4.8
3	2073.107	0.0108267333	22.85%	95.83	19.05		0.17%	0.03%	11.8
2	1379.293	0.00670418	14.15%	88.78	11.99		-0.03%	-0.01%	4.8
5	3452.940	0.0012981133	2.74%	104.67	27.88		0.10%	0.02%	8.7
4	2763.077	0.000763297	1.61%	100.81	24.02		0.13%	0.02%	4.8
7	4834.360	0.000412378	0.87%	110.49	33.71		0.11%	0.02%	2.5
9	6215.560	0.0003010807	0.64%	114.84	38.06		0.11%	0.02%	6.8

Sound 46 Middle – Legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	775.829	0.0363457667	100.00%	78.82	0.00		0.00%	0.00%	6.8
2	1551.790	0.0130424	35.88%	90.82	12.00	<i>very little diversion</i>	0.01%	0.00%	6.8
3	2331.177	0.0037316567	10.27%	97.87	19.05	<i>across harmonic partials,</i>	0.16%	0.03%	1.9
7	5434.623	0.000978821	2.69%	112.52	33.70	<i>all are slightly sharp</i>	0.07%	0.01%	4.5
5	3882.877	0.0008356043	2.30%	106.70	27.88		0.10%	0.02%	10.7
9	6990.203	0.0005875087	1.62%	116.88	38.06		0.11%	0.02%	8.9
4	3106.847	0.0004122397	1.13%	102.84	24.02		0.11%	0.02%	6.8
1	1157.667	0.0003433927	0.94%	85.75	6.93	INHARMONIC	49.22%	8.79%	1.7
6	4658.510	0.000246708	0.68%	109.85	31.03		0.08%	0.01%	1.9
3	1941.067	0.0002368743	0.65%	94.70	15.88	INHARMONIC	-16.60%	-3.21%	10.7
13	10095.467	0.0001957977	0.54%	123.24	44.42		0.10%	0.01%	3.2
8	6212.197	0.0001714327	0.47%	114.83	36.02		0.09%	0.01%	6.8

Sound 47 Middle – Legato – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	873.367	0.0655822	100.00%	80.87	0.00		0.00%	0.00%	8.9
2	1750.527	0.00822839	12.55%	92.91	12.04	<i>very little diversion</i>	0.22%	0.04%	8.9
3	2625.463	0.0034245133	5.22%	99.92	19.05	<i>across harmonic partials,</i>	0.20%	0.04%	3.9
5	4372.277	0.0016763967	2.56%	108.75	27.88	<i>all are slightly sharp</i>	0.12%	0.02%	0.8
7	6122.623	0.0013306	2.03%	114.58	33.71		0.15%	0.02%	6.6
4	3499.073	0.0010731437	1.64%	104.90	24.03		0.16%	0.03%	8.9
9	7871.093	0.0004290967	0.65%	118.93	38.06		0.14%	0.02%	10.9
6	5247.590	0.0003487213	0.53%	111.91	31.04		0.14%	0.02%	3.9
13	11367.267	0.0002804267	0.43%	125.29	44.43		0.12%	0.02%	5.3
8	6997.257	0.000246136	0.38%	116.89	36.03		0.15%	0.02%	8.9

Sound 48 Middle – Legato – Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	927.102	0.0784413667	100.00%	81.90	0.00		0.00%	0.00%	9.9
2	1857.743	0.0063745	8.13%	93.94	12.03	<i>very little diversion</i>	0.19%	0.04%	9.9
3	2784.877	0.0039367267	5.02%	100.94	19.04	<i>across harmonic partials,</i>	0.13%	0.02%	4.9
4	3711.983	0.0018430067	2.35%	105.92	24.02	<i>all are slightly sharp</i>	0.10%	0.02%	9.9
5	4640.930	0.0011307767	1.44%	109.79	27.88		0.12%	0.02%	1.8
6	5571.770	0.0008023313	1.02%	112.95	31.05		0.16%	0.03%	5.0
7	6498.760	0.0007019473	0.89%	115.62	33.71		0.14%	0.02%	7.6
3	2320.913	0.0004174413	0.53%	97.79	15.89	INHARMONIC	-16.55%	-3.10%	1.8
3	2387.293	0.0003826817	0.49%	98.28	16.37	INHARMONIC	-14.17%	-2.62%	2.3

Sound 49 *Middle – Legato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1042.810	0.0562136333	100.00%	83.94	0.00		0.00%	0.00%	11.9
2	2081.983	0.0165899	29.51%	95.91	11.97	<i>very little diversion across harmonic partials, all are slightly flat</i>	-0.17%	-0.03%	11.9
3	3123.253	0.0038732933	6.89%	102.93	18.99		-0.17%	-0.03%	6.9
5	5205.140	0.0010769877	1.92%	111.77	27.83		-0.17%	-0.03%	3.8
4	4166.150	0.000867713	1.54%	107.92	23.98		-0.12%	-0.02%	11.9
6	6247.920	0.0008092953	1.44%	114.93	30.99		-0.14%	-0.02%	6.9
7	7291.110	0.000554676	0.99%	117.61	33.67		-0.12%	-0.02%	9.6
8	8329.780	0.0003452273	0.61%	119.91	35.97		-0.15%	-0.02%	11.9
12	12490.767	0.0002501157	0.44%	126.93	42.99		-0.18%	-0.03%	6.9
9	9371.530	0.0002343813	0.42%	121.95	38.01		-0.15%	-0.02%	2.0

Sound 50 *Top – Staccato – D*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1174.523	0.0312875333	100.00%	86.00	0.00		0.00%	0.00%	2.0
2	2353.563	0.0202865667	64.84%	98.03	12.03		0.19%	0.03%	2.0
3	3531.157	0.0027191867	8.69%	105.05	19.06		0.22%	0.04%	9.1
1	1577.273	0.0011349973	3.63%	91.10	5.10	INHARMONIC	34.29%	5.94%	7.1
2	1982.560	0.0010083323	3.22%	95.06	9.06	INHARMONIC	-15.60%	-3.00%	11.1
2	1893.860	0.0004716083	1.51%	94.27	8.27	INHARMONIC	-19.38%	-3.81%	10.3
3	3136.133	0.000422707	1.35%	103.00	17.00	INHARMONIC	-11.00%	-1.92%	7.0
1	1632.703	0.0003983323	1.27%	91.70	5.70	INHARMONIC	39.01%	6.63%	7.7
2	2899.363	0.0003317107	1.06%	101.64	15.64	INHARMONIC	23.43%	3.72%	5.6
2	2702.660	0.0002827703	0.90%	100.43	14.43	INHARMONIC	15.05%	2.48%	4.4
2	2226.163	0.0002277207	0.73%	97.07	11.07	INHARMONIC	-5.23%	-0.95%	1.1
1	1714.670	0.000223205	0.71%	92.55	6.55	INHARMONIC	45.99%	7.62%	8.5
2	2833.180	0.000209406	0.67%	101.24	15.24	INHARMONIC	20.61%	3.31%	5.2
2	2738.553	0.000206712	0.66%	100.65	14.66	INHARMONIC	16.58%	2.71%	4.7
3	3365.403	0.0001860037	0.59%	104.22	18.22	INHARMONIC	-4.49%	-0.76%	8.2
2	1815.650	0.0001824403	0.58%	93.54	7.54	INHARMONIC	-22.71%	-4.55%	9.5
3	3025.517	0.000179161	0.57%	102.38	16.38	INHARMONIC	-14.13%	-2.51%	6.4
3	2964.910	0.0001569253	0.50%	102.03	16.03	INHARMONIC	-15.85%	-2.85%	6.0
3	3259.100	0.000149988	0.48%	103.67	17.67	INHARMONIC	-7.51%	-1.29%	7.7
3	3685.583	0.0001384467	0.44%	105.80	19.80	INHARMONIC	4.60%	0.74%	9.8

Sound 51 *Top – Staccato – G*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1593.230	0.0679622	100.00%	91.28	0.00		0.00%	0.00%	7.3
2	3165.710	0.00445214	6.55%	103.16	11.88	due to shortness of sample all three readings were identical. Only values with < 4 leading 0s were included	-0.65%	-0.11%	7.2
3	4758.060	0.00105703	1.56%	110.22	18.94		-0.45%	-0.07%	2.2
4	6341.250	0.00113269	1.67%	115.19	23.91		-0.50%	-0.07%	7.2

Sound 52 *Top – Staccato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	2144.210	0.1989353333	100.00%	96.42	0.00		0.00%	0.00%	0.4
2	4291.893	0.0113462	5.70%	108.43	12.01		0.08%	0.01%	0.4
1	2859.470	0.00137051	0.69%	101.40	4.98	INHARMONIC	33.36%	5.17%	5.4
1	2633.813	0.0012875133	0.65%	99.98	3.56	INHARMONIC	22.83%	3.69%	4.0
1	2576.393	0.001016184	0.51%	99.60	3.18	INHARMONIC	20.16%	3.30%	3.6

Sound 53 *Top – Legato – D*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1169.220	0.0259296333	100.00%	85.92	0.00		0.00%	0.00%	1.9
2	2336.780	0.0161638	62.34%	97.91	11.99	<i>very little diversion across harmonic partials, all are slightly flat</i>	-0.07%	-0.01%	1.9
3	3505.973	0.0024874467	9.59%	104.93	19.01		-0.05%	-0.01%	8.9
4	4673.347	0.0022051433	8.50%	109.91	23.99		-0.08%	-0.01%	1.9
5	5842.767	0.0008378223	3.23%	113.77	27.85		-0.06%	-0.01%	5.8
6	7012.313	0.0007317847	2.82%	116.93	31.01		-0.04%	-0.01%	8.9
8	9348.723	0.0003658343	1.41%	121.91	35.99		-0.05%	-0.01%	1.9
9	10513.533	0.0003384767	1.31%	123.94	38.02		-0.09%	-0.01%	3.9
7	8179.107	0.0002250813	0.87%	119.60	33.68		-0.07%	-0.01%	11.6
11	12854.533	0.0002144977	0.83%	127.42	41.50		-0.05%	-0.01%	7.4
2	2044.560	0.000172024	0.66%	95.59	9.67	INHARMONIC	-12.57%	-2.37%	11.6

Sound 54 *Top – Legato – E*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1326.770	0.0882826	100.00%	88.11	0.00		0.00%	0.00%	4.1
2	2651.677	0.0192357667	21.79%	100.10	11.99	<i>very little diversion across harmonic partials, all are slightly flat</i>	-0.07%	-0.01%	4.1
3	3978.777	0.00354337	4.01%	107.12	19.01		-0.04%	-0.01%	11.1
4	5303.503	0.0027056733	3.06%	112.10	23.99		-0.07%	-0.01%	4.1
5	6628.917	0.000618968	0.70%	115.96	27.85		-0.07%	-0.01%	8.0
6	7955.630	0.0005042563	0.57%	119.12	31.01		-0.06%	-0.01%	11.1

Sound 55 *Top – Legato – F*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1401.187	0.0758524	100.00%	89.05	0.00		0.00%	0.00%	5.1
2	2804.140	0.0180113333	23.74%	101.06	12.01	<i>very little diversion across harmonic partials, all are slightly sharp</i>	0.06%	0.01%	5.1
4	5611.743	0.0038697167	5.10%	113.07	24.02		0.12%	0.02%	5.1
3	4209.040	0.0025766967	3.40%	108.09	19.04		0.13%	0.02%	0.1
6	8416.097	0.00134212	1.77%	120.09	31.04		0.11%	0.02%	0.1
8	11223.567	0.000867057	1.14%	125.07	36.02		0.13%	0.02%	5.1
7	9817.053	0.0006227753	0.82%	122.76	33.70		0.09%	0.01%	2.8
9	12624.833	0.0005881767	0.78%	127.11	38.06		0.11%	0.02%	7.1
5	7013.127	0.0003143147	0.41%	116.93	27.88		0.10%	0.02%	8.9

Sound 56 *Top – Legato – G*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1575.807	0.1115656667	100.00%	91.09	0.00		0.00%	0.00%	7.1
2	3151.570	0.0205612333	18.43%	103.09	12.00	<i>very little diversion across harmonic partials</i>	0.00%	0.00%	7.1
4	6304.860	0.0040586667	3.64%	115.09	24.00		0.03%	0.00%	7.1
3	4729.143	0.00221878	1.99%	110.11	19.03		0.04%	0.01%	2.1
7	11032.200	0.0013016803	1.17%	124.78	33.69		0.01%	0.00%	4.8
6	9453.887	0.0005068613	0.45%	122.10	31.02		-0.01%	0.00%	2.1

Sound 57 *Top – Legato – A*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1764.447	0.1263266333	100.00%	93.04	0.00	<i>very little diversion across harmonic partials, all are slightly flat</i>	0.00%	0.00%	9.0
2	3527.103	0.0101706567	8.05%	105.03	11.99		-0.05%	-0.01%	9.0
4	7052.397	0.0041142267	3.26%	117.03	23.99		-0.08%	-0.01%	9.0
3	5290.717	0.0019443973	1.54%	112.05	19.01		-0.05%	-0.01%	4.1
6	10581.833	0.000089	0.70%	124.06	31.01		-0.05%	-0.01%	4.1

Sound 58 *Top – Legato – B*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1980.210	0.153702	100.00%	95.04	0.00	<i>very little diversion across harmonic partials, all are slightly flat</i>	0.00%	0.00%	11.0
2	3960.340	0.0122783667	7.99%	107.04	12.00		0.00%	0.00%	11.0
3	5938.807	0.00793066	5.16%	114.06	19.01		-0.03%	0.00%	6.1
4	7915.293	0.00485975	3.16%	119.03	23.99		-0.07%	-0.01%	11.0
6	11873.567	0.0029199	1.90%	126.05	31.01		-0.06%	-0.01%	6.0
5	9895.977	0.0018716833	1.22%	122.90	27.85		-0.05%	-0.01%	2.9
2	3013.550	0.0004860273	0.32%	102.31	7.27	INHARMONIC	-23.91%	-4.42%	6.3

Sound 59 *Top – Legato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	2131.883	0.1590696667	100.00%	96.32	0.00	<i>some noise in 1-2KHz range</i>	0.00%	0.00%	0.3
2	4265.740	0.0146266667	9.20%	108.33	12.01		0.05%	0.01%	0.3
3	6395.650	0.00543226	3.42%	115.34	19.02	0.00%	0.00%	7.3	
5	10659.800	0.0011547647	0.73%	124.18	27.86	<i>very little diversion across harmonic partials</i>	0.00%	0.00%	4.2
4	8527.867	0.0011450563	0.72%	120.32	24.00		0.00%	0.00%	0.3
6	12791.267	0.0009086747	0.57%	127.34	31.02		0.00%	0.00%	7.3
1	3143.547	0.0007311897	0.46%	103.04	6.72		INHARMONIC	47.45%	6.98%
1	3105.923	0.0006491907	0.41%	102.83	6.51	INHARMONIC	45.69%	6.76%	6.8

Sound 1 *Chalumeau – mf – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	205.351	0.00158453	100.00%	55.81	0.00		0.00%	0.00%	7.8
3	617.883	0.000628541	39.67%	74.88	19.07		0.30%	0.07%	2.9
7	1442.967	0.000505009	31.87%	89.56	33.75		0.38%	0.07%	5.6
5	1032.150	0.000340371	21.48%	83.76	27.95		0.53%	0.11%	11.8
8	1648.327	0.000206102	13.01%	91.87	36.06		0.34%	0.06%	7.9
6	1237.547	7.4786E-005	4.72%	86.90	31.10		0.44%	0.09%	2.9
4	826.767	7.3348E-005	4.63%	79.92	24.11		0.65%	0.14%	7.9
9	1853.483	5.5822E-005	3.52%	93.90	38.09		0.29%	0.05%	9.9
11	2265.887	4.1499E-005	2.62%	97.37	41.57		0.31%	0.06%	1.4
10	2060.860	3.7552E-005	2.37%	95.73	39.93		0.36%	0.06%	11.7
2	410.738	1.9537E-005	1.23%	67.81	12.00		0.01%	0.00%	7.8
8	1553.023	9.1663E-006	0.58%	90.83	35.03	INHARMONIC	-5.47%	-1.06%	6.8
7	1342.110	6.5803E-006	0.42%	88.31	32.50	INHARMONIC	-6.63%	-1.33%	4.3

Sound 2 *Chalumeau – mf – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	259.565	0.001035853	100.00%	59.86	0.00		0.00%	0.00%	11.9
3	782.255	0.000521804	50.37%	78.96	19.10		0.46%	0.10%	7.0
5	1303.107	0.000212774	20.54%	87.80	27.93		0.41%	0.08%	3.8
4	1043.600	0.000087289	8.43%	83.95	24.09		0.51%	0.11%	12.0
6	1564.513	7.2202E-005	6.97%	90.96	31.10		0.46%	0.09%	7.0
2	520.893	0.000059609	5.75%	71.92	12.06		0.34%	0.08%	11.9
9	2346.443	0.000018781	1.81%	97.98	38.12		0.44%	0.08%	2.0
8	2085.250	1.7298E-005	1.67%	95.94	36.07		0.42%	0.08%	11.9
11	2869.817	1.4806E-005	1.43%	101.46	41.60		0.51%	0.09%	5.5
10	2608.343	1.4376E-005	1.39%	99.81	39.95		0.49%	0.08%	3.8
7	1826.187	8.7337E-006	0.84%	93.64	33.78		0.51%	0.09%	9.6
10	2538.270	4.8442E-006	0.47%	99.34	39.48	INHARMONIC	-2.21%	-0.39%	3.3

Sound 3 *Chalumeau – pp – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	206.275	0.000523221	100.00%	55.88	0.00		0.00%	0.00%	7.9
3	624.182	3.1173E-005	5.96%	75.05	19.17		0.87%	0.20%	3.1
5	1032.897	0.000006448	1.23%	83.77	27.89		0.15%	0.03%	11.8
7	1441.983	4.6588E-006	0.89%	89.55	33.66		-0.13%	-0.03%	5.5
9	1866.393	4.4898E-006	0.86%	94.02	38.13		0.53%	0.10%	10.0
11	2296.500	2.8254E-006	0.54%	97.61	41.72		1.21%	0.21%	1.6
2	348.897	2.7699E-006	0.53%	64.98	9.10	INHARMONIC	-15.43%	-4.27%	5.0
2	418.073	2.3273E-006	0.44%	68.12	12.23		1.34%	0.34%	8.1

Sound 4 *Chalumeau – pp – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	264.953	0.00053426	100.00%	60.22	0.00		0.00%	0.00%	0.2
3	793.032	7.3472E-005	13.04%	79.20	18.98		-0.23%	-0.05%	7.2
2	528.171	1.9384E-005	3.44%	72.16	11.94		-0.33%	-0.08%	0.2
10	2640.650	7.1247E-006	1.26%	100.02	39.81		-0.34%	-0.06%	4.0
5	1327.603	6.3708E-006	1.13%	88.12	27.90		0.21%	0.04%	4.1
11	2900.213	5.7527E-006	1.02%	101.65	41.43		-0.49%	-0.08%	5.6
4	1057.947	4.7661E-006	0.85%	84.19	23.97		-0.18%	-0.04%	0.2
11	2835.960	0.000003758	0.67%	101.26	41.04	INHARMONIC	-2.69%	-0.46%	5.3
9	2378.090	3.5136E-006	0.62%	98.21	37.99		-0.27%	-0.05%	2.2
8	1998.433	0.000003045	0.54%	95.20	34.98	INHARMONIC	-5.72%	-1.06%	11.2
1	346.918	2.9136E-006	0.52%	64.89	4.67	INHARMONIC	30.94%	7.75%	4.9
10	2694.847	2.7298E-006	0.48%	100.38	40.16	INHARMONIC	1.71%	0.29%	4.4

Sound 5 *Chalumeau – ff – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	205.025	0.00297901	100.00%	55.78	0.00		0.00%	0.00%	7.8
7	1438.747	0.00142603	47.87%	89.51	33.73		0.25%	0.05%	5.5
3	615.110	0.00130008	43.64%	74.80	19.02		0.01%	0.00%	2.8
9	1850.640	0.00128339	43.08%	93.87	38.09		0.29%	0.05%	9.9
5	1026.943	0.001228533	41.24%	83.67	27.89		0.18%	0.04%	11.7
13	2670.763	0.000929167	31.19%	100.22	44.44		0.20%	0.04%	4.2
17	3492.690	0.000796817	26.75%	104.87	49.09		0.21%	0.03%	8.9
15	3082.620	0.000660605	22.18%	102.70	46.92		0.24%	0.04%	6.7
11	2260.683	0.000620968	20.84%	97.33	41.55		0.24%	0.04%	1.3
20	4109.547	0.000478411	16.06%	107.68	51.90		0.22%	0.04%	11.7
14	2877.660	0.000441407	14.82%	101.51	45.73		0.25%	0.04%	5.5
16	3287.610	0.000439497	14.75%	103.82	48.04		0.22%	0.04%	7.8
18	3697.790	0.000411709	13.82%	105.85	50.07		0.20%	0.03%	9.9
19	3902.860	0.000386342	12.97%	106.79	51.01		0.19%	0.03%	10.8
8	1645.813	0.000362931	12.18%	91.84	36.06		0.34%	0.06%	7.8
12	2465.727	0.000276603	9.29%	98.84	43.06		0.22%	0.04%	2.8
21	4316.527	0.000257844	8.66%	108.53	52.75		0.26%	0.04%	0.5
10	2055.820	0.000232209	7.79%	95.69	39.91		0.27%	0.05%	11.7
22	4521.430	0.000180676	6.06%	109.33	53.55		0.24%	0.04%	1.3
24	4933.237	0.000161119	5.41%	110.84	55.06		0.26%	0.04%	2.8
23	4728.227	0.000118293	3.97%	110.11	54.33		0.27%	0.04%	2.1
26	5343.453	0.000115324	3.87%	112.23	56.45		0.24%	0.04%	4.2
27	5548.487	0.000097429	3.27%	112.88	57.10		0.23%	0.04%	4.9
25	5138.477	6.6152E-005	2.22%	111.55	55.77		0.25%	0.04%	3.5
6	1231.890	6.5067E-005	2.18%	86.82	31.04		0.14%	0.03%	2.8
29	5958.557	0.000056449	1.89%	114.11	58.33		0.22%	0.03%	6.1
28	5753.607	4.0810E-005	1.37%	113.51	57.73		0.22%	0.03%	5.5
4	821.719	2.4822E-005	0.83%	79.81	24.03		0.20%	0.04%	7.8
2	409.957	2.2573E-005	0.76%	67.78	12.00		-0.02%	-0.01%	7.8

Sound 6 *Chalumeau – ff – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	258.675	0.00268439	100.00%	59.80	0.00		0.00%	0.00%	11.8
5	1293.343	0.001918737	71.48%	87.67	27.86		0.00%	0.00%	3.7
3	775.967	0.001784117	66.46%	78.82	19.02		-0.01%	0.00%	6.8
7	1810.703	0.001501953	55.95%	93.49	33.69		0.00%	0.00%	9.5
11	2848.987	0.001469033	54.73%	101.34	41.53		0.13%	0.02%	5.3
14	3626.623	0.001247397	46.47%	105.52	45.71		0.14%	0.02%	9.5
6	1551.943	0.000911353	33.95%	90.82	31.02		-0.01%	0.00%	6.8
12	3107.623	0.00082135	30.60%	102.84	43.04		0.11%	0.02%	6.8

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16	4144.027	0.000797814	29.72%	107.83	48.02	0.13%	0.02%	11.8
9	2329.797	0.000718986	26.78%	97.86	38.05	0.07%	0.01%	1.9
13	3368.127	0.000676956	25.22%	104.24	44.43	0.16%	0.03%	8.2
18	4661.270	0.000486233	18.11%	109.86	50.06	0.11%	0.02%	1.9
24	6213.077	0.000486125	18.11%	114.84	55.03	0.08%	0.01%	6.8
8	2071.190	0.000443324	16.51%	95.82	36.01	0.09%	0.02%	11.8
10	2590.287	0.00044224	16.47%	99.69	39.89	0.14%	0.02%	3.7
17	4402.847	0.000418936	15.61%	108.87	49.07	0.12%	0.02%	0.9
23	5954.547	0.00040825	15.21%	114.10	54.30	0.08%	0.01%	6.1
21	5437.207	0.000406009	15.12%	112.53	52.72	0.09%	0.01%	4.5
19	4919.967	0.000341445	12.72%	110.80	50.99	0.10%	0.02%	2.8
22	5695.757	0.000303703	11.31%	113.33	53.53	0.09%	0.01%	5.3
15	3885.317	0.000297606	11.09%	106.71	46.91	0.13%	0.02%	10.7
20	5178.760	0.000159895	5.96%	111.68	51.88	0.10%	0.02%	3.7
4	1034.557	0.000138971	5.18%	83.80	24.00	-0.01%	0.00%	11.8
2	517.279	7.7109E-005	2.87%	71.80	12.00	-0.01%	0.00%	11.8

Sound 7 Chalumeau – staccato 1

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	205.471	0.001280655	100.00%	55.82	0.00		0.00%	0.00%	7.8
3	624.195	0.000331041	25.85%	75.05	19.24		1.26%	0.29%	3.1
5	1032.183	0.000214527	16.75%	83.76	27.94		0.47%	0.10%	11.8
7	1453.033	0.000114123	8.91%	89.68	33.86		1.02%	0.20%	5.7
4	824.582	7.6641E-005	5.98%	79.87	24.06		0.33%	0.07%	7.9
8	1657.493	7.0777E-005	5.53%	91.96	36.14		0.83%	0.16%	8.0
13	2672.890	6.0262E-005	4.71%	100.23	44.42		0.07%	0.01%	4.2
6	1233.267	0.000053298	4.16%	86.84	31.03		0.04%	0.01%	2.8
12	2457.013	4.9833E-005	3.89%	98.78	42.96		-0.35%	-0.06%	2.8
14	2853.687	0.000038239	2.99%	101.37	45.55		-0.80%	-0.14%	5.4
9	1855.497	3.3355E-005	2.60%	93.91	38.10		0.34%	0.06%	9.9
11	2267.397	1.7596E-005	1.37%	97.39	41.57		0.32%	0.06%	1.4
15	3069.347	1.7490E-005	1.37%	102.63	46.81		-0.41%	-0.07%	6.6
2	409.840	1.6223E-005	1.27%	67.77	11.95		-0.27%	-0.07%	7.8
15	3124.747	1.2871E-005	1.01%	102.94	47.12		1.38%	0.23%	6.9
10	2044.100	9.7797E-006	0.76%	95.59	39.77		-0.52%	-0.09%	11.6
17	3490.697	5.6994E-006	0.45%	104.86	49.04		-0.07%	-0.01%	8.9
13	2578.217	0.000005346	0.42%	99.61	43.79	INHARMONIC	-3.48%	-0.61%	3.6

Sound 8 Chalumeau – staccato 2

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	259.775	0.000902462	100.00%	59.88	0.00		0.00%	0.00%	11.9
3	785.951	0.00041317	45.78%	79.04	19.17		0.85%	0.19%	7.0
5	1306.817	0.000148898	16.50%	87.85	27.97		0.61%	0.12%	3.8
4	1047.347	0.00014334	15.88%	84.01	24.14		0.79%	0.16%	0.0
11	2855.623	0.000126485	14.02%	101.38	41.50		-0.07%	-0.01%	5.4
2	523.570	9.7808E-005	10.84%	72.01	12.13		0.77%	0.19%	0.0
6	1567.427	6.6588E-005	7.38%	90.99	31.12		0.56%	0.11%	7.0
9	2347.237	6.1261E-005	6.79%	97.98	38.11		0.40%	0.07%	2.0
12	3117.980	5.8461E-005	6.48%	102.90	43.02		0.02%	0.00%	6.9
7	1815.863	4.4310E-005	4.91%	93.54	33.66		-0.14%	-0.03%	9.5
8	2079.373	3.9280E-005	4.35%	95.89	36.01		0.06%	0.01%	11.9
13	3370.857	2.4983E-005	2.77%	104.25	44.37		-0.18%	-0.03%	8.3
15	3897.590	2.0906E-005	2.32%	106.76	46.89		0.02%	0.00%	10.8
13	3490.970	5.7601E-006	0.64%	104.86	44.98	INHARMONIC	3.37%	0.55%	8.9

Sound 9 Chalumeau – legato – high G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	419.347	0.001396973	100.00%	68.17	0.00		0.00%	0.00%	8.2
3	1258.137	0.000556118	39.81%	87.19	19.02		0.01%	0.00%	3.2
7	2931.870	0.000223522	16.00%	101.83	33.67		-0.12%	-0.02%	5.8
4	1675.557	0.000179421	12.84%	92.15	23.98		-0.11%	-0.02%	8.1
5	2095.047	0.000147927	10.59%	96.02	27.85		-0.08%	-0.01%	0.0
6	2514.753	0.000135649	9.71%	99.18	31.01		-0.05%	-0.01%	3.2
8	3351.390	0.000134835	9.65%	104.15	35.98		-0.10%	-0.02%	8.2
2	838.787	8.6407E-005	6.19%	80.17	12.00		0.01%	0.00%	8.2
9	3771.147	5.0413E-005	3.61%	106.19	38.03		-0.08%	-0.01%	10.2
10	4188.197	1.7267E-005	1.24%	108.01	39.84		-0.13%	-0.02%	0.0
15	6285.857	1.1505E-005	0.82%	115.04	46.87		-0.07%	-0.01%	7.0
16	6698.323	1.1150E-005	0.80%	116.14	47.97		-0.17%	-0.02%	8.1
7	2781.237	6.1248E-006	0.44%	100.92	32.75	INHARMONIC	-5.25%	-0.92%	4.9

Sound 10 Chalumeau – legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	397.191	0.001298497	100.00%	67.23	0.00		0.00%	0.00%	7.2
3	1186.273	0.000742211	57.16%	86.17	18.94		-0.44%	-0.09%	2.2
7	2771.697	0.000342053	26.34%	100.86	33.63		-0.31%	-0.05%	4.9
8	3169.070	0.000223464	17.21%	103.18	35.95		-0.27%	-0.04%	7.2
4	1583.567	0.000195297	15.04%	91.17	23.94		-0.33%	-0.06%	7.2
6	2377.863	0.000161879	12.47%	98.21	30.98		-0.22%	-0.04%	2.2
9	3564.417	0.000135644	10.45%	105.22	37.99		-0.29%	-0.05%	9.2
5	1980.513	9.5018E-005	7.32%	95.04	27.82		-0.27%	-0.05%	11.0
2	794.432	8.2737E-005	6.37%	79.23	12.00		0.01%	0.00%	7.2
10	3961.160	3.6795E-005	2.83%	107.04	39.82		-0.27%	-0.04%	11.0
11	4358.880	2.9789E-005	2.29%	108.70	41.47		-0.23%	-0.04%	0.7
8	3029.457	6.4359E-006	0.50%	102.40	35.17	INHARMONIC	-4.66%	-0.80%	6.4

Sound 11 Chalumeau – legato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	346.629	0.00264908	100.00%	64.87	0.00		0.00%	0.00%	4.9
3	1045.263	0.000439375	16.59%	83.98	19.11		0.52%	0.11%	12.0
7	2442.477	0.000402012	15.18%	98.67	33.80		0.66%	0.12%	2.7
8	2789.267	0.00028089	10.60%	100.97	36.10		0.59%	0.10%	5.0
4	1397.280	0.000257074	9.70%	89.00	24.13		0.78%	0.15%	5.0
9	3139.203	0.000160327	6.05%	103.02	38.15		0.63%	0.11%	7.0
5	1743.573	0.000154685	5.84%	92.84	27.97		0.60%	0.11%	8.8
10	3487.817	0.000109582	4.14%	104.84	39.97		0.62%	0.10%	8.8
6	2090.533	8.5219E-005	3.22%	95.98	31.11		0.52%	0.09%	12.0
2	698.619	0.000068732	2.59%	77.00	12.13		0.77%	0.17%	5.0
11	3834.323	0.000044524	1.68%	106.48	41.61		0.56%	0.09%	10.5

Appendix 2

18	6276.503	1.6850E-005	0.64%	115.01	50.14	0.60%	0.09%	7.0
13	4533.367	1.5991E-005	0.60%	109.38	44.51	0.60%	0.10%	1.4
20	6972.997	1.3876E-005	0.52%	116.83	51.96	0.58%	0.09%	8.8
19	6625.620	1.2332E-005	0.47%	115.95	51.08	0.60%	0.09%	7.9

Sound 12 Chalumeau – legato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	312.219	0.002023657	100.00%	63.06	0.00		0.00%	0.00%	3.1
3	936.499	0.00037508	18.53%	82.08	19.02		-0.02%	0.00%	10.1
5	1560.747	0.000236518	11.69%	90.92	27.86		-0.02%	0.00%	6.9
9	2807.277	0.00019416	9.59%	101.08	38.02		-0.10%	-0.02%	5.1
7	2184.673	0.000137324	6.79%	96.74	33.68		-0.04%	-0.01%	0.7
4	1248.587	0.000131545	6.50%	87.06	24.00		-0.02%	0.00%	3.1
8	2495.223	0.000130167	6.43%	99.04	35.98		-0.10%	-0.02%	3.0
10	3119.303	0.000114703	5.67%	102.91	39.85		-0.09%	-0.02%	6.9
6	1872.393	0.000100447	4.96%	94.07	31.01		-0.05%	-0.01%	10.1
2	624.309	3.6916E-005	1.82%	75.06	12.00		-0.02%	0.00%	3.1
12	3740.983	3.5932E-005	1.78%	106.05	42.99		-0.15%	-0.02%	10.1
11	3430.747	3.5283E-005	1.74%	104.56	41.49		-0.11%	-0.02%	8.6
13	4055.527	1.8647E-005	0.92%	107.45	44.39		-0.08%	-0.01%	11.5
14	4367.413	1.6418E-005	0.81%	108.73	45.67		-0.08%	-0.01%	0.7
15	4680.167	1.4363E-005	0.71%	109.93	46.87		-0.07%	-0.01%	1.9
16	4991.727	8.2348E-006	0.41%	111.05	47.99		-0.08%	-0.01%	3.0

Sound 13 Chalumeau – legato – C#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	278.124	0.001279497	100.00%	61.06	0.00		0.00%	0.00%	1.1
3	829.060	0.000639162	49.95%	79.97	18.91		-0.64%	-0.14%	8.0
5	1379.877	0.0004416	34.51%	88.79	27.73		-0.77%	-0.15%	4.8
6	1658.130	0.000336524	26.30%	91.97	30.91		-0.64%	-0.12%	8.0
9	2487.100	0.000276748	21.63%	98.99	37.93		-0.64%	-0.11%	3.0
7	1936.313	0.000185847	14.52%	94.65	33.59		-0.54%	-0.10%	10.7
10	2763.473	0.000128346	10.03%	100.81	39.75		-0.64%	-0.11%	4.8
4	1107.357	0.000124831	9.76%	84.98	23.92		-0.46%	-0.09%	1.0
8	2210.820	0.000117652	9.20%	96.95	35.89		-0.64%	-0.11%	0.9
12	3315.963	7.1712E-005	5.60%	103.97	42.91		-0.64%	-0.11%	8.0
11	3039.663	5.7953E-005	4.53%	102.46	41.40		-0.64%	-0.11%	6.5
2	550.992	5.2081E-005	4.07%	72.89	11.84		-0.94%	-0.22%	0.9
14	3868.747	4.7824E-005	3.74%	106.64	45.58		-0.64%	-0.10%	10.6
13	3592.343	0.000040294	3.15%	105.35	44.29		-0.64%	-0.11%	9.4
17	4698.053	1.6169E-005	1.26%	110.00	48.94		-0.64%	-0.10%	2.0
15	4148.150	1.1326E-005	0.89%	107.84	46.78		-0.57%	-0.09%	11.8
16	4421.337	8.7711E-006	0.69%	108.95	47.89		-0.64%	-0.10%	0.9
9	2419.230	6.2892E-006	0.49%	98.51	37.45	INHARMONIC	-3.35%	-0.60%	2.5
24	6630.527	6.2653E-006	0.49%	115.96	54.90	INHARMONIC	-0.67%	-0.10%	8.0
8	2332.570	4.9599E-006	0.39%	97.88	36.82		4.83%	0.84%	1.9
18	4974.427	0.000004853	0.38%	110.99	49.93		-0.64%	-0.10%	3.0

Sound 14 Chalumeau – legato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	259.887	0.001342233	100.00%	59.88	0.00		0.00%	0.00%	11.9
3	785.193	0.000559045	41.65%	79.03	19.14		0.71%	0.16%	7.0
5	1304.917	0.000431169	32.12%	87.82	27.94		0.42%	0.08%	3.8
6	1570.393	0.0002845	21.20%	91.03	31.14		0.71%	0.13%	7.0
10	2615.213	0.000168053	12.52%	99.86	39.97		0.63%	0.11%	3.9
8	2090.010	0.000154246	11.49%	95.98	36.09		0.53%	0.09%	12.0
9	2353.577	0.000146026	10.88%	98.03	38.15		0.62%	0.11%	2.0
7	1830.373	0.000143904	10.72%	93.68	33.79		0.61%	0.11%	9.7
12	3136.837	0.000119263	8.89%	103.00	43.12		0.58%	0.10%	7.0
4	1045.057	0.000114917	8.56%	83.98	24.09		0.53%	0.11%	12.0
11	2875.183	0.000103347	7.70%	101.50	41.61		0.57%	0.10%	5.5
2	525.307	8.9235E-005	6.65%	72.07	12.18		1.06%	0.26%	0.1
14	3660.437	7.5660E-005	5.64%	105.68	45.79		0.61%	0.10%	9.7
13	3398.683	0.000032887	2.45%	104.39	44.51		0.60%	0.10%	8.4
15	3920.427	1.7937E-005	1.34%	106.87	46.98		0.57%	0.09%	10.9
16	4181.787	0.000014644	1.09%	107.98	48.10		0.57%	0.09%	12.0
18	4704.697	7.3914E-006	0.55%	110.02	50.14		0.57%	0.09%	2.0
19	4964.737	5.9707E-006	0.44%	110.95	51.07		0.54%	0.08%	3.0

Sound 15 Chalumeau – legato – Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	234.413	0.000998309	100.00%	58.10	0.00		0.00%	0.00%	10.1
3	697.967	0.000526867	52.78%	76.99	18.89		-0.75%	-0.17%	5.0
5	1161.450	0.000491697	49.25%	85.80	27.71		-0.91%	-0.18%	1.8
7	1624.823	0.000146428	14.67%	91.62	33.52		-0.98%	-0.19%	7.6
8	1854.010	6.8882E-005	6.90%	93.90	35.80		-1.14%	-0.21%	9.9
9	2088.587	4.5870E-005	4.59%	95.96	37.86		-1.00%	-0.18%	12.0
4	926.952	3.6510E-005	3.66%	81.90	23.80		-1.14%	-0.24%	9.9
10	2319.037	3.4734E-005	3.48%	97.78	39.68		-1.07%	-0.19%	1.8
11	2551.867	3.3370E-005	3.34%	99.43	41.33		-1.03%	-0.18%	3.4
2	463.418	2.7003E-005	2.70%	69.90	11.80		-1.15%	-0.29%	9.9
12	2782.593	1.6596E-005	1.66%	100.93	42.83		-1.08%	-0.19%	4.9
13	3015.790	1.2653E-005	1.27%	102.32	44.22		-1.04%	-0.18%	6.3
14	3250.563	1.1172E-005	1.12%	103.62	45.52		-0.95%	-0.16%	7.6
15	3481.347	8.1336E-006	0.81%	104.81	46.71		-0.99%	-0.16%	8.8
7	1528.980	5.5854E-006	0.56%	90.56	32.47	INHARMONIC	-6.82%	-1.33%	6.6
12	2917.310	4.71174E-006	0.47%	101.75	43.65	INHARMONIC	3.71%	0.62%	5.7

Sound 16 Chalumeau – legato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	205.587	0.00150962	100.00%	55.83	0.00		0.00%	0.00%	7.8
3	620.294	0.000276087	18.29%	74.95	19.12		0.57%	0.13%	2.9
5	1033.237	0.000218194	14.45%	83.78	27.95		0.52%	0.11%	11.8
7	1444.327	7.6313E-005	5.06%	89.58	33.75		0.36%	0.07%	5.6
8	1653.460	5.6587E-005	3.75%	91.92	36.09		0.53%	0.10%	7.9
4	827.633	0.000041607	2.76%	79.94	24.11		0.64%	0.14%	7.9
6	1238.917	2.9655E-005	1.96%	86.92	31.10		0.44%	0.09%	2.9
9	1860.540	2.2353E-005	1.48%	93.96	38.13		0.55%	0.10%	10.0
10	2066.403	0.000016474	1.09%	95.78	39.95		0.51%	0.09%	11.8

Appendix 2

2	410.959	9.1375E-006	0.61%	67.82	11.99		-0.05%	-0.01%	7.8
13	2576.463	6.5374E-006	0.43%	99.60	43.77	INHARMONIC	-3.60%	-0.63%	3.6
14	2861.210	5.4143E-006	0.36%	101.41	45.59		-0.59%	-0.10%	5.4

Sound 17 Throat - p - low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	466.732	0.001840253	100.00%	70.02	0.00		0.00%	0.00%	10.0
3	1401.790	0.00048641	26.43%	89.06	19.04		0.11%	0.02%	5.1
4	1866.643	0.000419566	22.80%	94.02	24.00		-0.02%	0.00%	10.0
6	2800.107	0.000320689	17.43%	101.04	31.02		-0.01%	0.00%	5.0
7	3268.670	0.00017439	9.48%	103.72	33.70		0.05%	0.01%	7.7
5	2330.233	0.000173565	9.43%	97.86	27.84		-0.15%	-0.03%	1.9
8	3733.450	0.000123588	6.72%	106.02	36.00		-0.01%	0.00%	10.0
11	5135.263	5.3349E-005	2.90%	111.54	41.52		0.02%	0.00%	3.5
9	4202.177	4.1881E-005	2.28%	108.07	38.05		0.04%	0.01%	0.1
10	4668.643	4.1722E-005	2.27%	109.89	39.87		0.03%	0.00%	1.9
12	5604.883	0.00003506	1.91%	113.05	43.03		0.07%	0.01%	5.1
2	933.460	3.0801E-005	1.67%	82.02	12.00		0.00%	0.00%	10.0

Sound 18 Throat - p - mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	525.733	0.00229531	100.00%	72.08	0.00		0.00%	0.00%	0.1
3	1571.720	0.000335624	14.62%	91.04	18.96		-0.35%	-0.07%	7.0
4	2095.983	0.000157804	6.88%	96.02	23.94		-0.33%	-0.06%	0.0
6	3143.723	0.000118867	5.18%	103.04	30.96		-0.34%	-0.06%	7.0
7	3667.800	0.000107377	4.68%	105.71	33.63		-0.34%	-0.05%	9.7
8	4192.043	5.2897E-005	2.30%	108.02	35.94		-0.33%	-0.05%	0.0
2	1047.833	4.8722E-005	2.12%	84.02	11.94		-0.35%	-0.07%	0.0

Sound 19 Throat - p - High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	553.147	0.001891537	100.00%	72.96	0.00		0.00%	0.00%	1.0
3	1661.240	0.000645279	34.11%	92.00	19.04		0.11%	0.02%	8.0
5	2767.483	0.000180339	9.53%	100.84	27.87		0.06%	0.01%	4.8
7	3875.867	0.000146708	7.76%	106.67	33.71		0.10%	0.02%	10.7
6	3322.570	0.000135797	7.18%	104.00	31.04		0.11%	0.02%	8.0
4	2214.410	9.3957E-005	4.97%	96.98	24.01		0.08%	0.01%	1.0
2	1108.127	2.8820E-005	1.52%	84.99	12.03		0.17%	0.03%	1.0
5	2871.687	0.000008335	0.44%	101.48	28.51	INHARMONIC	3.83%	0.65%	5.5

Sound 20 Throat - f - low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
5	2314.617	0.002950257	117.17%	97.74	27.86	louder than fundamental	-0.01%	0.00%	1.7
1	462.951	0.0022518017	100.00%	69.88	0.00		0.00%	0.00%	9.9
3	1388.753	0.001661387	65.98%	88.90	19.02		-0.01%	0.00%	4.9
7	3240.640	0.001148121	45.60%	103.57	33.69		0.00%	0.00%	7.6
8	3703.740	0.001071767	42.56%	105.88	36.00		0.00%	0.00%	9.9
4	1851.653	0.000917788	36.45%	93.88	24.00		-0.01%	0.00%	9.9
6	2777.723	0.000473159	18.79%	100.90	31.02		0.00%	0.00%	4.9
9	4166.600	0.000308022	12.23%	107.92	38.04		0.00%	0.00%	11.9
10	4629.187	0.00027517	11.02%	109.74	39.86		-0.01%	0.00%	1.7
14	6481.097	0.000100237	3.98%	115.57	45.69		0.00%	0.00%	7.6
11	5090.087	7.5429E-005	3.00%	111.39	41.51		-0.05%	-0.01%	3.4
12	5554.967	4.8774E-005	1.94%	112.90	43.02		-0.01%	0.00%	4.9
15	6944.300	3.47114E-005	1.38%	116.76	46.88		0.00%	0.00%	8.8
18	8330.610	0.000018253	0.72%	119.91	50.03		-0.03%	0.00%	11.9
17	7869.480	1.6870E-005	0.67%	118.93	49.05		-0.01%	0.00%	10.9

Sound 21 Throat - f - mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	526.997	0.003395417	100.00%	72.12	0.00	RESULTS POTENTIALLY UNRELIABLE due to slight glissando throughout sample	0.00%	0.00%	0.1
3	1578.533	0.001629685	48.00%	91.12	18.99		-0.16%	-0.03%	7.1
5	2652.927	0.001222511	36.00%	100.10	27.98		0.68%	0.12%	4.1
7	3678.770	0.000856977	25.24%	105.76	33.64		-0.28%	-0.05%	9.8
6	3159.690	0.000699877	20.61%	103.13	31.01		-0.07%	-0.01%	7.1
4	2096.937	0.000438084	12.90%	96.03	23.91		-0.52%	-0.09%	0.0
8	4198.210	0.000291771	8.59%	108.05	35.93		-0.42%	-0.07%	0.1
9	4733.490	0.000115071	3.39%	110.13	38.00		-0.20%	-0.03%	2.1
2	1051.400	2.6893E-005	0.79%	84.08	11.96		-0.25%	-0.05%	0.1
5	2515.817	2.0021E-005	0.59%	99.19	27.06	INHARMONIC	-4.52%	-0.80%	3.2
5	2781.563	1.7862E-005	0.53%	100.92	28.80	INHARMONIC	5.56%	0.94%	4.9

Sound 22 Throat - f - high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	539.678	0.00480142	100.00%	72.54	0.00	Considerable consistency with Sound 21 suggesting reliability of aforementioned sound, especially considering Sound 22 is performed a bit flat in the original sample, leading it to be less than 50c away from Sound 21	0.00%	0.00%	0.5
3	1624.420	0.00289558	60.31%	91.61	19.08		0.33%	0.06%	7.6
5	2703.800	0.001408377	29.33%	100.43	27.90		0.20%	0.03%	4.4
6	3245.107	0.000981033	20.43%	103.59	31.06		0.22%	0.04%	7.6
7	3788.483	0.000965145	20.10%	106.27	33.74		0.28%	0.05%	10.3
8	4328.187	0.0007384	15.38%	108.58	36.04		0.25%	0.04%	0.6
4	2164.150	0.000404167	8.42%	96.58	24.04		0.25%	0.05%	0.6
9	4867.727	0.000240504	5.01%	110.61	38.08		0.22%	0.03%	2.6
10	5409.013	9.3978E-005	1.96%	112.44	39.90		0.23%	0.03%	4.4
11	5950.510	8.3692E-005	1.74%	114.09	41.55		0.24%	0.04%	6.1
12	6492.117	3.9416E-005	0.82%	115.60	43.06		0.25%	0.04%	7.6
13	7033.473	1.8426E-005	0.38%	116.98	44.45		0.25%	0.04%	9.0
6	3047.127	1.8557E-005	0.39%	102.50	29.97	INHARMONIC	-5.90%	-1.02%	6.5
2	1080.703	2.1099E-005	0.44%	84.56	12.02		0.12%	0.03%	0.6

Sound 23 Clarion - p - low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	878.228	0.002202077	100.00%	80.97	0.00		0.00%	0.00%	9.0
2	1754.750	0.000941943	42.78%	92.95	11.98		-0.10%	-0.02%	8.9
3	2632.827	0.000792391	35.98%	99.97	19.01		-0.07%	-0.01%	4.0

Appendix 2

4	3507.483	0.000253972	11.53%	104.94	23.97	-0.15%	-0.03%	8.9
5	4387.943	0.000136929	6.22%	108.82	27.85	-0.07%	-0.01%	0.8
6	5261.480	6.4464E-005	2.93%	111.96	30.99	-0.15%	-0.02%	4.0
8	7018.400	5.4269E-005	2.46%	116.95	35.98	-0.11%	-0.02%	8.9
7	6141.033	0.000036054	1.64%	114.63	33.67	-0.11%	-0.02%	6.6

Sound 24 Clarion – p – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2084.730	0.00173232	297.76%	95.93	11.98	louder than fundamental	-0.14%	-0.03%	11.9
3	3128.153	0.000860646	147.93%	102.96	19.00		-0.11%	-0.02%	7.0
1	1043.850	0.000581783	100.00%	83.96	0.00	0.00%	0.00%	12.0	
4	4167.703	0.000529488	91.01%	107.92	23.97	-0.18%	-0.03%	11.9	
5	5146.967	0.000131112	22.54%	111.58	27.62	-1.38%	-0.22%	3.6	
6	6252.857	3.0239E-005	5.20%	114.95	30.99	-0.16%	-0.02%	6.9	
7	7295.727	1.5027E-005	2.58%	117.62	33.66	-0.15%	-0.02%	9.6	
8	8337.627	1.1513E-005	1.98%	119.93	35.97	-0.16%	-0.02%	11.9	

Sound 25 Clarion – f – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	872.556	0.005310773	100.00%	80.85	0.00	louder than fundamental	0.00%	0.00%	8.9
4	3491.860	0.00446389	84.05%	104.86	24.01		0.05%	0.01%	8.9
3	2619.443	0.00431912	81.33%	99.88	19.03		0.07%	0.01%	3.9
2	1745.037	0.00210829	39.70%	92.85	12.00		0.00%	0.00%	8.9
7	6111.437	0.001549113	29.17%	114.55	33.70		0.06%	0.01%	6.6
5	4364.443	0.00138061	26.00%	108.72	27.87		0.04%	0.01%	0.7
8	6983.937	0.001085147	20.43%	116.86	36.01		0.05%	0.01%	8.9
6	5237.227	0.000184535	3.47%	111.88	31.03		0.04%	0.01%	3.9
9	7856.427	5.8942E-005	1.11%	118.90	38.05		0.04%	0.01%	10.9
12	10475.733	0.000054402	1.02%	123.88	43.03		0.05%	0.01%	3.9
10	8729.067	5.1782E-005	0.98%	120.72	39.87	0.04%	0.01%	0.7	

Sound 26 Clarion – f – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	3100.760	0.00748689	139.74%	102.80	19.02	louder than fundamental	0.01%	0.00%	6.8
4	4134.427	0.00594768	111.01%	107.79	24.00		0.01%	0.00%	11.8
1	1033.533	0.00535763	100.00%	83.78	0.00	0.00%	0.00%	11.8	
2	2067.160	0.004645903	86.72%	95.78	12.00	0.00%	0.00%	11.8	
6	6199.693	0.00403026	75.22%	114.80	31.02	-0.02%	0.00%	6.8	
7	7235.130	0.001074214	20.05%	117.47	33.69	0.01%	0.00%	9.5	
5	5167.800	0.000940628	17.56%	111.65	27.86	0.00%	0.00%	3.6	
10	10336.033	0.000152669	2.85%	123.65	39.86	0.01%	0.00%	3.6	
11	11370.000	7.4708E-005	1.39%	125.30	41.51	0.01%	0.00%	5.3	
8	8268.923	7.2576E-005	1.35%	119.79	36.00	0.01%	0.00%	11.8	
6	5818.760	5.8684E-005	1.10%	113.70	29.92	-6.17%	-0.96%	5.7	
18	18223.233	0.000057172	1.07%	133.47	49.68	-2.04%	-0.27%	1.5	
8	7885.643	5.6593E-005	1.06%	118.96	35.18	-4.63%	-0.68%	11.0	
16	16156.200	5.6107E-005	1.05%	131.38	47.60	-2.30%	-0.31%	11.4	
6	5857.177	0.000053995	1.01%	113.82	30.03	-5.55%	-0.86%	5.8	
9	8919.203	5.3003E-005	0.99%	121.10	37.31	-4.11%	-0.60%	1.1	
15	15122.500	5.1989E-005	0.97%	130.24	46.45	-2.45%	-0.33%	10.2	
8	7924.520	4.8011E-005	0.90%	119.05	35.26	-4.16%	-0.61%	11.0	
16	16193.367	4.3529E-005	0.81%	131.42	47.64	-2.08%	-0.28%	11.4	
15	15159.400	4.2991E-005	0.80%	130.28	46.49	-2.22%	-0.30%	10.3	
9	8957.933	0.000041886	0.78%	121.17	37.39	-3.70%	-0.54%	1.2	

Sound 27 Clarion – staccato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	628.532	0.001173903	100.00%	75.17	0.00	louder than fundamental	0.00%	0.00%	3.2
3	1884.537	0.000181899	15.50%	94.18	19.01		-0.06%	-0.01%	10.2
4	2506.043	7.2625E-005	6.19%	99.12	23.94		-0.32%	-0.06%	3.1
2	1250.950	2.5158E-005	2.14%	87.09	11.92		-0.49%	-0.10%	3.1
5	3126.087	2.4515E-005	2.09%	102.95	27.77		-0.53%	-0.09%	6.9

Sound 28 Clarion – staccato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2083.930	0.002022487	216.61%	95.92	12.14	louder than fundamental	0.81%	0.15%	11.9
3	3127.983	0.001554215	166.46%	102.96	19.17		0.88%	0.15%	7.0
4	4166.450	0.001096716	117.46%	107.92	24.13		0.77%	0.12%	11.9
1	1033.610	0.0009337	100.00%	83.79	0.00	0.00%	0.00%	11.8	
5	5207.843	0.000326778	35.00%	111.78	28.00	0.77%	0.12%	3.8	
3	3039.683	0.00021794	23.34%	102.46	18.67	-1.97%	-0.34%	6.5	
3	2977.240	0.000109637	11.74%	102.10	18.32	-3.99%	-0.68%	6.1	
4	4057.020	7.7006E-005	8.25%	107.46	23.67	-1.87%	-0.30%	11.5	
6	6258.507	6.1278E-005	6.56%	114.96	31.18	0.92%	0.14%	7.0	
4	3944.237	2.8057E-005	3.00%	106.97	23.18	-4.60%	-0.76%	11.0	

Sound 29 Clarion – legato – High Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1258.540	0.004089423	100.00%	87.19	0.00	louder than fundamental	0.00%	0.00%	3.2
2	2513.820	0.001547067	37.83%	99.17	11.98		-0.13%	-0.02%	3.2
3	3772.203	0.001003521	24.54%	106.20	19.00		-0.09%	-0.01%	10.2
4	5031.457	0.000631161	15.43%	111.18	23.99		-0.05%	-0.01%	3.2
5	6291.063	3.0007E-005	0.73%	115.05	27.86		-0.03%	0.00%	7.1
7	8803.987	2.1654E-005	0.53%	120.87	33.68		-0.07%	-0.01%	0.9

Sound 30 Clarion – legato – D

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1193.403	0.003916963	100.00%	86.27	0.00	louder than fundamental	0.00%	0.00%	2.3
2	2381.230	0.001364567	34.84%	98.23	11.96		-0.23%	-0.04%	2.2
3	3574.993	0.000790959	20.19%	105.27	18.99		-0.15%	-0.02%	9.3
4	4768.987	0.000272053	6.95%	110.26	23.98		-0.10%	-0.02%	2.3
5	5958.303	3.6373E-005	0.93%	114.11	27.84		-0.15%	-0.02%	6.1

Sound 31 Clarion – legato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2099.110	0.00142877	103.78%	96.05	11.99	louder than fundamental	-0.08%	-0.01%	0.1
1	1050.393	0.001376727	100.00%	84.06	0.00		0.00%	0.00%	0.1
3	3147.273	0.000677284	49.20%	103.06	19.00		-0.12%	-0.02%	7.1
4	4195.640	0.000173058	12.57%	108.04	23.98		-0.14%	-0.02%	0.0
5	5246.607	4.8936E-005	3.55%	111.91	27.85		-0.10%	-0.02%	3.9
6	6293.803	2.9564E-005	2.15%	115.06	31.00		-0.14%	-0.02%	7.1
8	8391.790	1.0002E-005	0.73%	120.04	35.98		-0.14%	-0.02%	0.0
7	7345.417	9.8948E-006	0.72%	117.74	33.67	-0.10%	-0.01%	9.7	

Sound 32 Clarion – legato – Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	936.191	0.001645637	100.00%	82.07	0.00		0.00%	0.00%	10.1
2	1872.410	0.00083414	50.69%	94.07	12.00		0.00%	0.00%	10.1
3	2808.787	0.000595195	36.17%	101.09	19.02		0.01%	0.00%	5.1
4	3743.120	0.000300647	18.27%	106.06	23.99		-0.04%	-0.01%	10.1
5	4679.457	5.7685E-005	3.51%	109.93	27.86		-0.03%	-0.01%	1.9
6	5613.743	2.2235E-005	1.35%	113.08	31.01		-0.06%	-0.01%	5.1

Sound 33 Clarion – legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	784.495	0.002137333	100.00%	79.01	0.00		0.00%	0.00%	7.0
4	3132.817	0.000679456	31.79%	102.98	23.97		-0.16%	-0.03%	7.0
3	2348.293	0.000580104	27.14%	97.99	18.98		-0.22%	-0.04%	2.0
2	1567.363	0.000471655	22.07%	90.99	11.98		-0.10%	-0.02%	7.0
5	3915.550	0.000251725	11.78%	106.84	27.83		-0.18%	-0.03%	10.8
6	4700.210	6.9938E-005	3.27%	110.01	30.99		-0.14%	-0.02%	2.0
7	5481.050	4.3366E-005	2.03%	112.67	33.66		-0.19%	-0.03%	4.7
8	6265.290	2.9679E-005	1.39%	114.98	35.97		-0.17%	-0.03%	7.0

Sound 33 Clarion – legato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	828.972	0.002547273	100.00%	79.97	0.00		0.00%	0.00%	8.0
3	2487.153	0.000890116	34.94%	98.99	19.02		0.01%	0.00%	3.0
2	1658.020	0.000479804	18.84%	91.97	12.00		0.00%	0.00%	8.0
4	3316.193	0.000191476	7.52%	103.97	24.00		0.01%	0.00%	8.0
5	4145.117	0.000148697	5.84%	107.83	27.86		0.01%	0.00%	11.8
6	4974.193	7.6164E-005	2.99%	110.99	31.02		0.01%	0.00%	3.0
7	5802.993	3.3927E-005	1.33%	113.65	33.69		0.00%	0.00%	5.7
8	6632.113	1.6443E-005	0.65%	115.97	36.00		0.01%	0.00%	8.0

Sound 34 Clarion – legato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	624.398	0.00262476	100.00%	75.06	0.00		0.00%	0.00%	3.1
3	1872.983	0.000253569	13.58%	94.08	19.02		-0.01%	0.00%	10.1
2	1248.587	0.000112431	6.02%	87.06	12.00		-0.02%	0.00%	3.1
4	2496.997	0.000168359	9.02%	99.06	24.00		-0.02%	0.00%	3.1
5	3121.973	8.0280E-005	4.30%	102.92	27.86		0.00%	0.00%	6.9
6	3746.507	4.4875E-005	2.40%	106.08	31.02		0.00%	0.00%	10.1
7	4370.837	0.000017006	0.91%	108.75	33.69		0.00%	0.00%	0.7
8	4992.843	1.0032E-005	0.54%	111.05	35.99		-0.05%	-0.01%	3.1

Sound 35 Clarion – staccato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	700.311	0.00262476	100.00%	77.05	0.00		0.00%	0.00%	5.0
3	2100.577	0.000511364	19.48%	96.06	19.02		-0.02%	0.00%	0.1
4	2798.920	0.000326418	12.44%	101.03	23.99		-0.08%	-0.01%	5.0
5	3499.520	0.000146847	5.59%	104.90	27.85		-0.06%	-0.01%	5.0
2	1399.650	0.000146484	5.58%	89.03	11.99		-0.07%	-0.01%	8.9
6	4199.650	9.1078E-005	3.47%	108.06	31.01		-0.05%	-0.01%	0.1
7	4899.820	0.000085858	3.27%	110.73	33.68		-0.05%	-0.01%	2.7
8	5602.223	3.9445E-005	1.50%	113.05	36.00		0.00%	0.00%	5.0
9	6312.623	1.4337E-005	0.55%	115.11	38.07		0.16%	0.02%	7.1
10	7004.440	1.2182E-005	0.46%	116.91	39.87		0.02%	0.00%	8.9

Sound 36 Altissimo – p – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2911.187	0.00657793	156.86%	101.71	12.01	louder than fundamental	0.06%	0.01%	5.7
1	1454.683	0.003862027	100.00%	89.70	0.00		0.00%	0.00%	5.7
3	4367.697	0.001030292	26.68%	108.74	19.03		0.08%	0.01%	0.7
4	5824.220	0.000294681	7.63%	113.72	24.02		0.09%	0.01%	5.7
6	8733.573	3.8700E-005	1.00%	120.73	31.03		0.06%	0.01%	0.7
5	7279.263	3.4329E-005	0.89%	117.58	27.88	0.08%	0.01%	9.6	

Sound 37 Altissimo – p – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1583.753	0.009533043	100.00%	91.17	0.00		0.00%	0.00%	7.2
2	3169.350	0.004936017	51.78%	103.18	12.01		0.06%	0.01%	7.2
3	4754.933	0.00092441	9.70%	110.21	19.03		0.08%	0.01%	2.2
4	6338.397	0.0007191	7.54%	115.18	24.01		0.05%	0.01%	7.2

Sound 38 Altissimo – ff – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2888.783	0.0164278	223.74%	101.58	11.99	louder than fundamental	-0.08%	-0.01%	5.6
1	1445.480	0.007342323	100.00%	89.59	0.00		0.00%	0.00%	5.6
3	4332.347	0.004257427	57.98%	108.59	19.00		-0.09%	-0.02%	0.6
4	5775.473	0.003685427	50.19%	113.57	23.98		-0.11%	-0.02%	5.6
5	7223.487	0.001649247	22.46%	117.45	27.85		-0.05%	-0.01%	9.4
7	10112.367	0.000147358	2.01%	123.27	33.68		-0.06%	-0.01%	3.3
6	8664.057	0.000109908	1.50%	120.59	31.00	-0.10%	-0.01%	0.6	
6	9169.767	8.7865E-005	1.20%	121.58	31.98	INHARMONIC	5.73%	0.80%	1.6

Appendix 2

10	14897.067	6.6463E-005	0.91%	129.98	40.38	INHARMONIC	3.06%	0.40%	10.0
6	9094.270	5.6875E-005	0.77%	121.43	31.84	INHARMONIC	4.86%	0.68%	1.4

Sound 39 *Altissimo – ff – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1565.627	0.022664667	100.00%	90.97	0.00		0.00%	0.00%	7.0
2	3135.530	0.0152613	67.34%	103.00	12.02		0.14%	0.02%	7.0
4	6267.177	0.003304533	14.58%	114.99	24.01		0.07%	0.01%	7.0
3	4700.640	0.001464233	6.46%	110.01	19.03		0.08%	0.01%	2.0
5	7834.327	0.000126235	0.56%	118.85	27.88		0.08%	0.01%	10.9
10	15155.267	0.00011285	0.50%	130.27	39.30	INHARMONIC	-3.20%	-0.43%	10.3
6	8886.403	0.000109464	0.48%	121.03	30.06	INHARMONIC	-5.40%	-0.79%	1.0
10	15191.767	8.8770E-005	0.39%	130.32	39.34	INHARMONIC	-2.97%	-0.40%	10.3
7	10454.333	8.6620E-005	0.38%	123.85	32.87	INHARMONIC	-4.61%	-0.66%	3.8
9	13587.400	8.2890E-005	0.37%	128.38	37.41	INHARMONIC	-3.57%	-0.49%	8.4

Sound 40 *Altissimo – staccato – G#*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	3048.020	0.0107649	136.47%	102.51	11.96	louder than fundamental	-0.23%	-0.04%	6.5
1	1527.580	0.00788831	100.00%	90.55	0.00	<u>Only average of 2 points</u>	0.00%	0.00%	6.5
3	4576.450	0.000993884	12.60%	109.54	19.00	<u>due to noise band at</u>	-0.14%	-0.02%	1.5
4	6103.700	0.00030022	3.81%	114.53	23.98	<u>end of staccato sound</u>	-0.11%	-0.02%	6.5
2	2788.400	0.000151694	1.92%	100.97	10.42	INHARMONIC	-8.73%	-1.54%	5.0
5	7632.270	0.000105474	1.34%	118.40	27.85		-0.07%	-0.01%	10.4
7	10680.800	5.2644E-005	0.67%	124.22	33.67		-0.11%	-0.02%	4.2
10	14559.700	4.0423E-005	0.51%	129.58	39.03	INHARMONIC	-4.69%	-0.64%	9.6
6	8462.060	4.0282E-005	0.51%	120.19	29.64	INHARMONIC	-7.67%	-1.14%	0.2
6	9152.560	3.8961E-005	0.49%	121.54	31.00		-0.14%	-0.02%	1.5

Sound 41 *Altissimo – legato – high G#*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1599.730	0.009895907	100.00%	91.35	0.00	sample is very flat	0.00%	0.00%	7.3
2	3198.130	0.004785597	48.36%	103.34	11.99		-0.04%	-0.01%	7.3
3	4795.107	0.000514333	5.20%	110.35	19.00		-0.09%	-0.01%	2.4
4	6396.007	0.000200063	2.02%	115.34	23.99		-0.05%	-0.01%	7.3

Sound 42 *Altissimo – legato – G#*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	828.140	0.002539603	100.00%	79.95	0.00		0.00%	0.00%	7.9
3	2482.737	0.000660361	26.00%	98.96	19.01		-0.07%	-0.01%	3.0
2	1656.367	0.0006107	24.05%	91.95	12.00		0.01%	0.00%	7.9
4	3307.460	0.000100855	3.97%	103.92	23.97		-0.15%	-0.03%	7.9
5	4135.783	2.6213E-005	1.03%	107.79	27.84		-0.12%	-0.02%	11.8
6	4963.907	2.1852E-005	0.86%	110.95	31.00		-0.10%	-0.02%	3.0
7	5791.510	1.9138E-005	0.75%	113.62	33.67		-0.09%	-0.01%	5.6

Sound 43 *Altissimo – legato – Bb*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	932.720	0.001521027	100.00%	82.01	0.00		0.00%	0.00%	10.0
3	2796.403	0.001437883	94.53%	101.02	19.01		-0.06%	-0.01%	5.0
2	1863.733	0.00118887	78.16%	93.99	11.98		-0.09%	-0.02%	10.0
4	3730.990	0.000551617	36.27%	106.01	24.00		0.00%	0.00%	10.0
5	4659.943	5.1115E-005	3.36%	109.86	27.85		-0.08%	-0.01%	1.9
8	7455.437	1.8177E-005	1.20%	117.99	35.99		-0.08%	-0.01%	10.0
7	6524.570	1.6766E-005	1.10%	115.68	33.68		-0.07%	-0.01%	7.7

Sound 44 *Altissimo – legato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1043.877	0.002066637	100.00%	83.96	0.00		0.00%	0.00%	Pitch Class
2	2087.980	0.002048887	99.14%	95.96	12.00	Through the sample in real time partials 2 & 3 become louder than fundamental, fundamental actually becomes marginally quieter.	0.01%	0.00%	12.0
3	3131.773	0.00169738	82.13%	102.98	19.02		0.00%	0.00%	7.0
4	4173.887	0.00028276	13.68%	107.95	23.99		-0.04%	-0.01%	11.9
5	5217.743	0.000162278	7.85%	111.81	27.86		-0.03%	0.00%	3.8
6	6259.827	0.000098188	4.75%	114.97	31.01		-0.05%	-0.01%	7.0
7	7303.123	0.000018934	0.92%	117.64	33.68		-0.05%	-0.01%	9.6
10	10433.100	1.2867E-005	0.62%	123.81	39.85		-0.05%	-0.01%	3.8

Sound 45 *Altissimo – legato – C#*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1105.260	0.0041302	100.00%	84.95	0.00		0.00%	0.00%	0.9
2	2210.680	0.003497723	84.69%	96.95	12.00		0.01%	0.00%	0.9
3	3314.217	0.000407436	9.86%	103.96	19.01		-0.05%	-0.01%	8.0
4	4421.467	0.000227432	5.51%	108.95	24.00		0.01%	0.00%	0.9
5	5526.937	4.7410E-005	1.15%	112.81	27.87		0.01%	0.00%	4.8

Sound 46 *Altissimo – legato – D#*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	2473.123	0.007891797	245.97%	98.89	11.98	louder than fundamental	-0.14%	-0.02%	2.9
1	1238.247	0.003208427	100.00%	86.91	0.00		0.00%	0.00%	2.9
4	4945.847	0.000479911	14.96%	110.89	23.98		-0.14%	-0.02%	2.9
3	3710.303	0.000453161	14.12%	105.91	19.00		-0.12%	-0.02%	9.9
5	6181.140	6.8489E-005	2.13%	114.75	27.83		-0.16%	-0.02%	6.7

Sound 47 *Altissimo – legato – F*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	1379.217	0.006980087	100.00%	88.78	0.00		0.00%	0.00%	4.8
2	2759.983	0.00425684	60.99%	100.79	12.01		0.06%	0.01%	4.8
3	4144.813	0.000467555	6.70%	107.83	19.05		0.17%	0.03%	11.8
4	5530.767	7.9258E-005	1.14%	112.82	24.04		0.25%	0.04%	4.8
5	6904.693	6.3862E-005	0.91%	116.66	27.88		0.12%	0.02%	8.7

Appendix 2

Sound 48 <i>Altissimo – legato – G</i>											
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class		
2	3049.907	0.010251223	126.01%	102.52	12.00	louder than fundamental sample is very flat	0.01%	0.00%	6.5		
1	1524.860	0.00813495	100.00%	90.52	0.00		0.00%	0.00%	6.5		
3	4556.120	0.00053885	6.62%	109.47	18.95		-0.40%	-0.06%	1.5		
4	6098.117	0.000291359	3.58%	114.51	24.00		-0.02%	0.00%	6.5		
5	7620.240	9.1065E-005	1.12%	118.37	27.85		-0.05%	-0.01%	10.4		
7	10673.200	5.1693E-005	0.64%	124.20	33.69		-0.01%	0.00%	4.2		
6	8463.460	4.0958E-005	0.50%	120.19	29.67		-7.49%	-1.11%	0.2		
10	14561.033	3.8998E-005	0.48%	129.58	39.06		-4.51%	-0.61%	9.6		

Sound 1 Chalumeau – low – mf										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
9	555.741	0.0469435	171.20%	73.04	37.65	LOUDER THAN FUNDAMENTAL	-2.21%	-0.53%	1.0	
1	63.147	0.0274204	100.00%	35.39	0.00		0.00%	-0.00%	11.4	
3	184.050	0.0246182	89.78%	53.91	18.52		<i>all partials very flat, especially lower ones, flatness seems to plateau at around 40-45 cents</i>	-2.85%	-0.92%	5.9
16	986.938	0.0183377	66.88%	82.99	47.59	-2.32%		-0.49%	11.0	
17	1048.397	0.0178222	65.00%	84.03	48.64	-2.34%		-0.49%	0.0	
18	1109.617	0.01353457	49.36%	85.01	49.62	-2.38%		-0.49%	1.0	
11	678.452	0.01093382	39.87%	76.50	41.11	<i>interestingly, partials would show much less diversion if the fundamental was closer to 61.5hz and the partials remained the same</i>		-2.33%	-0.53%	4.5
7	431.232	0.0099698	36.36%	68.65	33.26			-2.44%	-0.62%	8.7
10	615.230	0.00894801	32.63%	74.80	39.41	-2.57%		-0.60%	2.8	
24	1481.287	0.00801065	29.21%	90.02	54.62	-2.26%		-0.44%	6.0	
32	1973.853	0.00784798	28.62%	94.99	59.59	-2.32%		-0.43%	11.0	
15	925.699	0.00759957	27.72%	81.88	46.49	-2.27%		-0.48%	9.9	
36	2219.263	0.0073631	26.85%	97.01	61.62	-2.38%	-0.43%	1.0		
30	1849.360	0.00704675	25.70%	93.86	58.47	-2.38%	-0.44%	9.9		
26	1602.157	0.00696495	25.40%	91.37	55.98	-2.42%	-0.46%	7.4		
14	862.439	0.00686504	25.04%	80.65	45.26	-2.44%	-0.53%	8.7		
28	1728.480	0.00663745	24.21%	92.69	57.30	-2.24%	-0.42%	8.7		
22	1356.840	0.00594263	21.67%	88.50	53.10	-2.33%	-0.46%	4.5		
34	2096.553	0.00586635	21.39%	96.03	60.64	-2.35%	-0.43%	0.0		
20	1234.117	0.005558945	20.38%	86.85	51.46	-2.28%	-0.46%	2.9		
5	310.328	0.00547572	19.97%	62.96	27.56	-1.71%	-0.47%	3.0		
35	2159.863	0.00488735	17.82%	96.54	61.15	-2.27%	-0.41%	0.5		
33	2035.303	0.0045508	16.60%	95.52	60.12	-2.33%	-0.43%	11.5		
31	1912.510	0.00416857	15.20%	94.44	59.05	-2.30%	-0.42%	10.4		
19	1171.077	0.00404667	14.76%	85.95	50.56	-2.39%	-0.49%	1.9		
13	802.992	0.00398479	14.53%	79.41	44.02	-2.18%	-0.48%	7.4		
25	1542.890	0.00354968	12.95%	90.72	55.33	-2.27%	-0.44%	6.7		
29	1787.997	0.00322337	11.76%	93.27	57.88	-2.36%	-0.44%	9.3		
27	1665.460	0.00293059	10.69%	92.04	56.65	-2.32%	-0.44%	8.0		
21	1295.637	0.00277418	10.12%	87.70	52.31	-2.30%	-0.46%	3.7		
23	1418.270	0.00270066	9.85%	89.26	53.87	-2.35%	-0.46%	5.3		
12	739.715	0.00225934	8.24%	77.99	42.60	-2.38%	-0.53%	6.0		
8	494.223	0.00156245	5.70%	71.01	35.62	-2.17%	-0.53%	11.0		
6	370.187	0.0002935	1.07%	66.01	30.62	-2.29%	-0.61%	6.0		

Sound 2 Chalumeau – high – mf									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
5	410.168	0.04450977	101.77%	67.78	27.42	LOUDER THAN FUNDAMENTAL	-2.54%	-0.65%	7.8
1	84.173	0.04373413	100.00%	40.37	0.00		0.00%	0.00%	4.4
3	247.141	0.03132557	71.63%	59.01	18.65		<i>all partials very flat, especially lower ones, flatness seems to plateau at around 40-45 cents</i> <i>Similar to Sound 1</i>	-2.13%	-0.63%
7	573.098	0.01667163	38.12%	73.58	33.21	-2.73%		-0.65%	1.6
13	1067.377	0.01462283	33.44%	84.34	43.97	-2.46%		-0.51%	0.3
12	988.514	0.00882089	20.17%	83.01	42.65	-2.13%		-0.45%	11.0
20	1645.960	0.00750487	17.16%	91.84	51.47	-2.23%		-0.42%	7.8
26	2140.180	0.00663691	15.18%	96.39	56.02	-2.21%		-0.40%	0.4
15	1235.593	0.00645817	14.77%	86.88	46.51	-2.14%		-0.43%	2.9
14	1151.500	0.0062309	14.25%	85.66	45.29	-2.28%		-0.46%	1.7
32	2629.083	0.00622614	14.24%	99.95	59.58	-2.39%		-0.42%	3.9
16	1314.497	0.00612339	14.00%	87.95	47.58	-2.40%		-0.48%	3.9
22	1808.850	0.00589196	13.47%	93.47	53.11	-2.32%	-0.43%	9.5	
18	1479.407	0.00578231	13.22%	89.99	49.63	-2.36%	-0.46%	6.0	
30	2466.083	0.00574608	13.14%	98.84	58.47	-2.34%	-0.41%	2.8	
23	1893.013	0.00549015	12.55%	94.26	53.89	-2.22%	-0.41%	10.3	
25	2055.867	0.00495546	11.33%	95.69	55.32	-2.30%	-0.42%	11.7	
24	1971.763	0.00464398	10.62%	94.97	54.60	-2.39%	-0.44%	11.0	
34	2797.433	0.00448653	10.26%	101.02	60.66	-2.25%	-0.39%	5.0	
11	904.319	0.00435067	9.95%	81.47	41.10	-2.33%	-0.50%	9.5	
9	741.451	0.00428785	9.80%	78.03	37.67	-2.13%	-0.47%	6.0	
31	2550.070	0.00411755	9.41%	99.42	59.05	-2.27%	-0.40%	3.4	
19	1561.493	0.00375046	8.58%	90.93	50.56	-2.36%	-0.45%	6.9	
28	2303.100	0.00374729	8.57%	97.66	57.29	-2.28%	-0.41%	1.7	
10	820.111	0.00367314	8.40%	79.78	39.41	-2.57%	-0.56%	7.8	
27	2218.617	0.0031411	7.18%	97.01	56.64	-2.38%	-0.43%	1.0	
29	2381.767	0.00284795	6.51%	98.24	57.87	-2.43%	-0.43%	2.2	
21	1724.470	0.00274332	6.27%	92.65	52.28	-2.44%	-0.46%	8.6	
8	657.226	0.00256183	5.86%	75.95	35.58	-2.40%	-0.55%	3.9	
17	1398.420	0.00244255	5.58%	89.02	48.65	-2.27%	-0.45%	5.0	
33	2712.913	0.00156366	3.58%	100.49	60.12	-2.33%	-0.40%	4.5	
6	494.247	0.00145701	3.33%	71.01	30.65	-2.14%	-0.52%	11.0	
2	163.131	0.00049758	1.14%	51.82	11.46	-3.10%	-1.04%	3.8	
4	324.755	0.00028135	0.64%	63.74	23.38	-3.55%	-0.97%	3.7	

Sound 3 Chalumeau – low – pp									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	63.298	0.00945906	100.00%	35.43	0.00	<i>all partials very flat, especially lower ones, flatness seems to plateau at around 35-45 cents</i> <i>Similar to Sound 1</i>	0.00%	0.00%	11.4
3	184.510	0.00627556	66.34%	53.95	18.52		-2.84%	-0.91%	6.0
9	558.934	0.0042965	45.42%	73.14	37.71		-1.89%	-0.45%	1.1
7	432.312	0.00086002	9.09%	68.69	33.26		-2.43%	-0.62%	8.7
11	680.123	0.00080564	8.52%	76.54	41.11		-2.32%	-0.53%	4.5
5	311.056	0.00067493	7.14%	63.00	27.56		-1.72%	-0.47%	3.0
8	495.591	0.00052902	5.59%	71.06	35.63		-2.13%	-0.52%	11.1
15	927.593	0.00047071	4.98%	81.91	46.48		-2.30%	-0.49%	9.9
28	1734.577	0.00044632	4.72%	92.75	57.32		-2.13%	-0.40%	8.7
10	620.084	0.00044499	4.70%	74.94	39.51		-2.04%	-0.47%	2.9
13	806.612	0.00042822	4.53%	79.49	44.06	-1.98%	-0.43%	7.5	
16	990.902	0.00039126	4.14%	83.05	47.62	-2.16%	-0.45%	11.1	
29	1797.980	0.00030271	3.20%	93.37	57.94	-2.05%	-0.38%	9.4	
14	867.910	0.00028653	3.03%	80.76	45.33	-2.06%	-0.44%	8.8	
25	1549.827	0.00020329	2.15%	90.80	55.37	-2.06%	-0.40%	6.8	
17	1054.027	0.00019564	2.07%	84.12	48.69	-2.05%	-0.42%	0.1	
26	1613.297	0.00019424	2.05%	91.49	56.06	-1.97%	-0.38%	7.5	
4	247.686	0.00017615	1.86%	59.05	23.62	-2.17%	-0.64%	11.1	
2	122.713	0.00016775	1.77%	46.89	11.46	-3.07%	-1.14%	10.9	
30	1858.250	0.00014611	1.54%	93.94	58.51	-2.14%	-0.40%	9.9	
18	1117.920	0.00014432	1.53%	85.14	49.71	-1.88%	-0.38%	1.1	
23	743.132	0.00013613	1.44%	78.07	42.64	-2.16%	-0.48%	6.1	
12	1425.493	0.00013042	1.38%	89.35	53.92	-2.09%	-0.41%	5.4	
24	1487.013	0.00012196	1.29%	90.08	54.65	-2.12%	-0.41%	6.1	
6	374.507	6.5815E-005	0.70%	66.21	30.78	-1.39%	-0.36%	6.2	
19	1178.467	4.9169E-005	0.52%	86.06	50.62	-2.01%	-0.41%	2.1	
22	1365.747	4.5815E-005	0.48%	88.61	53.18	-1.93%	-0.38%	4.6	

Sound 4 Chalumeau – high – pp										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	84.517	0.0136993	100.00%	40.44	0.00		0.00%	0.00%	4.4	
3	248.127	0.00511855	37.36%	59.08	18.65	<i>all partials very flat, as in Sound 1</i>	-2.14%	-0.63%	11.1	
5	413.527	0.00379592	27.71%	67.93	27.49		-2.14%	-0.55%	7.9	
7	580.772	0.00137599	10.04%	73.81	33.37	-1.83%	-0.43%	1.8		
2	163.669	0.00045831	3.35%	51.88	11.44	-3.17%	-1.07%	3.9		
9	744.359	0.00036026	2.63%	78.10	37.66	-2.14%	-0.48%	6.1		
6	496.273	0.00024467	1.79%	71.08	30.65	-2.14%	-0.52%	11.1		
4	332.668	0.00024063	1.76%	64.16	23.72	-1.60%	-0.43%	4.2		
8	665.154	0.00015446	1.13%	76.15	35.72	-1.62%	-0.37%	4.2		
11	913.357	0.00014481	1.06%	81.64	41.21	-1.76%	-0.37%	9.6		
13	1077.660	0.00012085	0.88%	84.51	44.07	-1.92%	-0.40%	0.5		
10	828.938	0.00012074	0.88%	79.97	39.53	-1.92%	-0.42%	8.0		

Sound 5 Chalumeau – low – ff										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
9	550.075	0.07026387	197.17%	72.87	37.54	LOUDER THAN FUNDAMENTAL	-2.85%	-0.68%	0.9	
17	1040.797	0.04228653	118.66%	83.91	48.58	LOUDER THAN FUNDAMENTAL	-2.68%	-0.56%	11.9	
1	62.911	0.03563643	100.00%	35.33	0.00		0.00%	0.00%	11.3	
3	183.363	0.03140787	88.13%	53.85	18.52	<i>all partials very flat, as in Sound 1</i>	-2.85%	-0.92%	5.8	
16	979.682	0.02953093	82.87%	82.86	47.53		-2.67%	-0.56%	10.9	
18	1101.957	0.02584887	72.53%	84.89	49.57	flatness of partials seems to increase slightly with loudness	-2.69%	-0.55%	0.9	
15	918.579	0.0197036	55.29%	81.74	46.42		-2.66%	-0.57%	9.7	
24	1468.647	0.01795397	50.38%	89.87	54.54	-2.73%	-0.53%	5.9		
7	429.587	0.01445317	40.56%	68.59	33.26	-2.45%	-0.62%	8.6		
20	1224.137	0.0117737	33.04%	86.71	51.39	-2.71%	-0.55%	2.7		
11	674.060	0.0114518	32.14%	76.38	41.06	-2.60%	-0.59%	4.4		
22	1346.380	0.0118003	31.37%	88.36	53.04	-2.72%	-0.54%	4.4		
26	1592.687	0.01061875	29.80%	91.27	55.94	-2.63%	-0.50%	7.3		
19	1162.960	0.00978742	27.46%	85.83	50.50	-2.71%	-0.55%	1.8		
5	305.616	0.00873829	24.52%	62.69	27.36	-2.84%	-0.79%	2.7		
14	857.575	0.00871592	24.46%	80.55	45.23	-2.63%	-0.57%	8.6		
35	2144.470	0.00840357	23.58%	96.42	61.09	-2.61%	-0.47%	0.4		
13	796.339	0.00820738	23.03%	79.27	43.94	-2.63%	-0.58%	7.3		
10	613.071	0.00815466	22.88%	74.74	39.42	-2.55%	-0.59%	2.7		
32	1961.217	0.00766403	21.51%	94.87	59.55	-2.58%	-0.47%	10.9		
34	2081.610	0.00724937	20.34%	95.91	60.58	-2.68%	-0.49%	11.9		
33	2020.437	0.00661517	18.56%	95.39	60.06	-2.68%	-0.49%	11.4		
21	1285.240	0.00626306	17.57%	87.56	52.23	-2.72%	-0.54%	3.6		
29	1775.943	0.00544532	15.28%	93.16	57.83	-2.72%	-0.50%	9.2		
31	1898.157	0.00512999	14.40%	94.31	58.98	-2.67%	-0.49%	10.3		
25	1531.533	0.00511828	14.36%	90.59	55.27	-2.62%	-0.51%	6.6		
27	1653.637	0.00475506	13.34%	91.92	56.59	-2.65%	-0.50%	7.9		
28	1714.687	0.00450063	12.63%	92.55	57.22	-2.66%	-0.50%	8.5		
30	1837.003	0.00390122	10.95%	93.74	58.41	-2.67%	-0.50%	9.7		
23	1409.400	0.00321711	9.03%	89.15	53.83	-2.60%	-0.51%	5.2		
12	733.469	0.00259579	7.28%	77.85	42.52	-2.84%	-0.64%	5.8		
8	488.616	0.00161999	4.55%	70.81	35.49	-2.92%	-0.72%	10.8		
6	366.859	0.00138762	3.89%	65.85	30.53	-2.81%	-0.74%	5.9		
2	120.612	0.00110424	3.10%	46.59	11.27	-4.14%	-1.55%	10.6		

Sound 6 Chalumeau – high – ff										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
5	409.728	0.05475277	104.68%	67.77	27.42	LOUDER THAN FUNDAMENTAL	-2.55%	-0.66%	7.8	
1	84.090	0.05230283	100.00%	40.35	0.00		0.00%	0.00%	4.4	
3	246.893	0.0373185	71.35%	59.00	18.65	<i>all partials very flat, as in Sound 1</i>	-2.13%	-0.63%	11.0	
13	1066.297	0.02038493	38.97%	84.32	43.97		-2.46%	-0.51%	0.3	
7	572.539	0.01508687	28.85%	73.56	33.21	-2.73%	-0.65%	1.6		
36	2953.790	0.01395323	26.68%	101.96	61.61	-2.43%	-0.42%	6.0		
20	1640.613	0.0135785	25.96%	91.78	51.43	-2.45%	-0.47%	7.8		
26	2132.607	0.01149031	21.97%	96.32	55.97	-2.46%	-0.45%	0.3		
19	1560.050	0.01077477	20.60%	90.91	50.56	-2.36%	-0.45%	6.9		
11	903.512	0.01068893	20.44%	81.46	41.11	-2.32%	-0.50%	9.5		
32	2626.350	0.00992031	18.97%	99.93	59.58	-2.40%	-0.42%	3.9		
23	1885.707	0.00949476	18.15%	94.19	53.84	-2.50%	-0.46%	10.2		
22	1807.007	0.009263	17.71%	93.46	53.11	-2.32%	-0.43%	9.5		
18	1475.977	0.00871982	16.67%	89.95	49.60	-2.49%	-0.48%	6.0		
25	2052.017	0.00789348	15.09%	95.66	55.31	-2.39%	-0.44%	11.7		
12	982.140	0.00769154	14.71%	82.90	42.55	-2.67%	-0.56%	10.9		
31	2542.253	0.00744727	14.24%	99.37	59.02	-2.48%	-0.43%	3.4		
34	2789.140	0.00733187	14.02%	100.97	60.62	-2.45%	-0.42%	5.0		
30	2461.833	0.007169	13.71%	98.81	58.46	-2.41%	-0.43%	2.8		
24	1969.753	0.00668882	12.79%	94.95	54.60	-2.40%	-0.44%	10.9		
28	2297.240	0.00651673	12.46%	97.61	57.26	-2.43%	-0.44%	1.6		
27	2216.600	0.00621099	11.88%	96.99	56.64	-2.37%	-0.43%	1.0		
35	2873.257	0.00614667	11.75%	101.49	61.14	-2.38%	-0.41%	5.5		
9	740.683	0.00606789	11.60%	78.02	37.67	-2.13%	-0.48%	6.0		
14	1150.637	0.00537773	10.28%	85.64	45.29	-2.28%	-0.46%	1.6		
21	1722.667	0.00519832	9.94%	92.63	52.28	-2.45%	-0.46%	8.6		
15	1228.853	0.00496609	9.49%	86.78	46.43	-2.58%	-0.52%	2.8		
16	1313.190	0.00440452	8.42%	87.93	47.58	-2.40%	-0.48%	3.9		
29	2379.477	0.0041675	7.97%	98.22	57.87	-2.43%	-0.43%	2.2		
10	819.362	0.00379691	7.26%	79.76	39.41	-2.56%	-0.56%	7.8		
33	2708.583	0.00376282	7.19%	100.46	60.11	-2.39%	-0.42%	4.5		
8	656.673	0.00335031	6.41%	75.93	35.58	-2.39%	-0.55%	3.9		
17	1395.757	0.00270782	5.18%	88.99	48.64	-2.36%	-0.46%	5.0		
6	493.749	0.0024133	4.61%	71.00	30.65	-2.14%	-0.52%	11.0		

Sound 7 Chalumeau – Staccato – Bb										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
10	574.085	0.03336557	112.93%	73.61	40.19	LOUDER THAN FUNDAMENTAL	1.88%	0.44%	1.6	
1	56.350	0.02954447	100.00%	33.42	0.00		0.00%	0.00%	9.4	
8	471.127	0.01222723	41.54%	70.18	36.76	<i>diversion is much more sporadic</i>	4.51%	1.10%	10.2	
17	933.491	0.01174398	39.75%	82.02	48.60		-2.55%	-0.54%	10.0	
7	405.597	0.01128531	38.20%	67.59	34.17	2.83%	0.72%	7.6		
19	1051.027	0.01094409	37.04%	84.07	50.65	-1.83%	-0.38%	0.1		
3	173.133	0.01033503	34.98%	52.85	19.43	2.42%	0.79%	4.9		
9	523.990	0.00987801	33.43%	72.02	38.60	3.32%	0.79%	0.0		
15	869.325	0.00925179	31.31%	80.79	47.37	2.85%	0.61%	8.8		
14	813.343	0.00785431	26.58%	79.64	46.22	3.10%	0.67%	7.6		
18	1002.703	0.00647342	21.91%	83.26	49.84	-1.14%	-0.24%	11.3		

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12	653.231	0.00610787	20.67%	75.84	42.42	-3.40%	-0.78%	3.8
21	1165.887	0.00521438	17.65%	85.87	52.45	-1.48%	-0.30%	1.9
28	1584.500	0.00407796	13.80%	91.18	57.76	0.42%	0.08%	7.2
13	752.265	0.00393894	13.33%	78.28	44.87	2.69%	0.59%	6.3
29	1650.590	0.00389284	13.18%	91.89	58.47	1.01%	0.19%	7.9
30	1718.650	0.00383339	12.97%	92.59	59.17	1.67%	0.31%	8.6
31	1768.100	0.0036697	12.42%	93.08	59.66	1.22%	0.23%	9.1
6	354.171	0.00338149	11.45%	65.24	31.82	4.75%	1.25%	5.2
5	284.393	0.00324251	10.98%	61.44	28.02	0.94%	0.26%	1.4
33	1844.830	0.003209	10.86%	93.81	60.40	-0.79%	-0.15%	9.8
38	2133.397	0.00287784	9.74%	96.33	62.91	-0.37%	-0.07%	0.3
4	235.314	0.00268204	9.08%	58.17	24.75	4.40%	1.30%	10.2
36	2019.810	0.00267599	9.06%	95.38	61.96	-0.43%	-0.08%	11.4
35	1948.320	0.00266281	9.01%	94.76	61.34	-1.21%	-0.22%	10.8
26	1467.647	0.00255172	8.64%	89.86	56.44	0.17%	0.03%	5.9
23	1303.273	0.00244222	8.27%	87.80	54.38	0.56%	0.11%	3.8
22	1233.790	0.0024271	8.22%	86.85	53.43	-0.48%	-0.10%	2.9
24	1350.227	0.00220591	7.47%	88.41	54.99	-0.16%	-0.03%	4.4
37	2066.163	0.00214024	7.24%	95.78	62.36	-0.90%	-0.16%	11.8
34	1902.213	0.00207734	7.03%	94.35	60.93	-0.71%	-0.13%	10.3
25	1420.310	0.00206158	6.98%	89.29	55.87	0.82%	0.16%	5.3

Sound 8 *Chalumeau – Staccato – F*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	86.521	0.05988177	100.00%	40.84	0.00		0.00%	0.00%	4.8
5	432.328	0.0436589	72.91%	68.70	27.85		-0.06%	-0.02%	8.7
3	259.590	0.04133383	69.03%	59.86	19.02	considerably less diversion than previous samples, most partials are slightly sharp	0.01%	0.00%	11.9
12	1041.407	0.01703653	28.45%	83.92	43.07		0.30%	0.06%	11.9
7	609.158	0.01399673	23.37%	74.63	33.79		0.58%	0.13%	2.6
18	1563.707	0.01355327	22.63%	90.95	50.11		0.41%	0.08%	7.0
34	2953.280	0.0119573	19.97%	101.96	61.12		0.39%	0.07%	6.0
13	1127.580	0.01034113	17.27%	85.29	44.45		0.25%	0.05%	1.3
28	2430.343	0.00982836	16.41%	98.59	57.74		0.32%	0.06%	2.6
26	2257.713	0.00975463	16.29%	97.31	56.47		0.36%	0.06%	1.3
11	956.049	0.00968862	16.18%	82.43	41.59		0.45%	0.10%	10.4
24	2084.563	0.00934504	15.61%	95.93	55.09		0.39%	0.07%	11.9
20	1739.100	0.00914544	15.27%	92.79	51.95	0.50%	0.09%	8.8	
9	782.634	0.00899377	15.02%	78.97	38.13	0.51%	0.11%	7.0	
25	2171.753	0.0088196	14.73%	96.64	55.80	0.40%	0.07%	0.6	
30	2602.557	0.00877601	14.66%	99.77	58.93	0.27%	0.05%	3.8	
10	868.712	0.00849796	14.19%	80.78	39.93	0.40%	0.09%	8.8	
32	2781.013	0.00844086	14.10%	100.92	60.08	0.45%	0.08%	4.9	
22	1912.020	0.00828128	13.83%	94.43	53.59	0.45%	0.08%	10.4	
33	2867.203	0.00759452	12.68%	101.45	60.61	0.42%	0.07%	5.4	
17	1477.593	0.00670644	11.20%	89.97	49.13	0.46%	0.09%	6.0	
14	1214.670	0.00664255	11.09%	86.58	45.74	0.28%	0.06%	2.6	
35	3039.917	0.00635506	10.61%	102.46	61.62	0.39%	0.07%	6.5	
21	1823.307	0.00602125	10.06%	93.61	52.77	0.35%	0.06%	9.6	
19	1653.277	0.00572238	9.56%	91.92	51.07	0.57%	0.11%	7.9	
29	2516.660	0.00513247	8.57%	99.19	58.35	0.30%	0.05%	3.2	
31	2694.707	0.00507595	8.48%	100.37	59.53	0.47%	0.08%	4.4	
16	1389.553	0.0044568	7.44%	88.91	48.07	0.38%	0.07%	4.9	
27	2353.890	0.0044163	7.38%	98.03	57.19	0.78%	0.13%	2.0	
6	522.579	0.00436442	7.29%	71.98	31.13	0.67%	0.16%	12.0	
23	1999.203	0.00435614	7.27%	95.21	54.36	0.46%	0.08%	11.2	
8	696.119	0.00424128	7.08%	76.94	36.10	0.57%	0.13%	4.9	
2	172.545	0.00170097	2.84%	52.79	11.95	-0.29%	-0.09%	4.8	
4	350.798	0.00126574	2.11%	65.08	24.23	1.36%	0.36%	5.1	
15	1303.693	0.00116564	1.95%	87.80	46.96	0.45%	0.09%	3.8	

Sound 9 *Chalumeau – Legato – Bb*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	56.304	0.02650167	100.00%	33.41	0.00		0.00%	0.00%	9.4
10	589.999	0.01874417	70.73%	74.08	40.67	all partials incredibly sharp, especially lower ones, sharpness seems to plateau at around 75-85 cents	4.79%	1.10%	2.1
7	410.333	0.01610033	60.75%	67.79	34.39		4.11%	1.04%	7.8
3	174.312	0.01467027	55.36%	52.97	19.56		3.20%	1.04%	5.0
8	471.949	0.01019433	38.47%	70.21	36.81		4.78%	1.16%	10.2
9	528.336	0.00887198	33.48%	72.17	38.76		4.26%	1.01%	0.2
5	292.321	0.00743073	28.04%	61.92	28.51		3.84%	1.06%	1.9
16	938.686	0.00607655	22.93%	82.12	48.71		4.20%	0.87%	10.1
18	1056.447	0.00522341	19.71%	84.16	50.76		4.24%	0.86%	0.2
14	820.680	0.00490205	18.50%	79.79	46.39		4.11%	0.88%	7.8
12	708.010	0.00445365	16.81%	77.24	43.83		4.79%	1.06%	5.2
20	1174.190	0.00350955	13.24%	85.99	52.59	4.27%	0.85%	2.0	
26	1528.340	0.00308827	11.65%	90.56	57.15	4.40%	0.83%	6.6	
11	646.147	0.0030432	11.48%	75.65	42.25	4.33%	0.98%	3.7	
28	1646.217	0.00284868	10.75%	91.84	58.44	4.42%	0.82%	7.8	
30	1764.287	0.0027269	10.29%	93.04	59.64	4.45%	0.82%	9.0	
17	1000.523	0.00228573	8.62%	83.22	49.82	4.53%	0.93%	11.2	
22	1292.077	0.0019653	7.42%	87.65	54.24	4.31%	0.84%	3.6	
34	2000.510	0.00182405	6.88%	95.22	61.81	4.50%	0.81%	11.2	
32	1882.337	0.00177245	6.69%	94.16	60.76	4.47%	0.81%	10.2	
15	881.656	0.00171938	6.49%	81.03	47.63	4.39%	0.93%	9.0	
24	1410.157	0.00159375	6.01%	89.16	55.76	4.36%	0.83%	5.2	
29	1705.743	0.00147363	5.56%	92.46	59.05	4.47%	0.82%	8.5	
6	354.076	0.00136814	5.16%	65.24	31.83	4.81%	1.26%	5.2	
27	1586.323	0.00129683	4.89%	91.20	57.80	4.35%	0.81%	7.2	
19	1119.057	0.00115581	4.36%	85.16	51.75	4.61%	0.92%	1.2	
23	1355.543	0.00102838	3.88%	88.48	55.07	4.68%	0.90%	4.5	
31	1825.017	0.00099748	3.76%	93.63	60.22	4.56%	0.83%	9.6	
4	236.088	0.00081214	3.06%	58.22	24.82	4.83%	1.42%	10.2	
33	1942.580	0.00076597	2.89%	94.71	61.30	4.55%	0.82%	10.7	
35	2057.250	0.00068789	2.60%	95.70	62.30	4.39%	0.78%	11.7	
13	763.253	0.00066701	2.52%	78.54	45.13	4.28%	0.93%	6.5	
21	1237.893	0.00052859	1.99%	86.91	53.50	4.69%	0.92%	2.9	

Sound 10 *Chalumeau – Legato – C*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	65.422	0.01755633	100.00%	36.00	0.00		0.00%	0.00%	0.0
3	196.274	0.01303123	74.23%	55.02	19.02	most partials very sharp	0.00%	0.00%	7.0
9	594.089	0.00859096	48.93%	74.20	38.19		0.90%	0.21%	2.2
24	1591.357	0.00786216	44.78%	91.26	55.25		1.35%	0.26%	7.3
7	463.165	0.0071347	40.64%	69.89	33.88		1.14%	0.28%	9.9

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15	991.886	0.00636855	36.27%	83.07	47.07	1.08%	0.22%	11.1
26	1722.313	0.00569318	32.43%	92.63	56.62	1.25%	0.23%	8.6
22	1455.217	0.00464761	26.47%	89.71	53.70	1.11%	0.21%	5.7
5	332.460	0.0042816	24.39%	64.15	28.14	1.63%	0.44%	4.1
13	861.148	0.00419272	23.88%	80.63	44.62	1.25%	0.27%	8.6
32	2120.183	0.0035322	20.12%	96.22	60.22	1.27%	0.23%	0.2
14	926.647	0.00337918	19.25%	81.89	45.89	1.17%	0.25%	9.9
30	1989.373	0.00337204	19.21%	95.12	59.12	1.36%	0.25%	11.1
28	1853.143	0.00332547	18.94%	93.89	57.89	1.16%	0.21%	9.9
16	1057.530	0.00318872	18.16%	84.18	48.18	1.03%	0.21%	0.2
20	1324.157	0.0030157	17.18%	88.07	52.07	1.20%	0.24%	4.1
12	795.778	0.00234503	13.36%	79.26	43.25	1.36%	0.30%	7.3
19	1259.300	0.00219425	12.50%	87.20	51.20	1.31%	0.26%	3.2
11	730.242	0.00205875	11.73%	77.77	41.77	1.47%	0.33%	5.8
8	528.880	0.00189134	10.77%	72.19	36.18	1.05%	0.25%	0.2
21	1390.057	0.00184538	10.51%	88.91	52.91	1.18%	0.23%	4.9
17	1126.450	0.00170748	9.73%	85.27	49.27	1.28%	0.26%	1.3
25	1657.470	0.00146671	8.35%	91.96	55.96	1.34%	0.25%	8.0
18	1193.563	0.0014018	7.98%	86.28	50.27	1.36%	0.27%	2.3
10	665.046	0.00106708	6.08%	76.15	40.15	1.65%	0.37%	4.2
33	2186.360	0.00104494	5.95%	96.76	60.75	1.27%	0.23%	0.8
23	1525.037	0.00098682	5.62%	90.52	54.51	1.35%	0.26%	6.5
29	1917.770	0.00094453	5.38%	94.49	58.48	1.08%	0.20%	10.5
31	2055.417	0.00093762	5.34%	95.69	59.68	1.35%	0.24%	11.7
27	1786.563	0.00085825	4.89%	93.26	57.26	1.14%	0.21%	9.3
6	398.132	0.00036093	2.06%	67.27	31.26	1.43%	0.37%	7.3
4	267.329	0.00027467	1.56%	60.37	24.37	2.16%	0.62%	0.4
2	129.753	0.00019277	1.10%	47.86	11.85	-0.83%	-0.30%	11.9

Sound 11 Chalumeau – Legato – D

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	74.068	0.02063807	100.00%	38.15	0.00		0.00%	0.00%	2.2
7	507.798	0.01714287	83.06%	71.48	33.33	<i>all partials very flat</i>	-2.06%	-0.50%	11.5
3	216.854	0.01134563	54.97%	56.75	18.60		-2.41%	-0.74%	8.8
22	1602.873	0.01002921	48.60%	91.38	53.23		-1.63%	-0.31%	7.4
5	365.003	0.00998166	48.37%	65.76	27.61		-1.44%	-0.38%	5.8
24	1745.697	0.00744674	36.08%	92.86	54.71		-1.80%	-0.34%	8.9
9	655.922	0.00683995	33.14%	75.91	37.76		-1.60%	-0.37%	3.9
15	1089.693	0.00563457	27.30%	84.70	46.55		-1.92%	-0.39%	0.7
30	2184.790	0.00549492	26.63%	96.74	58.59		-1.68%	-0.30%	0.7
21	1528.970	0.00518701	25.13%	90.56	52.41		-1.70%	-0.33%	6.6
28	2036.620	0.00504062	24.42%	95.53	57.37		-1.80%	-0.33%	11.5
34	2475.703	0.00455718	22.08%	98.91	60.75		-1.69%	-0.30%	2.9
26	1893.883	0.00427849	20.73%	94.27	56.12		-1.66%	-0.31%	10.3
14	1020.967	0.00375249	18.18%	83.57	45.42		-1.54%	-0.32%	11.6
20	1454.670	0.00373973	18.12%	89.70	51.55		-1.80%	-0.35%	5.7
23	1673.570	0.00341414	16.54%	92.13	53.98		-1.76%	-0.33%	8.1
18	1311.900	0.00301809	14.62%	87.91	49.76		-1.60%	-0.32%	3.9
32	2327.527	0.00288466	13.98%	97.84	59.69		-1.80%	-0.32%	1.8
11	798.856	0.00267828	12.98%	79.33	41.17		-1.95%	-0.43%	7.3
10	730.050	0.00260702	12.63%	77.77	39.61		-1.43%	-0.32%	5.8
16	1163.857	0.00254929	12.35%	85.84	47.69		-1.79%	-0.36%	1.8
17	1237.917	0.00253408	12.28%	86.91	48.76		-1.69%	-0.34%	2.9
27	1966.277	0.00236547	11.46%	94.92	56.77		-1.68%	-0.31%	10.9
33	2401.867	0.00215666	10.45%	98.38	60.23		-1.73%	-0.31%	2.4
35	2550.123	0.00213492	10.34%	99.42	61.27		-1.63%	-0.29%	3.4
31	2259.147	0.00208398	10.10%	97.32	59.17		-1.61%	-0.29%	1.3
13	946.897	0.00207018	10.03%	82.27	44.12		-1.66%	-0.35%	10.3
29	2110.840	0.00206867	10.02%	96.15	57.99		-1.73%	-0.31%	0.1
19	1382.740	0.00201355	9.76%	88.82	50.67		-1.74%	-0.34%	4.8
8	581.850	0.00150584	7.30%	73.84	35.68		-1.80%	-0.43%	1.8
12	872.812	0.00123459	5.98%	80.86	42.71		-1.80%	-0.39%	8.9
25	1819.747	0.00062238	3.02%	93.58	55.42		-1.73%	-0.32%	9.6
6	439.119	0.00045286	2.19%	68.97	30.81		-1.19%	-0.30%	9.0
4	291.046	0.00038907	1.89%	61.84	23.69		-1.76%	-0.50%	1.8
2	146.492	0.00026805	1.30%	49.96	11.81		-1.11%	-0.39%	2.0

Sound 12 Chalumeau – Legato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	76.492	0.02678767	100.00%	38.71	0.00		0.00%	0.00%	2.7
7	540.888	0.0200556	74.87%	72.57	33.86	<i>all partials very sharp similar to Sound 9</i>	1.02%	0.24%	0.6
5	387.882	0.01638463	61.16%	66.82	28.11		1.42%	0.37%	6.8
3	234.907	0.01385773	51.73%	58.14	19.42		2.37%	0.70%	10.1
13	1010.877	0.00957789	35.75%	83.40	44.69		1.66%	0.34%	11.4
20	1551.757	0.00702278	26.22%	90.82	52.11		1.43%	0.27%	6.8
22	1710.093	0.00500798	18.70%	92.50	54.79		1.62%	0.30%	8.5
9	699.176	0.0047558	17.75%	77.02	38.31		1.56%	0.35%	5.0
24	1863.127	0.00443752	16.57%	93.99	55.28		1.49%	0.27%	10.0
26	2021.673	0.00417405	15.58%	95.40	56.69		1.65%	0.30%	11.4
28	2174.600	0.00400238	14.94%	96.66	57.95		1.53%	0.27%	0.7
15	1163.900	0.00392605	14.66%	85.84	47.13		1.44%	0.29%	1.8
32	2485.970	0.00376364	14.05%	98.98	60.27		1.56%	0.27%	3.0
14	1087.567	0.0033029	12.33%	84.67	45.96		1.56%	0.32%	0.7
23	1786.993	0.00305484	11.40%	93.26	54.55		1.57%	0.29%	9.3
18	1398.637	0.00300787	11.23%	89.02	50.31		1.58%	0.31%	5.0
8	622.936	0.00289574	10.81%	75.02	36.31		1.80%	0.41%	3.0
21	1634.267	0.00273848	10.22%	91.72	53.01		1.74%	0.33%	7.7
34	2638.997	0.00257363	9.61%	100.01	61.30		1.47%	0.25%	4.0
11	852.437	0.00235714	8.80%	80.45	41.74		1.31%	0.28%	8.4
17	1322.187	0.00211297	7.89%	88.05	49.34		1.68%	0.33%	4.0
30	2327.523	0.00207354	7.74%	97.84	59.13		1.43%	0.25%	1.8
31	2409.707	0.00205376	7.67%	98.44	59.73		1.62%	0.28%	2.4
33	2562.747	0.00189712	7.08%	99.51	60.79		1.53%	0.26%	3.5
29	2251.603	0.00176254	6.58%	97.26	58.55		1.50%	0.27%	1.3
27	2098.803	0.00162059	6.05%	96.05	57.34		1.62%	0.29%	0.0
19	1475.953	0.00155395	5.80%	89.95	51.24		1.56%	0.30%	6.0
16	1240.407	0.00121372	4.53%	86.94	48.23		1.35%	0.27%	2.9
6	464.739	0.00102192	3.81%	69.95	31.24		1.26%	0.31%	9.9
35	2714.253	0.00097813	3.65%	100.50	61.79		1.38%	0.24%	4.5
10	775.942	0.00091653	3.42%	78.82	40.11		1.44%	0.32%	6.8
25	1942.003	0.0008719	3.25%	94.70	55.99		1.55%	0.28%	10.7
12	934.418	0.00080259	3.00%	82.04	43.33		1.80%	0.38%	10.0
2	153.259	0.00058209	2.17%	50.74	12.03		0.18%	0.06%	2.7
4	311.861	0.00024409	0.91%	63.04	24.33		1.93%	0.53%	3.0

Sound 13 Chalumeau – Legato – F										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	86.741	0.04717423	100.00%	40.89	0.00		0.00%	0.00%	4.9	
5	439.111	0.0278525	59.04%	68.96	28.08	<i>all partials sharp, 2 & 3 less so</i>	1.25%	0.31%	9.0	
3	260.240	0.02615787	55.45%	59.91	19.02		0.01%	0.00%	11.9	
7	612.625	0.01022317	21.67%	74.73	33.84		0.90%	0.21%	2.7	
11	959.850	0.00669231	14.19%	82.50	41.62	0.60%	0.13%	10.5		
18	1572.470	0.00562445	11.92%	91.05	50.16	0.71%	0.14%	7.0		
9	786.215	0.00539357	11.43%	79.05	38.16	0.71%	0.16%	7.0		
13	1136.877	0.00519357	11.01%	85.43	44.55	0.82%	0.17%	1.4		
12	1046.717	0.0047133	9.99%	84.00	43.12	0.56%	0.12%	0.0		
25	2185.553	0.00352939	7.48%	96.75	55.86	0.79%	0.14%	0.7		
17	1485.893	0.00315161	6.68%	90.07	49.18	0.77%	0.15%	6.1		
23	2012.080	0.00310255	6.58%	95.32	54.43	0.85%	0.15%	11.3		
20	1745.987	0.00295375	6.26%	92.86	51.97	0.64%	0.12%	8.9		
19	1659.760	0.00294269	6.24%	91.98	51.10	0.71%	0.13%	8.0		
26	2272.100	0.00280808	5.95%	97.42	56.53	0.75%	0.13%	1.4		
10	873.110	0.00265024	5.62%	80.86	39.98	0.66%	0.14%	8.9		
35	3057.977	0.0024033	5.09%	102.56	61.68	0.73%	0.12%	6.6		
27	2359.010	0.00232957	4.94%	98.07	57.18	0.73%	0.13%	2.1		
34	2972.247	0.00229853	4.87%	102.07	61.18	0.78%	0.13%	6.1		
22	1925.133	0.00220956	4.68%	94.55	53.67	0.88%	0.16%	10.6		
32	2798.467	0.00214046	4.54%	101.03	60.14	0.82%	0.14%	5.0		
14	1225.357	0.00203957	4.32%	86.73	45.84	0.90%	0.18%	2.7		
33	2884.560	0.00200244	4.24%	101.55	60.67	0.77%	0.13%	5.6		
30	2625.007	0.00195389	4.14%	99.92	59.92	0.88%	0.15%	3.9		
29	2536.080	0.00190367	4.04%	99.32	58.44	0.82%	0.14%	3.3		
21	1836.653	0.00172941	3.67%	93.74	52.85	0.83%	0.15%	9.7		
31	2709.217	0.00166508	3.53%	100.47	59.58	0.75%	0.13%	4.5		
8	699.527	0.00149796	3.18%	77.03	36.14	0.81%	0.18%	5.0		
24	2098.663	0.00143361	3.04%	96.05	55.16	0.81%	0.15%	0.0		
28	2447.820	0.0014185	3.01%	98.71	57.82	0.79%	0.14%	2.7		
16	1398.857	0.00122672	2.60%	89.02	48.14	0.79%	0.15%	5.0		
15	1312.183	0.00118235	2.51%	87.92	47.03	0.85%	0.17%	3.9		
6	526.230	0.001156738	2.45%	72.10	31.21	1.11%	0.27%	0.1		
2	173.555	0.00098729	2.09%	52.89	12.01	0.04%	0.01%	4.9		
4	351.038	0.00049126	1.04%	65.09	24.20	1.17%	0.31%	5.1		

Sound 14 Chalumeau – Legato – G										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	97.325	0.0414887	100.00%	42.88	0.00		0.00%	0.00%	6.9	
3	291.985	0.0382483	92.19%	61.90	19.02	<i>all partials sharp to slightly varying degrees</i>	0.00%	0.00%	1.9	
5	486.651	0.01649413	39.76%	70.74	27.86		0.00%	0.00%	10.7	
11	1076.160	0.012056	29.06%	84.48	41.60		0.52%	0.11%	0.5	
7	686.700	0.01006159	24.25%	76.71	33.83	0.80%	0.18%	4.7		
9	881.495	0.00708625	17.08%	81.03	38.15	0.64%	0.14%	9.0		
21	2055.043	0.00592511	14.28%	95.68	52.80	0.55%	0.10%	11.7		
15	1465.433	0.00581857	14.02%	89.83	46.95	0.38%	0.07%	5.8		
16	1562.837	0.00465752	11.23%	90.94	48.06	0.36%	0.07%	6.9		
30	2934.943	0.00441106	10.63%	101.85	58.97	0.52%	0.09%	5.9		
10	1957.770	0.00422173	10.18%	94.84	51.96	0.58%	0.11%	10.8		
10	978.871	0.00383489	9.24%	82.84	39.96	0.58%	0.12%	10.8		
25	2444.307	0.00352123	8.49%	98.69	55.81	0.46%	0.08%	2.7		
29	2833.607	0.00332351	8.01%	101.24	58.36	0.40%	0.07%	5.2		
18	1759.373	0.00294078	7.09%	92.99	50.11	0.43%	0.08%	9.0		
12	1173.653	0.00278837	6.72%	85.99	43.10	0.49%	0.10%	2.0		
17	1660.107	0.0027667	6.67%	91.99	49.11	0.34%	0.06%	8.0		
13	1270.737	0.0027081	6.53%	87.36	44.48	0.44%	0.09%	3.4		
23	2249.677	0.0023376	5.63%	97.25	54.37	0.50%	0.09%	1.2		
8	784.205	0.00221861	5.35%	79.00	36.12	0.72%	0.16%	7.0		
27	2639.017	0.00219479	5.29%	100.01	57.13	0.43%	0.07%	4.0		
6	587.759	0.00214185	5.16%	74.01	31.13	0.65%	0.15%	2.0		
24	2347.363	0.00211133	5.09%	97.99	55.10	0.49%	0.09%	2.0		
31	3029.760	0.00324513	7.82%	102.40	59.52	0.42%	0.07%	6.4		
22	2152.310	0.00203544	4.91%	96.48	53.60	0.52%	0.09%	0.5		
26	2541.943	0.00190823	4.60%	99.36	56.48	0.45%	0.08%	3.4		
32	3131.250	0.00188702	4.55%	102.97	60.09	0.54%	0.09%	7.0		
19	1860.403	0.0018869	4.55%	93.96	51.08	0.61%	0.11%	10.0		
14	1368.117	0.00153031	3.69%	88.64	45.76	0.41%	0.08%	4.6		
34	3325.590	0.00147225	3.55%	104.02	61.14	0.50%	0.08%	8.0		
2	194.754	0.00130904	3.16%	54.89	12.01	0.05%	0.02%	6.9		
33	3227.907	0.00102087	2.46%	103.50	60.62	0.50%	0.08%	7.5		
35	3424.077	0.00088458	2.13%	104.52	61.64	0.52%	0.09%	8.5		
4	389.485	0.00086929	2.10%	66.89	24.01	0.05%	0.01%	6.9		
28	2736.777	0.0007088	1.71%	100.64	57.76	0.43%	0.07%	4.6		

Sound 15 Chalumeau – Legato – A										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	108.882	0.05308027	100.00%	44.82	0.00		0.00%	0.00%	8.8	
3	332.078	0.02590427	48.80%	64.13	19.31	<i>All harmonic partials sharp except partial 2</i>	1.66%	0.45%	4.1	
5	549.937	0.02162593	40.74%	72.86	28.04		1.02%	0.24%	0.9	
9	991.275	0.00808371	15.23%	83.06	38.24		1.16%	0.24%	11.1	
14	1540.837	0.00733172	13.81%	90.70	45.87	1.08%	0.21%	6.7		
10	1099.913	0.00727257	13.70%	84.86	40.04	1.02%	0.21%	0.9		
7	773.121	0.00647111	12.19%	78.76	33.94	1.44%	0.31%	6.8		
18	1982.023	0.00610495	11.50%	95.06	50.23	1.13%	0.21%	11.1		
26	2864.143	0.00548344	10.33%	101.43	56.61	1.17%	0.20%	5.4		
11	1214.610	0.00463855	8.74%	86.58	41.76	1.41%	0.28%	2.6		
19	2093.187	0.00440882	8.31%	96.00	51.18	1.18%	0.21%	0.0		
21	2314.713	0.00389209	7.33%	97.74	52.92	1.23%	0.22%	1.7		
12	1322.957	0.00363511	6.85%	88.06	43.24	1.25%	0.25%	4.1		
22	2422.833	0.00331347	6.24%	98.53	53.71	1.15%	0.20%	2.5		
16	1764.140	0.00311745	5.87%	93.04	48.22	1.26%	0.23%	9.0		
24	2642.383	0.00250248	4.71%	100.04	55.21	1.12%	0.19%	4.0		
8	882.232	0.00242069	4.56%	81.04	36.22	1.28%	0.27%	9.0		
17	1873.323	0.00205371	3.87%	94.08	49.26	1.21%	0.22%	10.1		
13	1432.207	0.00203972	3.84%	89.43	44.61	1.18%	0.23%	5.4		
6	658.853	0.00191688	3.61%	75.99	31.17	0.85%	0.19%	4.0		
20	2205.157	0.00142984	2.69%	96.90	52.08	1.26%	0.22%	0.9		
23	2534.313	0.00140928	2.65%	99.31	54.49	1.20%	0.21%	3.3		
2	217.600	0.00078444	1.48%	56.81	11.99	-0.08%	-0.02%	8.8		
4	441.699	0.00052386	0.99%	69.07	24.24	1.42%	0.35%	9.1		
18	1921.620	0.00043166	0.81%	94.52	49.70	-1.95%	-0.36%	10.5		
16	1705.807	0.00042949	0.81%	92.46	47.64	-2.08%	-0.39%	8.5		

25	2755.963	0.00031013	0.58%	100.76	55.94		1.25%	0.21%	4.8
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Sound 16 *Chalumeau – Legato – High Bb*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	117.663	0.04721113	100.00%	46.17	0.00		0.00%	0.00%	10.2
3	352.918	0.02231423	47.26%	65.18	19.02	<i>All harmonic partials flat except partial 2</i>	-0.02%	-0.01%	5.2
9	1053.260	0.01882627	39.88%	84.11	37.95		-0.54%	-0.11%	0.1
5	582.315	0.0185728	39.34%	73.85	27.69		-1.02%	-0.24%	1.9
7	817.728	0.01365797	28.93%	79.73	33.56		-0.72%	-0.16%	7.7
11	1283.210	0.00785382	16.64%	87.53	41.36		-0.86%	-0.17%	3.5
14	1635.450	0.0055618	11.78%	91.73	45.56		-0.72%	-0.14%	7.7
25	2918.273	0.00511181	10.83%	101.75	55.59		-0.79%	-0.14%	5.8
17	1989.400	0.00480886	10.19%	95.12	48.96		-0.54%	-0.10%	11.1
8	935.743	0.00423535	8.97%	82.06	35.90		-0.59%	-0.12%	10.1
18	2100.603	0.00420124	8.90%	96.06	49.90		-0.82%	-0.15%	0.1
10	1171.477	0.00379335	8.03%	85.95	39.79		-0.44%	-0.09%	2.0
13	1518.653	0.00337605	7.15%	90.45	44.28		-0.72%	-0.14%	6.4
12	1400.193	0.00314525	6.66%	89.04	42.87		-0.83%	-0.16%	5.0
15	1754.467	0.0029269	6.20%	92.95	46.78		-0.59%	-0.11%	8.9
20	2335.933	0.00269684	5.71%	97.90	51.74		-0.74%	-0.13%	1.9
22	2571.373	0.00273786	5.80%	99.56	53.40		-0.66%	-0.12%	3.6
26	3036.230	0.00260361	5.51%	102.44	56.27		-0.75%	-0.13%	6.4
6	700.178	0.00251384	5.32%	77.04	30.88		-0.82%	-0.19%	5.0
29	3383.060	0.00247465	5.24%	104.31	58.15		-0.85%	-0.14%	8.3
16	1864.810	0.00237254	5.03%	94.00	47.84		-0.95%	-0.17%	10.0
24	2800.687	0.00204114	4.32%	101.04	54.88		-0.82%	-0.14%	5.0
27	3153.270	0.00198947	4.21%	103.10	56.93		-0.74%	-0.13%	7.1
19	2219.040	0.00156155	3.31%	97.01	50.85		-0.74%	-0.13%	1.0
32	3735.397	0.0014814	3.14%	106.03	59.86		-0.79%	-0.13%	10.0
30	3505.077	0.00104274	2.21%	104.93	58.76		-0.70%	-0.12%	8.9
31	3618.940	0.00103984	2.20%	105.48	59.31		-0.78%	-0.13%	9.5
28	3272.887	0.0008217	1.74%	103.74	57.57		-0.66%	-0.11%	7.7
4	461.268	0.00081491	1.73%	69.82	23.65		-1.99%	-0.50%	9.8
2	236.515	0.00074856	1.59%	58.25	12.09		0.51%	0.15%	10.3
23	2687.297	0.00074581	1.58%	100.33	54.16		-0.70%	-0.12%	4.3
21	2451.137	0.00056168	1.19%	98.73	52.57		-0.80%	-0.14%	2.7

Sound 17 *Throat – pp – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	174.313	0.01148651	100.00%	52.97	0.00		0.00%	0.00%	5.0
3	528.296	0.00052191	4.54%	72.17	19.20		1.02%	0.25%	0.2
9	1597.883	9.8374E-005	0.86%	91.33	38.36		1.85%	0.35%	7.3

Sound 18 *Throat – pp – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	210.858	0.011	100.00%	56.27	0.00		0.00%	0.00%	8.3
3	630.820	0.00049342	4.49%	75.24	18.97		-0.28%	-0.06%	3.2
2	419.920	0.00014354	1.30%	68.19	11.93		-0.43%	-0.11%	8.2
5	1048.683	0.00010817	0.98%	84.04	27.77		-0.53%	-0.11%	0.0
8	1676.050	4.9100E-005	0.45%	92.15	35.89		-0.64%	-0.12%	8.2

Sound 19 *Throat – ff – low*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	173.395	0.1013396	100.00%	52.88	0.00		0.00%	0.00%	4.9
3	525.585	0.05562457	54.89%	72.08	19.20	<i>note that all harmonic partials are slightly sharp</i>	1.04%	0.25%	0.1
6	1045.747	0.04686377	46.34%	83.99	31.11		0.52%	0.11%	12.0
7	1220.943	0.04197093	41.42%	86.67	33.79		0.59%	0.12%	2.7
9	1571.313	0.03624533	35.77%	91.04	38.16		0.69%	0.13%	7.0
17	2965.710	0.0301284	29.73%	102.03	49.15		0.61%	0.10%	6.0
5	872.399	0.02857897	28.20%	80.85	27.97		0.63%	0.13%	8.8
8	1397.967	0.01999153	19.73%	89.01	36.13		0.78%	0.15%	5.0
12	2093.420	0.01645683	16.24%	96.00	43.12		0.61%	0.11%	0.0
4	698.994	0.01502663	14.83%	77.01	24.13		0.78%	0.18%	5.0
15	2618.907	0.0139093	13.73%	99.88	47.00		0.69%	0.12%	3.9
11	1919.853	0.01353947	13.36%	94.51	41.63		0.66%	0.12%	10.5
21	3664.697	0.01052299	10.38%	105.70	52.82		0.64%	0.11%	9.7
18	3140.897	0.01001082	9.88%	103.03	50.15		0.63%	0.11%	7.0
20	3491.320	0.00890971	8.79%	104.86	51.98		0.68%	0.11%	8.9
14	2443.813	0.00753947	7.44%	98.68	45.80		0.67%	0.12%	2.7
24	4190.353	0.00652729	6.44%	108.02	55.14		0.69%	0.11%	0.0
23	4015.043	0.00591417	5.84%	107.28	54.40		0.68%	0.11%	11.3
26	4537.130	0.00570311	5.63%	109.39	56.52		0.64%	0.10%	1.4
19	3317.950	0.00551982	5.45%	103.98	51.10		0.71%	0.12%	8.0
22	3837.947	0.0048094	4.75%	106.50	53.62		0.61%	0.10%	10.5
10	1744.483	0.00461598	4.55%	92.85	39.97		0.61%	0.11%	8.8
29	5062.633	0.00440904	4.35%	111.29	58.41		0.68%	0.11%	3.3
25	4363.630	0.00365514	3.61%	108.72	55.84		0.66%	0.11%	0.7
27	4712.233	0.00291859	2.88%	110.05	57.17		0.65%	0.10%	2.1
16	2792.183	0.00262798	2.59%	100.99	48.11		0.64%	0.11%	5.0
13	2268.587	0.00253339	2.50%	97.39	44.52		0.64%	0.11%	1.4
28	4887.483	0.00162849	1.61%	110.68	57.80		0.67%	0.10%	2.7
30	5236.357	0.00141809	1.40%	111.88	59.00		0.66%	0.10%	3.9
31	5411.243	0.00106141	1.05%	112.44	59.57		0.67%	0.10%	4.4
2	346.803	0.0005937	0.59%	64.88	12.00		0.00%	0.00%	4.9

Sound 20 *Throat – ff – high*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	206.236	0.07163407	100.00%	55.88	0.00		0.00%	0.00%	7.9
5	1040.207	0.04708893	65.74%	83.90	28.01	<i>All partials quite sharp, similar to Sound 9 but to a lesser degree</i>	0.88%	0.18%	11.9
7	1454.500	0.0294691	41.14%	89.70	33.82		0.75%	0.14%	5.7
3	624.090	0.0263521	36.79%	75.05	19.17		0.87%	0.20%	3.1
14	2912.533	0.0172009	24.01%	101.72	45.84		0.87%	0.15%	5.7
9	1872.357	0.01127987	15.75%	94.07	38.19		0.87%	0.16%	10.1
6	1248.187	0.01120213	15.64%	87.05	31.17		0.87%	0.17%	3.1
15	3118.703	0.00962033	13.43%	102.90	47.02		0.81%	0.14%	6.9
4	830.416	0.00711716	9.94%	80.00	24.11		0.66%	0.14%	8.0
18	3743.183	0.00544725	7.60%	106.06	50.18		0.83%	0.14%	10.1
10	2079.073	0.00523942	7.31%	95.88	40.00		0.81%	0.15%	11.9
13	2702.730	0.0049286	6.88%	100.43	44.54		0.81%	0.14%	4.4

Appendix 3

17	3536.680	0.00385066	5.38%	105.08	49.20	0.87%	0.14%	9.1
16	3325.163	0.00363098	5.07%	104.01	48.13	0.77%	0.13%	8.0
11	2288.477	0.00342314	4.78%	97.55	41.66	0.88%	0.16%	1.5
12	2494.870	0.00327772	4.58%	99.04	43.16	0.81%	0.14%	3.0
20	4161.247	0.00306307	4.28%	107.90	52.02	0.89%	0.14%	11.9
21	4366.977	0.00275591	3.85%	108.73	52.85	0.83%	0.13%	0.7
23	4783.180	0.00219638	3.07%	110.31	54.43	0.84%	0.13%	2.3
19	3949.023	0.00214178	2.99%	106.99	51.11	0.78%	0.13%	11.0
2	417.904	0.0021393	2.99%	68.11	12.23	1.32%	0.33%	8.1
8	1665.063	0.00184808	2.58%	92.04	36.16	0.92%	0.17%	8.0
30	6237.473	0.00167173	2.33%	114.90	59.02	0.81%	0.12%	6.9
28	5821.277	0.001601	2.23%	113.71	57.83	0.81%	0.12%	5.7
22	4573.487	0.00149934	2.09%	109.53	53.65	0.80%	0.13%	1.5
24	4995.017	0.00085868	1.20%	111.06	55.18	0.92%	0.14%	3.1
26	5405.280	0.00041652	0.58%	112.43	56.54	0.80%	0.12%	4.4
29	6031.930	0.00032299	0.45%	114.32	58.44	0.85%	0.13%	6.3

Sound 21 Throat – Staccato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	172.478	0.07198563	100.00%	52.79	0.00		0.00%	0.00%	4.8
3	516.450	0.0398304	55.33%	71.77	18.99	<i>All harmonic partials flat except partial 17</i>	-0.19%	-0.05%	11.8
5	864.163	0.02364913	32.85%	80.69	27.90		0.21%	0.04%	8.7
6	1036.310	0.0232165	32.25%	83.83	31.04		0.14%	0.03%	11.8
7	1208.390	0.01801267	25.02%	86.49	33.70		0.09%	0.02%	2.5
10	1715.473	0.01734763	24.10%	92.56	39.77		-0.54%	-0.10%	8.6
17	2932.133	0.01714457	23.82%	101.84	49.05		0.00%	0.00%	5.8
9	1554.407	0.0159303	22.13%	90.85	38.06		0.14%	0.03%	6.8
12	2063.287	0.01488419	20.68%	95.75	42.97		-0.31%	-0.06%	11.8
11	1891.810	0.01464023	20.34%	94.25	41.46		-0.29%	-0.05%	10.3
15	2580.653	0.0141455	19.65%	99.63	46.84		-0.25%	-0.04%	3.6
4	689.212	0.01265927	17.59%	76.77	26.77		-0.10%	-0.02%	4.8
8	1371.903	0.01037449	14.41%	88.69	35.90		-0.57%	-0.11%	4.7
14	2407.980	0.00890166	12.37%	98.43	45.64		-0.28%	-0.05%	2.4
13	2235.247	0.00850041	11.81%	97.14	44.35		-0.31%	-0.06%	1.1
18	3090.153	0.00806361	11.20%	102.75	49.96		-0.47%	-0.08%	6.7
16	2737.273	0.00437777	6.08%	100.65	47.86		-0.81%	-0.14%	4.6
20	3445.517	0.00435463	6.05%	104.63	51.84		-0.12%	-0.02%	8.6
22	3797.040	0.00307482	4.27%	106.31	53.52		0.07%	0.01%	10.3
24	4141.463	0.00254529	3.54%	107.81	55.03		0.05%	0.01%	11.8
25	4285.033	0.00189152	2.63%	108.40	55.62		-0.62%	-0.10%	0.4
26	4482.350	0.00167727	2.33%	109.18	56.40		-0.05%	-0.01%	1.2
19	3273.020	0.00153431	2.13%	103.74	50.95		-0.12%	-0.02%	7.7
28	4816.507	0.00153051	2.13%	110.43	57.64		-0.27%	-0.04%	2.4
29	4999.127	0.00129591	1.80%	111.07	58.29		-0.05%	-0.01%	3.1
27	4625.940	0.00127636	1.77%	109.73	56.94		-0.66%	-0.11%	1.7
28	4769.193	0.00126125	1.75%	110.26	57.47	INHARMONIC	-1.25%	-0.20%	2.3
21	3599.317	0.00102519	1.42%	105.39	52.60		-0.63%	-0.10%	9.4
23	3943.680	0.00090077	1.25%	106.97	54.18		-0.59%	-0.10%	11.0

Sound 22 Throat – Staccato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	204.308	0.06765197	100.00%	55.72	0.00		0.00%	0.00%	7.7
3	610.282	0.0298837	44.17%	74.66	18.94		-0.43%	-0.10%	2.7
5	1020.007	0.02857893	42.24%	83.56	27.84		-0.15%	-0.03%	11.6
10	2038.293	0.0258623	38.23%	95.54	39.82		-0.23%	-0.04%	11.5
7	1425.467	0.02320237	34.30%	89.35	33.63		-0.33%	-0.06%	5.4
8	1628.543	0.01846227	27.29%	91.66	35.94		-0.36%	-0.07%	7.7
9	1834.477	0.01621137	23.96%	93.72	38.00		-0.23%	-0.04%	9.7
15	3057.477	0.01601567	23.67%	102.56	46.84		-0.23%	-0.04%	6.6
6	1220.703	0.01295043	19.14%	86.67	30.95		-0.42%	-0.08%	2.7
4	815.004	0.00939411	13.89%	79.67	23.95		-0.27%	-0.06%	7.7
13	2648.663	0.00864203	12.77%	100.08	44.36		-0.28%	-0.05%	4.1
11	2235.877	0.00815668	12.06%	97.14	41.42		-0.51%	-0.09%	1.1
14	2860.473	0.00749942	11.09%	101.41	45.69		0.01%	0.00%	5.4
12	2440.290	0.00674548	9.97%	98.66	42.94		-0.47%	-0.08%	2.7
17	3463.547	0.00562515	8.31%	104.72	49.00		-0.28%	-0.05%	8.7
18	3674.830	0.00322108	4.76%	105.75	50.03		-0.07%	-0.01%	9.7
16	3258.423	0.00310591	4.59%	103.66	47.94		-0.32%	-0.05%	7.7
21	4245.497	0.00258519	3.82%	108.24	52.53		-1.05%	-0.17%	0.2
2	406.500	0.0025497	3.77%	67.63	11.91		-0.52%	-0.13%	7.6
20	4094.743	0.00201547	2.98%	107.62	51.90		0.21%	0.03%	11.6
19	3843.553	0.00186653	2.76%	106.52	50.80		-0.99%	-0.16%	10.5
22	4500.273	0.00165163	2.44%	109.25	53.53		0.12%	0.02%	1.3
23	4651.347	0.00159069	2.35%	109.82	54.11		-1.02%	-0.16%	1.8
24	4895.143	0.00109681	1.62%	110.71	54.99		-0.17%	-0.03%	2.7
8	1701.533	0.00104702	1.55%	92.42	36.70	INHARMONIC	4.10%	0.76%	8.4
24	4813.910	0.00076714	1.13%	110.42	54.70	INHARMONIC	-1.83%	-0.29%	2.4
22	4413.890	0.00073229	1.08%	108.92	53.20	INHARMONIC	-1.80%	-0.29%	0.9

Sound 23 Throat – Legato – E

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	162.289	0.04257503	100.00%	51.73	0.00		0.00%	0.00%	3.7
3	486.885	0.02970827	69.78%	70.75	19.02	<i>All harmonic partials slightly sharp except partial 2</i>	0.00%	0.00%	10.8
5	816.833	0.02401997	56.42%	79.71	27.98		0.66%	0.14%	7.7
7	1141.497	0.02177723	51.15%	85.50	33.77		0.48%	0.10%	1.5
13	2120.590	0.01502633	35.29%	96.23	44.49		0.51%	0.09%	0.2
9	1466.023	0.0115881	27.22%	89.84	38.10		0.37%	0.07%	5.8
18	2935.600	0.00751752	17.66%	101.86	50.12		0.49%	0.08%	5.9
15	2445.147	0.00653586	15.35%	98.69	46.96		0.44%	0.08%	2.7
10	1631.837	0.00588742	13.83%	91.69	39.96		0.55%	0.10%	7.7
6	979.294	0.0054318	12.76%	82.85	31.12		0.57%	0.12%	10.9
11	1794.173	0.00539018	12.66%	93.33	41.60		0.50%	0.09%	9.3
23	3752.600	0.00409907	9.63%	106.11	54.38		0.53%	0.09%	10.1
4	654.549	0.00377823	8.87%	75.88	24.14		0.83%	0.19%	3.9
8	1303.797	0.00330859	7.77%	87.81	36.07		0.42%	0.08%	3.8
21	3424.320	0.00313278	7.36%	104.52	52.79		0.48%	0.08%	8.5
19	3097.750	0.00263644	6.19%	102.79	51.05		0.46%	0.08%	6.8
22	3586.650	0.00252682	5.93%	105.32	53.59		0.46%	0.07%	9.3
16	2607.387	0.00235075	5.52%	99.80	48.07		0.41%	0.07%	3.8
20	3262.000	0.00223211	5.24%	103.68	51.95		0.50%	0.08%	7.7
25	4077.223	0.00181949	4.27%	107.54	55.81		0.49%	0.08%	11.5
17	2773.320	0.00105082	2.47%	100.87	49.14		0.52%	0.09%	4.9
12	1958.253	0.00095943	2.25%	94.85	43.12		0.55%	0.10%	10.8

2	324.518	0.00080467	1.89%	63.73	12.00	-0.02%	-0.01%	3.7
14	2283.030	0.00077092	1.81%	97.50	45.77	0.48%	0.09%	1.5
24	3916.940	0.00052354	1.23%	106.85	55.12	0.56%	0.09%	10.8

Sound 24 Throat – Legato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	172.974	0.05239357	100.00%	52.84	0.00	<i>All harmonic partials slightly sharp</i>	0.00%	0.00%	4.8
3	518.939	0.0293386	56.00%	71.86	19.02		0.00%	0.00%	11.9
7	1216.443	0.0173702	33.15%	86.61	33.77		0.46%	0.09%	2.6
5	870.415	0.01402547	26.77%	80.81	27.97		0.64%	0.14%	8.8
6	1043.600	0.0123382	23.55%	83.95	31.12		0.55%	0.11%	12.0
9	1562.410	0.00977383	18.65%	90.94	38.10		0.36%	0.07%	6.9
17	2951.727	0.00701001	13.38%	101.95	49.12		0.38%	0.06%	6.0
12	2086.723	0.00636661	12.15%	95.95	43.11		0.53%	0.10%	11.9
4	695.684	0.00431923	8.24%	76.93	24.09		0.55%	0.12%	4.9
20	3476.020	0.00414565	7.91%	104.78	51.95		0.48%	0.08%	8.8
15	2605.850	0.00391414	7.47%	99.79	46.96		0.43%	0.08%	3.8
22	3822.013	0.00299442	5.72%	106.43	53.59		0.44%	0.07%	10.4
11	1912.177	0.00247914	4.73%	94.44	41.60		0.50%	0.07%	10.4
10	1734.640	0.00196655	3.75%	92.75	39.91		0.28%	0.05%	8.7
18	3126.763	0.00189585	3.62%	102.95	50.11		0.42%	0.07%	6.9
14	2433.513	0.00184199	3.52%	98.61	45.77		0.49%	0.09%	2.6
24	4168.223	0.00176195	3.36%	107.93	55.09		0.41%	0.06%	11.9
13	2259.770	0.00165034	3.15%	97.33	44.49		0.49%	0.09%	1.3
19	3301.380	0.00136975	2.61%	103.89	51.05		0.45%	0.08%	7.9
8	1390.293	0.00120257	2.30%	88.92	36.08		0.47%	0.09%	4.9
21	3649.893	0.0011057	2.11%	105.63	52.79		0.48%	0.08%	9.6
26	4514.940	0.000843	1.61%	109.31	56.47		0.39%	0.06%	1.3
33	5734.400	0.00071024	1.36%	113.45	61.35		0.46%	0.07%	5.4
32	5561.693	0.00068979	1.32%	112.92	60.08		0.48%	0.07%	4.9
31	5386.803	0.00059639	1.14%	112.37	59.53		0.46%	0.07%	4.4
30	5212.130	0.00058505	1.12%	111.80	58.96		0.44%	0.07%	3.8
29	5039.160	0.00053447	1.02%	111.21	58.37		0.46%	0.07%	3.2
23	3998.030	0.00050171	0.96%	107.20	54.37	0.49%	0.08%	11.2	
28	4863.357	0.00030373	0.58%	110.60	57.76	0.41%	0.06%	2.6	
2	346.050	0.00024711	0.47%	64.84	12.01	0.03%	0.01%	4.8	

Sound 25 Throat – Legato – F#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	184.147	0.0631979	100.00%	53.92	0.00	<i>All harmonic partials slightly sharp</i>	0.00%	0.00%	5.9
3	556.014	0.0339538	53.73%	73.05	19.13		0.65%	0.15%	1.1
5	926.229	0.01195921	18.92%	81.89	27.97		0.60%	0.13%	9.9
9	1666.643	0.01095672	17.34%	92.06	38.14		0.56%	0.11%	8.1
16	2966.497	0.00947228	14.99%	102.04	48.12		0.68%	0.12%	6.0
6	1110.213	0.00801913	12.69%	85.02	31.10		0.48%	0.10%	1.0
11	2040.493	0.00793586	12.56%	95.56	41.64		0.73%	0.13%	11.6
4	741.943	0.00660862	10.46%	78.05	24.13		0.73%	0.16%	6.0
8	1482.100	0.00542322	8.58%	90.02	36.10		0.61%	0.12%	6.0
20	3706.607	0.00494529	7.83%	105.89	51.97		0.64%	0.10%	9.9
13	2408.800	0.00488334	7.73%	98.43	44.51		0.62%	0.11%	2.4
14	2592.843	0.00483597	7.65%	99.71	45.79		0.57%	0.10%	3.7
10	1852.473	0.00463247	7.33%	93.89	39.97		0.60%	0.11%	9.9
17	3150.930	0.00446112	7.06%	103.08	49.16		0.65%	0.11%	7.1
7	1298.180	0.00412276	6.52%	87.73	33.81		0.71%	0.14%	3.7
12	2224.513	0.00335153	5.30%	97.05	43.13		0.67%	0.12%	1.1
19	3518.513	0.00257873	4.08%	104.99	51.07		0.56%	0.09%	9.0
18	3334.697	0.00246464	3.90%	104.06	50.14		0.60%	0.10%	8.1
22	4076.307	0.00220889	3.50%	107.54	53.62		0.62%	0.10%	11.5
32	5931.100	0.00206817	3.27%	114.03	60.11		0.65%	0.10%	6.0
30	5559.207	0.00162303	2.57%	112.91	58.99		0.63%	0.10%	4.9
24	4446.073	0.00136837	2.17%	109.04	55.12		0.60%	0.10%	1.0
23	4262.637	0.00131271	2.08%	108.31	54.39		0.64%	0.10%	0.3
15	2782.077	0.001155135	1.83%	100.93	47.01		0.72%	0.12%	4.9
31	5742.927	0.001117022	1.77%	113.47	59.55		0.60%	0.09%	5.5
29	5374.810	0.00100215	1.59%	112.33	58.41		0.65%	0.10%	4.3
28	5188.763	0.00095803	1.52%	111.72	57.80		0.63%	0.10%	3.7
26	4816.580	0.00083896	1.33%	110.43	56.51	0.60%	0.09%	2.4	
27	5003.320	0.00074555	1.18%	111.09	57.17	0.63%	0.10%	3.1	
25	4632.443	0.00058008	0.92%	109.75	55.83	0.62%	0.10%	1.8	
2	368.385	0.00041779	0.66%	65.92	12.00	0.02%	0.01%	5.9	

Sound 26 Throat – Legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	194.966	0.05508873	100.00%	54.91	0.00	<i>All harmonic partials quite sharp</i>	0.00%	0.00%	6.9
3	590.299	0.03374483	61.26%	74.09	19.18		0.92%	0.22%	2.1
7	1372.127	0.01192804	21.65%	88.69	33.78		0.54%	0.11%	4.7
5	980.398	0.01181773	21.45%	82.87	27.96		0.57%	0.12%	10.9
15	2942.957	0.01145397	20.79%	101.90	46.99		0.63%	0.11%	5.9
6	1176.997	0.01089952	19.79%	86.03	31.13		0.62%	0.12%	2.0
8	1570.517	0.00971435	17.63%	91.03	36.12		0.69%	0.13%	7.0
11	2157.557	0.00960507	17.44%	96.53	41.62		0.60%	0.11%	0.5
19	3728.243	0.00634159	11.51%	106.00	51.09		0.65%	0.11%	10.0
4	785.249	0.00594109	10.78%	79.03	24.12		0.69%	0.15%	7.0
12	2354.320	0.00559382	10.15%	98.04	43.13		0.63%	0.11%	2.0
10	1962.440	0.00505133	9.17%	94.88	39.98		0.66%	0.12%	10.9
16	3137.957	0.00480761	8.73%	103.01	48.10		0.59%	0.10%	7.0
9	1765.813	0.00325104	5.90%	93.06	38.15		0.63%	0.12%	9.1
13	2551.053	0.00316857	5.75%	99.43	44.52		0.65%	0.11%	3.4
14	2748.023	0.00270329	4.91%	100.71	45.81		0.68%	0.12%	4.7
21	4119.907	0.00265427	4.82%	107.72	52.82		0.63%	0.10%	11.7
17	3334.803	0.00239462	4.35%	104.06	49.16		0.62%	0.10%	8.1
18	3528.563	0.00234344	4.25%	105.04	50.13		0.55%	0.09%	9.0
23	4511.513	0.00123383	2.24%	109.30	54.39		0.61%	0.10%	1.3
26	5102.347	0.00117435	2.13%	111.43	56.52		0.66%	0.10%	3.4
20	3923.247	0.00096509	1.75%	106.88	51.97		0.61%	0.10%	10.9
2	391.754	0.00095369	1.73%	66.99	12.08		0.47%	0.12%	7.0
27	5297.303	0.00092053	1.67%	112.08	57.17		0.63%	0.10%	4.1
22	4314.703	0.00069482	1.26%	108.52	53.62		0.59%	0.09%	0.5
24	4708.390	0.00055223	1.00%	110.04	55.13		0.62%	0.10%	2.0

Sound 27 Throat – Legato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	205.806	0.06193887	100.00%	55.85	0.00	<i>All harmonic partials quite sharp</i>	0.00%	0.00%	7.8
3	622.786	0.03445803	56.63%	75.01	19.17		0.87%	0.20%	3.0
5	1451.653	0.02813687	45.43%	89.67	33.82		0.76%	0.15%	5.7
7	1034.617	0.02735663	44.17%	83.80	27.96		0.54%	0.11%	11.8
14	2897.863	0.01402	22.64%	101.63	45.79		0.58%	0.10%	5.6
6	1240.307	0.01322873	21.36%	86.94	31.10		0.44%	0.09%	2.9
10	2069.113	0.01317527	21.27%	95.80	39.96		0.54%	0.10%	11.8
8	1657.317	0.012508	20.19%	91.96	36.11		0.66%	0.12%	8.0
9	1863.327	0.00789485	12.75%	93.99	38.14		0.60%	0.11%	10.0
15	3107.527	0.00755055	12.19%	102.84	47.00		0.66%	0.11%	6.8
18	3726.123	0.00720244	11.63%	105.99	50.14		0.58%	0.10%	10.0
4	828.634	0.00689499	11.13%	79.96	24.11		0.66%	0.14%	8.0
17	3520.713	0.00627947	10.14%	105.00	49.16		0.63%	0.10%	9.0
20	4141.130	0.00461711	7.45%	107.81	51.97		0.61%	0.10%	11.8
11	2278.503	0.0042493	6.86%	97.47	41.62		0.65%	0.11%	1.5
13	2692.083	0.0040344	6.51%	100.36	44.51	0.62%	0.11%	4.4	
12	2486.120	0.00281299	4.54%	98.98	43.13	0.67%	0.12%	3.0	
16	3314.580	0.00263014	4.25%	103.96	48.11	0.66%	0.11%	8.0	
19	3933.827	0.00211394	3.41%	106.92	51.08	0.60%	0.10%	10.9	
27	5592.017	0.00191098	3.09%	113.01	57.17	0.63%	0.10%	5.0	
22	4553.840	0.00152666	2.46%	109.46	53.61	0.58%	0.09%	1.5	
28	5797.517	0.00151206	2.44%	113.64	57.79	0.61%	0.09%	5.6	
21	4349.267	0.00132022	2.13%	108.66	52.82	0.63%	0.10%	0.7	
2	413.554	0.00118234	1.91%	67.93	12.08	0.47%	0.12%	7.9	
26	5385.850	0.00123346	1.99%	112.36	56.52	0.65%	0.10%	4.4	
25	5178.530	0.00105071	1.70%	111.68	55.84	0.65%	0.10%	3.7	
23	4760.297	0.00094378	1.52%	110.23	54.38	0.57%	0.09%	2.2	
15	3043.430	0.00031728	0.51%	102.48	46.64	INHARMONIC	-1.41%	-0.24%	6.5

Sound 28 Clarion – pp – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	235.964	0.00719917	100.00%	58.21	0.00		0.00%	0.00%	10.2
3	704.307	0.00050908	7.07%	77.14	18.93		-0.51%	-0.11%	5.1
2	471.964	0.0004444	6.17%	70.21	12.00		0.00%	0.00%	10.2
2	553.105	4.8136E-005	0.67%	72.96	14.75		17.20%	3.91%	1.0
7	1596.693	4.2959E-005	0.60%	91.31	33.10	INHARMONIC	-3.33%	-0.64%	7.3
2	398.344	3.9479E-005	0.55%	67.28	9.07	INHARMONIC	-15.59%	-4.18%	7.3
7	1539.100	3.4664E-005	0.48%	90.68	32.47	INHARMONIC	-6.82%	-1.33%	6.7
4	1025.943	3.3742E-005	0.47%	83.66	25.44	INHARMONIC	8.70%	1.76%	11.7

Sound 29 Clarion – pp – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	350.903	0.01737727	100.00%	65.08	0.00		0.00%	0.00%	5.1
3	1050.883	0.00093378	5.37%	84.07	18.99		-0.17%	-0.04%	0.1
2	700.004	0.00052991	3.05%	77.04	11.96		-0.26%	-0.06%	5.0
4	1399.583	0.00014247	0.82%	89.03	23.95		-0.29%	-0.06%	5.0
5	1754.347	0.00012917	0.74%	92.94	27.86		-0.01%	0.00%	8.9
5	1654.423	0.00005575	0.32%	91.93	26.85	INHARMONIC	-5.70%	-1.09%	7.9

Sound 30 Clarion – ff – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	235.036	0.05918687	100.00%	58.14	0.00	<i>all partials quite flat, as in Sound 1</i>	0.00%	0.00%	10.1
8	1864.083	0.04074203	68.84%	93.99	35.85		-0.86%	-0.16%	10.0
3	699.698	0.03877733	65.52%	77.03	18.89		-0.77%	-0.17%	5.0
7	1632.527	0.02759757	46.63%	91.70	33.55		-0.77%	-0.15%	7.7
12	2798.780	0.0253784	42.88%	101.03	42.89		-0.77%	-0.13%	5.0
10	2332.350	0.02350693	39.72%	97.87	39.73		-0.77%	-0.14%	1.9
9	2099.023	0.023213	39.22%	96.05	37.91		-0.77%	-0.14%	0.0
5	1164.287	0.02244327	37.92%	85.85	27.70		-0.93%	-0.19%	1.8
13	3031.827	0.01951607	32.97%	102.42	44.27		-0.77%	-0.13%	6.4
6	1399.440	0.0126156	21.31%	89.03	30.89		-0.76%	-0.15%	5.0
11	2563.670	0.01022094	17.27%	99.51	41.37		-0.84%	-0.15%	3.5
2	464.701	0.00557248	9.42%	69.95	11.80		-1.14%	-0.28%	9.9
4	934.855	0.00241872	4.09%	82.05	23.90		-0.56%	-0.12%	10.0
4	1043.793	0.00074581	1.26%	83.96	25.81	INHARMONIC	11.02%	2.20%	12.0
13	2960.663	0.00067655	1.14%	102.00	43.86	INHARMONIC	-3.10%	-0.53%	6.0
2	399.043	0.00053431	0.90%	67.31	9.16	INHARMONIC	-15.11%	-4.04%	7.3
13	3101.167	0.00050657	0.86%	102.81	44.66	INHARMONIC	1.50%	0.25%	6.8
9	2027.560	0.00042913	0.73%	95.45	37.31	INHARMONIC	-4.15%	-0.76%	11.5

Sound 31 Clarion – ff – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1044.570	0.11680267	107.51%	83.97	19.11	LOUDER THAN FUNDAMENTAL	0.51%	0.11%	12.0
1	346.408	0.10864433	100.00%	64.86	0.00		0.00%	0.00%	4.9
5	1742.820	0.05841907	53.77%	92.83	27.97	<i>All harmonic partials quite sharp</i>	0.62%	0.12%	8.8
6	2089.207	0.05157217	47.47%	95.97	31.11		0.52%	0.09%	12.0
4	1392.820	0.05084383	46.80%	88.95	24.09		0.52%	0.10%	4.9
9	3133.817	0.01966917	18.10%	102.99	38.13		0.52%	0.09%	7.0
7	2437.437	0.0137087	12.62%	98.64	33.78		0.52%	0.09%	2.6
10	3482.057	0.01107773	10.20%	104.81	39.95		0.52%	0.09%	8.8
12	4180.220	0.0104674	9.63%	107.98	43.12		0.56%	0.09%	12.0
2	698.207	0.01037033	9.55%	76.99	12.13		0.78%	0.17%	5.0
13	4526.557	0.01000117	9.21%	109.35	44.49		0.52%	0.08%	1.4
8	2787.373	0.00748375	6.89%	100.96	36.10		0.58%	0.10%	5.0
11	3831.950	0.00615574	5.67%	106.47	41.61		0.56%	0.09%	10.5
19	6617.590	0.00482744	4.44%	115.93	51.07		0.54%	0.08%	7.9
17	5921.230	0.00427165	3.93%	114.00	49.14		0.55%	0.08%	6.0
18	6269.500	0.00420752	3.87%	114.99	50.13		0.55%	0.08%	7.0
16	5571.353	0.00252044	2.32%	112.95	48.09		0.52%	0.08%	4.9
14	4876.597	0.0018967	1.75%	110.64	45.78	0.55%	0.09%	2.6	
20	6967.593	0.0009993	0.92%	116.82	51.96	0.57%	0.08%	8.8	
22	7660.413	0.00061768	0.57%	118.46	53.60	0.52%	0.08%	10.5	

Sound 32 Clarion – Staccato – Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	235.548	0.0355952	100.00%	58.18	0.00	sample is very short	0.00%	0.00%	10.2
7	1637.273	0.01992387	55.97%	91.75	33.57		-0.70%	-0.13%	7.7
3	701.039	0.01674833	47.05%	77.06	18.88	<i>All harmonic partials flat</i>	-0.79%	-0.18%	5.1

9	2109.087	0.0140484	39.47%	96.13	37.95			-0.51%	-0.09%	0.1
8	1872.493	0.01238983	34.81%	94.07	35.89			-0.63%	-0.12%	10.1
5	1164.443	0.00842744	23.68%	85.85	27.67			-1.13%	-0.23%	1.8
6	1402.217	0.00759411	21.33%	89.07	30.88			-0.78%	-0.15%	5.1
10	2337.260	0.00501366	14.09%	97.91	39.73			-0.77%	-0.14%	1.9
2	463.996	0.00402686	11.31%	69.92	11.74			-1.51%	-0.37%	9.9
11	2577.267	0.00397055	11.15%	99.60	41.42			-0.53%	-0.09%	3.6
4	1024.597	0.00274562	7.71%	83.63	25.45		INHARMONIC	8.75%	1.77%	11.6
2	560.165	0.00107996	3.03%	73.18	15.00		INHARMONIC	18.91%	4.27%	1.2
4	938.482	0.00105155	2.95%	82.11	23.93			-2.39%	-0.08%	10.1
9	2175.087	0.0008591	2.41%	96.67	38.48		INHARMONIC	2.60%	0.46%	0.7
2	397.453	0.00085048	2.39%	67.24	9.06		INHARMONIC	-15.63%	-4.19%	7.2
5	1090.650	0.00074763	2.10%	84.72	26.53		INHARMONIC	-7.39%	-1.55%	0.7
11	2644.757	0.00065586	1.84%	100.05	41.87		INHARMONIC	2.07%	0.36%	4.1
7	1701.007	0.00064411	1.81%	92.41	34.23		INHARMONIC	3.16%	0.59%	8.4
9	2207.087	0.00054272	1.52%	96.92	38.74		INHARMONIC	4.11%	0.72%	0.9
8	1774.763	0.00049521	1.39%	93.14	34.96		INHARMONIC	-5.82%	-1.10%	9.1
6	1310.573	0.00048791	1.37%	87.90	29.71		INHARMONIC	-7.27%	-1.46%	3.9
6	1498.007	0.000411274	1.16%	90.21	32.03		INHARMONIC	5.99%	1.13%	6.2
10	2407.400	0.00035353	0.99%	98.42	40.24		INHARMONIC	2.20%	0.38%	2.4
8	1940.723	0.00034988	0.98%	94.69	36.51		INHARMONIC	2.99%	0.54%	10.7
9	2033.717	0.00033073	0.93%	95.50	37.32		INHARMONIC	-4.07%	-0.75%	11.5
10	2275.030	0.00027416	0.77%	97.44	39.26		INHARMONIC	-3.42%	-0.61%	1.4
4	850.559	0.00026719	0.75%	80.41	22.23		INHARMONIC	-9.73%	-2.16%	8.4
11	2495.947	0.000249011	0.70%	99.05	40.87		INHARMONIC	-3.67%	-0.65%	3.0
12	2732.287	0.00023077	0.65%	100.61	42.43		INHARMONIC	-3.34%	-0.58%	4.6

Sound 33 Clarion – Staccato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	311.123	0.08687437	100.00%	63.00	0.00	sample is very short	0.00%	0.00%	3.0
5	1552.037	0.02299877	26.47%	90.82	27.82		-0.23%	-0.04%	6.8
6	1766.403	0.01514833	17.44%	93.06	30.06	INHARMONIC	-5.37%	-1.02%	9.1
6	1942.180	0.01232215	14.18%	94.71	31.71	INHARMONIC	4.04%	0.73%	10.7
4	1238.480	0.00972815	11.20%	86.92	23.92		-0.48%	-0.10%	2.9
7	2168.843	0.00952268	10.96%	96.62	33.62		-0.41%	-0.07%	0.6
3	926.615	0.00946531	10.90%	81.89	18.89		-0.72%	-0.15%	9.9
5	1637.373	0.00915688	10.54%	91.75	28.75	INHARMONIC	5.26%	0.98%	7.7
2	520.869	0.00875253	10.07%	71.92	8.92	INHARMONIC	-16.29%	-4.11%	11.9
2	617.742	0.00874531	10.07%	74.87	11.87		-0.72%	-0.17%	2.9
3	1032.587	0.0083349	9.59%	83.77	20.77	INHARMONIC	10.63%	2.13%	11.8
5	1463.127	0.0058835	6.77%	89.80	26.80	INHARMONIC	-5.95%	-1.17%	5.8
6	1992.160	0.00558729	6.43%	95.15	32.15	INHARMONIC	6.72%	1.20%	11.1
7	2077.930	0.00492216	5.67%	95.87	32.88	INHARMONIC	-4.59%	-0.84%	11.9
6	1869.597	0.00408537	4.70%	94.05	31.05		0.15%	0.03%	10.0
4	1152.147	0.00396226	4.56%	85.66	22.67	INHARMONIC	-7.42%	-1.53%	1.7
4	1379.403	0.00393335	4.53%	88.78	25.78	INHARMONIC	10.84%	2.05%	4.8
8	2479.510	0.0038742	4.46%	98.93	35.93		-0.38%	-0.07%	2.9
4	1328.937	0.00301114	3.47%	88.14	25.14	INHARMONIC	6.79%	1.31%	4.1
2	722.522	0.00295231	3.40%	77.59	14.59	INHARMONIC	16.12%	3.45%	5.6
8	2390.110	0.00205735	2.37%	98.30	35.30	INHARMONIC	-3.97%	-0.71%	2.3
8	2581.020	0.0017643	2.03%	99.63	36.63	INHARMONIC	3.70%	0.63%	3.6
7	2278.903	0.00158231	1.82%	97.47	34.47	INHARMONIC	4.64%	0.81%	1.5
3	828.341	0.00154445	1.78%	79.95	16.95	INHARMONIC	-11.25%	-2.52%	8.0
3	785.729	0.00128967	1.48%	79.04	16.04	INHARMONIC	-15.82%	-3.63%	7.0

Sound 34 Clarion – Staccato – high Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	463.072	0.1161166	100.00%	69.88	0.00		0.00%	0.00%	9.9
2	928.241	0.03888337	33.49%	81.92	12.04		0.23%	0.05%	9.9
3	1388.667	0.02859607	24.63%	88.90	19.01		-0.04%	-0.01%	4.9
5	2314.803	0.01660387	14.30%	97.74	27.86		-0.02%	0.00%	1.7
4	1841.033	0.01482848	12.77%	93.78	23.89		-0.61%	-0.11%	9.8
11	5088.957	0.01005424	8.66%	111.38	41.50		-0.09%	-0.01%	3.4
10	4618.493	0.00989857	8.52%	109.70	39.82		-0.26%	-0.04%	1.7
9	4159.597	0.0080852	6.96%	107.89	38.01		-0.19%	-0.03%	11.9
8	3706.330	0.00594894	5.12%	105.89	36.01		0.05%	0.01%	9.9
12	5555.817	0.00423195	3.64%	112.90	43.02		-0.02%	0.00%	4.9
13	6018.183	0.00369596	3.18%	114.29	44.40		-0.03%	0.00%	6.3
6	2766.837	0.00366016	3.15%	100.83	30.95		-0.42%	-0.07%	4.8
14	6477.887	0.00336776	2.90%	115.56	45.67		-0.08%	-0.01%	7.6
7	3236.223	0.00167535	1.44%	103.54	33.66		-0.16%	-0.03%	7.5
15	6951.347	0.00123358	1.06%	116.78	46.90		0.08%	0.01%	8.8
4	2031.673	0.00104123	0.90%	95.49	25.60	INHARMONIC	9.68%	1.70%	11.5
5	2127.530	0.00094908	0.82%	96.28	26.40	INHARMONIC	-8.11%	-1.50%	0.3
2	1023.377	0.00089527	0.77%	83.61	13.73	INHARMONIC	10.50%	2.11%	11.6
6	2964.207	0.00064717	0.56%	102.02	32.14	INHARMONIC	6.69%	1.11%	6.0
4	1646.497	0.00052939	0.46%	91.85	21.96	INHARMONIC	-11.11%	-2.17%	7.8

Sound 35 Clarion – Legato – Bb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	699.193	0.02649237	127.13%	77.02	18.89	LOUDER THAN FUNDAMENTAL	-0.76%	-0.17%	5.0
1	234.853	0.02083837	100.00%	58.13	0.00		0.00%	0.00%	10.1
5	1163.597	0.01820137	87.35%	85.84	27.71	All harmonic partials quite flat	-0.91%	-0.18%	1.8
7	1629.730	0.01303093	62.53%	91.67	33.54		-0.87%	-0.16%	7.7
8	1862.693	0.00843648	40.49%	93.98	35.85		-0.86%	-0.16%	10.0
6	1398.677	0.00688486	33.04%	89.02	30.89		-0.74%	-0.14%	5.0
9	2095.620	0.0057129	27.42%	96.02	37.89		-0.85%	-0.15%	0.0
2	464.252	0.00427535	20.52%	69.93	11.80		-1.16%	-0.29%	9.9
10	2326.797	0.00383372	18.40%	97.83	39.70		-0.93%	-0.16%	1.8
4	932.150	0.00169479	8.13%	82.00	23.87		-0.77%	-0.16%	10.0
13	3027.193	0.00163664	7.85%	102.39	44.26		-0.85%	-0.14%	6.4
12	2793.093	0.00129124	6.20%	101.00	42.86		-0.89%	-0.15%	5.0
11	2561.563	0.00119197	5.72%	99.50	41.37		-0.84%	-0.15%	3.5
16	3727.753	0.00104481	5.01%	105.99	47.86		-0.80%	-0.13%	10.0
17	3958.597	0.00091657	4.40%	107.03	48.90		-0.85%	-0.14%	11.0
18	4191.380	0.00073553	3.53%	108.02	49.89		-0.85%	-0.14%	0.0
15	3492.137	0.00072917	3.50%	104.86	46.73		-0.87%	-0.14%	8.9
22	5124.113	0.00071289	3.42%	111.50	53.37		-0.83%	-0.13%	3.5
24	5588.600	0.00061512	2.95%	113.00	54.87		-0.85%	-0.13%	5.0
21	4890.893	0.0005396	2.59%	110.69	52.56		-0.83%	-0.13%	2.7
23	5355.603	0.0004974	2.39%	112.27	54.13		-0.85%	-0.13%	4.3
14	3258.943	0.00043739	2.10%	103.67	45.53		-0.88%	-0.15%	7.7
19	4422.127	0.00040153	1.93%	108.95	50.82		-0.90%	-0.14%	0.9

Appendix 3

27	6287.967	0.00033629	1.61%	115.04	56.91	-0.84%	-0.13%	7.0
25	5823.417	0.00033437	1.60%	113.72	55.58	-0.82%	-0.12%	5.7
20	4654.780	0.0003027	1.45%	109.84	51.71	-0.90%	-0.14%	1.8

Sound 36 Clarion – Legato – C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	258.603	0.05848243	100.00%	59.80	0.00	possible anomaly due to software bug but difficult to tell	0.00%	0.00%	11.8
4	1034.483	0.0276827	47.34%	83.80	24.00		0.01%	0.00%	11.8
3	775.803	0.02706887	46.29%	78.82	19.02		0.00%	0.00%	6.8
6	1551.633	0.02226143	38.07%	90.82	31.02		0.00%	0.00%	6.8
7	1810.417	0.01212997	20.74%	93.49	33.69		0.01%	0.00%	9.5
8	2068.927	0.0115923	19.82%	95.80	36.00		0.00%	0.00%	11.8
5	1293.027	0.00995498	17.02%	87.66	27.86		0.00%	0.00%	3.7
12	3105.187	0.00681714	11.66%	102.83	43.03		0.06%	0.01%	6.8
2	517.237	0.00534089	9.13%	71.80	12.00		0.01%	0.00%	11.8
9	2329.427	0.00530359	9.07%	97.85	38.05		0.09%	0.02%	1.9
10	2588.057	0.00333837	5.71%	99.68	39.88		0.08%	0.01%	3.7
11	2846.393	0.00308567	5.28%	101.32	41.52		0.06%	0.01%	5.3
22	5695.047	0.00204277	3.49%	113.33	53.53		0.10%	0.02%	5.3
15	3880.893	0.00187095	3.20%	106.69	46.89		0.05%	0.01%	10.7
20	5175.797	0.00160439	2.74%	111.67	51.88		0.07%	0.01%	3.7
13	3365.833	0.00153084	2.62%	104.22	44.43		0.12%	0.02%	8.2
23	5953.517	0.00133176	2.28%	114.10	54.30		0.09%	0.01%	6.1
21	5436.277	0.00126503	2.16%	112.52	52.73		0.10%	0.02%	4.5
14	3621.967	0.00113968	1.95%	105.49	45.70		0.04%	0.01%	9.5
16	4141.493	0.0011128	1.90%	107.81	48.02		0.09%	0.01%	11.8
19	4917.133	0.00094173	1.61%	110.79	50.99		0.07%	0.01%	2.8
24	6212.267	0.00090527	1.55%	114.83	55.04		0.09%	0.01%	6.8
17	4400.087	0.0005826	1.00%	108.86	49.06		0.09%	0.01%	0.9
18	4658.953	0.00057172	0.98%	109.85	50.05		0.09%	0.01%	1.9
26	6730.980	0.00026548	0.45%	116.22	56.42		0.11%	0.02%	8.2
25	6472.663	0.00026175	0.45%	115.55	55.75	0.12%	0.02%	7.5	

Sound 37 Clarion – Legato – D

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	291.951	0.07594237	100.00%	61.90	0.00	order of partial prominence is comparable to sound 36, suggesting the data for sound 36 is accurate	0.00%	0.00%	1.9
4	1172.790	0.02094797	27.58%	85.97	24.07		0.43%	0.09%	2.0
3	880.957	0.02005303	26.41%	81.02	19.12		0.58%	0.12%	9.0
7	2050.357	0.01418085	18.67%	95.64	33.74		0.33%	0.06%	11.6
5	1467.283	0.01187185	15.63%	89.85	27.95		0.52%	0.10%	5.9
6	1758.423	0.01004853	13.23%	92.98	31.09		0.38%	0.07%	9.0
2	585.750	0.00575653	7.58%	73.95	12.05		0.32%	0.07%	2.0
10	2932.223	0.00317256	4.18%	101.84	39.94		0.44%	0.07%	5.8
8	2343.890	0.00259935	3.42%	97.96	36.06		0.35%	0.06%	2.0
9	2638.180	0.00208521	2.75%	100.01	38.11		0.40%	0.07%	4.0
12	3519.433	0.00173667	2.29%	105.00	43.10		0.46%	0.08%	9.0
13	3811.187	0.00153312	2.02%	106.38	44.48		0.42%	0.07%	10.4
19	5567.657	0.00109499	1.44%	112.94	51.04		0.37%	0.06%	4.9
18	5275.753	0.0009997	1.32%	112.01	50.11		0.39%	0.06%	4.0
16	4687.907	0.00085462	1.13%	109.96	48.06		0.36%	0.06%	2.0
21	6154.553	0.00075696	1.00%	114.67	52.77	0.38%	0.06%	6.7	
17	4983.777	0.00070472	0.93%	111.02	49.12	0.42%	0.06%	3.0	
20	5861.013	0.00063297	0.83%	113.83	51.93	0.38%	0.06%	5.8	
11	3225.883	0.00061464	0.81%	103.49	41.59	0.45%	0.07%	7.5	
14	4101.993	0.00055299	0.73%	107.65	45.75	0.36%	0.06%	11.6	
15	4395.563	0.00043726	0.58%	108.85	46.95	0.37%	0.06%	0.8	

Sound 38 Clarion – Legato – Eb

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	311.030	0.10146393	100.00%	62.99	0.00		0.00%	0.00%	3.0
3	927.623	0.01588303	15.65%	81.91	18.92		-0.59%	-0.12%	9.9
5	1550.017	0.01404283	13.84%	90.80	27.81		-0.33%	-0.06%	6.8
7	2168.723	0.00964885	9.51%	96.62	33.62		-0.39%	-0.07%	0.6
8	2479.747	0.00631409	6.22%	98.94	35.94		-0.34%	-0.06%	2.9
4	1238.247	0.00557976	5.50%	86.91	23.92		-0.47%	-0.09%	2.9
10	3100.477	0.00320156	3.16%	102.80	39.81		-0.32%	-0.05%	6.8
2	620.589	0.00281478	2.77%	74.95	11.96		-0.24%	-0.05%	3.0
6	1859.113	0.00223624	2.20%	93.95	30.95		-0.38%	-0.07%	9.9
11	3411.447	0.00221872	2.19%	104.46	41.46		-0.29%	-0.05%	8.5
18	5577.737	0.00177538	1.75%	112.97	49.97		-0.75%	-0.06%	5.0
12	3718.490	0.00160153	1.58%	105.95	42.96		-0.37%	-0.06%	9.9
17	5266.527	0.00150122	1.48%	111.98	48.98		-0.40%	-0.06%	4.0
13	4027.010	0.0010533	1.04%	107.33	44.33		-0.41%	-0.07%	11.3
20	6199.797	0.00098094	0.97%	114.80	51.81		-0.33%	-0.05%	6.8
14	4339.023	0.00083442	0.82%	108.62	45.63		-0.35%	-0.06%	0.6
16	4959.303	0.00073319	0.72%	110.93	47.94		-0.35%	-0.05%	2.9
15	4650.210	0.0006799	0.67%	109.82	46.83		-0.33%	-0.05%	1.8
21	6507.163	0.00051645	0.51%	115.64	52.64		-0.37%	-0.06%	7.6
19	5888.757	0.00048149	0.47%	113.91	50.91	-0.35%	-0.05%	5.9	

Sound 39 Clarion – Legato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	346.122	0.0714981	100.00%	64.85	0.00		0.00%	0.00%	4.8
3	1043.973	0.06440837	90.08%	83.96	19.11		0.54%	0.11%	12.0
6	2088.487	0.01874817	26.22%	95.96	31.12		0.57%	0.10%	12.0
5	1739.820	0.01773517	24.81%	92.80	27.96		0.53%	0.10%	8.8
4	1390.827	0.01131117	15.82%	88.92	24.08		0.46%	0.09%	4.9
7	2436.667	0.00570177	7.97%	98.63	33.79		0.57%	0.10%	2.6
9	3130.813	0.00360737	5.05%	102.97	38.13		0.50%	0.08%	7.0
2	697.957	0.00351657	4.92%	76.99	12.14		0.83%	0.19%	5.0
10	3475.553	0.00280329	3.92%	104.78	39.93		0.41%	0.07%	8.8
13	4522.100	0.0027271	3.81%	109.34	44.49		0.50%	0.08%	1.3
14	4872.663	0.00244997	3.43%	110.63	45.78		0.56%	0.09%	2.6
18	6262.587	0.00217883	3.05%	114.97	50.13		0.52%	0.08%	7.0
16	5566.613	0.00216617	3.03%	112.93	48.09		0.52%	0.08%	4.9
12	4171.583	0.00197624	2.76%	107.94	43.09		0.44%	0.07%	11.9
15	5218.520	0.00149773	2.09%	111.82	46.97		0.51%	0.08%	3.8
19	6610.697	0.00137983	1.93%	115.91	51.07		0.52%	0.08%	7.9
11	3825.690	0.0013444	1.88%	106.44	41.60		0.48%	0.08%	10.4
17	5915.113	0.00110661	1.55%	113.99	49.14		0.53%	0.08%	6.0
8	2782.690	0.00104382	1.46%	100.93	36.09		0.50%	0.08%	4.9

Sound 40 Clarion – Legato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	389.382	0.06122567	100.00%	66.88	0.00		0.00%	0.00%	6.9
3	1173.613	0.0534063	87.23%	85.98	19.10		0.47%	0.09%	2.0
4	1564.663	0.01731913	28.29%	90.96	24.08		0.46%	0.09%	7.0
2	784.125	0.01455123	23.77%	79.00	12.12		0.69%	0.15%	7.0
5	1957.667	0.01190756	19.45%	94.84	27.96		0.55%	0.10%	10.8
6	2347.163	0.0076568	12.51%	97.98	31.10		0.47%	0.08%	2.0
13	5085.753	0.00739597	12.08%	111.37	44.49		0.47%	0.07%	3.4
9	3520.920	0.00582648	9.52%	105.00	38.12		0.47%	0.08%	9.0
16	6259.023	0.00319802	5.22%	114.96	48.08		0.46%	0.07%	7.0
10	3912.397	0.00297774	4.86%	106.83	39.95		0.48%	0.08%	10.8
8	3129.427	0.00290707	4.75%	102.96	36.08		0.46%	0.08%	7.0
15	5869.723	0.00251823	4.11%	113.85	46.97		0.50%	0.08%	5.9
12	4696.567	0.00229302	3.75%	109.99	43.11		0.51%	0.08%	2.0
7	2739.033	0.0021147	3.45%	100.66	33.77		0.49%	0.08%	4.7
11	4306.043	0.00131105	2.14%	108.49	41.61		0.53%	0.08%	0.5
14	5477.080	0.00098789	1.61%	112.65	45.77		0.47%	0.07%	4.7
17	6650.410	0.00048553	0.79%	116.01	49.13		0.47%	0.07%	8.0
3	1027.113	0.00030425	0.50%	83.68	16.79	INHARMONIC	-12.07%	-2.59%	11.7

Sound 41 Clarion – Legato – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	440.756	0.08592607	100.00%	69.03	0.00		0.00%	0.00%	9.0
4	1761.273	0.01903847	22.16%	93.01	23.98		-0.10%	-0.02%	9.0
2	879.709	0.01665523	19.38%	80.99	11.96		-0.20%	-0.04%	9.0
3	1320.520	0.01405786	16.36%	88.03	19.00		-0.13%	-0.03%	4.0
5	2200.640	0.00512355	5.96%	96.87	27.84		-0.14%	-0.03%	0.9
6	2643.017	0.00341795	3.98%	100.04	31.01		-0.06%	-0.01%	4.0
11	4839.873	0.00232782	2.71%	110.51	41.48		-0.17%	-0.03%	2.5
7	3082.220	0.00193049	2.25%	102.70	33.67		-0.10%	-0.02%	6.7
12	5282.463	0.0017766	2.07%	112.03	43.00		-0.13%	-0.02%	4.0
8	3515.560	0.00150074	1.75%	104.98	35.95		-0.30%	-0.05%	9.0
13	5721.277	0.00145461	1.69%	113.41	44.38		-0.15%	-0.02%	5.4
9	3958.793	0.00133948	1.56%	107.03	38.00		-0.20%	-0.03%	11.0
10	4401.330	0.00110141	1.28%	108.87	39.84		-0.14%	-0.02%	0.9
15	6600.847	0.00098067	1.14%	115.88	46.86		-0.16%	-0.02%	7.9
14	6164.373	0.00072966	0.85%	114.70	45.67		-0.10%	-0.02%	6.7

Sound 42 Altissimo – pp – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	527.868	0.05634833	100.00%	72.15	0.00		0.00%	0.00%	0.2
2	1055.723	0.01826023	32.41%	84.15	12.00		0.00%	0.00%	0.2
3	1583.400	0.01469065	26.07%	91.17	19.02		-0.01%	0.00%	7.2
4	2111.300	0.00445366	7.90%	96.15	24.00		-0.01%	0.00%	0.2
5	2639.550	0.00050369	0.89%	100.02	27.86		0.01%	0.00%	4.0

Sound 43 Altissimo – pp – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	911.212	0.08336803	100.00%	81.60	0.00		0.00%	0.00%	9.6
2	1820.503	0.00758437	9.10%	93.59	11.98		-0.11%	-0.02%	9.6
4	3642.953	0.0058492	7.02%	105.59	23.99		-0.05%	-0.01%	9.6
3	2731.860	0.00366092	4.39%	100.61	19.01		-0.06%	-0.01%	4.6
5	4556.540	0.00157984	1.90%	109.47	27.86		0.01%	0.00%	1.5
6	5463.487	0.00144217	1.73%	112.61	31.01		-0.07%	-0.01%	4.6
7	6375.020	0.0007617	0.91%	115.28	33.68		-0.05%	-0.01%	7.3
12	10931.033	0.00066455	0.80%	124.62	43.01		-0.03%	0.00%	4.6
11	10019.777	0.00062169	0.75%	123.11	41.51		-0.04%	0.00%	3.1
8	7288.087	0.00043948	0.53%	117.60	36.00		-0.02%	0.00%	9.6

Sound 44 Altissimo – ff – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	2093.103	0.16770133	151.70%	96.00	23.93	LOUDER THAN FUNDAMENTAL	-0.42%	-0.08%	0.0
2	1045.690	0.15353767	138.89%	83.99	11.91	LOUDER THAN FUNDAMENTAL	-0.51%	-0.10%	12.0
1	525.506	0.11054667	100.00%	72.07	0.00		0.00%	0.00%	0.1
3	1571.180	0.0850959	76.98%	91.04	18.96		-0.34%	-0.06%	7.0
6	3140.543	0.02239117	20.25%	103.03	30.95		-0.40%	-0.07%	7.0
5	2616.820	0.02224847	20.13%	99.87	27.79		-0.41%	-0.07%	3.9
10	5235.497	0.02086613	18.88%	111.87	39.80		-0.37%	-0.06%	3.9
9	4711.760	0.0198939	18.00%	110.05	37.97		-0.38%	-0.06%	2.0
8	4186.177	0.01856097	16.79%	108.00	35.93		-0.43%	-0.07%	0.0
7	3664.267	0.00901907	8.16%	105.70	33.62		-0.39%	-0.06%	9.7
11	5757.407	0.00497035	4.50%	113.52	41.44		-0.40%	-0.06%	5.5
12	6281.087	0.0025853	2.34%	115.03	42.95		-0.40%	-0.06%	7.0
16	8375.857	0.00160986	1.46%	120.01	47.93		-0.38%	-0.06%	0.0
18	9421.727	0.00153931	1.39%	122.04	49.97		-0.40%	-0.06%	2.0
19	9947.057	0.00114605	1.04%	122.98	50.91		-0.38%	-0.05%	3.0
13	6804.787	0.00111903	1.01%	116.41	44.34		-0.39%	-0.06%	8.4

Sound 45 Altissimo – ff – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	904.345	0.18563567	100.00%	81.47	0.00		0.00%	0.00%	9.5
4	3617.977	0.06104767	32.89%	105.48	24.00		0.02%	0.00%	9.5
2	1809.433	0.05932937	31.96%	93.48	12.01		0.04%	0.01%	9.5
5	4522.783	0.0425702	22.93%	109.34	27.87		0.02%	0.00%	1.3
3	2713.780	0.02561407	13.80%	100.50	19.02		0.03%	0.00%	4.5
6	5427.260	0.01762797	9.50%	112.50	31.02		0.02%	0.00%	4.5
7	6333.447	0.00571953	3.08%	115.17	33.70		0.05%	0.01%	7.2
8	7235.910	0.00328047	1.77%	117.48	36.00		0.02%	0.00%	9.5
9	8133.187	0.00267253	1.44%	119.50	38.03		-0.07%	-0.01%	11.5
12	10852.433	0.00238101	1.28%	124.49	43.02		0.00%	0.00%	4.5
11	9944.187	0.00233294	1.26%	122.98	41.51		-0.04%	-0.01%	3.0
10	9033.703	0.00169849	0.91%	121.32	39.84		-0.11%	-0.02%	1.3
13	11750.867	0.00128764	0.69%	125.87	44.40		-0.05%	-0.01%	5.9
15	13554.700	0.00105328	0.57%	128.34	46.87		-0.08%	-0.01%	8.3
14	12662.633	0.0010211	0.55%	127.16	45.69		0.01%	0.00%	7.2

Sound 46 <i>Altissimo – Staccato – C</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	527.438	0.09807193	100.00%	72.14	0.00		0.00%	0.00%	0.1	
3	1579.233	0.04559107	46.49%	91.12	18.99		-0.19%	-0.04%	7.1	
4	2108.867	0.03458663	35.27%	96.13	23.99		-0.04%	-0.01%	0.1	
2	1053.923	0.03204157	32.67%	84.12	11.98		-0.09%	-0.02%	0.1	
5	2628.693	0.01261949	12.87%	99.95	27.81		-0.32%	-0.06%	3.9	
10	5261.463	0.01198513	12.22%	111.96	39.82		-0.24%	-0.04%	4.0	
9	4733.133	0.00894026	9.12%	110.13	37.99		-0.29%	-0.05%	2.1	
6	3155.130	0.00548563	5.59%	103.11	30.97		-0.30%	-0.05%	7.1	
8	4205.390	0.00533736	5.44%	108.08	35.94		-0.33%	-0.05%	0.1	
7	3679.597	0.00457833	4.67%	105.77	33.63		-0.34%	-0.06%	9.8	
11	5789.400	0.00208356	2.12%	113.61	41.48		-0.21%	-0.03%	5.6	
12	6320.453	0.00178322	1.82%	115.13	43.00		-0.14%	-0.02%	7.1	
3	1738.730	0.001126498	1.15%	92.79	20.65	INHARMONIC	9.89%	1.79%	8.8	
4	1436.550	0.00085369	0.87%	89.48	17.35	INHARMONIC	-9.21%	-1.84%	5.5	
4	1958.723	0.0006957	0.71%	94.85	22.71	INHARMONIC	-7.16%	-1.34%	10.9	
9	4547.027	0.00049338	0.50%	109.43	37.29	INHARMONIC	-4.21%	-0.68%	1.4	
13	6844.337	0.0004137	0.42%	116.51	44.37		-0.18%	-0.03%	8.5	

Sound 47 <i>Altissimo – Staccato – A</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	896.918	0.11474967	100.00%	81.33	0.00		0.00%	0.00%	9.3	
2	1782.880	0.1146191	99.89%	93.22	11.89		-0.61%	-0.11%	9.2	
4	3580.957	0.03417553	29.78%	105.30	23.97		-0.19%	-0.03%	9.3	
5	4475.277	0.0128294	11.18%	109.16	27.83		-0.21%	-0.03%	1.2	
6	5365.390	0.00812923	7.08%	112.30	30.97		-0.30%	-0.05%	4.3	
3	2687.807	0.00612547	5.34%	100.33	19.00		-0.11%	-0.02%	4.3	
7	6266.723	0.00409562	3.57%	114.99	33.66		-0.19%	-0.03%	7.0	
2	1941.183	0.00144946	1.26%	94.70	13.37	INHARMONIC	8.21%	1.46%	10.7	
8	7159.393	0.00142902	1.25%	117.29	35.96		-0.22%	-0.03%	9.3	

Sound 48 <i>Altissimo – Legato – Bb</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	462.755	0.08486883	100.00%	69.87	0.00		0.00%	0.00%	9.9	
2	925.675	0.04326183	50.97%	81.88	12.00	<i>very little diversion across harmonic partials</i>	0.02%	0.00%	9.9	
3	1388.263	0.02555567	30.11%	88.89	19.02		0.00%	0.00%	4.9	
4	1851.243	0.02530247	29.81%	93.88	24.00		0.01%	0.00%	9.9	
5	2314.207	0.01629453	19.20%	97.74	27.87		0.02%	0.00%	1.7	
10	4628.260	0.00447772	5.28%	109.73	39.86		-0.03%	0.00%	1.7	
11	5089.160	0.00443215	5.22%	111.38	41.51		-0.02%	0.00%	3.4	
9	4165.550	0.00411531	4.85%	107.92	38.04		0.02%	0.00%	11.9	
12	5551.813	0.00410248	4.83%	112.89	43.02		-0.02%	0.00%	4.9	
7	3239.700	0.00383064	4.51%	103.56	33.69		0.01%	0.00%	7.6	
6	2776.763	0.00333717	3.93%	100.89	31.02		0.01%	0.00%	4.9	
14	6477.693	0.00226887	2.67%	115.56	45.69		-0.01%	0.00%	7.6	
15	6940.500	0.00170511	2.01%	116.75	46.88		-0.01%	0.00%	8.8	
8	3702.557	0.00168705	1.99%	105.88	36.00		0.01%	0.00%	9.9	
13	6014.730	0.000789411	0.93%	114.28	44.40		-0.02%	0.00%	6.3	
23	10643.367	0.00032389	0.38%	124.16	54.28		0.00%	0.00%	4.2	
2	751.631	0.00031047	0.37%	78.27	8.40	INHARMONIC	-18.79%	-4.40%	6.3	
30	13878.933	0.00030485	0.36%	128.75	58.88		-0.03%	0.00%	8.8	

Sound 49 <i>Altissimo – Legato – C</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	519.474	0.0813661	100.00%	71.87	0.00		0.00%	0.00%	11.9	
2	1044.347	0.0568367	69.85%	83.96	12.09		0.52%	0.11%	12.0	
3	1567.417	0.04774177	58.68%	90.99	19.12		0.58%	0.11%	7.0	
4	2088.667	0.04744277	58.31%	95.96	24.09		0.52%	0.09%	12.0	
5	2609.917	0.01053443	12.95%	99.82	27.95		0.48%	0.08%	3.8	
6	3133.183	0.00936752	11.51%	102.98	31.11		0.52%	0.09%	7.0	
10	5221.780	0.0073318	9.01%	111.83	39.95		0.52%	0.08%	3.8	
9	4700.643	0.00521796	6.41%	110.01	38.13		0.54%	0.09%	2.0	
8	4177.470	0.00423701	5.21%	107.96	36.09		0.52%	0.08%	12.0	
11	5743.030	0.00370479	4.55%	113.47	41.60		0.50%	0.08%	5.5	
12	6265.927	0.00251677	3.09%	114.98	43.11		0.52%	0.08%	7.0	
7	3653.940	0.00236035	2.90%	105.65	33.77		0.48%	0.08%	9.6	
3	1772.467	0.00072875	0.90%	93.12	21.25	INHARMONIC	13.73%	2.45%	9.1	
17	8875.997	0.00061041	0.75%	121.01	49.14		0.51%	0.07%	1.0	
20	10443.400	0.00058491	0.72%	123.83	51.95		0.52%	0.07%	3.8	
13	6787.113	0.00049549	0.61%	116.37	44.49		0.50%	0.07%	8.4	

Sound 50 <i>Altissimo – Legato – D</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
3	1769.750	0.09949797	106.63%	93.10	18.98	LOUDER THAN FUNDAMENTAL	-0.21%	-0.04%	9.1	
1	591.129	0.0933116	100.00%	74.11	0.00		0.00%	0.00%	2.1	
2	1180.283	0.03818717	40.92%	86.08	11.97		-0.17%	-0.03%	2.1	
5	2950.117	0.01489267	15.96%	101.94	27.83		-0.19%	-0.03%	5.9	
4	2358.790	0.0112896	12.10%	98.07	23.96		-0.24%	-0.04%	2.1	
9	5310.953	0.00743866	7.97%	112.12	38.01		-0.17%	-0.03%	4.1	
6	3539.453	0.00544113	5.83%	105.10	30.98		-0.21%	-0.03%	9.1	
7	4130.460	0.00409448	4.39%	107.77	33.66		-0.18%	-0.03%	11.8	
11	6489.387	0.00381734	4.09%	115.59	41.48		-0.20%	-0.03%	7.6	
10	5900.103	0.00237105	2.54%	113.94	39.83		-0.19%	-0.03%	5.9	
8	4719.633	0.00116629	1.25%	110.08	35.97		-0.20%	-0.03%	2.1	
15	8850.100	0.00075843	0.81%	120.96	46.85		-0.19%	-0.03%	1.0	
12	7080.237	0.00065722	0.70%	117.10	42.99		-0.19%	-0.03%	9.1	
17	10032.367	0.00056853	0.61%	123.13	49.02		-0.17%	-0.02%	3.1	

Sound 51 <i>Altissimo – Legato – Eb</i>										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	624.748	0.10038023	100.00%	75.07	0.00		0.00%	0.00%	3.1	
2	1249.690	0.07762263	77.33%	87.07	12.00	<i>very little diversion across harmonic partials</i>	0.02%	0.00%	3.1	
4	2501.040	0.04163057	41.47%	99.08	24.01		0.08%	0.01%	3.1	
3	1874.257	0.03608303	35.95%	94.09	19.02		0.00%	0.00%	10.1	
5	3125.767	0.0146245	14.57%	102.94	27.87		0.06%	0.01%	6.9	

Appendix 3

6	3752.637	0.00466141	4.64%	106.11	31.04	0.11%	0.02%	10.1
11	6876.340	0.00432827	4.31%	116.59	41.52	0.06%	0.01%	8.6
7	4377.273	0.00356757	3.55%	108.77	33.70	0.09%	0.01%	0.8
9	5626.517	0.00287231	2.86%	113.12	38.05	0.07%	0.01%	5.1
8	5002.173	0.00126655	1.26%	111.08	36.01	0.08%	0.01%	3.1
10	6254.367	0.00102163	1.02%	114.95	39.88	0.11%	0.02%	7.0
18	11253.600	0.00081099	0.81%	125.12	50.05	0.07%	0.01%	5.1
15	9377.477	0.00079766	0.79%	121.96	46.89	0.07%	0.01%	2.0
14	8752.543	0.0006691	0.67%	120.77	45.70	0.07%	0.01%	0.8
16	10002.327	0.00049341	0.49%	123.08	48.01	0.06%	0.01%	3.1
17	10628.867	0.00056988	0.57%	124.13	49.06	0.08%	0.01%	4.1
13	8128.070	0.00053384	0.53%	119.49	44.42	0.08%	0.01%	11.5

Sound 52 *Altissimo – Legato – F*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	689.916	0.119594	100.00%	76.79	0.00		0.00%	0.00%	4.8
3	2071.370	0.0875149	73.18%	95.82	19.03	<i>very little diversion across harmonic partials</i>	0.08%	0.01%	11.8
2	1381.883	0.05676673	47.47%	88.81	12.03		0.15%	0.03%	4.8
6	4145.190	0.00899692	7.52%	107.83	31.04		0.14%	0.02%	11.8
5	3453.093	0.00485599	4.06%	104.67	27.88		0.10%	0.02%	8.7
7	4834.620	0.00447338	3.74%	110.49	33.71		0.11%	0.02%	2.5
4	2763.583	0.00422318	3.53%	100.81	24.02		0.14%	0.02%	4.8
9	6218.350	0.00254272	2.13%	114.85	38.06		0.15%	0.02%	6.9
10	6910.313	0.00214838	1.80%	116.68	39.89		0.16%	0.02%	8.7
8	5524.057	0.00155041	1.30%	112.80	36.01		0.09%	0.01%	4.8
15	10361.600	0.00092675	0.77%	123.69	46.90		0.12%	0.02%	3.7
16	11051.433	0.00082462	0.69%	124.81	48.02		0.12%	0.02%	4.8
17	11745.400	0.00062361	0.52%	125.86	49.07		0.14%	0.02%	5.9
12	8290.200	0.00058555	0.49%	119.83	43.04		0.14%	0.02%	11.8
14	9671.607	0.00056055	0.47%	122.50	45.71		0.13%	0.02%	2.5
11	7600.097	0.00049594	0.41%	118.33	41.54		0.15%	0.02%	10.3

Sound 53 *Altissimo – Legato – G*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1608.673	0.250266	258.55%	91.44	11.96	LOUDER THAN FUNDAMENTAL <i>very little diversion across harmonic partials</i>	-0.22%	-0.04%	7.4
1	806.142	0.09679443	100.00%	79.48	0.00		0.00%	0.00%	7.5
3	2413.060	0.03699193	38.22%	98.46	18.98		-0.22%	-0.04%	2.5
4	3219.227	0.02331483	24.09%	103.45	23.97		-0.17%	-0.03%	7.5
5	4025.303	0.0155983	16.11%	107.32	27.84		-0.13%	-0.02%	11.3
6	4827.940	0.01127807	11.65%	110.47	30.99		-0.18%	-0.03%	2.5
8	6438.337	0.00421386	4.35%	115.45	35.97		-0.17%	-0.03%	7.5
10	8047.020	0.00220314	2.28%	119.31	39.83		-0.18%	-0.03%	11.3
7	5632.090	0.00219565	2.27%	113.14	33.65		-0.19%	-0.03%	5.1
11	8853.360	0.00103648	1.07%	120.97	41.49		-0.16%	-0.02%	1.0
12	9657.727	0.00092863	0.96%	122.47	42.99		-0.17%	-0.02%	2.5
13	10463.833	0.00091456	0.94%	123.86	44.38		-0.15%	-0.02%	3.9
15	12072.667	0.00082545	0.85%	126.34	46.85		-0.16%	-0.02%	6.3

Sound 54 *Altissimo – Legato – A*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	913.741	0.169981	100.00%	81.65	0.00	<i>very little diversion across harmonic partials</i>	0.00%	0.00%	9.7
4	3649.707	0.03683003	21.67%	105.63	23.98		-0.14%	-0.02%	9.6
2	1823.897	0.03249893	19.12%	93.62	11.97		-0.20%	-0.04%	9.6
5	4561.497	0.02789353	16.41%	109.49	27.84		-0.16%	-0.02%	1.5
6	5473.487	0.01056203	6.21%	112.64	30.99		-0.16%	-0.03%	4.6
3	2735.773	0.0097136	5.71%	100.64	18.99		-0.20%	-0.03%	4.6
7	6385.197	0.00435571	2.56%	115.31	33.66		-0.17%	-0.03%	7.3
8	7299.147	0.00298325	1.76%	117.63	35.97		-0.15%	-0.02%	9.6
11	10036.967	0.00214064	1.26%	123.14	41.49		-0.14%	-0.02%	3.1
12	10947.000	0.00136233	0.80%	124.64	42.99		-0.16%	-0.02%	4.6
13	11861.000	0.00091204	0.54%	126.03	44.38		-0.15%	-0.02%	6.0
16	14596.667	0.00058882	0.35%	129.62	47.97		-0.16%	-0.02%	9.6

Sound 55 *Altissimo – Legato – high Bb*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	954.060	0.15480433	100.00%	82.40	0.00	<i>very little diversion across harmonic partials</i>	0.00%	0.00%	10.4
3	1906.357	0.12052233	77.85%	94.38	11.98		-0.09%	-0.02%	10.4
2	2860.520	0.05771257	37.28%	101.41	19.01		-0.06%	-0.01%	5.4
4	3814.663	0.05212987	33.67%	106.39	23.99		-0.04%	-0.01%	10.4
5	4766.803	0.0246207	15.90%	110.25	27.85		-0.07%	-0.01%	2.2
6	5720.747	0.01047843	6.77%	113.41	31.01		-0.06%	-0.01%	5.4
7	6689.557	0.00303946	1.96%	116.06	33.67		-0.13%	-0.02%	8.1
9	8580.623	0.00173071	1.12%	120.43	38.03		-0.07%	-0.01%	0.4
8	7628.817	0.00171138	1.11%	118.39	35.99		-0.05%	-0.01%	10.4
10	9534.933	0.00169511	1.09%	122.25	39.85		-0.06%	-0.01%	2.3
14	13350.233	0.00103558	0.67%	128.08	45.68		-0.05%	-0.01%	8.1
11	10489.900	0.00094806	0.61%	123.90	41.51		-0.05%	-0.01%	3.9
15	14297.833	0.00094038	0.61%	129.27	46.87		-0.09%	-0.01%	9.3
12	11440.767	0.00079412	0.51%	125.41	43.01		-0.07%	-0.01%	5.4

Sound 1 Bottom - mf									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1183.327	0.0234618333	244.72%	86.13	24.05	louder than fundamental	0.31%	0.06%	2.1
3	886.594	0.0190299333	198.49%	81.13	19.06	louder than fundamental	0.21%	0.04%	9.1
5	1478.260	0.0174087667	181.58%	89.98	27.91	louder than fundamental	0.25%	0.05%	6.0
6	1773.177	0.0161810667	168.78%	93.13	31.06	louder than fundamental	0.21%	0.04%	9.1
7	2069.940	0.0156810667	163.56%	95.81	33.73	louder than fundamental	0.27%	0.05%	11.8
2	591.625	0.0125273667	130.67%	74.13	12.05	louder than fundamental	0.30%	0.07%	2.1
1	294.924	0.0095871567	100.00%	62.07	0.00		0.00%	0.00%	2.1
8	2364.807	0.00925257	96.51%	98.11	36.04		0.23%	0.04%	2.1
9	2659.583	0.00539675	56.29%	100.15	38.07	<i>very little diversion across harmonic partials, all are slightly sharp</i>	0.20%	0.03%	4.1
10	2956.480	0.0049581933	51.72%	101.98	39.91		0.25%	0.04%	6.0
11	3251.333	0.0030301467	31.61%	103.63	41.55		0.22%	0.04%	7.6
12	3546.383	0.00256442	26.75%	105.13	43.06		0.21%	0.03%	9.1
13	3843.190	0.0020251	21.12%	106.52	44.45		0.24%	0.04%	10.5
14	4136.077	0.0014487967	15.12%	107.79	45.72		0.17%	0.03%	11.8
15	4434.747	0.0008579377	8.74%	109.00	46.93		0.25%	0.04%	1.0
16	4727.833	0.0007017477	7.32%	110.11	48.03		0.19%	0.03%	2.1
5	1544.050	0.003016827	3.15%	90.73	28.66		4.71%	0.89%	6.7
6	1843.253	0.002341313	2.44%	93.80	31.73	INHARMONIC	4.17%	0.76%	9.8
7	2134.477	0.002588283	2.70%	96.34	34.27	INHARMONIC	3.39%	0.60%	0.3

Sound 2 Middle - mf - low									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1401.753	0.0310085667	211.52%	89.06	23.87	louder than fundamental	-0.76%	-0.15%	5.1
5	1754.897	0.0236059	161.03%	92.95	27.76	louder than fundamental	-0.61%	-0.11%	8.9
3	1054.017	0.0225566667	153.88%	84.12	18.93	louder than fundamental	-0.51%	-0.10%	0.1
2	700.878	0.0205779667	140.38%	77.06	11.87	louder than fundamental	-0.76%	-0.17%	5.1
6	2106.247	0.0169563333	115.67%	96.11	30.92	louder than fundamental	-0.59%	-0.11%	0.1
1	353.129	0.0146590333	100.00%	65.19	0.00		0.00%	0.00%	5.2
8	2808.873	0.0133364667	90.98%	101.09	35.90	<i>note that all harmonic partials are fairly flat</i>	-0.57%	-0.10%	5.1
7	2455.737	0.0104131333	71.04%	98.77	33.57		-0.65%	-0.11%	2.8
9	3158.360	0.0087672133	59.81%	103.12	37.93		-0.62%	-0.10%	7.1
10	3509.687	0.00796222	54.32%	104.95	39.76		-0.61%	-0.10%	8.9
11	3860.913	0.0029188933	19.91%	106.60	41.41		-0.61%	-0.10%	10.6
12	4210.553	0.0020447933	13.95%	108.10	42.91		-0.64%	-0.10%	0.1
13	4561.830	0.000787077	5.37%	109.49	44.30		-0.63%	-0.10%	1.5
14	4912.847	0.0006495153	4.43%	110.77	45.58		-0.63%	-0.10%	2.8
18	6316.547	0.000622053	4.24%	115.12	49.93		-0.63%	-0.09%	7.1
16	5615.613	0.0005957113	4.06%	113.09	47.89		-0.61%	-0.09%	5.1
17	5965.203	0.00057324	3.91%	114.13	48.94		-0.63%	-0.10%	6.1
15	5264.163	0.0005362283	3.66%	111.97	46.78		-0.62%	-0.10%	4.0
19	6667.713	0.0004494907	3.07%	116.06	50.87		-0.62%	-0.09%	8.1
20	7017.247	0.0003176423	2.17%	116.94	51.75		-0.64%	-0.10%	8.9
21	7370.420	0.000234222	1.60%	117.79	52.60		-0.61%	-0.09%	9.8
22	7720.153	0.000189738	1.29%	118.60	53.40		-0.63%	-0.09%	10.6
23	8071.573	0.000171366	1.17%	119.37	54.17		-0.62%	-0.09%	11.4
24	8424.717	0.0001663273	1.13%	120.11	54.92		-0.59%	-0.09%	0.1

Sound 3 Bottom - p									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1190.670	0.00488859	140.43%	86.23	23.90	louder than fundamental	-0.60%	-0.12%	2.2
3	893.014	0.0042742067	122.79%	81.25	18.92	louder than fundamental	-0.59%	-0.13%	9.3
2	593.526	0.0037956533	109.04%	74.18	11.84	louder than fundamental	-0.90%	-0.21%	2.2
1	299.451	0.0034810467	100.00%	62.34	0.00		0.00%	0.00%	2.3
5	1486.507	0.0024739833	71.07%	90.08	27.74	<i>note that all harmonic partials are fairly flat</i>	-0.72%	-0.14%	6.1
6	1784.167	0.0017252567	49.56%	93.24	30.90		-0.70%	-0.13%	9.2
7	2083.723	0.0008342587	23.97%	95.92	33.59		-0.59%	-0.11%	11.9
8	2379.743	0.000410649	11.80%	98.22	35.88	<i>small, negligible noise bands occur at frequencies that are relatively focussed (within ~30 Hz across readings) perhaps suggesting a pattern</i>	-0.66%	-0.12%	2.2
9	2677.403	0.0003524193	10.12%	100.26	37.93		-0.66%	-0.11%	4.3
10	2974.927	0.0002537473	7.29%	102.09	39.75		-0.65%	-0.11%	6.1
11	3274.370	0.000104571	3.00%	103.75	41.41		-0.59%	-0.10%	7.7
12	3568.087	5.575787E-005	1.60%	105.23	42.90		-0.70%	-0.12%	9.2
15	4459.150	4.53683E-005	1.30%	109.09	46.76		-0.73%	-0.12%	1.1
16	4758.680	0.000029447	0.85%	110.22	47.88		-0.68%	-0.11%	2.2

Sound 4 Middle - pp - low									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1062.447	0.0063782067	100.14%	84.26	18.99	louder than fundamental	-0.16%	-0.03%	0.3
1	354.708	0.0063689767	100.00%	65.27	0.00		0.00%	0.00%	5.3
2	709.458	0.0062358067	97.91%	77.27	12.00	<i>while most harmonic partials are slightly flat, they are noticeably less flat than previous samples and 2nd partial is in fact slightly sharp.</i>	0.01%	0.00%	5.3
4	1417.127	0.0058884933	92.46%	89.25	23.98		-0.20%	-0.02%	5.2
5	1770.080	0.0035962367	56.46%	93.10	27.83		-0.12%	-0.04%	9.1
6	2124.807	0.0016178533	25.40%	96.26	30.99		-0.16%	-0.03%	0.3
8	2834.447	0.000402231	6.32%	101.25	35.98	<i>very little diversion overall.</i>	-0.11%	-0.02%	5.2
9	3187.443	0.0002739727	4.30%	103.28	38.01		-0.15%	-0.03%	7.3
7	3339.190	0.0002208637	3.47%	98.93	33.66		-0.15%	-0.03%	2.9
10	3542.367	0.000195028	3.06%	105.11	39.84		-0.13%	-0.02%	9.1
11	3897.140	0.0001835573	2.88%	106.76	41.49	<i>any focussed noisebands as mentioned previously are included in for this sample's data, note very low amplitude</i>	-0.12%	-0.02%	10.8
13	4606.583	0.000136047	2.14%	109.66	44.39		-0.10%	-0.02%	1.7
12	4251.433	8.144507E-005	1.28%	108.27	43.00		-0.12%	-0.02%	0.3
3	1151.217	5.163207E-005	0.81%	85.65	20.38	INHARMONIC	8.18%	1.62%	1.7
4	1501.200	4.81604E-005	0.76%	90.25	24.98	INHARMONIC	5.81%	1.09%	6.2

Sound 5 Bottom - f									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
5	1465.180	0.0353460333	284.31%	89.83	27.93	ALL HARMONIC PARTIALS LOUDER THAN FUNDAMENTAL.	0.37%	0.07%	5.8
6	1758.953	0.0324711333	261.19%	92.99	31.09		0.41%	0.08%	9.0
4	1173.210	0.0323179	259.95%	85.98	24.08		0.46%	0.09%	2.0
3	881.296	0.0292182	235.02%	81.03	19.13	<i>note that all harmonic partials are quite sharp</i>	0.62%	0.13%	9.0
7	2052.743	0.0275057333	221.25%	95.66	33.76		0.44%	0.08%	11.7
8	2346.477	0.0257842	207.40%	97.98	36.08		0.46%	0.08%	2.0
9	2640.233	0.0196545	158.09%	100.02	38.12		0.48%	0.08%	4.0
10	2932.193	0.0170143	136.86%	101.84	39.94		0.43%	0.07%	5.8
2	585.754	0.0158097667	127.17%	73.95	12.05		0.31%	0.07%	2.0
1	291.958	0.0124321667	100.00%	61.90	0.00		0.00%	0.00%	1.9
10	3004.077	0.0003456143	2.78%	102.26	40.36	INHARMONIC	2.89%	0.49%	6.3
6	1629.463	0.0002984987	2.40%	91.67	29.77	INHARMONIC	-6.98%	-1.35%	7.7

Sound 6 Middle - f - low									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1384.600	0.0473725333	261.21%	88.85	24.04	louder than fundamental	0.26%	0.05%	4.8
5	2076.910	0.0415042667	228.86%	95.87	31.06	louder than fundamental	0.26%	0.05%	11.9
6	1731.697	0.0363974667	200.70%	92.72	27.92	louder than fundamental	0.31%	0.06%	8.7
3	1035.833	0.0289837	164.52%	83.82	19.02	louder than fundamental	0.00%	0.00%	2.8
7	2422.163	0.0283677	156.42%	98.53	33.73	louder than fundamental	0.22%	0.04%	11.5
9	3112.613	0.0268894667	148.27%	102.87	38.07	louder than fundamental	0.17%	0.03%	6.9
8	2787.400	0.0260681333	143.74%	100.84	36.03	louder than fundamental	0.19%	0.03%	4.8
11	3806.693	0.0250414333	138.08%	106.36	41.55	louder than fundamental	0.23%	0.04%	10.4
2	690.543	0.0249174333	137.40%	76.80	12.00	louder than fundamental	0.00%	0.00%	4.8

10	3459.697	0.0185932	102.52%	104.70	39.90	louder than fundamental	0.20%	0.03%	8.7
1	345.265	0.0181355667	100.00%	64.80	0.00		0.00%	0.00%	4.8
12	4151.973	0.0134105667	73.95%	107.86	43.06	<i>very little diversion across harmonic partials, all are slightly sharp</i>	0.21%	0.03%	11.9
13	4497.097	0.0101394133	55.91%	109.24	44.44		0.19%	0.03%	1.2
15	5187.437	0.006966633	36.93%	111.71	46.91		0.16%	0.03%	3.7
14	4842.377	0.00650428	35.86%	110.52	45.72		0.18%	0.03%	2.5
16	5534.550	0.0057480933	31.70%	112.83	48.03		0.19%	0.03%	4.8
17	5881.800	0.0050958333	28.10%	113.89	49.09		0.21%	0.03%	5.9
19	6574.037	0.0042639433	23.51%	115.81	51.01		0.21%	0.03%	7.8
18	6228.897	0.0041329867	22.79%	114.88	50.08		0.23%	0.03%	6.9
20	6919.260	0.0034358	18.95%	116.70	51.90		0.20%	0.03%	8.7
5	1836.960	0.0003497477	1.93%	93.74	26.94	INHARMONIC	6.41%	1.16%	9.7

Sound 7 Bottom - Staccato - E

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	856.254	0.01014647	490.32%	82.44	30.91	louder than fundamental	-0.65%	-0.14%	10.4
8	1277.320	0.0097583833	471.47%	87.45	35.92	louder than fundamental	-0.47%	-0.09%	3.5
5	799.493	0.00909315	439.42%	79.34	27.81	louder than fundamental	-0.33%	-0.07%	7.3
9	1433.407	0.0082731233	399.79%	88.45	37.91	louder than fundamental	-0.72%	-0.14%	5.4
10	1594.123	0.0075708067	365.85%	91.29	39.75	louder than fundamental	-0.63%	-0.12%	7.3
11	1755.013	0.0073351233	354.46%	92.95	41.42	louder than fundamental	-0.55%	-0.10%	9.0
7	1116.437	0.0064481433	311.60%	85.12	33.59	louder than fundamental	-0.58%	-0.12%	1.1
4	638.423	0.00617776	298.54%	75.44	23.91	louder than fundamental	-0.51%	-0.12%	3.4
12	1915.840	0.00611642	295.57%	94.47	42.94	louder than fundamental	-0.48%	-0.09%	10.5
3	477.915	0.0049287967	238.18%	70.43	18.90	louder than fundamental	-0.70%	-0.17%	10.4
13	2071.473	0.00412281	199.23%	95.82	44.29	louder than fundamental	-0.67%	-0.12%	11.8
15	2393.337	0.0032240067	155.80%	98.32	46.79	louder than fundamental	-0.54%	-0.10%	2.3
2	319.350	0.0029957167	144.77%	63.45	11.92	louder than fundamental	-0.47%	-0.13%	3.5
14	2232.233	0.0027745167	134.08%	97.11	45.58	louder than fundamental	-0.61%	-0.11%	1.1
17	2712.597	0.0022379733	108.15%	100.49	48.96	louder than fundamental	-0.54%	-0.09%	4.5
18	2874.033	0.0021672333	104.73%	101.49	49.96	louder than fundamental	-0.47%	-0.08%	5.5
16	2551.560	0.00211906	102.40%	99.43	47.90	louder than fundamental	-0.59%	-0.10%	3.4
1	160.426	0.0020693533	100.00%	51.53	0.00	sample is almost a quartertone flat	0.00%	0.00%	3.5
19	3035.197	0.00144517	69.84%	102.43	50.90		-0.42%	-0.07%	6.4
20	3191.170	0.0013906967	67.20%	103.30	51.77		-0.54%	-0.09%	7.3
21	3352.557	0.0009626227	46.52%	104.16	52.62	<i>note that all harmonic partials are quite flat</i>	-0.49%	-0.08%	8.2
23	3669.020	0.0006999173	33.82%	105.72	54.18		-0.56%	-0.09%	9.7
22	3513.973	0.0006695843	32.36%	104.97	53.44		-0.44%	-0.07%	9.0
24	3830.417	0.0005823243	28.14%	106.46	54.93		-0.51%	-0.08%	10.5
25	3988.047	0.0003684123	17.80%	107.16	55.63		-0.56%	-0.09%	11.2
4	711.171	0.0003531427	17.07%	77.31	25.78	INHARMONIC	10.83%	2.36%	5.3

Sound 8 Bottom - Staccato - F#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	702.985	0.0104278267	344.44%	77.11	24.18	louder than fundamental	1.03%	0.23%	5.1
6	1052.653	0.00993402	328.13%	84.10	31.17	louder than fundamental	0.85%	0.17%	0.1
7	1233.410	0.0095215	314.51%	86.84	33.91	louder than fundamental	1.2%	0.26%	2.8
8	1406.600	0.008952733	295.80%	89.12	36.18	louder than fundamental	1.07%	0.21%	5.1
5	876.804	0.00850022	280.77%	80.94	28.00	louder than fundamental	0.80%	0.17%	8.9
10	1755.130	0.00827155	273.22%	92.95	40.02	louder than fundamental	0.89%	0.17%	9.0
9	1582.650	0.0080706833	266.58%	91.16	38.23	louder than fundamental	1.09%	0.21%	7.2
11	1931.520	0.0065771867	217.25%	94.61	41.67	louder than fundamental	0.94%	0.17%	10.6
12	2112.897	0.0048435367	159.99%	96.16	43.23	louder than fundamental	1.22%	0.22%	0.2
3	529.793	0.0043809967	144.71%	72.22	19.28	louder than fundamental	1.52%	0.36%	0.2
2	353.716	0.00433623	143.23%	65.22	12.29	louder than fundamental	1.67%	0.44%	5.2
14	2458.313	0.0030904333	102.08%	98.79	45.85	louder than fundamental	0.94%	0.16%	2.8
1	173.961	0.0030274533	100.00%	52.94	0.00	sample is almost a semitone flat	0.00%	0.00%	4.9
13	2286.203	0.0025487633	84.19%	97.53	44.59	<i>note that all harmonic partials are very sharp</i>	1.09%	0.19%	1.5
15	2634.497	0.0023456467	77.48%	99.98	47.05		0.96%	0.17%	4.0
17	2982.530	0.00161318	53.29%	102.13	49.20		0.85%	0.14%	6.1
16	2810.170	0.00151683	50.10%	101.10	48.17		0.96%	0.16%	5.1
18	3157.800	0.0014595933	48.21%	103.12	50.19		0.85%	0.14%	7.1
9	1489.347	0.000753172	24.88%	90.11	37.17	INHARMONIC	-4.87%	-0.95%	6.1
21	3667.553	0.0007083727	23.40%	105.71	52.78		0.39%	0.06%	9.7
19	3344.907	0.0006379607	21.07%	104.12	51.18		1.20%	0.20%	8.1
6	962.605	0.000542039	17.90%	82.55	29.62	INHARMONIC	-7.78%	-1.67%	10.6
5	788.201	0.000491728	16.24%	79.09	26.16	INHARMONIC	-9.38%	-2.11%	7.1
21	3730.293	0.000367872	12.15%	106.00	53.07	INHARMONIC	2.11%	0.34%	10.0
3	460.304	9.870543E-005	3.26%	69.78	16.85	INHARMONIC	-11.80%	-3.02%	9.8

Sound 9 Bottom - Staccato - G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	1213.470	0.01711421	406.39%	86.56	30.89	louder than fundamental	-0.77%	-0.15%	2.6
5	1008.470	0.0171373667	406.28%	83.36	27.68	louder than fundamental	-1.04%	-0.22%	11.4
7	1417.917	0.0132672	314.53%	89.26	33.58	louder than fundamental	-0.62%	-0.12%	5.3
8	1622.340	0.0103464267	245.28%	91.59	35.91	louder than fundamental	-0.50%	-0.10%	7.6
4	804.256	0.00948255	224.80%	79.44	23.76	louder than fundamental	-1.35%	-0.30%	7.4
2	403.582	0.00782351	185.47%	67.50	11.83	louder than fundamental	-0.99%	-0.26%	7.5
10	2031.303	0.0077093533	182.77%	95.48	39.80	louder than fundamental	-0.34%	-0.06%	11.5
9	1819.913	0.0064602533	153.15%	93.58	37.90	louder than fundamental	-0.79%	-0.15%	9.6
3	607.771	0.0058388467	138.42%	74.59	18.92	louder than fundamental	-0.60%	-0.14%	2.6
11	2229.340	0.00455123	107.90%	97.09	41.42	louder than fundamental	-0.56%	-0.10%	1.1
12	2433.800	0.0044952667	106.57%	98.61	42.93	louder than fundamental	-0.49%	-0.09%	2.6
1	203.816	0.0042181667	100.00%	55.68	0.00		0.00%	0.00%	7.7
13	2655.813	0.0037151	88.07%	100.12	44.45	<i>all harmonic partials louder than fundamental very flat, rest slightly sharp</i>	0.23%	0.04%	4.1
14	2859.240	0.0032157233	76.24%	101.40	45.72		0.20%	0.03%	5.4
7	1503.690	0.00301149	71.39%	90.28	34.60	INHARMONIC	5.40%	1.02%	6.3
6	1302.850	0.00289562	68.65%	87.79	32.12	INHARMONIC	6.54%	1.26%	3.8
8	1708.173	0.0027256367	64.62%	92.48	36.81	INHARMONIC	4.76%	0.88%	8.5
4	894.107	0.0025949833	61.52%	81.28	25.60	INHARMONIC	9.67%	2.01%	9.3
15	3058.513	0.0024300933	57.61%	102.57	46.89		0.04%	0.01%	6.6
5	1105.053	0.00206045	48.85%	84.94	29.27	INHARMONIC	8.44%	1.68%	0.9
16	3262.473	0.0019923767	47.23%	103.68	48.01		0.04%	0.01%	7.7
10	2110.130	0.00197328	46.78%	96.14	40.46	INHARMONIC	3.53%	0.63%	0.1
9	1905.977	0.0018682257	39.55%	94.38	38.70	INHARMONIC	3.91%	0.71%	10.4
11	2298.937	0.0018425607	24.72%	97.62	41.95	INHARMONIC	2.94%	0.45%	1.6
3	703.620	0.000812774	19.27%	77.13	21.45	INHARMONIC	15.07%	3.25%	5.1
13	2740.323	0.0006866227	16.28%	100.67	44.99	INHARMONIC	3.42%	0.58%	4.7
14	2943.520	0.0006607277	15.66%	101.90	46.23	INHARMONIC	3.16%	0.53%	5.9
12	2540.520	0.0006211447	14.73%	99.35	43.68	INHARMONIC	3.87%	0.67%	3.4
2	505.855	0.0003881433	9.20%	71.41	15.74	INHARMONIC	24.10%	5.52%	11.4

Sound 10 Bottom - Staccato - A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	1309.960	0.021424333	339.69%	87.89	31.14	ALL HARMONIC PARTIALS	0.68%	0.13%	3.9
7	1528.527	0.0210904333	334.59%	90.56	33.81	LOUDER THAN FUNDAMENTAL.	0.69%	0.13%	6.6
8	1744.947	0.0188646333	299.28%	92.85	36.10		0.58%	0.11%	8.9
9	1966.067	0.0179480333	284.73%	94.92	38.17	<i>note that all harmonic partials are quite sharp</i>	0.73%	0.13%	10.9
5	1091.373	0.0175645333	278.65%	84.73	27.98		0.65%	0.13%	0.7
3	655.989	0.012605	199.97%	75.91	19.16		0.83%	0.19%	3.9

Appendix 4

6	2824.033	0.0008146857	4.39%	101.19	30.96	-0.32%	-0.05%	5.2
8	3763.670	0.0004447717	2.40%	106.16	35.94	-0.36%	-0.06%	10.2
7	3292.473	0.0004354173	2.35%	103.84	33.62	-0.38%	-0.06%	7.8
9	4232.137	0.0002098222	1.13%	108.19	37.97	-0.41%	-0.07%	0.2
10	4705.263	0.0002013253	1.08%	110.02	39.80	-0.35%	-0.05%	2.0

Sound 17 Middle – f – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1413.017	0.0690008333	163.26%	89.20	18.98	louder than fundamental	-0.26%	-0.05%	5.2
4	1883.423	0.0579087333	137.02%	94.17	23.95	louder than fundamental	-0.29%	-0.05%	10.2
2	940.811	0.0547573667	129.56%	82.16	11.93	louder than fundamental	-0.38%	-0.08%	10.2
5	2353.837	0.0477567333	113.00%	98.03	27.81	louder than fundamental	-0.31%	-0.05%	2.0
1	472.211	0.0422637	100.00%	70.22	0.00		0.00%	0.00%	10.2
6	2822.453	0.0391184667	92.56%	101.18	30.95	<i>note that all harmonic partials are quite flat</i>	-0.38%	-0.07%	5.2
7	3294.660	0.0304248333	71.99%	103.85	33.63		-0.33%	-0.05%	7.9
8	3765.023	0.0214155333	50.67%	106.17	35.94		-0.34%	-0.05%	10.2
4	1805.603	0.0005019927	1.19%	93.44	23.22	INHARMONIC	-4.41%	-0.83%	9.4

Sound 18 Middle – Staccato – F#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1470.580	0.0332461333	180.61%	89.89	24.04	louder than fundamental	0.23%	0.04%	5.9
3	1100.120	0.0272969667	148.29%	84.87	19.01	louder than fundamental	-0.03%	-0.01%	0.9
5	1837.320	0.0225117333	122.29%	93.74	27.89	louder than fundamental	0.18%	0.03%	9.7
2	733.552	0.0203142	110.36%	77.85	12.00	louder than fundamental	-0.01%	0.00%	5.8
1	366.814	0.0184077333	100.00%	65.85	0.00		0.00%	0.00%	5.9
6	2204.087	0.0165004333	89.64%	96.90	31.04	<i>very little diversion across harmonic partials.</i>	0.15%	0.03%	0.9
7	2573.110	0.0130318667	70.80%	99.58	33.72		0.21%	0.04%	3.6
8	2939.847	0.0128107333	69.59%	101.88	36.03		0.18%	0.03%	5.9
9	3306.560	0.0116376333	63.22%	103.92	38.07		0.16%	0.03%	7.9
10	3677.053	0.00853704	46.38%	105.76	39.91		0.24%	0.04%	9.8
11	4043.980	0.0068748667	37.35%	107.40	41.55		0.22%	0.04%	11.4
12	4410.493	0.00431995	23.47%	108.90	43.05		0.20%	0.03%	0.9
13	4777.280	0.0035327233	19.19%	110.29	44.44		0.18%	0.03%	2.3
8	2857.580	0.000480802	2.61%	101.39	35.54	INHARMONIC	-2.62%	-0.45%	5.4
4	1385.480	0.0004879713	2.65%	88.86	23.01	INHARMONIC	-5.57%	-1.10%	4.9
10	3591.590	0.000422707	2.29%	105.35	39.50	INHARMONIC	-2.09%	-0.35%	9.3
8	3011.067	0.0004113503	2.23%	102.30	36.45	INHARMONIC	2.61%	0.44%	6.3
7	2487.510	0.0004097807	2.23%	98.99	33.14	INHARMONIC	-3.12%	-0.55%	3.0
9	3224.700	0.0003725003	2.02%	103.48	37.63	INHARMONIC	-2.32%	-0.39%	7.5

Sound 19 Middle – Staccato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1250.100	0.0376870667	170.61%	87.08	18.94	louder than fundamental	-0.48%	-0.10%	3.1
4	1669.037	0.0303321333	137.31%	92.08	23.94	louder than fundamental	-0.35%	-0.07%	8.1
5	2087.700	0.0242343667	109.71%	95.96	27.81	louder than fundamental	-0.28%	-0.05%	12.0
1	418.718	0.0220901	100.00%	68.14	0.00		0.00%	0.00%	8.1
6	837.537	0.0175483	79.44%	80.14	12.00	<i>due to shortness of sample, 3 readings occur very close together hence so many inharmonic frequencies consistent across all 3</i>	-0.24%	-0.04%	3.1
6	2506.333	0.0158790667	71.88%	99.12	30.98		-0.24%	-0.04%	3.1
7	2918.667	0.0157496667	71.30%	101.76	33.62		-0.42%	-0.07%	5.8
8	3337.200	0.0132538	60.00%	104.08	35.94		-0.37%	-0.06%	8.1
5	2002.787	0.0005940097	2.69%	95.24	27.10	INHARMONIC	-4.34%	-0.80%	11.2
7	2832.100	0.0004958933	2.24%	101.24	33.09	INHARMONIC	-3.38%	-0.58%	5.2
4	1763.270	0.0004662747	2.11%	93.03	24.89	INHARMONIC	5.28%	0.97%	9.0
3	1346.510	0.0003766213	1.70%	88.36	20.22	INHARMONIC	7.19%	1.38%	4.4
5	2180.970	0.0003524687	1.60%	96.71	28.57	INHARMONIC	4.17%	0.74%	0.7
2	786.446	0.000342172	1.55%	79.05	10.91	INHARMONIC	-6.09%	-1.36%	7.1
2	890.001	0.0003301447	1.49%	81.20	13.05	INHARMONIC	6.28%	1.32%	9.2
7	3012.977	0.0003189677	1.44%	102.31	34.17	INHARMONIC	2.80%	0.47%	6.3
5	1926.950	0.000304954	1.38%	94.57	26.43	INHARMONIC	-7.96%	-1.50%	10.6
2	744.171	0.000303179	1.37%	78.10	9.96	INHARMONIC	-11.14%	-2.55%	6.1
4	1477.943	0.000282662	1.28%	89.98	21.83	INHARMONIC	-11.76%	-2.35%	6.0
3	1425.163	0.0002585007	1.17%	89.35	21.20	INHARMONIC	13.45%	2.51%	5.3
3	1099.753	0.0002514727	1.14%	84.86	16.72	INHARMONIC	-12.45%	-2.64%	0.9
4	184.1343	0.0002235667	1.01%	93.78	25.64	INHARMONIC	9.94%	1.78%	9.8
6	2637.397	0.000216952	0.98%	100.00	31.86	INHARMONIC	4.98%	0.85%	4.0
6	2670.893	0.000192788	0.87%	100.22	32.08	INHARMONIC	6.31%	1.07%	4.2

Sound 20 Middle – Staccato – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1314.823	0.0307183333	132.24%	87.95	18.93	louder than fundamental	-0.52%	-0.10%	4.0
4	1754.803	0.0284692333	122.56%	92.95	23.93	louder than fundamental	-0.43%	-0.08%	8.9
1	440.584	0.0232287333	100.00%	69.02	0.00		0.00%	0.00%	9.0
6	879.345	0.0204671667	98.11%	80.99	11.96	<i>note that all harmonic partials are quite flat</i>	-0.21%	-0.04%	9.0
5	2192.320	0.0183622667	79.05%	96.80	27.78		-0.48%	-0.09%	0.8
6	2633.980	0.0138828967	59.77%	99.98	30.96		-0.36%	-0.06%	4.0
6	2637.823	0.0008473603	3.65%	99.34	30.31	INHARMONIC	-4.00%	-0.71%	3.3
7	2974.960	0.000686571	2.96%	102.09	33.06	INHARMONIC	-3.54%	-0.61%	6.1
2	787.751	0.0006459727	2.78%	79.08	10.06	INHARMONIC	-10.60%	-2.39%	7.1

Sound 21 Middle – Staccato – B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1481.543	0.0400252667	184.58%	90.02	18.99	louder than fundamental	-0.16%	-0.03%	6.0
4	1973.630	0.0355410333	163.90%	94.98	23.96	louder than fundamental	-0.25%	-0.05%	11.0
2	987.267	0.0305331	140.81%	82.99	11.97	louder than fundamental	-0.20%	-0.04%	11.0
1	494.631	0.0216841333	100.00%	71.03	0.00		0.00%	0.00%	11.0
5	2468.837	0.0200291333	92.37%	98.86	27.83	<i>note that all harmonic partials are slightly flat</i>	-0.17%	-0.03%	2.9
6	2960.760	0.0159663667	73.63%	102.00	30.98		-0.24%	-0.04%	6.0
7	3455.580	0.01032248	47.60%	104.68	33.65		-0.20%	-0.03%	8.7
4	1890.213	0.0036594	16.88%	94.24	23.21	INHARMONIC	-4.46%	-0.83%	10.2
3	1395.930	0.0036414467	16.79%	88.99	17.96	INHARMONIC	-5.93%	-1.17%	5.0
6	2874.767	0.0030315433	13.98%	101.49	30.47	INHARMONIC	-3.13%	-0.54%	5.5
2	903.288	0.0021869033	10.09%	81.45	10.43	INHARMONIC	-8.69%	-1.90%	9.5
3	1570.863	0.0019822113	9.14%	91.03	20.01	INHARMONIC	5.86%	1.10%	7.0
6	3042.957	0.0019453677	8.97%	102.48	31.45	INHARMONIC	2.53%	0.42%	6.5
3	1637.500	0.0004000913	1.85%	91.75	20.72	INHARMONIC	10.35%	1.89%	7.8
2	1147.850	0.000390416	1.80%	85.60	14.57	INHARMONIC	16.03%	3.10%	1.6
4	2131.430	0.0003571887	1.65%	96.31	25.29	INHARMONIC	7.73%	1.36%	0.3

Sound 22 Middle – Staccato – C#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1644.153	0.0441078333	207.78%	91.82	18.99	louder than fundamental	-0.15%	-0.03%	7.8
2	1097.513	0.0431317	203.18%	84.82	12.00	louder than fundamental	-0.02%	0.00%	0.0
4	2192.760	0.0326204333	153.67%	96.81	23.98	louder than fundamental	-0.12%	-0.02%	0.8
1	548.873	0.0212279333	100.00%	72.83	0.00	<i>sample is short – see sound 19</i>	0.00%	0.00%	0.8
5	2741.623	0.0211546667	99.47%	100.87	27.85	<i>note that all harmonic partials are slightly flat</i>	-0.10%	-0.02%	4.7
6	3288.383	0.0160349667	75.54%	103.82	30.99		-0.10%	-0.02%	7.8
4	2095.473	0.00174354	8.21%	96.02	23.19	INHARMONIC	-4.56%	-0.83%	0.0
3	1547.070	0.0015604233	7.35%	90.77	17.94	INHARMONIC	-6.05%	-1.18%	6.8

5	2644.463	0.0013884133	6.54%	100.05	27.22	INHARMONIC	-3.64%	-0.64%	4.0
6	3191.363	0.0013130033	6.19%	103.30	30.48	INHARMONIC	-3.09%	-0.52%	7.3
3	1737.890	0.00127204	5.99%	92.78	19.95	INHARMONIC	5.54%	1.02%	8.8
5	2838.437	0.0010725367	5.05%	101.27	28.45	INHARMONIC	3.43%	0.58%	5.3
2	1187.547	0.0010439863	4.92%	86.19	13.36	INHARMONIC	8.18%	1.60%	2.2
2	1000.528	0.0009509233	4.48%	83.22	10.39	INHARMONIC	-8.86%	-1.89%	11.2
4	2289.673	0.0009095907	4.28%	97.55	24.73	INHARMONIC	4.29%	0.75%	1.6
2	1291.893	0.0005542043	2.61%	87.65	14.82	INHARMONIC	17.69%	3.32%	3.6
3	1443.793	0.000471017	2.22%	89.57	16.74	INHARMONIC	-12.32%	-2.48%	5.6
4	2390.457	0.000451341	2.13%	98.30	25.47	INHARMONIC	8.88%	1.52%	2.3
5	2985.387	0.0002845913	1.34%	102.15	29.32	INHARMONIC	8.78%	1.45%	6.1

Sound 23 Middle – Staccato – D#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1251.160	0.0733013	215.53%	87.09	12.00	louder than fundamental	0.00%	0.00%	3.1
1	1882.287	0.0487687667	143.39%	94.16	19.07	louder than fundamental	0.30%	0.05%	10.2
4	2507.803	0.0367671333	108.11%	99.13	24.04	louder than fundamental	0.22%	0.04%	3.1
1	625.572	0.0340100333	100.00%	75.09	0.00	sample.is.short – see sound_19	0.00%	0.00%	3.1
3	3133.407	0.0316778333	93.14%	102.99	27.89	all harmonic partials slightly sharp	0.18%	0.03%	7.0
5	1971.680	0.00248247	7.30%	94.97	19.87	INHARMONIC	5.06%	0.91%	11.0
4	2412.870	0.00242886	7.14%	98.46	23.37	INHARMONIC	-3.57%	-0.64%	2.5
3	1787.323	0.0020976773	6.17%	93.27	18.17	INHARMONIC	-4.76%	-0.90%	9.3
5	3042.250	0.0020555767	6.04%	102.47	27.38	INHARMONIC	-2.74%	-0.47%	6.5
2	1346.350	0.0017813797	5.24%	88.36	13.27	INHARMONIC	7.61%	1.46%	4.4
2	1161.787	0.0016513737	4.86%	85.81	10.72	INHARMONIC	-7.14%	-1.47%	1.8
4	2600.473	0.0013387093	3.94%	99.76	24.67	INHARMONIC	3.92%	0.67%	3.8
5	3228.057	0.001108737	3.27%	103.50	28.41	INHARMONIC	3.20%	0.53%	7.5
4	2715.437	0.0005127027	1.51%	100.51	25.42	INHARMONIC	8.52%	1.43%	4.5
3	2087.973	0.000471421	1.39%	95.96	20.87	INHARMONIC	11.26%	1.96%	12.0
5	3340.683	0.000455323	1.34%	104.09	29.00	INHARMONIC	6.80%	1.11%	8.1
4	2671.110	0.0003352127	0.99%	100.22	25.13	INHARMONIC	6.75%	1.14%	4.2

Sound 24 Middle – Staccato – high E

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1971.013	0.0803073667	164.95%	94.96	19.02	louder than fundamental	-0.01%	0.00%	11.0
2	1314.207	0.0775853	159.36%	87.94	12.00	louder than fundamental	0.00%	0.00%	3.9
1	657.079	0.0486859	100.00%	75.94	0.00	sample.is.short – see sound_19	0.00%	0.00%	3.9
4	2628.120	0.0455309333	93.52%	99.94	24.00	very little diversion	-0.01%	0.00%	3.9
5	3285.053	0.0389230667	79.95%	103.80	27.86	across harmonic partials,	-0.01%	0.00%	7.8
6	3942.003	0.02689593	55.37%	106.96	31.02		-0.01%	0.00%	11.0
6	3850.470	0.0022630667	4.65%	106.55	30.61	INHARMONIC	-2.33%	-0.38%	10.6
5	3193.860	0.0022090233	4.54%	103.32	27.37	INHARMONIC	-2.79%	-0.47%	7.3
2	1217.480	0.00220485	4.53%	86.62	10.68	INHARMONIC	-7.36%	-1.50%	2.6
4	2536.910	0.002193867	4.15%	99.33	23.39	INHARMONIC	-3.48%	-0.61%	3.3
4	3380.307	0.0019364767	3.98%	104.30	28.38	INHARMONIC	-2.89%	-0.47%	8.3
3	1874.650	0.0017839867	3.66%	94.09	18.15	INHARMONIC	-4.90%	-0.92%	10.1
2	1409.313	0.0015598807	3.20%	89.15	13.21	INHARMONIC	7.24%	1.38%	5.2
4	2729.090	0.0013953667	2.87%	100.59	24.65	INHARMONIC	3.83%	0.65%	4.6
3	2066.333	0.0013746053	2.82%	95.78	19.84	INHARMONIC	4.82%	0.86%	11.8
5	3479.543	0.0006114003	1.26%	104.80	28.86	INHARMONIC	5.91%	0.96%	8.8
5	3132.793	0.000481584	0.99%	102.98	27.04	INHARMONIC	-4.64%	-0.79%	7.0
4	2474.930	0.0004222457	0.87%	98.90	22.96	INHARMONIC	-5.84%	-1.04%	2.9

Sound 25 Top – p – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	712.990	0.0245390333	100.00%	77.36	0.00		0.00%	0.00%	5.4
2	1422.380	0.0187272	76.32%	89.31	11.96	note that all harmonic partials are slightly flat	-0.25%	-0.05%	5.3
3	2135.390	0.00533862	21.76%	96.35	18.99		-0.17%	-0.03%	0.3
4	2846.447	0.001017799	4.15%	101.32	23.97		-0.19%	-0.03%	5.3
6	4268.980	0.0007927943	3.23%	108.34	30.98		-0.21%	-0.03%	0.3
5	3559.687	0.0006449083	2.63%	105.19	27.84		-0.15%	-0.02%	9.2
7	4981.540	0.0002269433	0.92%	111.01	33.66		-0.19%	-0.03%	3.0

Sound 26 Top – f – low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1420.907	0.111927	173.21%	89.29	12.00	louder than fundamental	0.00%	0.00%	5.3
3	2131.373	0.0828664	128.24%	96.31	19.02	louder than fundamental	0.00%	0.00%	0.3
1	710.451	0.0646205	100.00%	77.29	0.00		0.00%	0.00%	5.3
4	2843.617	0.0587623	90.93%	101.31	24.01	very little diversion	0.06%	0.01%	5.3
5	3550.460	0.0416005667	64.38%	105.15	27.85	across harmonic partials,	-0.05%	-0.01%	9.1
6	4260.893	0.0246771	38.19%	108.31	31.01		-0.04%	-0.01%	0.3
4	2573.457	0.000580733	0.90%	99.58	22.28	INHARMONIC	-9.44%	-1.70%	3.6
2	1773.157	0.000523475	0.81%	93.13	15.83	INHARMONIC	24.79%	4.29%	9.1

Sound 27 Top – p – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1690.367	0.0308511	107.66%	92.30	12.02	louder than fundamental	0.11%	0.02%	8.3
1	844.278	0.0286549667	100.00%	80.28	0.00		0.00%	0.00%	8.3
3	2534.470	0.01371193	47.85%	99.31	19.03		0.06%	0.01%	3.3
2	1787.087	0.0013097047	4.57%	93.26	12.98	INHARMONIC	5.84%	1.06%	9.3
1	943.052	0.000735011	2.57%	82.20	1.92	INHARMONIC	11.70%	2.39%	10.2
3	2631.137	0.000699541	2.44%	99.96	19.68	INHARMONIC	3.88%	0.66%	4.0
2	1955.210	0.0006114677	2.13%	94.82	14.54	INHARMONIC	15.79%	2.75%	10.8
2	1864.527	0.0005907687	2.06%	94.00	13.72	INHARMONIC	10.42%	1.86%	10.0
2	1917.397	0.0005781727	2.02%	94.48	14.20	INHARMONIC	13.55%	2.38%	10.5
2	1358.843	0.0005522207	1.93%	88.52	8.24	INHARMONIC	-19.53%	-4.08%	4.5
3	2203.640	0.000427262	1.49%	96.89	16.61	INHARMONIC	-13.00%	-2.43%	0.9
3	2166.797	0.000393402	1.37%	96.60	16.32	INHARMONIC	-14.45%	-2.72%	0.6
3	2671.557	0.0003775433	1.32%	100.23	19.94	INHARMONIC	5.48%	0.93%	4.2
3	2304.877	0.0003001703	1.05%	97.67	17.39	INHARMONIC	-9.00%	-1.64%	1.7

Sound 28 Top – f – high

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1675.573	0.0909848333	142.47%	92.15	12.02	louder than fundamental	0.11%	0.02%	8.1
3	2512.463	0.0691271667	108.24%	99.16	19.03	louder than fundamental	0.07%	0.01%	3.2
1	836.872	0.0638633667	100.00%	80.13	0.00		0.00%	0.00%	8.1
4	3351.063	0.0408172667	63.91%	104.15	24.02		0.11%	0.02%	8.1
2	1597.130	0.001308752	2.05%	91.32	11.19	INHARMONIC	-4.58%	-0.88%	7.3
2	2027.583	0.0005317167	0.83%	95.45	15.32	INHARMONIC	21.14%	3.60%	11.5
2	2084.750	0.0004974757	0.78%	95.93	15.80	INHARMONIC	24.56%	4.13%	11.9
3	2231.120	0.000468321	0.73%	97.11	16.98	INHARMONIC	-11.13%	-2.06%	1.1

Sound 29 Top – Staccato – F

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1416.107	0.0779325333	132.25%	89.24	12.03	louder than fundamental	0.16%	0.03%	5.2
1	706.953	0.0589288667	100.00%	77.21	0.00	sample.is.short – see sound_19	0.00%	0.00%	5.2

3	2118.250	0.0514589333	87.32%	96.21	19.00		-0.12%	-0.02%	0.2
4	2827.423	0.0325514667	55.24%	101.21	24.00		-0.01%	0.00%	5.2
2	1557.333	0.0014734867	2.50%	90.88	13.67	INHARMONIC	10.14%	1.88%	6.9
2	1496.723	0.0008876473	1.51%	90.19	12.99	INHARMONIC	5.86%	1.10%	6.2
4	2975.397	0.0007761573	1.32%	102.09	24.88	INHARMONIC	5.22%	0.87%	6.1
2	1640.410	0.000729974	1.24%	91.78	14.57	INHARMONIC	16.02%	2.88%	7.8
3	2350.083	0.000627741	1.07%	98.01	20.80	INHARMONIC	10.81%	1.85%	2.0
4	2604.593	0.000618627	1.05%	99.79	22.58	INHARMONIC	-7.89%	-1.41%	3.8
3	2027.780	0.0005833653	0.99%	95.45	18.24	INHARMONIC	-4.39%	-0.81%	11.5
3	1903.737	0.0005749507	0.98%	94.36	17.15	INHARMONIC	-10.24%	-1.94%	10.4
3	2473.647	0.0005706233	0.97%	98.89	21.68	INHARMONIC	16.63%	2.77%	2.9
4	2555.917	0.0005539923	0.94%	99.46	22.25	INHARMONIC	-9.62%	-1.73%	3.5
2	1683.803	0.0005030317	0.85%	92.23	15.02	INHARMONIC	19.09%	3.39%	8.2
1	847.720	0.0004841663	0.82%	80.35	3.14	INHARMONIC	19.91%	4.07%	8.4
3	1836.973	0.0004534427	0.77%	93.74	16.53	INHARMONIC	-13.30%	-2.59%	9.7
1	947.540	0.000389512	0.66%	82.28	5.07	INHARMONIC	34.03%	6.57%	10.3
5	3283.247	0.0003771117	0.64%	103.79	26.59	INHARMONIC	-7.12%	-1.22%	7.8

Sound 30 Top – Staccato – F#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1499.567	0.0711270667	126.16%	90.23	12.00	louder than fundamental	0.01%	0.00%	6.2
1	749.717	0.0563772	100.00%	78.23	0.00		0.00%	0.00%	6.2
3	2249.253	0.0370198667	65.66%	97.25	19.02		0.00%	0.00%	1.2
4	2999.307	0.0202324	35.89%	102.23	24.00		0.01%	0.00%	6.2
2	1420.300	0.02021922	3.58%	89.29	11.06	INHARMONIC	-5.28%	-1.04%	5.3
3	2169.910	0.0018091433	3.21%	96.62	18.40	INHARMONIC	-3.52%	-0.64%	0.6
4	2915.273	0.0013667333	2.42%	101.74	23.51	INHARMONIC	-2.79%	-0.48%	5.7
2	1289.897	0.00056552	1.00%	87.62	9.39	INHARMONIC	-13.97%	-2.89%	3.6
2	1724.220	0.000557871	0.99%	92.64	14.42	INHARMONIC	14.99%	2.68%	8.6
3	1962.697	0.000511831	0.91%	94.89	16.66	INHARMONIC	-12.74%	-2.43%	10.9
3	2473.620	0.0004343937	0.79%	98.89	20.67	INHARMONIC	9.98%	1.69%	2.9

Sound 31 Top – Staccato – G

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1583.433	0.0715210333	206.38%	91.17	11.93	louder than fundamental	-0.42%	-0.08%	7.2
1	795.042	0.0346558333	100.00%	79.24	0.00		0.00%	0.00%	7.2
3	2373.710	0.0335359667	96.77%	98.18	18.94		-0.48%	-0.08%	2.2
2	1660.807	0.0018067133	5.21%	92.00	12.75	INHARMONIC	4.45%	0.83%	8.0
3	2454.017	0.0011074233	3.20%	98.75	19.51	INHARMONIC	2.89%	0.50%	2.8
2	1766.770	0.000773194	2.23%	93.07	13.82	INHARMONIC	11.11%	2.00%	9.1
2	1851.100	0.0006916817	2.00%	93.87	14.63	INHARMONIC	16.42%	2.88%	9.9
4	2994.263	0.0004643843	1.34%	102.20	22.96	INHARMONIC	-5.85%	-1.01%	6.2
4	2900.853	0.0003286873	0.95%	101.65	22.41	INHARMONIC	-8.78%	-1.54%	5.7

Sound 32 Top – Staccato – G#

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1670.917	0.0721869333	177.28%	92.05	11.94	louder than fundamental	-0.35%	-0.07%	8.1
1	837.911	0.0407199	100.00%	80.15	0.00	sample is short – see sound 19	0.00%	0.00%	8.2
3	2507.980	0.0330219	81.10%	99.13	18.98		-0.23%	-0.04%	3.1
4	3343.840	0.0248704	61.08%	104.11	23.96		-0.23%	-0.04%	8.1
2	1592.517	0.00574041	14.10%	91.27	11.12	INHARMONIC	-4.97%	-0.96%	7.3
3	2428.547	0.0040237867	9.88%	98.57	18.42	INHARMONIC	-3.39%	-0.60%	2.6
4	3262.200	0.0026481567	6.50%	103.68	23.53	INHARMONIC	-2.67%	-0.45%	7.7
2	1750.670	0.0025204067	6.19%	92.91	12.76	INHARMONIC	4.47%	0.82%	8.9
3	2584.360	0.0021778667	5.35%	99.65	19.50	INHARMONIC	2.81%	0.48%	3.7
4	3420.590	0.0015056367	3.70%	104.50	24.35	INHARMONIC	2.06%	0.34%	8.5
1	916.010	0.0011700867	2.87%	81.69	1.54	INHARMONIC	9.32%	1.92%	9.7
3	2144.340	0.0005180603	1.27%	96.42	16.27	INHARMONIC	-14.69%	-2.77%	0.4
1	1205.737	0.000364544	0.90%	86.45	6.30	INHARMONIC	43.90%	7.86%	2.5
3	2239.640	0.000352168	0.86%	97.17	17.02	INHARMONIC	-10.90%	-2.02%	1.2
3	2875.383	0.0003498573	0.86%	101.50	21.35	INHARMONIC	14.39%	2.35%	5.5
1	1035.033	0.000334414	0.82%	83.81	3.66	INHARMONIC	23.53%	4.56%	11.8
4	3549.103	0.000329367	0.82%	105.14	24.99	INHARMONIC	5.89%	0.95%	9.1
2	1996.503	0.0003202303	0.81%	95.18	15.03	INHARMONIC	19.14%	3.29%	11.2
3	2336.167	0.0003272623	0.80%	97.90	17.75	INHARMONIC	-7.06%	-1.28%	1.9
4	3078.837	0.0003167773	0.78%	102.68	22.53	INHARMONIC	-8.14%	-1.41%	6.7

Sound 33 Pedal Tone – p

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
7	1137.093	0.00359297	234.97%	85.44	33.74	louder than fundamental	0.29%	0.06%	1.4
6	975.022	0.00243886	159.50%	82.78	31.08	louder than fundamental	0.33%	0.07%	10.8
10	1622.797	0.0020772933	135.85%	91.59	39.90	louder than fundamental	0.19%	0.04%	7.6
9	1480.913	0.00201566	131.82%	89.78	38.08	louder than fundamental	0.22%	0.04%	5.8
8	1299.013	0.00188937	123.56%	87.74	36.04	louder than fundamental	0.25%	0.05%	3.7
2	323.897	0.00170999	111.83%	63.70	12.00	louder than fundamental	-0.01%	0.00%	3.7
4	847.599	0.00165516	108.24%	75.69	23.99	louder than fundamental	-0.04%	-0.01%	3.7
1	161.968	0.00152909	100.00%	51.70	0.00		0.00%	0.00%	3.7
5	811.339	0.0015116233	98.86%	79.59	27.90		0.18%	0.04%	7.6
3	485.807	0.0014357233	93.89%	70.71	19.02		-0.02%	0.00%	10.7
11	1784.670	0.00133054	87.02%	93.24	41.54		0.17%	0.03%	9.2
12	1946.573	0.0011812623	77.25%	94.74	43.05		0.15%	0.03%	10.7
13	2110.347	0.0007850097	51.34%	96.14	44.44		0.23%	0.04%	0.1
14	2272.417	0.0002998673	19.61%	97.42	45.73		0.21%	0.04%	1.4
15	2433.620	0.0002607167	17.05%	98.61	46.91		0.17%	0.03%	2.6
16	2597.787	0.000255959	16.74%	99.74	48.04		0.24%	0.04%	3.7
12	1866.020	0.0001236399	8.09%	94.01	42.31	INHARMONIC	-3.99%	-0.74%	10.0
10	1539.937	0.0001198681	7.84%	90.69	38.99	INHARMONIC	-4.92%	-0.95%	6.7
11	1712.713	0.0001172188	7.67%	92.53	40.83	INHARMONIC	-3.87%	-0.73%	8.5
17	2743.103	0.0001152953	7.54%	100.68	48.98		-0.38%	-0.06%	4.7
18	2921.210	8.779077E-005	5.74%	101.77	50.07		0.20%	0.03%	5.8
18	2975.660	5.499447E-005	3.60%	102.09	50.39	INHARMONIC	2.07%	0.35%	6.1

Sound 34 Pedal Tone – f

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
10	1633.153	0.0144372333	440.17%	91.71	39.96	ALL HARMONIC PARTIALS LOUDER THAN FUNDAMENTAL.	0.54%	0.10%	7.7
7	1144.100	0.0136719	416.84%	85.54	33.79		0.61%	0.12%	1.5
8	1308.263	0.0136474333	416.09%	87.86	36.12		0.67%	0.13%	3.9
9	1470.800	0.0132459333	403.85%	89.89	38.14		0.60%	0.12%	5.9
13	2124.170	0.0113307	345.46%	96.26	44.51	<i>note that all harmonic partials are quite sharp</i>	0.59%	0.11%	0.3
11	1797.400	0.0107288733	327.11%	93.36	41.61		0.59%	0.11%	9.4
12	1959.663	0.009847633	304.42%	94.86	43.11		0.53%	0.10%	10.9
6	978.801	0.00952812	272.21%	82.86	31.11		0.53%	0.10%	10.9
14	2286.557	0.00839022	255.81%	97.53	45.78		0.54%	0.10%	1.5
4	651.448	0.0079962033	243.79%	75.79	24.04		0.26%	0.06%	3.8
15	2448.780	0.0073671	224.61%	98.72	46.97		0.50%	0.09%	2.7
5	815.681	0.00732785	223.42%	79.69	27.94		0.43%	0.09%	7.7
3	489.031	0.00620347	189.13%	70.83	19.08		0.35%	0.08%	10.8
2	326.675	0.0060714067	185.11%	63.84	12.09		0.55%	0.15%	3.8
1	162.446	0.0032799233	100.00%	51.75	0.00		0.00%	0.00%	3.7
7	1065.640	0.0005592377	17.05%	84.31	32.56	INHARMONIC	-6.29%	-1.32%	0.3

8	1220.303	0.00087518	26.70%	86.66	34.91	INHARMONIC	-6.10%	-1.24%	2.7
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Sound 35 Double Pedal Tone – B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
18	1118.033	0.0034336133	1029.24%	85.14	49.71	ALL HARMONIC PARTIALS LOUDER THAN FUNDAMENTAL. Significant amount of diversion in all harmonic partials possibly caused by unsteady fundamental in original sample	-1.90%	-0.39%	1.1
20	1238.860	0.00333335	999.23%	86.92	51.48		-2.17%	-0.43%	2.9
6	372.711	0.0033004733	989.33%	66.13	30.69		-1.89%	-0.50%	6.1
16	991.103	0.0031481033	943.66%	83.06	47.62		-2.17%	-0.45%	11.1
8	495.676	0.0028652	858.86%	71.06	35.63		-2.14%	-0.52%	11.1
14	868.359	0.00286183	857.85%	80.77	45.33		-2.04%	-0.44%	8.8
10	618.548	0.0025869633	775.46%	74.90	39.46		-2.31%	-0.54%	2.9
4	247.900	0.0025118333	752.94%	59.07	23.63		-2.12%	-0.62%	11.1
23	1486.497	0.0025062	751.25%	90.08	54.64		2.08%	0.40%	6.1
12	745.123	0.00250515	750.93%	78.12	42.68		-1.93%	-0.43%	6.1
22	1365.540	0.0024719167	740.97%	88.61	53.17		-1.97%	-0.39%	4.6
24	1550.223	0.0024583267	736.90%	90.80	55.37		2.02%	0.38%	6.8
21	1302.117	0.002443833	672.77%	87.78	52.35		-2.07%	-0.41%	3.8
22	1423.120	0.00212564	637.17%	89.32	53.88		2.17%	0.42%	5.3
25	1613.657	0.0021154967	634.13%	91.50	56.06		1.94%	0.37%	7.5
19	1177.623	0.0020836767	624.59%	86.04	50.61		-2.11%	-0.43%	2.0
26	1672.690	0.0018731433	561.48%	92.12	56.68		1.61%	0.30%	8.1
17	1054.373	0.00163885	491.25%	84.13	48.69		-2.04%	-0.42%	0.1
15	929.583	0.0016312	488.96%	81.95	46.51		-2.12%	-0.45%	9.9
27	1736.170	0.0015608367	467.87%	92.76	57.33		1.56%	0.29%	8.8
28	1798.163	0.0013833133	414.66%	93.37	57.93		1.43%	0.26%	9.4
30	1920.670	0.0011602343	347.79%	94.51	59.07		1.12%	0.20%	10.5
11	681.772	0.001147609	344.00%	76.58	41.14		-2.11%	-0.48%	4.6
29	1861.423	0.001135203	340.28%	93.97	58.53		1.38%	0.25%	10.0
7	434.105	0.0010207003	305.96%	68.77	33.33		-2.05%	-0.52%	8.8
13	804.733	0.000996791	298.79%	79.45	44.01		-2.23%	-0.49%	7.5
2	124.848	0.000839565	251.66%	47.19	11.75		-1.41%	-0.52%	11.2
9	557.146	0.000767958	230.20%	73.09	37.65		-2.23%	-0.53%	1.1
5	311.156	0.000549048	164.58%	63.00	27.56		-1.71%	-0.47%	3.0
3	184.520	0.0004941067	148.11%	53.96	18.52		-2.86%	-0.92%	6.0
1	63.315	0.0003336053	100.00%	35.44	0.00		0.00%	0.00%	11.4

Sound 36 Double Pedal Tone – A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
23	1242.833	0.0037761967	1231.75%	86.98	53.91	ALL HARMONIC PARTIALS LOUDER THAN FUNDAMENTAL. Significant amount of diversion in all harmonic partials possibly caused by unsteady fundamental in original sample	-2.15%	-0.43%	3.0
20	1130.863	0.0035638367	1162.48%	85.34	52.27		2.38%	0.48%	1.3
29	1584.943	0.0032467267	1059.04%	91.19	58.12		-1.04%	-0.220%	7.2
27	1469.017	0.00312021	1017.77%	89.87	56.80		-1.46%	-0.29%	5.9
25	1358.723	0.0028217033	920.40%	88.52	55.45		-1.59%	-0.31%	4.5
11	621.383	0.00269605	879.42%	74.95	41.90		2.23%	0.52%	3.0
28	1525.890	0.0026865233	870.47%	90.53	57.46		-1.32%	-0.25%	6.5
18	1018.563	0.0025763933	840.39%	83.53	50.46		2.46%	0.51%	11.5
13	737.307	0.0024916033	812.73%	77.94	44.87		2.70%	0.59%	5.9
30	1640.117	0.0024902267	812.28%	91.78	58.71		-1.01%	-0.19%	7.8
22	1187.887	0.0023612533	770.21%	86.19	53.12		-2.23%	-0.45%	2.2
26	1414.000	0.0023399467	763.26%	89.21	56.14		-1.52%	-0.30%	5.2
9	509.311	0.00228914	746.69%	71.53	38.46		2.47%	0.59%	11.5
32	1752.227	0.00228021	743.78%	92.92	59.85		-0.85%	-0.16%	8.9
16	904.613	0.0022501533	733.97%	81.48	48.41		2.38%	0.50%	9.5
24	1301.820	0.0021387467	697.63%	87.78	54.71		-1.78%	-0.35%	3.8
31	1695.277	0.0021052967	686.72%	92.35	59.28		-0.98%	-0.18%	8.4
33	1811.067	0.00210435	686.41%	93.50	60.42		-0.63%	-0.12%	9.5
17	961.567	0.0021005467	685.17%	82.53	49.46		2.42%	0.50%	10.5
15	847.723	0.00199038	649.24%	80.35	47.28		2.33%	0.50%	8.4
7	395.256	0.0019684367	642.08%	67.14	34.07		2.24%	0.58%	7.1
19	1073.853	0.00166378	542.70%	84.45	51.38		2.34%	0.48%	0.4
12	676.672	0.0012964633	422.89%	76.45	43.38		2.11%	0.47%	4.5
34	1866.023	0.00128626	419.56%	94.01	60.94		-0.62%	-0.11%	10.0
14	792.435	0.0012436167	405.65%	79.19	46.11		2.49%	0.54%	7.2
8	452.375	0.0012174	397.10%	69.48	36.41		2.39%	0.59%	9.5
6	340.156	0.000934218	304.73%	64.54	31.47		2.66%	0.71%	4.5
5	281.321	0.0009222257	300.62%	61.26	28.19		1.88%	0.53%	1.3
2	113.934	0.000856295	279.31%	45.61	12.54		3.15%	1.19%	9.6
10	586.448	0.000851127	278.83%	73.37	40.30		2.57%	0.60%	1.4
36	1980.327	0.0008338473	271.99%	95.04	61.97		-0.39%	-0.07%	11.0
4	228.232	0.0008129253	265.17%	57.48	24.41		2.41%	0.72%	9.5
35	1920.897	0.000752722	248.79%	94.51	61.44		-0.62%	-0.11%	10.5
3	170.934	0.0003846423	125.47%	52.63	19.56	3.17%	1.04%	4.6	
1	55.226	0.0003065723	100.00%	33.07	0.00	0.00%	0.00%	9.1	

Sound 1 Flute – Multiphonic										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
2	1289.870	0.03557267	422.70%	87.62	15.14	INHARMONIC	19.90%	3.72%	3.6	
1	537.885	0.00841664	100.00%	72.48	0.00		0.00%	0.00%	0.5	
5	2573.817	0.00542761	64.49%	99.58	27.10		-4.30%	-0.76%	3.6	
6	3111.753	0.001969737	23.40%	102.87	30.39		-3.58%	-0.61%	6.9	
2	999.716	0.001601147	19.02%	83.21	10.73	INHARMONIC?	-7.07%	-1.50%	11.2	
3	1821.697	0.001195843	14.21%	93.60	21.12	INHARMONIC	12.89%	2.29%	9.6	
4	2035.883	0.000894055	10.62%	95.52	23.04		-5.38%	-0.99%	11.5	
1	751.683	0.000840165	9.98%	78.27	5.79	INHARMONIC	39.75%	7.99%	6.3	
3	1573.243	0.000732598	8.70%	91.06	18.58		-2.50%	-0.48%	7.1	
4	2282.503	0.000529584	6.29%	97.50	25.02	INHARMONIC	6.09%	1.06%	1.5	
6	3325.727	0.000424734	5.05%	104.02	31.54	INHARMONIC	3.05%	0.50%	8.0	
5	2787.843	0.000326713	3.88%	100.96	28.49	INHARMONIC	3.66%	0.62%	5.0	
3	1750.397	0.000318473	3.78%	92.91	20.43	INHARMONIC	8.47%	1.54%	8.9	
4	2365.290	0.000277752	3.30%	98.12	25.64	INHARMONIC	9.93%	1.70%	2.1	
5	2499.097	0.000257707	3.06%	99.07	26.59	INHARMONIC	-7.08%	-1.27%	3.1	
2	1075.853	0.000213768	2.54%	84.48	12.00	INHARMONIC?	0.01%	0.00%	0.5	
5	2900.563	0.000174866	2.08%	101.65	29.17	INHARMONIC	7.85%	1.30%	5.6	
3	1391.820	0.000169361	2.01%	88.94	16.46	INHARMONIC	-13.75%	-2.80%	4.9	
5	2655.253	0.000167673	1.99%	100.12	27.64	INHARMONIC	-1.27%	-0.22%	4.1	
3	1681.947	0.000129001	1.53%	92.21	19.74	INHARMONIC	4.23%	0.78%	8.2	

Sound 2 Flute - Multiphonic (longer sample)										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
2	1287.657	0.035140533	439.36%	87.59	15.11	INHARMONIC	19.65%	3.68%	3.6	
1	538.083	0.00799809	100.00%	72.48	0.00		0.00%	0.00%	0.5	
5	2573.737	0.00493811	61.74%	99.58	27.10	Harmonic of loudest partial?	-4.34%	-0.76%	3.6	
6	3111.747	0.001781223	22.27%	102.87	30.38		-3.62%	-0.62%	6.9	
1	749.569	0.00104071	13.01%	78.22	5.74	INHARMONIC	39.30%	7.92%	6.2	
3	1826.170	0.00083534	10.44%	93.64	21.16	INHARMONIC	13.13%	2.33%	9.6	
4	2035.440	0.00083291	10.41%	95.52	23.03	INHARMONIC	-5.43%	-1.00%	11.5	
2	996.965	0.000575109	7.19%	83.16	10.68	INHARMONIC	-7.36%	-1.57%	11.2	
7	3861.560	0.00056532	7.07%	106.60	34.12	INHARMONIC	2.52%	0.41%	10.6	
6	3323.447	0.000401377	5.02%	104.01	31.52	INHARMONIC	2.94%	0.48%	8.0	
5	2784.067	0.000297231	3.72%	100.94	28.46	INHARMONIC	3.48%	0.59%	4.9	
5	2500.313	0.00022558	2.82%	99.08	26.59	INHARMONIC	-7.07%	-1.26%	3.1	
2	1076.823	0.000185364	2.32%	84.49	12.01		0.06%	0.01%	0.5	
7	3648.930	0.000182824	2.29%	105.62	33.14		-3.12%	-0.52%	9.6	
6	3015.967	0.000166236	2.08%	102.32	29.84	INHARMONIC	-6.58%	-1.14%	6.3	
8	4479.630	0.000127218	1.59%	109.17	36.69	INHARMONIC	4.06%	0.64%	1.2	

Sound 3 Flute - singing and playing – unison										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	291.807	0.017103967	100.00%	61.89	0.00		0.00%	0.00%	1.9	
5	1465.830	0.00565518	33.06%	89.83	27.94		0.47%	0.09%	5.8	
3	888.248	0.004459677	26.07%	81.16	19.27		1.47%	0.31%	9.2	
2	591.899	0.00361252	21.12%	74.13	12.24		1.42%	0.33%	2.1	
6	1751.738	0.000921244	5.39%	92.92	31.03		0.05%	0.01%	8.9	
7	2052.463	0.000808127	4.72%	95.56	33.77		0.48%	0.09%	11.7	
11	3236.740	0.000295816	1.73%	103.55	41.66		0.84%	0.14%	7.5	
9	2639.463	0.000262921	1.54%	100.02	38.13		0.50%	0.09%	4.0	
8	2408.307	0.000217907	1.27%	98.43	36.54		3.16%	0.55%	2.4	
10	2929.417	0.000217144	1.27%	101.82	39.93		0.39%	0.07%	5.8	
8	2351.627	0.000183151	1.07%	98.02	36.13		0.74%	0.13%	2.0	
8	2199.907	0.000169381	0.99%	96.86	34.97		-5.76%	-1.05%	0.9	
9	2508.423	0.000167579	0.98%	99.13	37.24		-4.49%	-0.80%	3.1	
10	3015.180	0.000164539	0.96%	102.32	40.43		3.33%	0.56%	6.3	
11	3304.257	0.000101307	0.59%	103.91	42.01		2.94%	0.49%	7.9	
6	1669.073	8.7101E-005	0.51%	92.08	30.19		-4.67%	-0.89%	8.1	
5	1591.717	6.4371E-005	0.38%	91.26	29.37		9.09%	1.68%	7.3	

Sound 4 Flute - singing and playing – 3rd										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	324.109	0.003831777	109.05%	63.71	3.89	LOUDER THAN FUNDAMENTAL	25.18%	6.50%	3.7	
5	1305.077	0.00377746	107.50%	87.82	28.00	LOUDER THAN FUNDAMENTAL	0.81%	0.16%	3.8	
1	258.913	0.003513927	100.00%	59.82	0.00		0.00%	0.00%	11.8	
2	520.817	0.003510767	99.91%	71.92	12.10		0.58%	0.14%	11.1	
3	786.362	0.002676578	76.17%	79.05	19.23		1.24%	0.27%	7.9	
3	649.879	0.00243568	69.32%	75.75	15.93		-16.33%	-3.92%	3.8	
4	1041.300	0.000974437	27.73%	83.91	24.09		0.55%	0.11%	11.9	
3	844.312	0.00085147	24.23%	80.28	20.46		8.70%	1.83%	8.3	
5	1360.053	0.000700886	19.95%	88.54	28.72		5.06%	0.97%	4.5	
4	907.885	0.000391051	11.13%	81.54	21.72		-12.34%	-2.72%	9.5	
9	2361.730	0.000344514	9.80%	98.09	38.27		1.35%	0.24%	2.1	
6	1493.613	0.000308012	8.77%	90.16	30.34		-3.85%	-0.75%	6.2	
5	1231.377	0.000256684	7.30%	86.82	27.00		-4.88%	-0.99%	2.8	
8	2153.710	0.000188491	5.36%	96.49	36.68		3.98%	0.70%	0.5	
5	1412.947	0.000186558	5.31%	89.20	29.38		9.14%	1.73%	5.2	
2	462.293	0.000175596	5.00%	69.86	10.04		-10.72%	-2.73%	9.9	
7	1883.330	0.000154007	4.38%	94.17	34.35		3.91%	0.71%	10.2	
5	1170.227	0.000151119	4.30%	85.93	26.12		-9.60%	-1.99%	1.9	
9	2208.157	7.9101E-005	2.25%	96.93	37.11		-5.24%	-0.95%	0.9	

Sound 5 Flute - singing and playing – 5th										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	386.902	0.005353087	163.10%	66.77	6.88	LOUDER THAN FUNDAMENTAL	48.76%	11.48%	6.8	
1	260.085	0.003282067	100.00%	59.90	0.00		0.00%	0.00%	11.9	
5	1292.343	0.003006838	91.61%	87.65	27.76		-0.62%	-0.12%	3.7	
2	523.288	0.002664586	81.19%	72.00	12.10		0.60%	0.14%	0.0	
3	781.117	0.00199654	60.83%	78.94	19.04		0.11%	0.02%	6.9	
4	1159.080	0.00105522	32.15%	85.77	25.87		11.41%	2.23%	1.8	
6	1572.333	0.000543041	16.55%	91.05	31.15		0.76%	0.14%	7.0	
5	1417.330	0.000522223	15.91%	89.25	29.35		8.99%	1.70%	5.3	
4	1030.167	0.000450292	13.72%	83.73	23.83		-0.98%	-0.20%	11.7	
6	1675.010	0.000353729	10.78%	92.14	32.25		7.34%	1.35%	8.1	
8	2070.757	0.000298818	9.10%	95.81	35.92		-0.48%	-0.09%	11.8	
9	2450.430	0.000271915	8.28%	98.73	38.83		4.69%	0.81%	2.7	
10	2579.857	0.000189747	5.78%	99.62	39.72		-0.81%	-0.14%	3.6	
9	2386.313	0.000155073	4.72%	98.27	38.37		1.95%	0.34%	2.3	
11	2824.487	0.00011576	3.53%	101.19	41.29		-1.27%	-0.22%	5.2	
2	644.940	9.3131E-005	2.84%	75.62	15.72		23.99%	5.18%	3.6	
10	2507.370	9.1723E-005	2.79%	99.13	39.23		-3.59%	-0.64%	3.1	
7	1734.043	5.8881E-005	1.79%	92.74	32.85		-4.75%	-0.90%	8.7	

Sound 6 Trumpet – Half Valve – Mid Range Lower										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
11	2133.380	0.002154223	106.29%	96.33	41.54	LOUDER THAN FUNDAMENTAL	0.17%	0.03%	0.3	
1	193.609	0.00202681	100.00%	54.79	0.00		0.00%	0.00%	6.8	
7	1356.007	0.00178839	88.24%	88.49	33.70		0.05%	0.01%	4.5	

2	387.184	0.001734763	85.59%	66.79	12.00		-0.01%	0.00%	6.8
10	1937.587	0.00140951	69.54%	94.66	39.88		0.08%	0.01%	10.7
9	1743.697	0.001283037	63.30%	92.84	38.05		0.07%	0.01%	8.8
3	581.731	0.000897784	44.30%	73.83	19.05		0.16%	0.04%	1.8
6	1161.803	0.000705746	34.82%	85.81	31.02		0.01%	0.00%	1.8
5	968.453	0.000475659	23.47%	82.66	27.87		0.04%	0.01%	10.7
8	1549.507	0.000397082	19.59%	90.79	36.01		0.04%	0.01%	6.8
4	774.662	0.000196129	9.68%	78.79	24.01		0.03%	0.01%	6.8
10	2018.087	0.000142613	7.04%	95.37	40.58	INHARMONIC	4.23%	0.76%	11.4
4	838.101	0.000079145	3.90%	80.16	25.37	INHARMONIC	8.22%	1.74%	8.2
5	1042.887	7.1611E-005	3.53%	83.94	29.15	INHARMONIC	7.73%	1.56%	11.9
6	1227.103	5.8806E-005	2.90%	86.76	31.97	INHARMONIC	5.63%	1.11%	2.8
12	2245.683	5.5708E-005	2.75%	97.22	42.43	INHARMONIC	-3.34%	-0.60%	1.2
2	312.439	4.0965E-005	2.02%	63.07	8.29	INHARMONIC	-19.31%	-5.56%	3.1
3	644.390	2.3227E-005	1.15%	75.61	20.82	INHARMONIC	10.94%	2.44%	3.6
4	686.728	2.1334E-005	1.05%	76.71	21.92	INHARMONIC	-11.33%	-2.64%	4.7

Sound 7 Trumpet – Half Valve – Low Range

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	462.214	0.000815516	102.60%	69.85	23.82	LOUDER THAN FUNDAMENTAL	-1.05%	-0.26%	9.9
1	116.775	0.000794838	100.00%	46.03	0.00		0.00%	0.00%	10.0
2	228.236	0.000698056	87.82%	57.64	11.60		-2.28%	-0.69%	9.6
3	345.043	0.000604132	76.01%	64.79	18.76		-1.51%	-0.40%	4.8
18	2076.890	0.000372546	46.87%	95.87	49.83		-1.19%	-0.22%	11.9
11	1269.777	0.000252233	31.73%	87.35	41.31		-1.15%	-0.23%	3.3
9	1037.553	0.000189771	23.88%	83.85	37.82		-1.28%	-0.26%	11.9
17	1959.157	0.00017974	22.61%	94.86	48.82		-1.31%	-0.24%	10.9
5	579.840	0.0001704	21.44%	73.78	27.74		-0.69%	-0.16%	1.8
20	2307.457	0.000158057	19.89%	97.69	51.65		-1.20%	-0.21%	1.7
13	1497.193	0.000149158	18.77%	90.20	44.17		-1.38%	-0.27%	6.2
16	1851.543	0.000146858	18.48%	93.88	47.84		-0.90%	-0.17%	9.9
12	1380.977	0.00012359	15.55%	88.80	42.77		-1.45%	-0.28%	4.8
7	807.045	0.000107384	13.51%	79.50	33.47		-1.27%	-0.28%	7.5
8	924.444	0.000104801	13.19%	81.85	35.82		-1.04%	-0.22%	9.9
10	1153.360	9.2209E-005	11.60%	85.68	39.65		-1.23%	-0.25%	1.7
15	1732.297	9.1687E-005	11.54%	92.73	46.69		-1.10%	-0.21%	8.7
11	1326.247	9.1075E-005	11.46%	88.10	42.07	INHARMONIC	3.25%	0.63%	4.1
21	2400.730	7.7029E-005	9.69%	98.37	52.34		-2.10%	-0.37%	2.4
6	689.866	5.0246E-005	6.32%	76.79	30.75		-1.54%	-0.35%	4.8
22	2540.507	3.2046E-005	4.03%	99.35	53.32		-1.11%	-0.19%	3.4
14	1659.467	2.6378E-005	3.32%	91.98	45.95	INHARMONIC	1.51%	0.28%	8.0
14	1627.097	2.3344E-005	2.94%	91.64	45.61		-0.47%	-0.09%	7.6
22	2627.313	1.4096E-005	1.77%	99.94	53.90	INHARMONIC	2.27%	0.39%	3.9

Sound 8 Trumpet – Half Valve – Mid Range Upper

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
5	1754.723	0.005199257	105.54%	92.95	28.15	LOUDER THAN FUNDAMENTAL	1.65%	0.31%	8.9
1	345.252	0.00492628	100.00%	64.80	0.00		0.00%	0.00%	4.8
2	703.007	0.004502477	91.40%	77.11	12.31		1.81%	0.40%	5.1
4	1406.413	0.003086527	62.65%	89.12	24.32		1.84%	0.36%	5.1
6	2099.507	0.001771104	35.95%	96.05	31.25		1.35%	0.24%	0.1
7	2454.640	0.001038123	21.07%	98.76	33.96		1.57%	0.27%	2.8
8	2770.663	0.001028202	20.87%	100.86	36.05		0.31%	0.05%	4.9
4	1270.040	0.0001872	3.80%	87.35	22.55	INHARMONIC	-8.04%	-1.63%	3.4
5	1879.997	0.000165173	3.35%	94.14	29.34	INHARMONIC	8.91%	1.59%	10.1
6	2241.840	0.000149515	3.04%	97.19	32.39	INHARMONIC	8.22%	1.43%	1.2
9	2997.193	0.000144396	2.93%	102.22	37.41		-3.54%	-0.61%	6.2
8	2662.347	0.000144027	2.92%	100.17	35.36	INHARMONIC	-3.61%	-0.63%	4.2
10	3567.440	0.000143882	2.92%	105.23	40.43		3.33%	0.54%	9.2
4	1532.360	0.0001402	2.85%	90.60	25.80	INHARMONIC	10.96%	2.03%	6.6
4	1217.757	0.000128966	2.62%	86.62	21.82	INHARMONIC	-11.82%	-2.45%	2.6
7	2300.383	0.000108701	2.21%	97.64	32.83	INHARMONIC	-4.82%	-0.87%	1.6
5	1587.283	9.6137E-005	1.95%	91.21	26.41	INHARMONIC	-8.05%	-1.57%	7.2
11	3709.940	9.4509E-005	1.92%	105.91	41.11		-2.31%	-0.38%	9.9
1	475.238	9.3703E-005	1.90%	70.33	5.53	INHARMONIC	37.65%	8.54%	10.3
6	1930.693	6.3837E-005	1.30%	94.60	29.80	INHARMONIC	-6.80%	-1.27%	10.6
2	548.708	4.7832E-005	0.97%	72.82	8.02	INHARMONIC	-20.54%	-5.18%	0.8

Sound 9 Trumpet – Half Valve – High Range

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	947.239	0.028272567	100.00%	80.34	0.00		0.00%	0.00%	8.3
2	1694.700	0.015869167	56.13%	92.35	12.00		0.01%	0.00%	8.3
3	2543.870	0.00284891	10.08%	99.38	19.03		0.08%	0.01%	3.4
4	3397.753	0.002321991	8.21%	104.39	24.04		0.26%	0.04%	8.4
2	1785.710	0.000332607	1.18%	93.25	12.91	INHARMONIC	5.38%	0.98%	9.3
1	1023.133	0.000281966	1.00%	83.61	3.27	INHARMONIC	20.76%	4.06%	11.6
2	1832.817	0.000273412	0.97%	93.70	13.36	INHARMONIC	8.16%	1.47%	9.7
3	2346.457	0.000265389	0.94%	97.98	17.64	INHARMONIC	-7.68%	-1.39%	2.0
2	2042.513	0.000262391	0.93%	95.58	15.23	INHARMONIC	20.54%	3.50%	11.6
3	2713.327	0.000258159	0.91%	100.49	20.15	INHARMONIC	6.75%	1.14%	4.5
3	2152.813	0.000203242	0.72%	96.49	16.14	INHARMONIC	-15.30%	-2.89%	0.5
3	2761.677	0.000198528	0.70%	100.80	20.46	INHARMONIC	8.65%	1.45%	4.8
2	1969.833	0.000163324	0.58%	94.95	14.61	INHARMONIC	16.25%	2.82%	10.9
3	2226.537	0.000162973	0.58%	97.07	16.73	INHARMONIC	-12.40%	-2.31%	1.1
3	2280.027	0.000156471	0.55%	97.48	17.14	INHARMONIC	-10.30%	-1.89%	1.5
3	2847.037	0.000148158	0.52%	101.33	20.98	INHARMONIC	12.01%	1.98%	5.3
4	3049.347	0.000142006	0.50%	102.52	22.17	INHARMONIC	-10.02%	-1.75%	6.5
2	1343.350	0.000134432	0.48%	88.32	7.98	INHARMONIC	-20.72%	-4.35%	4.3

Sound 10 Trumpet – Cup Mute – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
7	1153.383	0.00837805	209.50%	85.68	33.85	LOUDER THAN FUNDAMENTAL	0.92%	0.19%	1.7
8	1320.240	0.006626547	165.70%	88.02	36.19	LOUDER THAN FUNDAMENTAL	1.08%	0.21%	4.0
6	990.171	0.005781813	144.58%	83.04	31.21	LOUDER THAN FUNDAMENTAL	1.08%	0.23%	11.0
4	658.305	0.004932067	123.33%	75.98	24.14	LOUDER THAN FUNDAMENTAL	0.81%	0.18%	4.0
1	163.260	0.00399912	100.00%	51.84	0.00		0.00%	0.00%	3.8
3	495.115	0.00320824	80.22%	71.04	19.21		1.09%	0.26%	11.0
5	826.907	0.00316278	79.09%	79.92	28.09		1.30%	0.28%	7.9
9	1485.190	0.003084173	77.13%	90.06	38.22		1.08%	0.23%	6.1
2	331.848	0.00258449	64.13%	64.12	12.28		1.63%	0.44%	4.1
10	1648.470	0.00244869	61.23%	91.87	40.03		0.97%	0.18%	7.8
11	1813.440	0.00162823	40.71%	93.52	41.68		0.98%	0.18%	9.5
13	2143.597	0.001364207	34.11%	96.41	44.58		1.00%	0.18%	0.4
14	2308.410	0.00110609	27.77%	97.70	45.86		1.00%	0.18%	1.7
12	1980.410	0.001083601	27.10%	95.04	43.21		1.09%	0.20%	11.0
15	2475.347	0.000764559	19.12%	98.90	47.07		1.08%	0.19%	2.9
6	1055.880	0.000437124	10.93%	84.15	32.32	INHARMONIC	7.79%	1.57%	0.2
9	1544.233	0.000324224	8.11%	90.74	38.90	INHARMONIC	5.10%	0.96%	6.7
5	889.181	0.000294721	7.37%	81.18	29.34	INHARMONIC	8.93%	1.86%	9.2
10	1708.977	0.000221621	5.54%	92.49	40.65	INHARMONIC	4.68%	0.86%	8.5
14	2206.687	0.00018832	4.71%	96.92	45.08	INHARMONIC	-3.45%	-0.62%	0.9
13	2042.100	0.000148296	3.71%	95.57	43.74	INHARMONIC	-3.78%	-0.69%	11.6
15	2369.180	0.000108685	2.72%	98.15	46.31	INHARMONIC	-3.26%	-0.58%	2.1

16	2536.897	8.9331E-005	2.23%	99.33	47.49	INHARMONIC	-2.88%	-0.51%	3.3
3	430.389	8.3270E-005	2.08%	68.62	16.78	INHARMONIC	-12.13%	-3.16%	8.6

Sound 11

Trumpet – Cup Mute – Mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1107.573	0.022732433	236.95%	84.98	19.10	LOUDER THAN FUNDAMENTAL	0.49%	0.10%	1.0
2	738.396	0.012072633	125.84%	77.96	12.08	LOUDER THAN FUNDAMENTAL	0.49%	0.11%	6.0
1	367.402	0.00959394	100.00%	65.88	0.00		0.00%	0.00%	5.9
4	1474.990	0.009271117	96.64%	89.94	24.06		0.37%	0.07%	5.9
11	4055.653	0.006425303	66.97%	107.45	41.57		0.35%	0.06%	11.5
10	3688.307	0.005185	54.04%	105.81	39.93		0.39%	0.06%	9.8
5	1844.217	0.00466753	48.65%	93.81	27.93		0.39%	0.07%	9.8
9	3319.197	0.004255133	44.35%	103.98	38.10		0.38%	0.06%	8.0
6	2213.400	0.00407207	42.44%	96.97	31.09		0.41%	0.07%	1.0
8	2950.010	0.00240948	25.11%	101.94	36.06		0.37%	0.06%	5.9
7	2580.523	0.00202996	8.64%	99.63	33.75		0.34%	0.06%	3.6
10	3758.303	0.0026546	2.77%	106.13	40.26		2.29%	0.37%	10.1
9	3388.040	0.00165506	1.73%	104.34	38.46	INHARMONIC	2.46%	0.41%	8.3
3	1212.963	0.001144225	1.50%	86.56	20.68	INHARMONIC	10.05%	1.95%	2.6
11	4127.560	0.000143934	1.50%	107.76	41.88	INHARMONIC	2.13%	0.34%	11.8

Sound 12

Trumpet – Cup Mute – High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	1323.577	0.0294317	133.41%	88.07	12.07	LOUDER THAN FUNDAMENTAL	0.41%	0.08%	4.1
1	659.093	0.022061033	100.00%	76.00	0.00		0.00%	0.00%	4.0
6	3970.827	0.007982937	36.19%	107.09	31.09		0.41%	0.07%	11.1
5	3306.293	0.006611257	29.97%	103.92	27.92		0.33%	0.05%	7.9
3	1982.693	0.006199703	28.10%	95.06	19.07		0.27%	0.05%	11.1
4	2647.153	0.002352247	10.66%	100.07	24.07		0.41%	0.07%	4.1
7	4630.007	0.00244372	11.08%	109.75	33.75		0.35%	0.06%	1.7
9	5953.537	0.002016943	9.14%	114.10	38.10		0.37%	0.06%	6.1
8	5290.867	0.00179761	8.15%	112.06	36.06		0.34%	0.05%	4.1
11	7276.770	0.001014563	4.60%	117.57	41.58		0.37%	0.05%	9.6
13	8600.713	0.000875525	3.97%	120.47	44.47		0.38%	0.05%	0.5
10	6614.093	0.000518811	2.35%	115.92	39.92		0.35%	0.05%	7.9
12	7989.367	0.000271414	1.23%	119.19	43.19		1.01%	0.15%	11.2
8	5343.683	0.0002658	1.20%	112.23	36.23	INHARMONIC	1.35%	0.21%	4.2
5	3388.347	0.000221573	1.00%	104.34	28.34	INHARMONIC	2.82%	0.46%	8.3
6	3778.360	0.000152256	0.69%	106.23	30.23	INHARMONIC	-4.46%	-0.74%	10.2
6	3828.957	0.000142865	0.65%	106.46	30.46	INHARMONIC	-3.18%	-0.52%	10.5

Sound 13

Trumpet – Cup Mute – Pedal A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
11	1238.187	0.01286363	253.95%	86.91	41.91	LOUDER THAN FUNDAMENTAL	2.30%	0.46%	2.9
3	337.426	0.01076793	212.58%	64.40	19.40	LOUDER THAN FUNDAMENTAL	2.22%	0.59%	4.4
10	1126.050	0.01020755	201.52%	85.27	40.26	LOUDER THAN FUNDAMENTAL	2.34%	0.47%	1.3
9	1009.717	0.00952118	187.97%	83.38	38.38	LOUDER THAN FUNDAMENTAL	1.96%	0.43%	11.4
8	900.142	0.00873875	172.52%	81.39	36.39	LOUDER THAN FUNDAMENTAL	2.25%	0.48%	9.4
4	449.086	0.00769867	151.99%	69.35	24.35	LOUDER THAN FUNDAMENTAL	2.04%	0.51%	9.4
6	671.203	0.0076005	150.14%	76.31	31.31	LOUDER THAN FUNDAMENTAL	1.67%	0.38%	4.3
1	110.032	0.000506536	100.00%	45.00	0.00		0.00%	0.00%	9.0
5	560.104	0.000406662	90.94%	73.18	28.17		1.81%	0.43%	1.2
14	1575.820	0.000451147	89.07%	91.09	46.08		2.30%	0.43%	7.1
7	783.483	0.000448976	88.64%	78.99	33.98		1.72%	0.38%	7.0
13	1484.870	0.000314105	62.01%	90.06	45.05		3.81%	0.72%	6.1
2	225.302	0.000168743	33.31%	57.41	12.41		2.38%	0.71%	9.4
16	1811.783	0.000143198	28.27%	93.50	48.50		2.91%	0.53%	9.5
17	1923.837	0.000116533	23.01%	94.54	49.54		2.85%	0.52%	10.5
18	1996.137	8.9390E-005	17.65%	95.18	50.17		0.79%	0.14%	11.2
19	2106.527	8.3018E-005	16.39%	96.11	51.11		0.76%	0.14%	0.1
21	2268.243	7.4961E-005	14.80%	97.39	52.39	INHARMONIC	-1.84%	-0.33%	1.4
21	2322.120	7.2410E-005	14.30%	97.80	52.79		0.50%	0.09%	1.8

Sound 14

Trumpet – Cup Mute – Double Pedal A

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
21	1220.940	0.002090253	584.15%	86.67	53.34	LOUDER THAN FUNDAMENTAL	3.71%	0.73%	2.8
15	872.226	0.001804673	504.34%	80.85	47.52	LOUDER THAN FUNDAMENTAL	3.72%	0.79%	8.7
22	1280.497	0.001687627	471.63%	87.49	54.16	LOUDER THAN FUNDAMENTAL	3.82%	0.75%	3.5
19	1105.743	0.001605003	448.54%	84.95	51.62	LOUDER THAN FUNDAMENTAL	3.81%	0.77%	1.0
2	117.379	0.00159362	445.36%	46.12	12.79	LOUDER THAN FUNDAMENTAL	4.69%	1.75%	10.1
20	1163.327	0.001500433	419.31%	85.83	52.50	LOUDER THAN FUNDAMENTAL	3.75%	0.75%	1.8
17	990.037	0.001359997	380.07%	83.04	49.71	LOUDER THAN FUNDAMENTAL	3.88%	0.80%	11.0
13	754.923	0.001095382	306.40%	78.35	45.01	LOUDER THAN FUNDAMENTAL	3.58%	0.78%	6.3
18	1045.883	0.000972531	271.78%	83.99	50.66	LOUDER THAN FUNDAMENTAL	3.64%	0.74%	12.0
8	464.226	0.000905476	253.05%	69.93	36.60	LOUDER THAN FUNDAMENTAL	3.51%	0.86%	9.8
23	1338.280	0.000883803	246.88%	88.26	54.93	LOUDER THAN FUNDAMENTAL	3.79%	0.73%	4.3
11	639.316	0.000823594	230.16%	75.47	42.14	LOUDER THAN FUNDAMENTAL	3.67%	0.83%	3.5
16	930.301	0.000803459	224.54%	81.96	48.63	LOUDER THAN FUNDAMENTAL	3.71%	0.78%	10.0
7	408.261	0.000769124	214.94%	67.70	34.37	LOUDER THAN FUNDAMENTAL	4.03%	1.02%	7.7
12	699.151	0.000763956	213.50%	77.02	43.69	LOUDER THAN FUNDAMENTAL	3.93%	0.87%	5.0
25	1453.747	0.000698757	195.28%	89.69	56.36	LOUDER THAN FUNDAMENTAL	3.72%	0.71%	5.7
10	581.741	0.000672924	188.06%	73.83	40.50	LOUDER THAN FUNDAMENTAL	3.77%	0.87%	1.8
26	1514.460	0.00058636	163.87%	90.40	57.07	LOUDER THAN FUNDAMENTAL	3.90%	0.74%	6.4
27	1571.663	0.00055575	155.31%	91.04	57.71	LOUDER THAN FUNDAMENTAL	3.83%	0.72%	7.0
9	525.731	0.000551643	154.16%	72.08	38.75	LOUDER THAN FUNDAMENTAL	4.20%	1.00%	0.1
3	173.455	0.000531519	148.54%	52.88	19.55	LOUDER THAN FUNDAMENTAL	3.13%	1.02%	4.9
6	346.901	0.000521248	145.67%	64.88	31.55	LOUDER THAN FUNDAMENTAL	3.13%	0.83%	4.9
29	1686.390	0.000503889	140.82%	92.26	58.93	LOUDER THAN FUNDAMENTAL	3.73%	0.69%	8.3
14	816.834	0.000481517	134.57%	79.71	46.38	LOUDER THAN FUNDAMENTAL	4.07%	0.87%	7.7
28	1629.463	0.000422455	118.06%	91.67	58.33	LOUDER THAN FUNDAMENTAL	3.81%	0.71%	7.7
5	290.855	0.000386655	108.06%	61.83	28.50	LOUDER THAN FUNDAMENTAL	3.76%	1.04%	1.8
1	56.062	0.000357831	100.00%	33.33	0.00		0.00%	0.00%	9.3
31	1802.343	0.000335623	93.79%	93.41	60.08		3.71%	0.68%	9.4
33	1919.920	0.000335254	93.69%	94.51	61.17		3.78%	0.68%	10.5
32	1862.517	0.000318249	88.94%	93.98	60.65		3.82%	0.70%	10.0
30	1747.100	0.000251522	70.29%	92.87	59.54		3.88%	0.71%	8.9
35	2037.600	0.000201257	56.24%	95.54	62.20		3.84%	0.69%	11.5
34	1980.093	0.000162694	45.47%	95.04	61.71		3.88%	0.70%	11.0
24	1399.620	0.000113311	31.67%	89.04	55.70		4.04%	0.78%	5.0
4	235.014	0.000101149	28.27%	58.14	24.81		4.80%	1.42%	10.1

Sound 15

Trumpet – Harmon Mute – Stem Out – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
12	2009.457	0.010454233	871.95%	95.29	42.77	LOUDER THAN FUNDAMENTAL	-1.40%	-0.26%	11.3
10	1675.257	0.009820397	819.00%	92.15	39.63	LOUDER THAN FUNDAMENTAL	-1.36%	-0.26%	8.1
11	1843.783	0.006172557	514.83%	93.81	41.29	LOUDER THAN FUNDAMENTAL	-1.31%	-0.24%	9.8
13	2177.787	0.005599493	467.03%	96.69	44.17	LOUDER THAN FUNDAMENTAL	-1.36%	-0.25%	0.7
9	1507.257	0.004638587	386.72%	90.32	37.80	LOUDER THAN FUNDAMENTAL	-1.39%	-0.27%	6.3
14	2343.753	0.00372849	310.98%	97.96	45.44	LOUDER THAN FUNDAMENTAL	-1.43%	-0.25%	2.0
8	1339.080	0.00246813	205.86%	88.27	35.75	LOUDER THAN FUNDAMENTAL	-1.44%	-0.28%	4.3

Appendix 5

16	2678.033	0.002356817	196.57%	100.27	47.75	LOUDER THAN FUNDAMENTAL	-1.45%	-0.25%	4.3
7	1172.977	0.00124532	103.87%	85.98	33.46	LOUDER THAN FUNDAMENTAL	-1.34%	-0.27%	2.0
1	169.839	0.001198947	100.00%	52.52	0.00		0.00%	0.00%	4.5
10	1739.787	0.000859628	71.70%	92.80	40.28		2.44%	0.45%	8.8
10	1773.637	0.000834051	69.57%	93.13	40.61	INHARMONIC	4.43%	0.81%	9.1
5	838.523	0.000779661	65.03%	80.16	27.64		-1.26%	-0.27%	8.2
12	2110.153	0.000689328	57.49%	96.14	43.62	INHARMONIC	3.54%	0.63%	0.1
11	1943.767	0.000620328	51.74%	94.72	42.20	INHARMONIC	4.04%	0.73%	10.7
9	1574.890	0.000588955	49.12%	91.08	38.56	INHARMONIC	3.03%	0.57%	7.1
12	2074.430	0.000558889	46.62%	95.85	43.33	INHARMONIC	1.78%	0.32%	11.8
9	1609.903	0.000532549	44.42%	91.46	38.94	INHARMONIC	5.32%	0.99%	7.5
15	2512.273	0.000532286	44.40%	99.16	46.64	<i>spectrogram suggested more than</i>	-1.39%	-0.24%	3.2
6	1004.797	0.00052437	43.74%	83.30	30.78	<i>35 prominent partials</i>	-1.40%	-0.29%	11.3
13	2278.563	0.000430447	35.90%	97.47	44.95	INHARMONIC	3.20%	0.56%	1.5
16	2745.097	0.000394787	25.42%	100.70	48.18	INHARMONIC	1.02%	0.17%	4.7
4	668.664	0.000285557	23.82%	76.25	23.73		-1.57%	-0.36%	4.2
16	2780.973	0.000260051	21.69%	100.92	48.40	INHARMONIC	2.34%	0.40%	4.9
8	1404.623	0.000212507	17.72%	89.10	36.58	INHARMONIC	3.38%	0.65%	5.1
14	2444.707	0.000200446	16.72%	98.69	46.17	INHARMONIC	2.82%	0.49%	2.7
14	2411.110	0.000189334	15.79%	98.45	45.93	INHARMONIC	1.40%	0.25%	2.4
3	504.424	0.000172407	14.38%	71.37	18.85		-1.00%	-0.24%	11.4
2	334.308	0.000168633	14.07%	64.24	11.72		-1.58%	-0.43%	4.2
15	2577.790	0.000163368	13.63%	99.61	47.09	INHARMONIC	1.19%	0.21%	3.6

Sound 16 Trumpet – Harmon Mute – Stem Out – Middle

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	2241.667	0.0271346	4721.67%	97.19	30.95	LOUDER THAN FUNDAMENTAL	-0.39%	-0.07%	1.2
5	1866.660	0.0267567	4655.91%	94.02	27.78	LOUDER THAN FUNDAMENTAL	-0.47%	-0.09%	10.0
10	3735.110	0.013729	2388.97%	106.03	39.79	LOUDER THAN FUNDAMENTAL	-0.42%	-0.07%	10.0
9	3361.733	0.01128933	1936.54%	104.20	37.97	LOUDER THAN FUNDAMENTAL	-0.41%	-0.07%	8.2
4	1493.373	0.010705467	1862.85%	90.16	23.92	LOUDER THAN FUNDAMENTAL	-0.46%	-0.09%	6.2
8	2986.617	0.00952553	1657.53%	102.16	35.92	LOUDER THAN FUNDAMENTAL	-0.47%	-0.08%	6.2
7	2613.347	0.003598353	626.15%	99.84	33.61	LOUDER THAN FUNDAMENTAL	-0.46%	-0.08%	3.8
12	4481.547	0.00318643	554.47%	109.18	42.94	LOUDER THAN FUNDAMENTAL	-0.43%	-0.07%	1.2
3	1120.020	0.003114107	541.88%	85.18	18.94	LOUDER THAN FUNDAMENTAL	-0.46%	-0.09%	1.2
13	4854.663	0.002062353	358.87%	110.57	44.33	LOUDER THAN FUNDAMENTAL	-0.44%	-0.07%	2.6
2	746.691	0.001349787	234.88%	78.16	11.92	LOUDER THAN FUNDAMENTAL	-0.46%	-0.10%	6.2
11	4106.650	0.001309977	227.95%	107.67	41.43	LOUDER THAN FUNDAMENTAL	-0.47%	-0.07%	11.7
1	375.078	0.000574682	100.00%	66.24	0.00		0.00%	0.00%	6.2
10	3904.563	0.000521514	90.75%	106.35	40.11	INHARMONIC	1.43%	0.23%	10.3
5	1781.227	0.000445541	77.53%	93.21	26.97	INHARMONIC	-5.02%	-0.95%	9.2
10	3657.163	0.000387837	67.49%	105.66	39.43	INHARMONIC	-2.50%	-0.41%	9.7
6	2312.357	0.000318984	55.51%	97.73	31.49	INHARMONIC	2.75%	0.48%	1.7
9	3430.583	0.000268592	46.74%	104.55	38.32	INHARMONIC	1.63%	0.27%	8.6
8	2914.170	0.000268345	46.69%	101.73	35.49	INHARMONIC	-2.88%	-0.50%	5.7
8	3057.683	0.00025585	44.52%	102.56	36.33	INHARMONIC	1.90%	0.32%	6.6
7	2684.517	0.000249764	43.46%	100.31	34.07	INHARMONIC	2.25%	0.38%	4.3
9	3287.320	0.000246914	42.97%	103.82	37.58	INHARMONIC	-2.62%	-0.44%	7.8
13	4926.550	0.000219968	38.28%	110.82	44.58	INHARMONIC	1.04%	0.16%	2.8
6	2089.560	0.000207752	36.15%	95.97	29.74	INHARMONIC	-7.15%	-1.32%	12.0
4	1636.373	0.000199822	34.77%	91.74	25.50	INHARMONIC	9.07%	1.67%	7.7
9	3559.863	0.000170251	29.63%	105.19	38.96	INHARMONIC	5.46%	0.88%	9.2

Sound 17 Trumpet – Harmon Mute – Stem Out – High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	1996.753	0.0405367	2656.21%	95.18	18.99		-0.18%	-0.03%	11.2
5	3330.340	0.016373567	1072.90%	104.04	27.84	<i>all harmonic partials louder than fundamental</i>	-0.11%	-0.02%	8.0
2	1331.800	0.011143767	730.21%	88.17	11.98		-0.13%	-0.03%	4.2
4	2663.643	0.00760384	498.25%	100.17	23.98		-0.13%	-0.02%	4.2
8	5328.860	0.00756772	495.88%	112.18	35.98		-0.10%	-0.02%	4.2
7	4662.137	0.004450237	291.61%	109.86	33.67		-0.11%	-0.02%	1.9
6	3995.250	0.001679363	110.04%	107.19	31.00		-0.13%	-0.02%	11.2
1	666.769	0.00152611	100.00%	76.20	0.00		0.00%	0.00%	4.2
3	1689.493	0.000368962	24.18%	92.29	16.10	INHARMONIC	-15.54%	-3.07%	8.3
3	2099.297	0.000309914	20.31%	96.05	19.86	INHARMONIC	4.95%	0.88%	0.1
2	1643.767	0.000304746	19.97%	91.82	15.62	INHARMONIC	23.26%	4.11%	7.8
6	3785.410	0.000232223	15.22%	106.26	30.06	INHARMONIC	-5.38%	-0.89%	10.3
3	1788.823	0.000223374	14.64%	93.28	17.09	INHARMONIC	-10.57%	-2.03%	9.3
8	5004.050	0.000213203	13.97%	111.09	34.89	INHARMONIC	-6.19%	-0.99%	3.1
5	3024.737	0.000212205	13.90%	102.37	26.18	INHARMONIC	-9.27%	-1.62%	6.4
8	5052.470	0.000184338	12.08%	111.26	35.06	INHARMONIC	-5.28%	-0.84%	3.3
6	3729.497	0.000180424	11.82%	106.00	29.80	INHARMONIC	-6.78%	-1.13%	10.0
5	3438.427	0.000180016	11.80%	104.59	28.40	INHARMONIC	3.14%	0.51%	8.6
6	3886.507	0.000165209	10.83%	106.71	30.52	INHARMONIC	-2.85%	-0.47%	10.7

Sound 18 Trumpet – Harmon Mute – Stem Out – Pedal B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	122.817	0.000512229	100.00%	46.91	0.00		0.00%	0.00%	10.9
13	1612.500	0.000375316	73.27%	91.48	44.58		0.99%	0.19%	7.5
14	1798.123	0.000230302	44.96%	93.37	46.46	INHARMONIC?	4.58%	0.84%	9.4
12	1485.670	0.000207735	40.56%	90.07	43.16	INHARMONIC?	0.81%	0.15%	6.1
17	2088.867	0.000185764	36.27%	95.97	49.06	INHARMONIC?	0.05%	0.01%	12.0
15	1884.893	0.000184749	36.07%	94.19	47.28	INHARMONIC?	2.31%	0.42%	10.2
9	1115.330	0.000154109	30.09%	85.10	38.19		0.90%	0.18%	1.1
10	1237.577	0.000151417	29.56%	86.90	40.00		0.77%	0.15%	2.9
11	1361.103	0.000148181	28.93%	88.55	41.64		0.75%	0.15%	4.6
18	2188.777	0.000116172	22.68%	96.77	49.87	INHARMONIC?	-0.99%	-0.18%	0.8
8	991.064	0.000111096	21.69%	83.06	36.15		0.87%	0.18%	11.1
2	247.187	0.000102243	19.96%	59.02	12.11		0.63%	0.19%	11.0
7	869.020	9.0774E-005	17.72%	80.78	33.87		1.08%	0.23%	8.8
6	743.260	4.8333E-005	9.44%	78.08	31.17		0.86%	0.19%	6.1
3	370.656	4.5016E-005	8.79%	66.03	19.12		0.60%	0.16%	6.0
4	497.408	1.6427E-005	3.21%	71.12	24.22		1.25%	0.30%	11.1
5	615.053	1.5834E-005	3.09%	74.80	27.89		0.16%	0.04%	2.8

Sound 19 Trumpet – Harmon Mute – Stem Out – Double Pedal B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
27	1704.733	0.001783163	134.66%	92.45	56.87	LOUDER THAN FUNDAMENTAL	-1.08%	-0.20%	8.4
28	1766.960	0.001608777	121.34%	93.06	57.49	LOUDER THAN FUNDAMENTAL	-1.16%	-0.22%	9.1
1	63.825	0.001324207	100.00%	35.58	0.00		0.00%	0.00%	11.6
2	127.703	0.001257163	94.94%	47.58	12.01		0.04%	0.02%	11.6
26	1640.707	0.001154953	87.22%	91.78	56.21		-1.13%	-0.21%	7.8
25	1579.773	0.001121322	84.68%	91.13	55.55		-0.99%	-0.19%	7.1
31	1961.880	0.000981865	74.15%	94.88	59.30		-0.84%	-0.15%	10.9
29	1830.397	0.000917039	69.25%	93.68	58.10		-1.11%	-0.21%	9.7
33	2084.847	0.00088199	66.61%	95.93	60.36		-1.01%	-0.18%	11.9
30	1894.093	0.000803126	60.65%	94.27	58.70		-1.08%	-0.20%	10.3
32	2020.673	0.000799545	60.38%	95.39	59.81		-1.06%	-0.19%	11.4
35	2213.827	0.000757049	57.17%	96.97	61.40		-0.90%	-0.16%	1.0
24	1514.977	0.000506091	38.22%	90.40	54.83		-1.10%	-0.21%	6.4
22	1388.337	0.00045753	34.55%	88.89	53.32		-1.13%	-0.22%	4.9
34	2146.723	0.0004508	34.04%	96.44	60.86		-1.07%	-0.19%	0.4
23	1455.820	0.000322242	24.33%	89.72	54.14		-0.83%	-0.16%	5.7

20	1262.553	0.000262813	19.85%	87.25	51.67	-1.09%	-0.22%	3.2
18	1134.797	0.000246673	18.63%	85.40	49.83	-1.22%	-0.25%	1.4
21	1327.283	0.000215847	16.30%	88.11	52.54	-0.97%	-0.19%	4.1
4	251.695	0.000170348	12.86%	59.33	23.75	-1.41%	-0.41%	11.3
6	377.748	0.000151185	11.42%	66.36	30.78	-1.36%	-0.36%	6.4
5	315.621	0.000148869	11.24%	63.25	27.67	-1.10%	-0.30%	3.2
19	1199.020	0.000148305	11.20%	86.36	50.78	-1.13%	-0.23%	2.4
3	189.694	0.000104348	7.88%	54.43	18.86	-0.93%	-0.30%	6.4
14	885.167	0.00010364	7.83%	81.10	45.53	-0.94%	-0.20%	9.1
16	1008.870	8.2972E-005	6.27%	83.37	47.79	-1.21%	-0.25%	11.4
12	757.013	8.0143E-005	6.05%	78.39	42.82	-1.16%	-0.26%	6.4
15	947.099	6.8227E-005	5.15%	82.27	46.70	-1.07%	-0.23%	10.3
17	1071.083	6.5661E-005	4.96%	84.40	48.83	-1.28%	-0.26%	0.4
13	821.592	4.1310E-005	3.12%	79.81	44.23	-0.98%	-0.21%	7.8
8	505.349	4.0510E-005	3.06%	71.40	35.82	-1.03%	-0.25%	11.4
10	628.940	3.1262E-005	2.38%	75.19	39.61	-1.46%	-0.34%	3.2
7	441.819	2.3846E-005	1.80%	69.06	33.49	-1.15%	-0.29%	9.1
9	569.524	2.2385E-005	1.69%	73.47	37.89	-0.85%	-0.20%	1.5
11	693.651	1.8687E-005	1.41%	76.88	41.30	-1.20%	-0.27%	4.9

Sound 20 Trumpet – Harmon Mute – Stem Halfway – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
11	2314.480	0.004011227	220.97%	97.74	41.31	LOUDER THAN FUNDAMENTAL	-1.16%	-0.21%	1.7
12	2525.720	0.003781127	208.30%	99.25	42.82	LOUDER THAN FUNDAMENTAL	-1.13%	-0.20%	3.3
9	1894.207	0.002756363	151.84%	94.27	37.84	LOUDER THAN FUNDAMENTAL	-1.13%	-0.21%	10.3
13	2734.907	0.002035997	112.16%	100.63	44.20	LOUDER THAN FUNDAMENTAL	-1.17%	-0.20%	4.6
10	2103.430	0.0019504	107.44%	96.09	39.66	LOUDER THAN FUNDAMENTAL	-1.19%	-0.22%	0.1
1	212.874	0.001815267	100.00%	56.43	0.00		0.00%	0.00%	8.4
8	1681.350	0.001575273	86.78%	92.21	35.78		-1.27%	-0.24%	8.2
14	2946.127	0.00153131	84.36%	101.92	45.49		-1.14%	-0.20%	5.9
15	3155.213	0.001288877	71.00%	103.11	46.68		-1.19%	-0.20%	7.1
16	3366.483	0.001042199	57.41%	104.23	47.80		-1.16%	-0.19%	8.2
17	3575.377	0.000925311	50.97%	105.27	48.84		-1.20%	-0.20%	9.3
2	420.342	0.000839451	46.24%	68.21	11.78		-1.27%	-0.32%	8.2
3	633.218	0.000693294	38.19%	75.30	18.87		-0.85%	-0.19%	3.3
7	1473.913	0.000662829	31.01%	89.93	33.50		-1.09%	-0.21%	5.9
6	1261.017	0.000456037	25.12%	87.23	30.80		-1.27%	-0.25%	3.2
4	840.670	0.000388368	21.39%	80.21	23.78		-1.27%	-0.28%	8.2
5	1053.613	0.000186679	10.28%	84.12	27.69		-1.01%	-0.21%	0.1
11	2422.443	0.000170561	9.40%	98.53	42.10	INHARMONIC	3.45%	0.60%	2.5
12	2633.133	0.000139343	7.68%	99.97	43.54	INHARMONIC	3.08%	0.53%	4.0
13	2843.420	0.000135382	7.46%	101.30	44.87	INHARMONIC	2.75%	0.47%	5.3
10	2212.050	0.000120759	6.65%	96.96	40.53	INHARMONIC	3.91%	0.69%	1.0
9	1999.157	0.000102691	5.68%	95.21	38.78	INHARMONIC	4.35%	0.78%	11.2
14	3056.293	8.4597E-005	4.66%	102.55	46.12	INHARMONIC	2.55%	0.43%	6.6
15	3264.453	8.2322E-005	4.54%	103.70	47.27	INHARMONIC	2.23%	0.37%	7.7
16	3474.283	7.0432E-005	3.88%	104.77	48.34	INHARMONIC	2.01%	0.33%	8.8

Sound 21 Trumpet – Harmon Mute – Stem Halfway – Mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	2526.377	0.010303283	602.92%	99.26	31.04	LOUDER THAN FUNDAMENTAL	0.14%	0.02%	3.3
4	1683.673	0.00613353	358.92%	92.23	24.02	LOUDER THAN FUNDAMENTAL	0.11%	0.02%	8.2
5	2104.130	0.00503109	294.41%	96.09	27.88	LOUDER THAN FUNDAMENTAL	0.09%	0.02%	0.1
7	2948.620	0.00391742	229.24%	101.93	33.72	LOUDER THAN FUNDAMENTAL	0.18%	0.03%	5.9
8	3369.073	0.003442507	201.45%	104.24	36.03	LOUDER THAN FUNDAMENTAL	0.16%	0.03%	8.2
1	420.463	0.00170889	100.00%	68.21	0.00		0.00%	0.00%	8.2
10	4209.903	0.00140342	82.12%	108.10	39.88		0.13%	0.02%	0.1
9	3789.440	0.001165936	68.23%	106.28	38.06		0.14%	0.02%	10.3
3	1261.317	0.00107817	63.09%	87.23	19.02		-0.01%	0.00%	3.2
2	840.901	0.000663102	38.80%	80.21	12.00		0.00%	0.00%	8.2
5	2307.773	0.00014646	8.57%	97.69	29.48	INHARMONIC	9.77%	1.68%	1.7
6	2375.903	0.000119237	6.98%	98.19	29.98	INHARMONIC	-5.82%	-1.05%	2.2
6	2721.307	0.000101136	5.92%	100.54	32.33	INHARMONIC	7.87%	1.32%	4.5
7	2802.780	6.4973E-005	3.80%	101.06	32.84	INHARMONIC	-4.77%	-0.83%	5.1

Sound 22 Trumpet – Harmon Mute – Stem Halfway – High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	2518.777	0.028789467	2494.73%	99.21	19.02	<i>all harmonic partials louder than fundamental</i>	0.01%	0.00%	3.2
2	1679.320	0.0274373	2377.55%	92.19	12.00		0.01%	0.00%	8.2
6	5037.743	0.009352713	810.45%	111.21	31.02		0.01%	0.00%	3.2
5	4196.127	0.00433653	375.78%	108.04	27.86		-0.04%	-0.01%	0.0
4	3355.577	0.00362567	314.18%	104.18	23.99		-0.05%	-0.01%	8.2
1	839.538	0.001154013	100.00%	80.19	0.00		0.00%	0.00%	8.2
3	2595.700	0.000466804	40.45%	99.73	19.54	INHARMONIC	3.06%	0.53%	3.7
3	2433.827	0.000360803	31.27%	98.61	18.43	INHARMONIC	-3.37%	-0.60%	2.6
2	1757.640	0.00029167	25.27%	92.98	12.79	INHARMONIC	4.68%	0.86%	9.0
6	5239.463	0.000289107	25.05%	111.89	31.70	INHARMONIC	4.01%	0.61%	3.9
6	5114.027	0.000232968	20.19%	111.47	31.28	INHARMONIC	1.52%	0.24%	3.5
3	2695.057	0.000206734	17.91%	100.38	20.19	INHARMONIC	7.01%	1.18%	4.4
6	5290.407	0.000179144	15.52%	112.05	31.87	INHARMONIC	5.03%	0.76%	4.1
2	1916.440	0.000169997	14.73%	94.47	14.29	INHARMONIC	14.14%	2.48%	10.5

Sound 23 Trumpet – Harmon Mute – Stem Halfway – Double Pedal B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	127.126	0.001789697	110.93%	47.51	11.99	LOUDER THAN FUNDAMENTAL	-0.07%	-0.02%	11.5
1	63.605	0.001613413	100.00%	35.52	0.00		0.00%	0.00%	11.5
4	248.972	0.000374513	23.21%	59.14	23.63		-2.14%	-0.63%	11.1
6	376.061	0.000306023	18.97%	66.28	30.76		-1.46%	-0.38%	6.3
5	312.597	0.000235911	14.62%	63.08	27.56		-1.71%	-0.47%	3.1
26	1625.710	0.000224403	13.91%	91.63	56.11		-1.69%	-0.32%	7.6
3	187.062	0.000213694	13.24%	54.19	18.68		-1.97%	-0.63%	6.2
29	1860.057	0.000170935	10.59%	93.96	58.44		0.84%	0.15%	10.0
10	623.477	0.000166818	10.34%	75.03	39.52		-1.98%	-0.46%	3.0
32	2056.453	0.000137361	8.51%	95.69	60.18		1.04%	0.19%	11.7
31	1957.720	0.000128393	7.96%	94.84	59.33		-0.71%	-0.13%	10.8
8	499.450	0.000122062	7.57%	71.19	35.68		-1.85%	-0.45%	11.2
14	878.062	0.000116491	7.22%	80.96	45.45		-1.39%	-0.30%	9.0
28	1807.133	0.000112544	6.98%	93.46	57.94		1.47%	0.27%	9.5
12	752.859	0.000102625	6.36%	78.30	42.78		-1.36%	-0.30%	6.3
34	2131.757	0.000098851	6.13%	96.32	60.80		-1.43%	-0.28%	0.3
16	1001.707	6.9517E-005	4.31%	83.24	47.73		-1.57%	-0.33%	11.1
7	438.481	5.6250E-005	3.49%	68.94	33.42		-1.52%	-0.38%	8.9
35	2196.450	5.4096E-005	3.35%	96.84	61.32		-1.34%	-0.24%	0.8
24	1500.007	5.2649E-005	3.26%	90.23	54.72		-1.74%	-0.34%	6.2
13	814.806	5.1959E-005	3.22%	79.67	44.15		-1.46%	-0.32%	7.7
18	1126.843	4.9220E-005	3.05%	85.28	49.76		-1.58%	-0.32%	1.3
22	1378.163	3.7882E-005	2.35%	88.77	53.25		-1.51%	-0.30%	4.8
11	689.098	3.0506E-005	1.89%	76.77	41.25		-1.51%	-0.34%	4.8
17	1068.467	0.000026536	1.64%	84.36	48.84		-1.19%	-0.24%	0.4
15	940.959	2.4392E-005	1.51%	82.16	46.64		-1.38%	-0.29%	10.2
20	1298.867	1.3904E-005	0.86%	87.74	52.22	INHARMONIC	2.10%	0.41%	3.7
19	1191.833	1.3866E-005	0.86%	86.25	50.73		-1.38%	-0.28%	2.3

Sound 24 Trumpet – Harmon Mute – Stem In – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	206.560	0.006527097	100.00%	55.91	0.00		0.00%	0.00%	7.9
17	3545.690	0.002390967	36.63%	105.13	49.22		0.97%	0.16%	9.1
16	3335.423	0.002388367	36.59%	104.07	48.16		0.92%	0.15%	8.1
15	3128.887	0.00220068	33.72%	102.96	47.05		0.98%	0.16%	7.0
2	418.522	0.00216177	33.12%	68.13	12.22		1.31%	0.33%	8.1
18	3753.950	0.001780387	27.28%	106.11	50.21		0.96%	0.16%	10.1
12	2503.780	0.001464903	22.44%	99.10	43.19		1.01%	0.18%	3.1
14	2920.357	0.00144284	22.11%	101.77	45.86		0.99%	0.17%	5.8
7	1460.267	0.00144219	22.10%	89.77	33.86		0.99%	0.19%	5.8
13	2710.257	0.001380733	21.15%	100.47	44.57		0.93%	0.16%	4.5
8	1668.590	0.001355123	20.76%	92.08	36.17		0.97%	0.18%	8.1
3	625.031	0.001352997	20.73%	75.08	19.17		0.86%	0.20%	3.1
9	1877.100	0.00124999	19.15%	94.12	38.21		0.97%	0.18%	10.1
11	2293.763	0.001205333	18.47%	97.59	41.68		0.95%	0.17%	1.6
4	835.227	0.000414172	6.35%	80.10	24.19		1.09%	0.23%	8.1
5	1043.553	0.00032085	4.92%	83.95	28.04		1.04%	0.21%	12.0
16	3226.473	0.000297758	4.56%	103.49	47.58	INHARMONIC	-2.37%	-0.40%	7.5
17	3427.440	0.000281104	4.31%	104.54	48.63	INHARMONIC	-2.39%	-0.40%	8.5
18	3642.440	0.000257611	3.95%	105.59	49.68	INHARMONIC	-2.03%	-0.34%	9.6
6	1249.963	0.000205671	3.15%	87.08	31.17		0.86%	0.17%	3.1
15	3008.007	0.000202671	3.11%	102.28	46.37	INHARMONIC	-2.92%	-0.50%	6.3
10	2085.243	0.000201829	3.09%	95.94	40.03		0.95%	0.17%	11.9
19	3843.267	0.000171855	2.63%	106.52	50.61	INHARMONIC	-2.07%	-0.34%	10.5
14	2802.717	0.000134961	2.07%	101.06	45.15	INHARMONIC	-3.08%	-0.53%	5.1
13	2590.973	0.000117014	1.79%	99.70	43.79	INHARMONIC	-3.51%	-0.62%	3.7
12	2382.407	0.000106047	1.62%	98.24	42.33	INHARMONIC	-3.89%	-0.69%	2.2
8	1557.090	5.4874E-005	0.84%	90.88	34.97	INHARMONIC	-5.77%	-1.12%	6.9
10	1966.567	5.2890E-005	0.81%	94.92	39.01	INHARMONIC	-4.79%	-0.89%	10.9
2	325.191	4.3147E-005	0.66%	63.77	7.86	INHARMONIC	-21.28%	-6.10%	3.8

Sound 25 Trumpet – Harmon Mute – Stem In – Mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	419.948	0.005178027	100.00%	68.19	0.00		0.00%	0.00%	8.2
8	3359.477	0.004689543	90.57%	104.19	36.00		0.00%	0.00%	8.2
12	5039.103	0.004306833	83.18%	111.21	43.02		-0.01%	0.00%	3.2
7	2939.550	0.003519473	67.97%	101.88	33.69		0.00%	0.00%	5.9
11	4620.990	0.00305294	58.96%	109.71	41.52		0.03%	0.01%	1.7
9	3779.407	0.00293049	56.59%	106.23	38.04		0.00%	0.00%	10.2
4	1679.763	0.00270101	52.16%	92.19	24.00		0.00%	0.00%	8.2
6	2519.660	0.00265239	51.22%	99.21	31.02		0.00%	0.00%	3.2
2	839.877	0.00142546	27.53%	80.19	12.00		0.00%	0.00%	8.2
10	4199.317	0.000762389	14.72%	108.05	39.86		0.00%	0.00%	0.1
3	1259.790	0.000528859	10.17%	87.21	19.02		0.00%	0.00%	3.2
8	3439.143	0.000077095	1.49%	104.60	36.41	INHARMONIC	2.37%	0.39%	8.6

Sound 26 Trumpet – Harmon Mute – Stem In – High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	3361.953	0.015710567	530.83%	104.20	24.01	LOUDER THAN FUNDAMENTAL	0.05%	0.01%	8.2
6	5041.700	0.011686667	394.87%	111.22	31.02	LOUDER THAN FUNDAMENTAL	0.02%	0.00%	3.2
3	2522.030	0.007651463	258.53%	99.23	19.03	LOUDER THAN FUNDAMENTAL	0.07%	0.01%	3.2
2	1679.917	0.00679572	229.61%	92.19	12.00	LOUDER THAN FUNDAMENTAL	-0.01%	0.00%	8.2
1	840.079	0.002959643	100.00%	80.20	0.00		0.00%	0.00%	8.2
5	4202.080	0.001538873	52.00%	108.07	27.87		0.04%	0.01%	0.1
4	3449.827	0.000342471	11.57%	104.65	24.46	INHARMONIC	2.66%	0.44%	8.7
6	4962.687	0.000235561	7.99%	110.95	30.75	INHARMONIC	-1.54%	-0.24%	2.9
6	5129.587	0.000235627	7.96%	111.52	31.32	INHARMONIC	1.77%	0.27%	3.5
4	3280.983	0.000208832	7.06%	103.78	23.59	INHARMONIC	-2.36%	-0.40%	7.8
3	2607.837	0.000200618	6.78%	99.81	19.61	INHARMONIC	3.48%	0.60%	3.8
3	2688.540	0.000199233	6.73%	100.33	20.14	INHARMONIC	6.68%	1.13%	4.3
5	4512.277	0.000144213	4.87%	109.30	29.10	INHARMONIC	7.43%	1.15%	1.3

Sound 27 Trumpet – Harmon Mute – Stem In – Double Pedal B

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	127.442	0.00280153	416.17%	47.55	11.99	LOUDER THAN FUNDAMENTAL	-0.04%	-0.01%	11.5
4	251.397	0.001203073	178.72%	59.31	23.75	LOUDER THAN FUNDAMENTAL	-1.41%	-0.41%	11.3
3	189.561	0.001016894	151.06%	54.42	18.87	LOUDER THAN FUNDAMENTAL	-0.88%	-0.28%	6.4
6	377.094	0.000748342	111.17%	66.33	30.77	LOUDER THAN FUNDAMENTAL	-1.41%	-0.37%	6.3
1	63.745	0.000673173	100.00%	35.55	0.00		0.00%	0.00%	11.6
8	502.591	0.000524926	77.98%	71.30	35.75		-1.45%	-0.35%	11.3
10	628.370	0.000312992	46.50%	75.17	39.61		-1.42%	-0.33%	3.2
5	313.600	0.000304558	45.24%	63.14	27.58		-1.61%	-0.44%	3.1
7	441.173	0.000203557	30.24%	69.05	33.49		-1.13%	-0.28%	9.0
26	1636.107	0.000182541	27.12%	91.74	56.18		-1.28%	-0.24%	7.7
12	755.923	0.000172356	25.60%	78.37	42.81		-1.18%	-0.26%	6.4
22	1386.630	0.000168787	25.07%	88.87	53.32		-1.12%	-0.22%	4.9
14	879.720	0.000157847	23.45%	80.99	45.44		-1.42%	-0.31%	9.0
25	1573.027	0.000151309	22.48%	91.06	55.50		-1.29%	-0.25%	7.1
16	1005.520	0.000134272	19.95%	83.31	47.75		-1.41%	-0.29%	11.3
24	1508.677	0.000126799	18.84%	90.33	54.78		-1.39%	-0.27%	6.3
13	818.513	4.5770E-005	6.80%	79.75	44.19		-1.23%	-0.27%	7.7
9	566.880	9.3429E-005	13.88%	73.39	37.83		-1.19%	-0.28%	1.4
27	1700.797	9.3189E-005	13.84%	92.41	56.85		-1.18%	-0.22%	8.4
28	1764.497	0.000090677	13.47%	93.04	57.49		-1.14%	-0.21%	9.0
30	1887.403	8.6248E-005	12.81%	94.21	58.66		-1.30%	-0.24%	10.2
29	1826.533	8.5580E-005	12.71%	93.64	58.09		-1.19%	-0.22%	9.6
11	692.719	8.5522E-005	12.70%	76.86	41.30		-1.21%	-0.27%	4.9
23	1449.520	7.2219E-005	10.73%	89.64	54.09		-1.13%	-0.22%	5.6
15	944.134	6.0175E-005	8.94%	82.22	46.66		-1.26%	-0.27%	10.2
18	1131.253	5.9856E-005	8.89%	85.35	49.79		-1.41%	-0.29%	1.3
21	1323.440	5.6337E-005	8.37%	88.06	52.51		-1.14%	-0.22%	4.1
31	1953.080	4.7190E-005	7.01%	94.80	59.25		-1.16%	-0.21%	10.8
32	2012.810	3.5689E-005	5.28%	95.32	59.77		-1.33%	-0.24%	11.3
17	1070.133	3.5433E-005	5.26%	84.39	48.83		-1.25%	-0.26%	0.4
20	1259.167	3.1928E-005	4.74%	87.20	51.65		-1.23%	-0.25%	3.2
36	2263.680	3.1830E-005	4.73%	97.36	61.80		-1.36%	-0.24%	1.4
33	2077.123	1.6680E-005	2.48%	95.87	60.31		-1.26%	-0.23%	11.9

Sound 28 Trumpet – Harmon Mute – Half Valve Wah – Open

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1484.330	0.00610827	3385.90%	90.05	24.17	LOUDER THAN FUNDAMENTAL	0.99%	0.19%	6.1
5	1851.727	0.002949673	1510.75%	93.88	28.00	LOUDER THAN FUNDAMENTAL	0.79%	0.14%	9.8
3	1109.517	0.001580763	809.63%	85.01	19.13	LOUDER THAN FUNDAMENTAL	0.65%	0.13%	1.0
6	2222.183	0.001506987	771.84%	97.04	31.16	LOUDER THAN FUNDAMENTAL	0.79%	0.14%	1.0
2	742.226	0.00030007	153.69%	78.05	12.17	LOUDER THAN FUNDAMENTAL	1.00%	0.22%	6.1
9	3340.953	0.000230206	117.91%	104.10	38.22	LOUDER THAN FUNDAMENTAL	1.02%	0.17%	8.1
7	2594.890	0.000204656	104.82%	99.72	33.84	LOUDER THAN FUNDAMENTAL	0.88%	0.15%	3.7
1	367.456	0.000195246	100.00%	65.88	0.00	sample is short	0.00%	0.00%	5.9
5	1987.757	0.000117767	60.32%	95.11	29.23	INHARMONIC	8.19%	1.45%	11.1

5	1693.833	0.000117087	59.97%	92.34	26.46	INHARMONIC	-7.81%	-1.50%	8.3
8	2974.393	9.8291E-005	50.34%	102.08	36.20		1.18%	0.20%	6.1
10	3703.327	8.5682E-005	43.88%	105.88	40.00		0.78%	0.13%	9.9
6	2070.603	7.7070E-005	39.47%	95.81	29.93	INHARMONIC	-6.08%	-1.12%	11.8
4	1289.383	0.000072786	37.28%	87.61	21.73	INHARMONIC	-12.28%	-2.52%	3.6
3	1242.173	5.3891E-005	27.60%	86.97	21.09	INHARMONIC	12.68%	2.43%	3.0
13	4823.807	5.3375E-005	27.34%	110.46	44.57		0.98%	0.15%	2.5
9	3259.573	5.0888E-005	26.06%	103.67	37.79	INHARMONIC	-1.44%	-0.24%	7.7
10	3584.387	4.2397E-005	21.71%	105.31	39.43	INHARMONIC	-2.45%	-0.41%	9.3
8	2887.477	4.2054E-005	21.54%	101.57	35.69	INHARMONIC	-1.77%	-0.30%	5.6
20	7446.680	0.000032333	16.56%	117.97	52.09		1.33%	0.19%	10.0
14	5200.933	3.0219E-005	15.48%	111.76	45.88		1.10%	0.17%	3.8
4	1357.837	2.6069E-005	13.35%	88.51	22.63	INHARMONIC	-7.62%	-1.53%	4.5
6	2340.143	2.5216E-005	12.91%	97.93	32.05	INHARMONIC	6.14%	1.06%	1.8

Sound 29 Trumpet – Harmon Mute – Half Valve Wah – Closed

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	321.312	0.00050878	100.00%	63.56	0.00		0.00%	0.00%	3.6
6	1919.990	0.000505739	77.70%	94.51	30.95		-0.41%	-0.07%	10.5
4	1278.113	0.000351825	54.05%	87.46	23.90		-0.56%	-0.11%	3.5
3	958.663	0.000339991	52.24%	82.48	18.92		-0.55%	-0.11%	10.5
2	638.407	0.000193476	29.73%	75.44	11.89		-0.66%	-0.15%	3.4
7	2232.543	5.1130E-005	7.86%	97.12	33.56		-0.74%	-0.13%	1.1
2	760.839	4.5392E-005	6.97%	78.48	14.92	INHARMONIC	18.40%	3.87%	6.5
6	2033.700	3.7484E-005	5.76%	95.50	31.94	INHARMONIC	5.49%	0.98%	11.5
4	1130.573	3.6314E-005	5.58%	85.34	21.78	INHARMONIC	-12.03%	-2.54%	1.3
6	1826.340	3.5969E-005	5.53%	93.64	30.08	INHARMONIC	-5.27%	-0.99%	9.6
4	1363.203	0.000032185	4.94%	88.58	25.02	INHARMONIC	6.07%	1.16%	4.6
6	1769.703	3.1534E-005	4.84%	93.10	29.54	INHARMONIC	-8.20%	-1.57%	9.1
2	575.295	2.8437E-005	4.37%	73.64	10.08	INHARMONIC	-10.48%	-2.54%	1.6
3	816.808	2.6728E-005	4.11%	79.71	16.15	INHARMONIC	-15.26%	-3.47%	7.7
7	2170.740	2.3097E-005	3.55%	96.63	33.07	INHARMONIC	-3.49%	-0.63%	0.6
5	1704.613	2.1886E-005	3.36%	92.45	28.89	INHARMONIC	6.10%	1.12%	8.4
5	1481.897	1.8881E-005	2.90%	90.02	26.46	INHARMONIC	-7.76%	-1.53%	6.0
3	1071.127	1.6203E-005	2.49%	84.40	20.85	INHARMONIC	11.12%	2.21%	0.4
4	1414.400	1.5567E-005	2.39%	89.22	25.66	INHARMONIC	10.05%	1.89%	5.2

Sound 30 Trumpet – Plunge Mute – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	677.762	0.0341536	1028.45%	76.48	23.87	LOUDER THAN FUNDAMENTAL	-0.75%	-0.17%	4.5
3	506.896	0.012580767	378.84%	71.45	18.84	LOUDER THAN FUNDAMENTAL	-1.02%	-0.25%	11.5
5	844.890	0.012119267	364.94%	80.30	27.69	LOUDER THAN FUNDAMENTAL	-1.02%	-0.22%	8.3
2	337.906	0.006182167	186.16%	64.43	11.82	LOUDER THAN FUNDAMENTAL	-1.03%	-0.28%	4.4
6	1915.540	0.00387817	116.78%	83.48	30.87	LOUDER THAN FUNDAMENTAL	-0.85%	-0.18%	11.5
1	170.715	0.003320897	100.00%	52.51	0.00		0.00%	0.00%	4.6
7	1184.457	0.002531853	76.24%	86.14	33.53		-0.88%	-0.18%	2.1
15	2537.980	0.001983073	59.71%	99.34	46.73		-0.89%	-0.16%	3.3
9	1522.153	0.001626863	48.99%	90.49	37.88		-0.93%	-0.18%	6.5
8	1351.453	0.001612133	48.55%	88.43	35.82		-1.04%	-0.21%	4.4
17	2877.727	0.001476777	44.47%	101.51	48.90		-0.84%	-0.14%	5.5
16	2706.767	0.001328027	39.99%	100.45	47.84		-0.90%	-0.16%	4.5
11	1864.050	0.00126711	38.16%	93.99	41.39		-0.74%	-0.14%	10.0
18	3046.627	0.001186173	35.72%	102.50	49.89		-0.85%	-0.14%	6.5
10	1693.453	0.001185563	35.70%	92.33	39.72		-0.80%	-0.15%	8.3
14	2371.153	0.001126889	33.93%	98.16	45.55		-0.79%	-0.14%	2.2
13	2200.150	0.00071261	21.46%	96.86	44.26		-0.86%	-0.15%	0.9
12	2029.473	0.000930307	28.01%	95.47	42.86		-0.93%	-0.17%	11.5
19	3215.867	0.000559806	16.86%	103.44	50.83		-0.85%	-0.14%	7.4
22	3722.000	0.00048586	14.63%	105.97	53.36		-0.90%	-0.15%	10.0
21	3553.500	0.000419212	12.62%	105.16	52.55		-0.88%	-0.15%	9.2
20	3386.703	0.000352108	10.60%	104.33	51.72		-0.81%	-0.13%	8.3
3	566.328	0.000262857	7.92%	73.37	20.76	INHARMONIC	10.58%	2.43%	1.4
3	445.104	0.000203349	6.12%	69.20	16.59	INHARMONIC	-13.09%	-3.39%	9.2
6	957.437	0.000187017	5.63%	82.46	29.85	INHARMONIC	-6.53%	-1.40%	10.5

Sound 31 Trumpet – Plunge Mute – Mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	687.088	0.055238367	271.62%	76.72	12.00	LOUDER THAN FUNDAMENTAL	0.01%	0.00%	4.7
1	343.518	0.0203367	100.00%	64.71	0.00		0.00%	0.00%	4.7
3	1027.180	0.0136673	67.21%	83.68	18.96		-0.33%	-0.07%	11.7
4	1370.497	0.003909093	15.19%	88.67	23.95		-0.26%	-0.05%	4.7
7	2395.577	0.001586591	7.80%	98.34	33.62		-0.38%	-0.07%	2.3
8	2739.117	0.001434943	7.06%	100.66	35.94		-0.33%	-0.06%	4.7
6	2055.903	0.001190687	5.85%	95.69	30.98		-0.25%	-0.05%	11.7
12	4109.897	0.0010275	5.05%	107.68	42.97		-0.30%	-0.05%	11.7
5	1713.893	0.000787838	3.87%	92.54	27.83		-0.22%	-0.04%	8.5
15	5139.110	0.000596873	2.93%	111.55	46.84		-0.27%	-0.04%	3.6
17	5824.517	0.000591493	2.91%	113.72	49.00		-0.26%	-0.04%	5.7
9	3083.780	0.000558495	2.75%	102.71	37.99		-0.25%	-0.04%	6.7
18	6167.863	0.000540419	2.66%	114.71	50.00		-0.25%	-0.04%	6.7
13	4453.883	0.000521276	2.56%	109.07	44.36		-0.27%	-0.04%	1.1
19	6509.657	0.000435415	2.14%	115.64	50.93		-0.26%	-0.04%	7.6
21	7193.340	0.000335735	1.65%	117.37	52.66		-0.28%	-0.04%	9.4
11	3766.587	0.0003277	1.61%	106.17	41.46		-0.32%	-0.05%	10.2
20	6853.470	0.000253336	1.25%	116.54	51.82		-0.25%	-0.04%	8.5

Sound 32 Trumpet – Plunge Mute – High

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	719.790	0.056246767	100.00%	77.52	0.00		0.00%	0.00%	5.5
4	2873.913	0.012544133	22.30%	101.49	23.97		-0.18%	-0.03%	5.5
2	1434.087	0.007305543	12.99%	89.45	11.93		-0.38%	-0.07%	5.5
10	7183.977	0.006294017	11.19%	117.35	39.83		-0.19%	-0.03%	9.4
3	2154.023	0.00628385	11.17%	96.50	18.98		-0.25%	-0.04%	0.5
5	3592.177	0.005882983	10.46%	105.35	27.83		-0.19%	-0.03%	9.4
15	10777.067	0.00406154	7.22%	124.37	46.85		-0.18%	-0.03%	4.4
8	5746.397	0.00373565	6.64%	113.48	35.96		-0.21%	-0.03%	5.5
9	6463.860	0.002828477	5.03%	115.52	38.00		-0.22%	-0.03%	7.5
16	11484.833	0.002809057	4.99%	125.49	47.97		-0.19%	-0.03%	5.5
6	4306.523	0.002494457	4.43%	108.49	30.97		-0.28%	-0.05%	0.5
13	9338.370	0.002459407	4.37%	121.89	44.37		-0.20%	-0.03%	1.9
12	8620.210	0.00198562	3.53%	120.51	42.98		-0.20%	-0.03%	0.5
14	10052.833	0.001230763	2.19%	123.17	45.65		-0.24%	-0.03%	3.2
7	5025.720	0.001084727	1.93%	111.17	33.64		-0.25%	-0.04%	3.2
11	7902.740	0.000818888	1.46%	119.00	41.48		-0.19%	-0.03%	11.0
10	7073.567	0.000231369	0.41%	117.08	39.56	INHARMONIC	-1.73%	-0.26%	9.1
14	9944.723	0.000216109	0.38%	122.98	45.46	INHARMONIC	-1.31%	-0.19%	3.0

Sound 33 Trumpet – Plunge Mute – Double Pedal C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
7	463.747	0.006204097	1379.59%	69.91	33.89	LOUDER THAN FUNDAMENTAL	1.14%	0.28%	9.9

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10	663.758	0.005891617	1310.10%	76.12	40.09	LOUDER THAN FUNDAMENTAL	1.34%	0.30%	4.1
9	598.310	0.004083763	908.09%	74.32	38.30	LOUDER THAN FUNDAMENTAL	1.49%	0.35%	2.3
8	532.897	0.003515303	781.69%	72.32	36.29	LOUDER THAN FUNDAMENTAL	1.70%	0.40%	0.3
6	398.287	0.00331757	737.72%	67.28	31.25	LOUDER THAN FUNDAMENTAL	1.35%	0.35%	7.3
11	729.396	0.002373077	527.69%	77.75	43.75	LOUDER THAN FUNDAMENTAL	1.24%	0.27%	5.8
4	265.566	0.00230239	511.98%	60.26	24.23	LOUDER THAN FUNDAMENTAL	1.36%	0.39%	0.3
12	794.659	0.002152607	478.67%	79.23	43.21	LOUDER THAN FUNDAMENTAL	1.10%	0.24%	7.2
5	332.841	0.001777067	395.16%	64.17	28.14	LOUDER THAN FUNDAMENTAL	1.63%	0.44%	4.2
14	931.408	0.001585347	352.53%	81.98	45.96	LOUDER THAN FUNDAMENTAL	1.57%	0.33%	10.0
15	996.834	0.001362767	303.03%	83.16	47.13	LOUDER THAN FUNDAMENTAL	1.46%	0.30%	11.2
17	1128.087	0.001332664	296.34%	85.30	49.27	LOUDER THAN FUNDAMENTAL	1.31%	0.26%	1.3
13	863.894	0.001249053	277.75%	80.68	44.66	LOUDER THAN FUNDAMENTAL	1.46%	0.31%	8.7
19	1262.377	0.001222784	271.91%	87.25	51.22	LOUDER THAN FUNDAMENTAL	1.44%	0.28%	3.2
21	1393.123	0.001085181	241.31%	88.95	52.93	LOUDER THAN FUNDAMENTAL	1.28%	0.25%	5.0
2	130.877	0.00106281	236.29%	48.02	12.00	LOUDER THAN FUNDAMENTAL	-0.02%	-0.01%	0.0
16	1062.347	0.000873833	194.31%	84.26	48.24	LOUDER THAN FUNDAMENTAL	1.37%	0.28%	0.3
18	1195.183	0.000847749	144.04%	86.30	50.28	LOUDER THAN FUNDAMENTAL	1.37%	0.27%	2.3
36	2390.710	0.000634966	141.20%	98.30	62.28	LOUDER THAN FUNDAMENTAL	1.39%	0.24%	2.3
3	200.147	0.000598709	133.13%	55.36	19.34	LOUDER THAN FUNDAMENTAL	1.86%	0.58%	7.4
23	1525.773	0.000489794	108.91%	90.53	54.50	LOUDER THAN FUNDAMENTAL	1.28%	0.24%	6.5
35	2324.910	0.000477899	106.27%	97.82	61.79	LOUDER THAN FUNDAMENTAL	1.41%	0.25%	1.8
1	65.500	0.000449707	100.00%	36.02	0.00	LOUDER THAN FUNDAMENTAL	0.00%	0.00%	0.0
25	1660.657	0.000427043	94.96%	91.99	55.97	LOUDER THAN FUNDAMENTAL	1.41%	0.27%	8.0
20	1327.973	0.000410052	91.18%	88.12	52.10	LOUDER THAN FUNDAMENTAL	1.37%	0.27%	4.1
22	1459.077	0.00035727	79.44%	89.75	53.73	LOUDER THAN FUNDAMENTAL	1.25%	0.24%	5.8
26	1726.257	0.000296944	66.03%	92.66	56.64	LOUDER THAN FUNDAMENTAL	1.37%	0.25%	8.7
24	1595.530	0.000252476	56.14%	91.30	55.28	LOUDER THAN FUNDAMENTAL	1.50%	0.28%	7.3
27	1791.650	0.000226865	50.45%	93.31	57.28	LOUDER THAN FUNDAMENTAL	1.31%	0.24%	9.3
34	2259.520	0.000209955	46.69%	97.33	61.30	LOUDER THAN FUNDAMENTAL	1.46%	0.26%	1.3
28	1857.453	0.000182174	40.51%	93.93	57.91	LOUDER THAN FUNDAMENTAL	1.28%	0.23%	9.9
29	1926.350	0.000177498	39.47%	94.56	58.54	LOUDER THAN FUNDAMENTAL	1.41%	0.26%	10.6
30	1991.833	0.000124397	27.66%	95.14	59.12	LOUDER THAN FUNDAMENTAL	1.37%	0.25%	11.1
32	2124.787	0.00011028	24.69%	96.26	60.24	LOUDER THAN FUNDAMENTAL	1.37%	0.25%	0.3
31	2057.443	8.7552E-005	19.47%	95.70	59.68	LOUDER THAN FUNDAMENTAL	1.33%	0.24%	11.7

Sound 34 Trumpet – Plunge Mute Reverse – Low

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	678.239	0.00829071	233.69%	76.49	23.86	LOUDER THAN FUNDAMENTAL	-0.80%	-0.18%	4.5
3	507.344	0.007439993	209.71%	71.47	18.83	LOUDER THAN FUNDAMENTAL	-1.06%	-0.26%	11.5
2	340.006	0.006398553	179.54%	64.54	11.91	LOUDER THAN FUNDAMENTAL	-0.54%	-0.15%	4.5
6	1016.367	0.005559997	156.72%	83.49	30.85	LOUDER THAN FUNDAMENTAL	-0.90%	-0.19%	11.5
7	1185.647	0.004100407	115.58%	86.16	33.53	LOUDER THAN FUNDAMENTAL	-0.91%	-0.18%	2.2
5	849.003	0.004063297	114.53%	80.38	27.75	LOUDER THAN FUNDAMENTAL	-0.66%	-0.14%	8.4
1	170.933	0.003547693	100.00%	52.63	0.00	LOUDER THAN FUNDAMENTAL	0.00%	0.00%	4.6
8	1356.460	0.00241719	68.13%	88.49	35.86	LOUDER THAN FUNDAMENTAL	-0.80%	-0.16%	4.5
12	2034.553	0.00116401	32.81%	95.51	42.88	LOUDER THAN FUNDAMENTAL	-0.81%	-0.15%	11.5
10	1694.510	0.000935654	26.37%	92.34	39.71	LOUDER THAN FUNDAMENTAL	-0.87%	-0.16%	8.3
9	1525.470	0.000788962	22.24%	90.52	37.89	LOUDER THAN FUNDAMENTAL	-0.84%	-0.16%	6.5
11	1865.377	0.000680409	19.18%	94.01	41.38	LOUDER THAN FUNDAMENTAL	-0.79%	-0.15%	10.0
13	2203.743	0.000570298	16.08%	96.89	44.26	LOUDER THAN FUNDAMENTAL	-0.83%	-0.15%	0.9
8	1409.657	0.000110649	3.12%	89.16	36.53	INHARMONIC	3.09%	0.59%	5.2
10	1748.120	8.4517E-005	2.38%	92.88	40.25	INHARMONIC	2.27%	0.42%	8.9

Sound 35 Trumpet – Plunge Mute Reverse – Mid

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
2	673.732	0.023393433	124.73%	76.38	12.09	LOUDER THAN FUNDAMENTAL	0.54%	0.12%	4.4
1	335.063	0.0187556	100.00%	64.28	0.00	LOUDER THAN FUNDAMENTAL	0.00%	0.00%	4.3
3	1008.830	0.013261867	70.71%	83.37	19.08	LOUDER THAN FUNDAMENTAL	0.36%	0.08%	11.4
4	1345.567	0.010743087	57.28%	88.35	24.07	LOUDER THAN FUNDAMENTAL	0.40%	0.08%	4.4
6	2015.313	0.002983467	15.91%	95.35	31.06	LOUDER THAN FUNDAMENTAL	0.25%	0.04%	11.3
5	1680.777	0.002865677	15.28%	92.20	27.92	LOUDER THAN FUNDAMENTAL	0.33%	0.06%	8.2
7	2353.790	0.002310026	12.32%	98.03	33.75	LOUDER THAN FUNDAMENTAL	0.36%	0.06%	2.0
10	3362.217	0.0021289	11.35%	104.21	39.92	LOUDER THAN FUNDAMENTAL	0.35%	0.06%	8.2
9	3024.743	0.002060396	10.99%	102.37	38.09	LOUDER THAN FUNDAMENTAL	0.30%	0.05%	6.4
8	2690.367	0.001531589	8.17%	100.35	36.06	LOUDER THAN FUNDAMENTAL	0.37%	0.06%	4.3
13	4371.653	0.001227827	6.55%	108.75	44.47	LOUDER THAN FUNDAMENTAL	0.36%	0.06%	0.8
11	3637.903	0.00112847	5.93%	105.57	41.29	LOUDER THAN FUNDAMENTAL	-1.30%	-0.21%	9.6
12	4036.633	0.000865622	5.15%	107.37	43.09	LOUDER THAN FUNDAMENTAL	0.39%	0.06%	11.4
15	5045.347	0.00081383	4.34%	111.23	46.95	LOUDER THAN FUNDAMENTAL	0.39%	0.06%	3.2
14	4708.730	0.000795726	4.24%	110.04	45.75	LOUDER THAN FUNDAMENTAL	0.38%	0.06%	2.0
3	947.999	0.000332084	1.77%	82.29	18.01	INHARMONIC	-5.69%	-1.22%	10.3
4	1213.677	0.000129275	0.69%	86.57	22.28	INHARMONIC	-9.44%	-1.95%	2.6

Sound 36 Trumpet – Plunge Mute Reverse – Double Pedal C

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
7	468.895	0.004079113	921.06%	70.10	34.05	<i>all harmonic partials louder than fundamental</i>	2.10%	0.51%	10.1
10	665.370	0.002768453	625.11%	76.16	40.11		1.41%	0.32%	4.2
18	1201.280	0.00269876	609.38%	86.39	50.33		1.72%	0.34%	2.4
16	1064.223	0.00242742	548.11%	84.29	48.24		1.38%	0.28%	0.3
5	333.610	0.002422743	547.05%	64.21	28.15		1.69%	0.46%	4.2
14	933.317	0.00234024	528.42%	82.02	45.96		1.61%	0.34%	10.0
9	599.511	0.002083593	470.47%	74.36	38.30		1.53%	0.35%	2.4
6	399.060	0.001773137	400.37%	67.31	31.26		1.37%	0.35%	7.3
12	802.072	0.001739543	392.79%	79.39	43.34		1.87%	0.41%	7.4
4	267.908	0.001619743	365.74%	60.41	24.36		2.08%	0.59%	0.4
8	533.673	0.00143949	325.03%	72.34	36.29		1.67%	0.40%	0.3
13	867.438	0.001359797	307.04%	80.75	44.70		1.70%	0.36%	8.8
11	730.473	0.001347073	304.17%	77.78	41.72		1.21%	0.27%	5.8
17	1133.587	0.001260707	284.67%	85.38	49.33		1.63%	0.33%	1.4
20	1320.923	0.001200313	271.03%	88.03	51.98		0.66%	0.13%	4.0
15	998.291	0.001168173	263.77%	83.18	47.13		1.44%	0.30%	11.2
19	1266.270	0.001013306	228.80%	87.30	51.25		1.58%	0.31%	3.3
2	131.289	0.000935409	211.21%	48.06	12.01		0.05%	0.02%	0.1
27	1800.767	0.000843819	190.53%	93.40	57.34		1.65%	0.30%	9.4
25	1668.803	0.000737297	166.46%	92.98	56.02		1.74%	0.33%	8.1
29	1930.923	0.000726682	164.06%	94.60	58.55		1.48%	0.27%	10.6
3	200.425	0.000681208	153.82%	55.39	19.33		1.83%	0.57%	7.4
30	1999.387	0.000658579	148.71%	95.21	59.15		1.58%	0.29%	11.2
22	1466.213	0.00059336	135.33%	89.84	53.78		1.58%	0.30%	5.8
21	1399.690	0.000590866	133.42%	89.03	52.98		1.59%	0.31%	5.0
28	1865.493	0.000548638	123.88%	94.01	57.95		1.55%	0.28%	10.0
23	1532.690	0.00054136	122.24%	90.61	54.55		1.57%	0.30%	6.6
24	1597.393	0.000515654	116.43%	91.32	55.27		1.44%	0.27%	7.3
1	65.610	0.000442873	100.00%	36.05	0.00		0.00%	0.00%	0.1

Sound 37 Eb Clarinet – Multiphonic 1

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1185.103	0.00161342	368.81%	86.15	22.02	LOUDER THAN FUNDAMENTAL	-10.82%	-2.25%	2.2
1	332.212	0.000437469	100.00%	64.14	0.00	LOUDER THAN FUNDAMENTAL	0.00%	0.00%	4.1
5	1517.320	0.00022397	51.20%	90.43	26.30	INHARMONIC	-8.65%	-1.70%	6.4
7	2372.130	0.000065094	14.88%	98.17	34.03	INHARMONIC	2.01%	0.35%	2.2
3	989.721	0.000061446	14.05%	83.03	18.90	INHARMONIC	-0.69%	-0.14%	11.0
6	1848.100	2.5599E-005	5.85%	93.85	29.71	INHARMONIC	-7.28%	-1.38%	9.8

3	854.700	1.9888E-005	4.55%	80.49	16.36	INHARMONIC	-14.24%	-3.20%	8.5
5	1661.187	1.4396E-005	3.29%	92.00	27.86		0.01%	0.00%	8.0
6	2031.543	1.1958E-005	2.73%	95.48	31.35		1.92%	0.35%	11.5
8	2716.540	1.1122E-005	2.54%	100.51	36.38		2.21%	0.38%	4.5
4	1320.483	9.9065E-006	2.26%	88.03	23.89		-0.63%	-0.12%	4.0
2	658.720	7.9185E-006	1.81%	75.99	11.85		-0.86%	-0.20%	4.0
9	2885.033	7.2236E-006	1.65%	101.56	37.42	INHARMONIC	-3.51%	-0.60%	5.6
9	3060.853	6.7575E-006	1.54%	102.58	38.45		2.37%	0.40%	6.6
8	2512.060	6.0155E-006	1.38%	99.16	35.02	INHARMONIC	-5.48%	-0.97%	3.2
9	2964.027	5.4809E-006	1.25%	102.02	37.89	INHARMONIC	-0.87%	-0.15%	6.0

Sound 38 Eb Clarinet - Multiphonic 2

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	1352.970	0.005609227	446.35%	88.45	23.67	LOUDER THAN FUNDAMENTAL	-1.91%	-0.38%	4.4
5	1697.800	0.001380132	109.82%	92.38	27.60	LOUDER THAN FUNDAMENTAL	-1.53%	-0.29%	8.4
1	344.839	0.00125669	100.00%	64.78	0.00		0.00%	0.00%	4.8
3	1006.267	0.000944711	75.17%	83.32	18.54		-2.73%	-0.57%	11.3
8	2705.837	0.000732106	58.26%	100.45	35.66		-1.92%	-0.33%	4.4
6	2042.823	0.000339822	27.04%	95.58	30.80		-1.28%	-0.23%	11.6
7	2360.570	0.000270866	21.55%	98.08	33.30		-2.21%	-0.39%	2.1
12	4058.730	0.000120389	9.58%	107.47	42.68		-1.92%	-0.31%	11.5
11	3711.547	0.000111698	8.89%	105.92	41.14		-2.15%	-0.35%	9.9
9	3050.393	0.000067592	5.38%	102.52	37.74		-1.71%	-0.29%	6.5
10	3395.647	5.7896E-005	4.61%	104.38	39.60		-1.53%	-0.25%	8.4
2	689.833	4.3900E-005	3.49%	76.78	12.00		0.02%	0.01%	4.8
14	4748.700	4.1983E-005	3.34%	110.18	45.40		-1.64%	-0.26%	2.2
5	1576.540	0.000028387	2.26%	91.09	26.31	INHARMONIC	-8.56%	-1.67%	7.1
13	4403.243	2.5319E-005	2.01%	108.88	44.09		-1.78%	-0.28%	0.9
15	5093.270	2.3694E-005	1.89%	111.40	46.62		-1.53%	-0.24%	3.4
28	9678.637	1.9806E-005	1.58%	122.51	57.73		0.24%	0.03%	2.5
20	6972.647	1.9310E-005	1.54%	116.83	52.05		1.10%	0.16%	8.8

Sound 39 Bass Clarinet - Multiphonic 1

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
3	311.517	0.0546278	139.64%	63.02	18.72	LOUDER THAN FUNDAMENTAL	-1.69%	-0.47%	3.0
11	1140.610	0.050913633	130.14%	85.49	41.19	LOUDER THAN FUNDAMENTAL	-1.83%	-0.37%	1.5
15	1554.320	0.041318067	105.62%	90.85	46.55	LOUDER THAN FUNDAMENTAL	-1.90%	-0.36%	6.8
10	1035.023	0.0403579	103.16%	83.81	39.51	LOUDER THAN FUNDAMENTAL	-2.01%	-0.42%	11.8
1	105.625	0.0391208	100.00%	44.30	0.00		0.00%	0.00%	8.3
5	517.558	0.0329556	84.24%	71.81	27.51		-2.00%	-0.48%	11.8
13	1346.627	0.0258904	66.18%	88.37	47.67		-1.93%	-0.38%	4.4
16	1658.300	0.0209995	53.68%	91.97	47.67		-1.88%	-0.36%	8.0
19	1969.853	0.019967133	51.04%	94.95	50.65		-1.85%	-0.34%	11.0
25	2591.277	0.016817687	42.99%	99.70	55.40		-1.87%	-0.33%	3.7
21	2175.717	0.0162707	41.59%	96.67	52.37		-1.91%	-0.34%	0.7
7	723.133	0.016299543	41.68%	77.60	33.30		-2.20%	-0.49%	5.6
12	1245.033	0.013422233	34.31%	87.01	42.71		-1.77%	-0.35%	3.0
6	623.067	0.012977633	33.17%	75.02	30.73		-1.69%	-0.39%	3.0
18	1864.210	0.0123776	31.64%	94.00	49.70		-1.95%	-0.36%	10.0
26	2694.780	0.011649933	29.78%	100.38	56.08		-1.87%	-0.33%	4.4
14	1452.233	0.011145043	28.49%	89.67	45.37		-1.79%	-0.35%	5.7
9	934.934	0.0111441	28.49%	82.05	37.75		-1.65%	-0.35%	10.0
17	1759.387	0.010543723	26.95%	92.99	48.70		-2.02%	-0.38%	9.0
8	829.176	0.009357573	23.92%	79.97	35.67		-1.87%	-0.41%	8.0
28	2900.477	0.008184023	20.92%	101.65	57.35		-1.93%	-0.33%	5.6
20	2073.327	0.007463803	19.08%	95.84	51.54		-1.85%	-0.34%	11.8
24	2487.027	0.006968077	17.81%	98.99	54.69		-1.89%	-0.33%	3.0
23	2383.990	0.006721407	17.18%	98.25	53.96		-1.87%	-0.33%	2.3
22	2279.267	0.005026113	12.85%	97.48	53.18		-1.91%	-0.34%	1.5
27	2802.530	0.002034343	5.20%	101.05	56.76		-1.73%	-0.30%	5.1
4	401.679	0.00082418	2.11%	67.42	23.13		-4.93%	-1.28%	7.4
2	208.235	0.000725769	1.86%	56.05	11.75		-1.43%	-0.44%	8.0

Sound 40 Bass Clarinet - Multiphonic 2

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
4	494.266	0.090418	3638.74%	71.01	21.69	LOUDER THAN FUNDAMENTAL	-12.48%	-3.15%	11.0
10	1477.337	0.040188933	1617.34%	89.97	40.65	LOUDER THAN FUNDAMENTAL	4.64%	0.88%	6.0
7	988.393	0.023130767	930.86%	83.01	33.69	LOUDER THAN FUNDAMENTAL	0.01%	0.00%	11.0
6	841.833	0.010571213	425.42%	80.23	30.91	LOUDER THAN FUNDAMENTAL	-0.62%	-0.13%	8.2
14	1971.450	0.00535567	215.53%	94.96	45.64	LOUDER THAN FUNDAMENTAL	-0.26%	-0.05%	11.0
9	1335.917	0.005107153	205.53%	88.23	38.91	LOUDER THAN FUNDAMENTAL	5.13%	0.99%	4.2
13	1830.177	0.005003753	201.37%	93.68	44.36	LOUDER THAN FUNDAMENTAL	-0.29%	-0.05%	9.7
17	2465.677	0.004938553	198.74%	98.84	49.52	LOUDER THAN FUNDAMENTAL	2.73%	0.47%	2.8
15	2112.380	0.00402486	161.97%	96.16	46.84	LOUDER THAN FUNDAMENTAL	-0.26%	-0.05%	0.2
3	353.286	0.003433987	138.20%	65.20	15.88	LOUDER THAN FUNDAMENTAL	-16.59%	-4.60%	5.2
16	2324.500	0.002718977	109.42%	97.82	48.49	LOUDER THAN FUNDAMENTAL	2.90%	0.51%	1.8
1	141.187	0.002484873	100.00%	49.32	0.00		0.00%	0.00%	1.3
8	1104.513	0.002461922	99.08%	84.93	35.61		-2.21%	-0.45%	0.9
21	2959.837	0.00222166	89.41%	102.00	52.68		-0.17%	-0.03%	6.0
11	1621.793	0.002028502	81.55%	91.58	42.26	INHARMONIC?	4.43%	0.83%	7.6
18	2606.867	0.001599416	64.37%	99.80	50.48	INHARMONIC?	2.58%	0.44%	3.8
13	1765.540	0.001153665	46.43%	93.05	43.73	INHARMONIC	-3.81%	-0.72%	9.1
16	2260.380	0.001086698	43.73%	97.33	48.01		0.06%	0.01%	1.3
22	3100.923	0.001068489	43.00%	102.81	53.48		-0.17%	-0.03%	6.8
15	2184.517	0.000961076	38.68%	96.74	47.42	INHARMONIC	3.15%	0.56%	0.7
19	2674.427	0.000935151	37.63%	100.24	50.92		-0.30%	-0.05%	4.2
12	1688.450	0.000818523	32.94%	92.28	42.96		-0.34%	-0.06%	6.8
6	776.930	0.000744402	29.96%	78.84	29.52	INHARMONIC	-8.29%	-1.86%	8.3
8	1195.370	0.000593339	23.88%	86.30	36.98	INHARMONIC	5.83%	1.15%	2.3
5	718.987	0.000587744	23.65%	77.50	28.18		1.85%	0.41%	5.5
15	2056.510	0.000571422	23.00%	95.70	46.37	INHARMONIC	-2.89%	-0.53%	11.7
21	2898.910	0.000463057	18.64%	101.64	52.32	INHARMONIC	-2.23%	-0.38%	5.6
19	2752.680	0.000358201	14.42%	100.74	51.42	INHARMONIC	2.61%	0.45%	4.7

Sound 41 Bass Clarinet - Multiphonic 3

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
6	835.873	0.077710833	516.87%	80.11	29.86	LOUDER THAN FUNDAMENTAL	-6.47%	-1.43%	8.1
11	1669.827	0.0345779	229.99%	92.09	41.84	LOUDER THAN FUNDAMENTAL	1.92%	0.36%	6.1
8	1130.103	0.032391633	215.44%	85.33	35.08	LOUDER THAN FUNDAMENTAL	-5.16%	-1.06%	1.3
12	1818.927	0.0291617	193.96%	93.57	43.32	LOUDER THAN FUNDAMENTAL	1.76%	0.32%	9.6
9	1277.257	0.0259573	172.65%	87.45	37.20	LOUDER THAN FUNDAMENTAL	-4.72%	-0.95%	3.4
7	981.146	0.024874133	165.44%	82.88	32.64	LOUDER THAN FUNDAMENTAL	-5.90%	-1.25%	10.9
14	2113.100	0.0208379	138.60%	96.17	45.92	LOUDER THAN FUNDAMENTAL	1.33%	0.24%	0.2
10	1422.610	0.020165833	134.13%	89.32	39.07	LOUDER THAN FUNDAMENTAL	-4.49%	-0.88%	5.3
1	148.950	0.015034967	100.00%	50.25	0.00		0.00%	0.00%	2.2
15	2260.260	0.013641633	90.73%	97.33	47.08		1.16%	0.21%	1.3
13	1965.933	0.011948967	79.47%	94.92	44.67	Significant diversion makes it difficult to find a pattern of Pseudo-harmonic partials	1.53%	0.28%	10.9
5	688.620	0.010150733	67.51%	76.75	26.51		-7.54%	-1.74%	4.8
8	1228.493	0.008173457	54.36%	86.78	36.53		3.10%	0.61%	2.8
17	2554.570	0.006976473	46.40%	99.45	49.20		0.89%	0.15%	3.5
15	2213.113	0.00678199	45.11%	96.97	46.72		-0.95%	-0.17%	1.0
3	441.477	0.005488023	36.50%	69.06	18.81		-1.20%	-0.30%	9.1
13	1917.153	0.00429374	28.56%	94.48	44.23		-0.99%	-0.18%	10.5

Appendix 5

17	2505.603	0.004291843	28.55%	99.11	48.87	-1.05%	-0.18%	3.1
11	1572.040	0.00372147	24.75%	91.04	40.80	-4.05%	-0.78%	7.0
16	2405.683	0.002753793	18.32%	98.41	48.16	0.94%	0.17%	2.4
5	733.973	0.002623317	17.45%	77.86	27.61	-1.45%	-0.32%	5.9
10	1524.447	0.002452177	16.31%	90.51	40.26	2.35%	0.45%	6.5
12	1747.227	0.00218242	14.52%	92.87	42.63	-2.25%	-0.42%	8.9
4	539.696	0.002123093	14.12%	72.54	22.29	-9.42%	-2.31%	0.5
10	1474.353	0.001963573	13.06%	89.93	39.69	-1.02%	-0.20%	5.9
16	2358.723	0.001059337	7.05%	98.07	47.82	-1.03%	-0.18%	2.1
4	590.534	0.000697533	4.64%	74.09	23.85	-0.88%	-0.21%	2.1
2	292.804	0.000474377	3.16%	61.95	11.70	-1.71%	-0.48%	1.9

Sound 42 Bass Clarinet - Split Tone

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Notes	Diversion (Hz)	Diversion (Pitch)	Pitch Class
8	465.287	0.22201	900.51%	69.97	36.60	LOUDER THAN FUNDAMENTAL	3.53%	0.87%	10.0
7	409.183	0.122969	498.79%	67.74	34.38	LOUDER THAN FUNDAMENTAL	4.05%	1.03%	7.7
9	526.807	0.111993	454.26%	72.12	38.75	LOUDER THAN FUNDAMENTAL	4.19%	1.00%	0.1
17	992.054	0.102691833	416.54%	83.07	49.71	LOUDER THAN FUNDAMENTAL	3.88%	0.80%	11.1
16	936.177	0.0918153	372.42%	82.07	48.70	LOUDER THAN FUNDAMENTAL	4.15%	0.87%	10.1
18	1053.570	0.059894433	242.94%	84.12	50.75	LOUDER THAN FUNDAMENTAL	4.19%	0.85%	0.1
15	876.349	0.0386635	156.83%	80.93	47.56	LOUDER THAN FUNDAMENTAL	4.00%	0.85%	8.9
10	582.410	0.028366667	115.06%	73.85	40.49	LOUDER THAN FUNDAMENTAL	3.67%	0.85%	1.9
1	56.178	0.0246537	100.00%	33.37	0.00		0.00%	0.00%	9.4
26	1518.820	0.0242973	98.55%	90.45	57.08		3.98%	0.75%	6.4
32	1872.577	0.0239314	97.07%	94.07	60.71		4.17%	0.76%	10.1
23	1345.353	0.023866567	96.89%	88.35	54.98		4.12%	0.80%	4.3
33	1928.080	0.023429233	95.03%	94.58	61.21		4.00%	0.72%	10.6
25	1462.890	0.0227582	92.31%	89.80	56.43		4.16%	0.79%	5.8
31	1810.343	0.0220812	89.57%	93.49	60.12		3.95%	0.72%	9.5
5	291.499	0.021748033	88.21%	61.87	28.50		3.78%	1.05%	1.9
24	1401.480	0.020426867	82.86%	89.06	55.69		3.95%	0.76%	5.1
3	173.733	0.016835167	68.29%	52.91	19.55		3.08%	1.00%	4.9
27	1580.790	0.016173567	65.60%	91.14	57.77		4.22%	0.79%	7.1
35	2045.747	0.0140756	57.09%	95.60	62.24		4.04%	0.72%	11.6
19	1109.593	0.0134486	54.55%	85.01	51.65		3.95%	0.80%	1.0
34	1990.357	0.013409933	54.39%	95.13	61.76		4.20%	0.76%	11.1
29	1694.653	0.012501067	50.71%	92.34	58.98		4.02%	0.74%	8.3
20	1169.690	0.011868553	48.14%	85.93	52.56		4.11%	0.82%	1.9
21	1227.433	0.010142573	41.14%	86.76	53.39		4.04%	0.80%	2.8
6	350.947	0.007822693	31.73%	65.08	31.72		4.12%	1.08%	5.1
11	644.481	0.007797453	31.63%	75.61	42.24		4.29%	0.97%	3.6
30	1754.337	0.007066773	28.66%	92.94	59.58		4.09%	0.75%	8.9
13	762.217	0.0067499	27.38%	78.51	45.15		4.37%	0.95%	6.5
22	1288.360	0.005488333	22.26%	87.60	54.23		4.24%	0.83%	3.6
12	700.455	0.004816637	19.54%	77.05	43.68		3.90%	0.87%	5.0
28	1638.930	0.0045565	18.48%	91.77	58.40		4.19%	0.78%	7.8
14	817.980	0.00385075	15.62%	79.73	46.37		4.00%	0.86%	7.7
4	233.125	0.00224908	9.12%	58.00	24.64		3.74%	1.11%	10.0
2	117.622	0.001609527	6.53%	46.16	12.79		4.69%	1.75%	10.2

Appendix 7

MODE	Core Intervals						
Trumpet	0.5, 3.5, 4, 4.5, 5						
harmon (half)							
double pedal							
B# - 1	(1,2,3,4)	(1,2,3,X)	(1,2,5,6)	(1,3,4,5)	(1,3,5,9)	(1,3,6,7)	(1,3,9)
B - 2	B#, B, Gd, Eb	B#, B, Gd, X	B#, B, G#, F#	B#, Gd, Eb, G#	B#, Gd, G#, A#	B#, Gd, F#, Bb	B#, Gd, A#
Gd - 3							
Eb - 4	(1,2,3,5)	(1,2,4,5)	(1,2,5,X)	(1,3,4,6)	(1,3,5,10)	(1,3,7,8)	(1,3,9,16)
G# - 5	B#, B, Gd, G#	B#, B, Eb, G#	B#, B, G#, X	B#, Gd, Eb, F#	B#, Gd, G#, C#	B#, Gd, Bb, A	B#, Gd, A#, (B#)
F# - 6							
Bb - 7	(1,2,3,6)	(1,2,4,6)	(1,2,7,11)	(1,3,4,7)	(1,3,5,11)	(1,3,7,9)	(1,3,9,17)
A - 8	B#, B, Gd, F#	B#, B, Eb, F#	B#, B, Bb, C#	B#, Gd, Eb, Bb	B#, Gd, G#, C#	B#, Gd, Bb, A#	B#, Gd, A#, B
A# - 9							
C# - 10	(1,2,3,7)	(1,2,4,10)	(1,2,27,28)	(1,3,5,6)	(1,3,5,12)	(1,3,7,10)	(1,3,9,24)
C# - 11	B#, B, Gd, Bb	B#, B, Eb, C#	B#, B, Dd, F	B#, Gd, G#, F#	B#, Gd, G#, Dd	B#, Gd, Bb, C#	B#, Gd, A#, (A#)
Dd - 12							
F - 13	(1,2,3,10)	(1,2,4,X)	(1,2,X,X)	(1,3,5,7)	(1,3,5,13)	(1,3,7,22)	(1,5,6,X)
Ed - 14	B#, B, Gd, C#	B#, B, Eb, X	B#, B, X, X	B#, Gd, G#, Bb	B#, Gd, G#, F	B#, Gd, Bb, (Bb)	B#, G#, F#, X
D# - 15							

(1,5,7,X)	(1,15,16,17)	(3,4,5,7)	(5,6,8,9)	(6,16,18,20)	(10,11,12,13)
B#, G#, Bb, X	B#, D#, (B#), B	Gd, Eb, G#, Bb	G#, F#, A, A#	(F#, B#, Gd, G#)	C#, C#, Dd, F
(1,5,X,X)	(2,3,4,5)	(3,9,10,11)	(5,6,9,10)	(7,8,9,10)	(11,12,X,X)
B#, G#, X, X	B, Gd, Eb, G#	Gd, A#, C#, C#	G#, F#, A#, C#	Bb, A, A#, C#	Dd, F, X, X
(1,7,8,12)	(2,3,4,6)	(3,10,11,15)	(6,7,8,9)	(7,8,9,17)	(15,19,21,22)
B#, Bb, A, Dd	B, Gd, Eb, F#	Gd, C#, C#, D#	F#, Bb, A, A#	Bb, A, A#, B	D#, Eb, F#, Bb
(1,8,10,17)	(2,3,5,6)	(4,5,6,7)	(6,7,9,10)	(7,10,16,18)	(20,23,27,29)
B#, A, C#, B	B, Gd, G#, F#	Eb, G#, F#, Bb	F#, Bb, A#, C#	(Bb, C#, B#, Gd)	G#, A, Dd, Ed
(1,12,13,X)	(3,4,5,6)	(4,6,7,8)	(6,7,X,X)	(9,11,12,13)	
B#, Dd, F, X	Gd, Eb, G#, F#	Eb, F#, Bb, A	F#, Bb, X, X	A#, C#, Dd, F	

MODE	Core Intervals						
Trumpet	2.5, 3, 4, 5, 5.5						
harmon (half)							
valve wah (C)							
Ed - 1	(1,2,3,4)	(1,2,3,X)	(1,2,5,6)	(1,3,4,5)	(1,3,5,9)	(1,3,6,7)	(1,3,9)
Bd - 2	Ed, Bd, C#, Gd	Ed, Bd, C#, X	Ed, Bd, B#, Dd	Ed, C#, Gd, B#	Ed, C#, B#, A	Ed, C#, Dd, A#	Ed, C#, A
C# - 3							
Gd - 4	(1,2,3,5)	(1,2,4,5)	(1,2,5,X)	(1,3,4,6)	(1,3,5,10)	(1,3,7,8)	(1,3,9,16)
B# - 5	Ed, Bd, C#, B#	Ed, Bd, Gd, B#	Ed, Bd, B#, X	Ed, C#, Gd, Dd	Ed, C#, B#, G#	Ed, C#, A#, E#	Ed, C#, A, Bd
Dd - 6							
A# - 7	(1,2,3,6)	(1,2,4,6)	(1,2,7,11)	(1,3,4,7)	(1,3,5,11)	(1,3,7,9)	(1,3,9,17)
E# - 8	Ed, Bd, C#, Dd	Ed, Bd, Gd, Dd	Ed, Bd, A#, C#	Ed, C#, Gd, A#	Ed, C#, B#, C#	Ed, C#, A#, A	Ed, C#, A, (C#)
A - 9							
G# - 10	(1,2,3,7)	(1,2,4,10)	(1,2,27,28)	(1,3,5,6)	(1,3,5,12)	(1,3,7,10)	(1,3,9,24)
C# - 11	Ed, Bd, C#, A#	Ed, Bd, Gd, G#	Ed, Bd, F#, F	Ed, C#, B#, Dd	Ed, C#, B#, Ad	Ed, C#, A#, G#	Ed, C#, A, G#
Ad - 12							
F# - 13	(1,2,3,10)	(1,2,4,X)	(1,2,X,X)	(1,3,5,7)	(1,3,5,13)	(1,3,7,22)	(1,5,6,X)
F - 14	Ed, Bd, C#, G#	Ed, Bd, Gd, X	Ed, Bd, X, X	Ed, C#, B#, A#	Ed, C#, B#, F#	(Ed, C#, A#, E#)	Ed, B#, Dd, X

(1,5,7,X)	(1,15,16,17)	(3,4,5,7)	(5,6,8,9)	(6,16,18,20)	(10,11,12,13)
Ed, B#, A#, X	Ed, (Ed), Bb, C#	C#, Gd, B#, A#	B#, Dd, E#, A	Dd, Bd, Gd, (Dd)	G#, C#, Ad, F#
(1,5,X,X)	(2,3,4,5)	(3,9,10,11)	(5,6,9,10)	(7,8,9,10)	(11,12,X,X)
Ed, B#, X, X	Bd, C#, Gd, B#	C#, A, G#, C#	B#, Dd, A, G#	A#, E#, A, G#	C#, Ad, X, X
(1,7,8,12)	(2,3,4,6)	(3,10,11,15)	(6,7,8,9)	(7,8,9,17)	(15,19,21,22)
Ed, A#, E#, Ad	Bd, C#, Gd, Dd	C#, G#, C#, Ed	Dd, A#, E#, A	A#, E#, A, C#	Ed, B#, A#, E#
(1,8,10,17)	(2,3,5,6)	(4,5,6,7)	(6,7,9,10)	(7,10,16,18)	(20,23,27,29)
Ed, E#, G#, C#	Bd, C#, B#, Dd	Gd, B#, Dd, A#	Dd, A#, A, G#	A#, G#, Bd, Gd	Dd, A, F#, Ed
(1,12,13,X)	(3,4,5,6)	(4,6,7,8)	(6,7,X,X)	(9,11,12,13)	
Ed, Ad, F#, X	C#, Gd, B#, Dd	Gd, Dd, A#, E#	Dd, A#, X, X	A, C#, Ad, F#	

MODE	Core Intervals						
Bass Clarinet	1.5, 2, 3.5, 4, 4.5, 6						
clarion							
staccato - Eb							
Eb - 1	(1,2,3,4)	(1,2,3,X)	(1,2,5,6)	(1,3,4,5)	(1,3,5,9)	(1,3,6,7)	(1,3,9)
G - 2	Eb, G, A, Bd	Eb, G, A, X	Eb, G, C#, Bb	Eb, A, Bd, C#	Eb, A, C#, F#	Eb, A, Bb, G#	Eb, A, F#
A - 3							
Bd - 4	(1,2,3,5)	(1,2,4,5)	(1,2,5,X)	(1,3,4,6)	(1,3,5,10)	(1,3,7,8)	(1,3,9,16)
C# - 5	Eb, G, A, C#	Eb, G, Bd, C#	Eb, G, C#, X	Eb, A, Bd, Bb	Eb, A, C#, B	Eb, A, G#, C	Eb, A, F#, Ed
Bb - 6							
C# - 7	(1,2,3,6)	(1,2,4,6)	(1,2,7,11)	(1,3,4,7)	(1,3,5,11)	(1,3,7,9)	(1,3,9,17)
G - 8	Eb, G, A, Bb	Eb, G, Bd, Bb	Eb, G, C#, Dd	Eb, A, Bd, G#	Eb, A, C#, Dd	Eb, A, G#, F#	Eb, A, F#, Ab
F# - 9							
B - 10	(1,2,3,7)	(1,2,4,10)	(1,2,27,28)	(1,3,5,6)	(1,3,5,12)	(1,3,7,10)	(1,3,9,24)
Dd - 11	Eb, G, A, G#	Eb, G, Bd, B	Eb, G, B, Dd	Eb, A, C#, Bb	Eb, A, C#, F	Eb, A, G#, B	Eb, A, F#, G#
F - 12							
E - 13	(1,2,3,10)	(1,2,4,X)	(1,2,X,X)	(1,3,5,7)	(1,3,5,13)	(1,3,7,22)	(1,5,6,X)
F# - 14	Eb, G, A, B	Eb, G, Bd, X	Eb, G, X, X	Eb, A, C#, G#	Eb, A, C#, E	(Eb, A, G#, C#)	Eb, C#, Bb, X
D# - 15							
Ed - 16							
Ab - 17							

(1,5,7,X)	(1,15,16,17)	(3,4,5,7)	(5,6,8,9)	(6,16,18,20)	(10,11,12,13)
Eb, C#, G#, X	Eb, D#, Ed, Ab	A, Bd, C#, G#	C#, Bb, C, F#	Bb, Ed, Eb, A	B, Dd, F, E

Appendix 7

(1,5,X,X) Eb, C#, X, X	(2,3,4,5) G, A, Bd, C#	(3,9,10,11) A, F#, B, Dd	(5,6,9,10) C#, Bb, F#, B	(7,8,9,10) G#, C, F#, B,	(11,12,X,X) Dd, F, X, X
(1,7,8,12) Eb, G#, C, F	(2,3,4,6) G, A, Bd, Bb	(3,10,11,15) A, B, Dd, D#	(6,7,8,9) Bb, G#, C, F#	(7,8,9,17) G#, C, F#, Ab	(15,19,21,22) D#, G, Bd, C#
(1,8,10,17) Eb, C, B, Ab	(2,3,5,6) G, A, C#, Bb	(4,5,6,7) Bd, C#, Bb, G#	(6,7,9,10) Bb, G#, F#, B	(7,10,16,18) G#, B, Ed, Eb	(20,23,27,29) A, Bb, B, F
(1,12,13,X) Eb, F, E, X	(3,4,5,6) A, Bd, C#, Bb	(4,6,7,8) Bd, Bb, G#, C	(6,7,X,X) Bb, G#, X, X	(9,11,12,13) F#, Dd, F, E	

MODE	Core Intervals						
Bass Clarinet chalumeau high - mf	[2.5, 3, 3.5, 5.5]						
Ab - 1	(1,2,3,4) Ab, E#, B, Dd	(1,2,3,X) Ab, E#, B, X	(1,2,5,6) Ab, E#, C#, Eb	(1,3,4,5) Ab, B, Dd, C#	(1,3,5,9) Ab, B, C#, F#	(1,3,6,7) Ab, B, Ed, E	(1,3,9) Ab, B, F#
E# - 2	(1,2,3,5) Ab, E#, B, C#	(1,2,4,5) Ab, E#, Dd, C#	(1,2,5,X) Ab, E#, C#, X	(1,3,4,6) Ab, B, Dd, Eb	(1,3,5,10) Ab, B, C#, Bd	(1,3,7,8) Ab, B, E, A#	(1,3,9,16) Ab, B, F#, D
B - 3	(1,2,3,6) Ab, E#, B, Eb	(1,2,4,6) Ab, E#, Dd, Eb	(1,2,7,11) Ab, E#, E, B#	(1,3,4,7) Ab, B, Dd, E	(1,3,5,11) Ab, B, C#, B#	(1,3,7,9) Ab, B, E, F#	(1,3,9,17) Ab, B, F#, Ad
Dd - 4	(1,2,3,7) Ab, E#, B, E	(1,2,4,10) Ab, E#, Dd, Bd	(1,2,27,28) Ab, E#, Bd, B#	(1,3,5,6) Ab, B, C#, Eb	(1,3,5,12) Ab, B, C#, F	(1,3,7,10) Ab, B, E, Bd	(1,3,9,24) (Ab, B, F#, E)
C# - 5	(1,2,3,10) Ab, E#, B, Bd	(1,2,4,X) Ab, E#, Dd, X	(1,2,X,X) Ab, E#, X, X	(1,3,5,7) Ab, B, C#, E	(1,3,5,13) Ab, B, C#, Ed	(1,3,7,22) (Ab, B, E, C#)	(1,5,6,X) Ab, C#, Ed, X
Eb - 6	(1,5,7,X) Ab, C#, E, X	(1,15,16,17) Ab, C#, D, Ad	(3,4,5,7) B, Dd, C#, E	(5,6,8,9) C#, Eb, A#, F#	(6,16,18,20) Eb, D, Ab, B	(10,11,12,13) Bd, B#, F, Ed	
F# - 9	(1,5,X,X) Ab, C#, X, X	(2,3,4,5) E#, B, Dd, C#	(3,9,10,11) B, F#, Bd, B#	(5,6,9,10) C#, Eb, F#, Bd	(7,8,9,10) E, A#, F#, Bd	(11,12,X,X) B#, F, X, X	
Bd - 10	(1,7,8,12) Ab, E, C#, F	(2,3,4,6) E#, B, Dd, Eb	(3,10,11,15) B, Bd, B#, C#	(6,7,8,9) Eb, E, A#, F#	(7,8,9,17) E, A#, F#, Ad	(15,19,21,22) C#, E#, Dd, C#	
B# - 11	(1,8,10,17) Ab, C#, Bd, Ad	(2,3,5,6) E#, B, C#, Eb	(4,5,6,7) Dd, C#, Eb, E	(6,7,9,10) Eb, E, F#, Bd	(7,10,16,18) E, Bd, D, Ab	(20,23,27,29) B, Eb, Bd, F	
F - 12	(1,12,13,X) Ab, F, Ed, X	(3,4,5,6) B, Dd, C#, Eb	(4,6,7,8) Dd, C#, E, A#	(6,7,X,X) Eb, E, X, X	(9,11,12,13) F#, B#, F, Ed		

MODE	Core Intervals						
Bass Clarinet split tone (transposed +2)	[1, 2, 2.5, 3.5, 4.5]						
C - 1	(1,2,3,4) C, A#, D, C#	(1,2,3,X) C, A#, D, X	(1,2,5,6) C, A#, B, E	(1,3,4,5) C, D, C#, B	(1,3,5,9) C, D, B, Gd	(1,3,6,7) C, D, E, B#	(1,3,9) C, D, Gd
A# - 2	(1,2,3,5) C, A#, D, B	(1,2,4,5) C, A#, C#, B	(1,2,5,X) C, A#, B, X	(1,3,4,6) C, D, C#, E	(1,3,5,10) C, D, B, C#	(1,3,7,8) C, D, B#, Ad	(1,3,9,16) C, D, Gd, Bd
D - 3	(1,2,3,6) C, A#, D, E	(1,2,4,6) C, A#, C#, E	(1,2,7,11) C, A#, B#, Ab	(1,3,4,7) C, D, C#, B#	(1,3,5,11) C, D, B, Ab	(1,3,7,9) C, D, B#, Gd	(1,3,9,17) C, D, Gd, F
C# - 4	(1,2,3,7) C, A#, D, B#	(1,2,4,10) C, A#, C#, C#	(1,2,27,28) C, A#, Ad, Gd	(1,3,5,6) C, D, B, E	(1,3,5,12) C, D, B, G	(1,3,7,10) C, D, B#, C#	(1,3,9,24) (C, D, Gd, B)
B - 5	(1,2,3,10) C, A#, D, C#	(1,2,4,X) C, A#, C#, X	(1,2,X,X) C, A#, X, X	(1,3,5,7) C, D, B, B#	(1,3,5,13) C, D, B, A	(1,3,7,22) C, D, B#, (D)	(1,5,6,X) C, B, E, X
E - 6	(1,5,7,X) C, B, B#, X	(1,15,16,17) C, Eb, Bd, F	(3,4,5,7) D, C#, B, B#	(5,6,8,9) B, E, Ad, Gd	(6,16,18,20) E, Bd, F#, C	(10,11,12,13) C#, Ab, G, A	
B# - 7	(1,5,X,X) C, B, X, X	(2,3,4,5) A#, D, C#, B	(3,9,10,11) D, Gd, C#, Ab	(5,6,9,10) B, E, Gd, C#	(7,8,9,10) B#, Ad, Gd, C#	(11,12,X,X) Ab, G, X, X	
Ad - 8	(1,7,8,12) C, B#, Ad, G	(2,3,4,6) A#, D, C#, E	(3,10,11,15) D, C#, Ab, Eb	(6,7,8,9) E, B#, Ad, Gd	(7,8,9,17) B#, Ad, Gd, F	(15,19,21,22) Eb, Bb, A#, D	
Gd - 9	(1,8,10,17) C, Ad, C#, F	(2,3,5,6) A#, D, B, E	(4,5,6,7) C#, B, E, B#	(6,7,9,10) E, B#, Gd, C#	(7,10,16,18) B#, C#, Bd, F#	(20,23,27,29) C, C#, Ad, C#	
C# - 10	(1,12,13,X) C, G, A, X	(3,4,5,6) D, C#, B, E	(4,6,7,8) C#, B, E, Ad	(6,7,X,X) E, B#, X, X	(9,11,12,13) Gd, Ab, G, A		

Sound 1 You 1 – start									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	105.388	0.00258081	100.00%	44.26	0.00	0.00%	0.00%	8.3	
2	205.433	0.00117554	45.55%	55.81	11.56	-2.53%	-0.79%	7.8	
3	310.720	0.000565917	21.93%	62.98	18.72	-1.72%	-0.48%	3.0	
4	409.777	0.00018947	7.34%	67.77	23.51	-2.79%	-0.72%	7.8	
5	515.179	9.29E-005	3.60%	71.73	27.47	-2.23%	-0.54%	11.7	
28	2979.900	6.33E-005	2.45%	102.12	57.86	0.98%	0.17%	6.1	
6	614.133	3.93E-005	1.52%	74.77	30.51	-2.88%	-0.67%	2.8	
27	2885.150	3.58E-005	1.39%	101.56	57.30	1.39%	0.24%	5.6	
20	2153.520	3.31E-005	1.28%	96.49	52.23	2.17%	0.39%	0.5	
7	712.326	3.29E-005	1.27%	77.34	33.08	-3.44%	-0.78%	5.3	
26	2778.730	2.65E-005	1.03%	100.91	56.65	1.41%	0.24%	4.9	
27	2844.390	2.59E-005	1.00%	101.31	57.05	-0.04%	-0.01%	5.3	
25	2649.000	2.04E-005	0.79%	100.08	55.82	0.54%	0.09%	4.1	
20	2057.500	1.93E-005	0.75%	95.70	51.45	-2.38%	-0.43%	11.7	
16	1647.700	1.86E-005	0.72%	91.86	47.60	-2.28%	-0.43%	7.9	
26	2702.100	1.75E-005	0.68%	100.42	56.16	-1.39%	-0.24%	4.4	
23	2390.280	1.69E-005	0.65%	98.30	54.04	-1.39%	-0.25%	2.3	
22	2357.740	1.64E-005	0.63%	98.06	53.80	1.69%	0.30%	2.1	
24	2495.730	1.55E-005	0.60%	99.05	54.79	-1.33%	-0.23%	3.0	
8	828.586	1.46E-005	0.57%	79.96	35.70	-1.72%	-0.37%	8.0	
21	2258.210	1.44E-005	0.56%	97.32	53.06	2.04%	0.36%	1.3	
11	1131.190	1.46E-005	0.56%	85.35	41.09	-2.42%	-0.49%	1.3	
18	1915.470	1.39E-005	0.54%	94.47	50.21	0.97%	0.18%	10.5	
18	1852.780	1.37E-005	0.53%	93.89	49.63	-2.33%	-0.43%	9.9	
21	2230.240	1.31E-005	0.51%	97.10	52.84	0.77%	0.14%	1.1	
24	2574.250	1.29E-005	0.50%	99.58	55.52	1.78%	0.31%	3.6	
22	2303.450	1.19E-005	0.46%	97.66	53.40	-0.65%	-0.12%	1.7	
23	2431.320	1.15E-005	0.45%	98.59	54.34	0.31%	0.05%	2.6	
19	2013.120	1.13E-005	0.44%	95.33	51.07	0.54%	0.10%	11.3	
10	1088.240	1.04E-005	0.40%	84.68	40.42	3.26%	0.66%	0.7	
12	1228.280	1.03E-005	0.40%	86.77	42.51	-2.88%	-0.58%	2.8	
9	923.573	1.01E-005	0.39%	81.84	37.58	-2.63%	-0.56%	9.8	
14	1496.630	9.58E-006	0.37%	90.19	45.94	1.44%	0.27%	6.2	
15	1539.930	9.57E-006	0.37%	90.69	46.43	-2.59%	-0.50%	6.7	
16	1710.280	9.20E-006	0.36%	92.50	48.25	1.43%	0.27%	8.5	

Sound 2 You 1 – middle									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	116.390	0.00494779	100.00%	45.98	0.00	0.00%	0.00%	10.0	
2	227.335	0.00322265	65.13%	57.57	11.59	-2.34%	-0.71%	9.6	
3	343.401	0.0010028	20.27%	64.71	18.73	-1.65%	-0.44%	4.7	
4	453.750	0.000137017	2.77%	69.53	23.56	-2.54%	-0.64%	9.5	
5	560.520	3.65E-005	0.74%	73.19	27.21	-3.68%	-0.88%	1.2	
6	677.847	6.80E-005	1.37%	76.48	30.50	-2.93%	-0.67%	4.5	
7	775.678	2.46E-005	0.50%	78.82	32.84	-4.79%	-1.07%	6.8	
7	848.468	1.96E-005	0.40%	80.37	34.39	4.14%	0.88%	8.4	
8	904.457	3.73E-005	0.75%	81.47	35.50	-2.86%	-0.61%	9.5	
8	949.780	2.14E-005	0.43%	82.32	36.34	2.00%	0.42%	10.3	
9	1012.690	2.59E-005	0.52%	83.43	37.45	-3.32%	-0.70%	11.4	
10	1121.320	1.96E-005	0.40%	85.20	39.22	-3.66%	-0.75%	1.2	
13	1475.680	3.14E-005	0.63%	89.95	43.97	-2.47%	-0.48%	5.9	
13	1530.290	2.07E-005	0.42%	90.58	44.60	1.14%	0.22%	6.6	
14	1593.310	3.53E-005	0.71%	91.28	45.30	-2.22%	-0.42%	7.3	
14	1644.970	2.40E-005	0.49%	91.83	45.85	0.95%	0.18%	7.8	
15	1702.340	3.57E-005	0.72%	92.42	46.45	-2.49%	-0.47%	8.4	
15	1755.800	3.73E-005	0.75%	92.96	46.98	0.57%	0.11%	9.0	
15	1788.070	2.75E-005	0.55%	93.27	47.30	2.42%	0.45%	9.3	
16	1865.150	5.47E-005	1.11%	94.00	48.03	0.16%	0.03%	10.0	
16	1903.940	8.32E-005	1.68%	94.36	48.38	2.24%	0.41%	10.4	
17	1949.130	0.000106876	2.16%	94.77	48.79	-1.49%	-0.27%	10.8	
17	2013.970	1.87E-004	3.77%	95.33	49.36	1.79%	0.32%	11.3	
18	2057.360	0.000200298	4.05%	95.70	49.73	-1.80%	-0.33%	11.7	
18	2130.310	0.000213567	4.32%	96.31	50.33	1.68%	0.30%	0.3	
19	2175.560	0.000100988	2.04%	96.67	50.69	-1.62%	-0.29%	0.7	
19	2249.500	5.00E-005	1.01%	97.25	51.27	1.72%	0.30%	1.2	
20	2315.370	9.22E-005	1.86%	97.75	51.77	-0.53%	-0.09%	1.7	
20	2357.330	6.86E-005	1.39%	98.06	52.08	1.27%	0.22%	2.1	
21	2423.470	1.45E-004	2.92%	98.54	52.56	-0.85%	-0.15%	2.5	
22	2539.740	0.000286883	5.80%	99.35	53.37	-0.81%	-0.14%	3.3	
23	2647.950	0.000291636	5.89%	100.07	54.09	-1.08%	-0.19%	4.1	
24	2766.900	0.000292778	5.92%	100.83	54.85	-0.95%	-0.16%	4.8	
25	2882.890	0.000178906	3.62%	101.54	55.57	-0.92%	-0.16%	5.5	
26	2992.120	0.000197573	3.99%	102.19	56.21	-1.12%	-0.19%	6.2	

Sound 3 You 1 – end									
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class	
1	138.525	0.00500262	100.00%	48.99	0.00	0.00%	0.00%	1.0	
2	270.445	0.00510182	101.98%	60.57	11.58	-2.38%	-0.68%	0.6	
3	409.333	0.000556615	11.13%	67.75	18.76	-1.50%	-0.39%	7.7	
4	528.644	4.25E-005	0.85%	72.18	23.19	-4.59%	-1.12%	0.2	
5	689.426	0.000111396	2.23%	76.77	27.78	-0.46%	-0.10%	4.8	
6	796.736	5.08E-005	1.01%	79.28	30.29	-4.14%	-0.91%	7.3	
7	970.030	3.75E-005	0.75%	82.69	33.69	0.04%	0.01%	10.7	
8	1119.730	3.36E-005	0.67%	85.17	36.18	1.04%	0.21%	1.2	
9	1259.630	3.29E-005	0.66%	87.21	38.22	1.04%	0.20%	3.2	
10	1399.540	4.53E-005	0.91%	89.03	40.04	1.03%	0.20%	5.0	

Appendix 8

11	1530.020	6.66E-005	1.33%	90.58	41.58	0.41%	0.08%	6.6
11	1582.670	4.91E-005	0.98%	91.16	42.17	3.87%	0.73%	7.2
12	1692.060	0.000127525	2.55%	92.32	43.33	1.79%	0.33%	8.3
12	1720.580	0.000111856	2.24%	92.61	43.62	3.51%	0.65%	8.6
13	1828.480	0.000447792	8.95%	93.66	44.67	1.54%	0.28%	9.7
14	1926.950	0.000990707	19.80%	94.57	45.58	-0.64%	-0.12%	10.6
14	1960.900	0.000986798	19.73%	94.87	45.88	1.11%	0.20%	10.9
15	2068.400	0.000568539	11.36%	95.80	46.80	-0.46%	-0.08%	11.8
15	2100.150	0.000587603	11.75%	96.06	47.07	1.07%	0.19%	0.1
15	2131.900	0.000441724	8.83%	96.32	47.33	2.60%	0.46%	0.3
16	2196.690	0.000311245	6.22%	96.84	47.85	-0.89%	-0.16%	0.8
16	2238.430	0.00025489	5.10%	97.16	48.17	0.99%	0.18%	1.2
17	2335.600	0.000108827	2.18%	97.90	48.91	-0.82%	-0.15%	1.9
17	2378.640	9.34E-005	1.87%	98.21	49.22	1.01%	0.18%	2.2
17	2413.010	6.92E-005	1.38%	98.46	49.47	2.47%	0.43%	2.5
18	2474.290	6.13E-005	1.22%	98.90	49.91	-0.77%	-0.13%	2.9
18	2510.020	8.36E-005	1.67%	99.15	50.15	0.66%	0.12%	3.1
18	2551.290	4.57E-005	0.91%	99.43	50.44	2.32%	0.40%	3.4
19	2605.110	5.38E-005	1.08%	99.79	50.80	-1.02%	-0.18%	3.8
19	2648.770	6.74E-005	1.35%	100.08	51.09	0.64%	0.11%	4.1
19	2690.150	6.18E-005	1.24%	100.35	51.35	2.21%	0.38%	4.3
20	2735.350	5.58E-005	1.12%	100.63	51.64	-1.27%	-0.22%	4.6
20	2788.130	0.000102691	2.05%	100.96	51.97	0.64%	0.11%	5.0
20	2824.230	9.59E-005	1.92%	101.19	52.20	1.94%	0.33%	5.2
21	2872.870	8.57E-005	1.71%	101.48	52.49	-1.24%	-0.21%	5.5

Sound 4 *Can - start*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	98.905	1.39E-004	100.00%	43.16	0.00	0.00%	0.00%	7.2
2	172.858	5.37E-005	38.71%	52.83	9.67	-12.61%	-4.23%	4.8
3	311.187	8.99E-005	64.73%	63.00	19.84	4.88%	1.33%	3.0
4	386.674	0.000238979	172.14%	66.76	23.60	-2.26%	-0.59%	6.8
5	452.973	2.99E-004	215.23%	69.50	26.34	-8.40%	-2.14%	9.5
5	537.011	8.97E-005	64.63%	72.45	29.29	8.59%	2.01%	0.4
6	603.381	9.91E-005	71.35%	74.47	31.31	1.68%	0.39%	2.5
7	666.782	5.98E-005	43.05%	76.20	33.04	-3.69%	-0.85%	4.2
7	703.083	4.66E-005	33.55%	77.11	33.96	1.55%	0.35%	5.1
7	740.922	6.52E-005	46.93%	78.02	34.86	7.02%	1.53%	6.0
8	786.627	0.000107115	77.16%	79.06	35.90	-0.58%	-0.13%	7.1
9	851.791	6.75E-005	48.61%	80.44	37.28	-4.31%	-0.94%	8.4
9	915.339	6.53E-005	47.05%	81.68	38.52	2.83%	0.60%	9.7
10	980.220	5.06E-005	36.48%	82.87	39.71	-0.89%	-0.19%	10.9
10	1022.530	6.90E-005	49.70%	83.60	40.44	3.39%	0.69%	11.6
11	1089.270	4.40E-005	31.72%	84.69	41.53	0.12%	0.02%	0.7
12	1163.340	4.34E-005	31.28%	85.83	42.67	-1.98%	-0.40%	1.8
12	1213.880	2.49E-005	17.92%	86.57	43.41	2.28%	0.45%	2.6
13	1259.520	2.80E-005	20.15%	87.21	44.05	-2.04%	-0.41%	3.2
13	1333.220	5.65E-005	40.73%	88.19	45.03	3.69%	0.72%	4.2
14	1409.280	5.36E-005	38.58%	89.15	45.99	1.78%	0.34%	5.2
15	1466.440	6.46E-005	46.54%	89.84	46.68	-1.15%	-0.22%	5.8
16	1551.140	0.000124133	89.42%	90.81	47.65	-1.98%	-0.38%	6.8
16	1593.660	9.17E-005	66.03%	91.28	48.12	0.71%	0.13%	7.3
17	1647.940	1.25E-004	90.31%	91.86	48.70	-1.99%	-0.38%	7.9
18	1741.970	0.000165674	119.34%	92.82	49.66	-2.15%	-0.40%	8.8
18	1787.400	0.000134097	96.59%	93.27	50.11	0.40%	0.07%	9.3
19	1851.090	0.000205122	147.75%	93.87	50.71	-1.50%	-0.28%	9.9
20	1970.300	0.000166165	119.69%	94.95	51.79	-0.39%	-0.07%	11.0
22	2142.720	0.000105322	75.87%	96.41	53.25	-1.52%	-0.28%	0.4
22	2195.560	9.20E-005	66.26%	96.83	53.67	0.90%	0.16%	0.8
23	2283.040	0.000118898	85.65%	97.50	54.35	0.36%	0.06%	1.5
24	2399.760	4.76E-005	34.26%	98.37	55.21	1.10%	0.19%	2.4
26	2530.490	1.03E-004	74.09%	99.29	56.13	-1.60%	-0.28%	3.3
26	2572.310	7.64E-005	55.06%	99.57	56.41	0.03%	0.01%	3.6

Sound 5 *Can - middle*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	105.381	4.44E-003	100.00%	44.26	0.00	0.00%	0.00%	8.3
2	204.529	1.92E-003	43.26%	55.74	11.48	-2.96%	-0.92%	7.7
3	302.749	1.73E-003	38.98%	62.53	18.27	-4.24%	-1.18%	2.5
4	409.766	0.00174324	39.28%	67.77	23.51	-2.79%	-0.72%	7.8
5	516.528	0.00142487	32.11%	71.78	27.52	-1.97%	-0.48%	11.8
6	623.730	0.000712407	16.05%	75.04	30.78	-1.35%	-0.31%	3.0
7	721.895	0.000401997	9.06%	77.57	33.31	-2.14%	-0.48%	5.6
8	828.941	0.000529689	11.94%	79.97	35.71	-1.67%	-0.36%	8.0
9	936.607	0.000277036	6.24%	82.08	37.82	-1.25%	-0.26%	10.1
10	1023.340	3.46E-004	7.79%	83.61	39.36	-2.89%	-0.60%	11.6
11	1130.540	3.21E-004	7.24%	85.34	41.08	-2.47%	-0.51%	1.3
12	1227.440	0.000166996	3.76%	86.76	42.50	-2.94%	-0.59%	2.8
13	1345.710	1.81E-004	4.07%	88.35	44.10	-1.77%	-0.35%	4.4
14	1443.170	0.000395706	8.92%	89.56	45.31	-2.18%	-0.42%	5.6
14	1484.700	0.000382567	8.62%	90.06	45.80	0.63%	0.12%	6.1
15	1549.440	0.000588582	13.26%	90.79	46.54	-1.98%	-0.38%	6.8
16	1657.220	2.75E-004	6.21%	91.96	47.70	-1.71%	-0.32%	8.0
16	1723.770	0.00021971	4.95%	92.64	48.38	2.23%	0.41%	8.6
17	1755.300	0.00021629	4.87%	92.95	48.70	-2.02%	-0.38%	9.0
17	1829.780	1.70E-004	3.82%	93.67	49.42	2.14%	0.39%	9.7
18	1862.720	0.00018845	4.25%	93.98	49.72	-1.80%	-0.33%	10.0
18	1936.890	0.000135671	3.06%	94.66	50.40	2.11%	0.38%	10.7

Appendix 8

19	1970.550	0.000137984	3.11%	94.96	50.70	-1.58%	-0.29%	11.0
19	2002.730	0.000139475	3.14%	95.24	50.98	0.02%	0.00%	11.2
19	2036.160	0.000149328	3.37%	95.52	51.27	1.69%	0.31%	11.5
20	2077.000	0.0001851	4.17%	95.87	51.61	-1.45%	-0.26%	11.9
20	2141.670	0.000133131	3.00%	96.40	52.14	1.62%	0.29%	0.4
21	2175.420	0.000148184	3.34%	96.67	52.41	-1.70%	-0.31%	0.7
21	2248.270	0.000119266	2.69%	97.24	52.98	1.59%	0.28%	1.2
22	2303.810	0.00015133	3.41%	97.66	53.40	-0.63%	-0.11%	1.7
22	2347.830	0.000211881	4.77%	97.99	53.73	1.27%	0.22%	2.0
23	2380.900	0.000184814	4.16%	98.23	53.97	-1.77%	-0.31%	2.2
23	2410.090	1.75E-004	3.94%	98.44	54.18	-0.56%	-0.10%	2.4
23	2454.840	0.000190864	4.30%	98.76	54.50	1.28%	0.22%	2.8
24	2509.780	0.000155743	3.51%	99.14	54.89	-0.77%	-0.13%	3.1

Sound 6 *Can – end*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	97.730	0.00318013	100.00%	42.95	0.00	0.00%	0.00%	7.0
2	195.231	0.00169314	53.24%	54.93	11.98	-0.12%	-0.04%	6.9
3	292.522	0.00184338	57.97%	61.93	18.98	-0.23%	-0.06%	1.9
4	388.791	0.000435181	13.68%	66.86	23.91	-0.54%	-0.14%	6.9
5	493.892	0.000184608	5.81%	71.00	28.05	1.07%	0.26%	11.0
6	591.611	7.12E-005	2.24%	74.13	31.17	0.89%	0.21%	2.1
7	688.786	9.19E-005	2.89%	76.76	33.81	0.68%	0.15%	4.8
8	785.596	6.59E-005	2.07%	79.04	36.08	0.48%	0.11%	7.0
9	882.747	8.55E-005	2.69%	81.05	38.10	0.36%	0.08%	9.1
10	979.231	6.72E-005	2.11%	82.85	39.90	0.20%	0.04%	10.8
11	1086.960	0.000115634	3.64%	84.66	41.70	1.11%	0.23%	0.7
12	1173.160	0.000185009	5.82%	85.98	43.03	0.03%	0.01%	2.0
13	1258.830	4.85E-005	1.53%	87.20	44.25	-0.92%	-0.18%	3.2
14	1399.450	2.15E-005	0.68%	89.03	46.08	2.28%	0.44%	5.0
15	1454.060	4.55E-005	1.43%	89.69	46.74	-0.81%	-0.16%	5.7
16	1582.600	3.92E-005	1.23%	91.16	48.21	1.21%	0.23%	7.2
17	1657.640	2.72E-005	0.86%	91.96	49.01	-0.23%	-0.04%	8.0
17	1690.590	2.74E-005	0.86%	92.30	49.35	1.76%	0.33%	8.3
18	1753.710	3.76E-005	1.18%	92.94	49.99	-0.31%	-0.06%	8.9
19	1852.220	3.69E-005	1.16%	93.88	50.93	-0.25%	-0.05%	9.9
19	1884.420	3.68E-005	1.16%	94.18	51.23	1.48%	0.27%	10.2
20	1949.130	3.74E-005	1.18%	94.77	51.81	-0.28%	-0.05%	10.8
21	2055.720	6.59E-005	2.07%	95.69	52.74	0.17%	0.03%	11.7
21	2087.840	6.14E-005	1.93%	95.96	53.00	1.73%	0.31%	12.0
22	2119.230	3.96E-005	1.24%	96.22	53.26	-1.43%	-0.26%	0.2
22	2185.080	4.23E-005	1.33%	96.75	53.79	1.63%	0.29%	0.7
23	2216.550	2.77E-005	0.87%	96.99	54.04	-1.39%	-0.25%	1.0
23	2250.440	3.06E-005	0.96%	97.26	54.30	0.12%	0.02%	1.3
23	2281.930	2.85E-005	0.90%	97.50	54.54	1.52%	0.27%	1.5
24	2313.760	3.08E-005	0.97%	97.74	54.78	-1.35%	-0.24%	1.7
24	2357.190	4.24E-005	1.33%	98.06	55.11	0.50%	0.09%	2.1
25	2454.550	4.04E-005	1.27%	98.76	55.81	0.46%	0.08%	2.8
26	2509.270	4.33E-005	1.36%	99.14	56.19	-1.25%	-0.22%	3.1
26	2562.870	6.09E-005	1.91%	99.51	56.55	0.86%	0.15%	3.5
27	2659.260	5.17E-005	1.62%	100.15	57.19	0.78%	0.13%	4.1

Sound 7 *Run – start*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	97.513	2.73E-003	100.00%	42.91	0.00	0.00%	0.00%	6.9
2	196.229	0.00175323	64.22%	55.02	12.11	0.62%	0.19%	7.0
3	299.162	0.00167897	61.50%	62.32	19.41	2.26%	0.63%	2.3
4	389.059	0.00036278	13.29%	66.87	23.96	-0.25%	-0.07%	6.9
5	494.072	0.000156537	5.73%	71.01	28.09	1.34%	0.32%	11.0
6	590.962	9.43E-005	3.45%	74.11	31.19	1.01%	0.23%	2.1
7	688.873	0.000236705	8.67%	76.76	33.85	0.92%	0.21%	4.8
8	787.832	0.000305923	11.21%	79.08	36.17	0.99%	0.22%	7.1
9	906.423	0.000178583	6.54%	81.51	38.60	3.28%	0.69%	9.5
10	989.847	6.32E-005	2.31%	83.04	40.12	1.51%	0.31%	11.0
11	1044.390	4.30E-005	1.58%	83.97	41.05	-2.63%	-0.55%	12.0
11	1088.230	1.93E-005	0.71%	84.68	41.76	1.45%	0.30%	0.7
12	1174.650	4.50E-005	1.65%	86.00	43.09	0.38%	0.08%	2.0
13	1269.840	1.14E-005	0.42%	87.35	44.43	0.17%	0.03%	3.3
13	1311.570	2.50E-005	0.92%	87.91	44.99	3.46%	0.68%	3.9
14	1377.770	2.53E-005	0.93%	88.76	45.85	0.92%	0.18%	4.8
15	1485.570	1.54E-005	0.57%	90.07	47.15	1.56%	0.30%	6.1
16	1549.420	1.31E-005	0.48%	90.79	47.88	-0.69%	-0.13%	6.8
16	1593.350	1.33E-005	0.49%	91.28	48.36	2.12%	0.40%	7.3
17	1668.980	1.79E-005	0.66%	92.08	49.17	0.68%	0.13%	8.1
17	1699.370	1.56E-005	0.57%	92.39	49.48	2.51%	0.47%	8.4
18	1765.510	1.84E-005	0.68%	93.05	50.14	0.59%	0.11%	9.1

Sound 8 *Run – middle*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	97.042	0.00355363	100.00%	42.83	0.00	0.00%	0.00%	6.8
2	194.471	0.00219792	61.85%	54.86	12.03	0.20%	0.06%	6.9
3	291.946	0.00107872	30.36%	61.90	19.07	0.28%	0.08%	1.9
4	388.616	0.00133256	37.50%	66.85	24.02	0.12%	0.03%	6.9
5	494.561	0.00163476	46.00%	71.02	28.19	1.93%	0.47%	11.0
6	591.776	0.00326277	91.82%	74.13	31.30	1.64%	0.38%	2.1
7	688.473	0.00274311	77.19%	76.75	33.92	1.35%	0.30%	4.8

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8	785.374	0.00143045	40.25%	79.03	36.20	1.16%	0.25%	7.0
9	881.949	0.00114016	32.08%	81.04	38.21	0.98%	0.21%	9.0
10	969.223	0.00124424	35.01%	82.67	39.84	-0.12%	-0.03%	10.7
11	1077.130	0.00147664	41.55%	84.50	41.67	0.91%	0.19%	0.5
12	1161.440	0.00147023	41.37%	85.80	42.97	-0.26%	-0.05%	1.8
13	1270.450	0.000293477	8.26%	87.36	44.53	0.71%	0.14%	3.4
14	1356.520	0.000192	5.40%	88.49	45.66	-0.15%	-0.03%	4.5
15	1407.700	0.000104232	2.93%	89.13	46.30	-3.29%	-0.65%	5.1
15	1463.640	0.000143344	4.03%	89.81	46.98	0.55%	0.11%	5.8
16	1550.960	0.000116272	3.27%	90.81	47.98	-0.11%	-0.02%	6.8
17	1657.520	8.01E-005	2.25%	91.96	49.13	0.47%	0.09%	8.0
18	1722.910	7.49E-005	2.11%	92.63	49.80	-1.37%	-0.26%	8.6
18	1754.470	7.57E-005	2.13%	92.95	50.12	0.44%	0.08%	8.9
19	1820.740	5.56E-005	1.56%	93.59	50.76	-1.25%	-0.23%	9.6
19	1852.930	6.30E-005	1.77%	93.89	51.06	0.50%	0.09%	9.9
20	1949.680	8.20E-005	2.31%	94.77	51.94	0.46%	0.08%	10.8
21	2015.480	6.74E-005	1.90%	95.35	52.52	-1.10%	-0.20%	11.3
21	2054.340	7.57E-005	2.13%	95.68	52.85	0.81%	0.15%	11.7
22	2111.370	7.12E-005	2.00%	96.15	53.32	-1.10%	-0.20%	0.2
23	2208.600	6.04E-005	1.70%	96.93	54.10	-1.05%	-0.19%	0.9
23	2248.810	6.83E-005	1.92%	97.24	54.41	0.75%	0.13%	1.2
24	2313.730	0.000105003	2.95%	97.74	54.91	-0.66%	-0.12%	1.7
24	2346.170	0.000102292	2.88%	97.98	55.15	0.74%	0.13%	2.0
25	2409.550	0.000125134	3.52%	98.44	55.61	-0.68%	-0.12%	2.4
25	2444.390	0.00012724	3.58%	98.69	55.86	0.76%	0.13%	2.7
26	2508.180	0.000215305	6.06%	99.13	56.30	-0.59%	-0.10%	3.1
26	2563.560	0.000128007	3.60%	99.51	56.68	1.60%	0.28%	3.5
27	2606.850	0.000236364	6.65%	99.80	56.97	-0.51%	-0.09%	3.8

Sound 9 Run – end

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	86.150	0.00250463	100.00%	40.77	0.00	0.00%	0.00%	4.8
2	172.006	1.40E-003	55.77%	52.74	11.97	-0.17%	-0.06%	4.7
3	256.795	0.000916049	36.57%	59.68	18.91	-0.64%	-0.19%	11.7
4	334.936	0.000792158	31.63%	64.28	23.51	-2.80%	-0.76%	4.3
5	419.520	0.000566628	22.62%	68.17	27.41	-2.61%	-0.67%	8.2
6	506.490	0.000637533	25.45%	71.44	30.67	-2.01%	-0.49%	11.4
7	603.339	0.000588271	23.49%	74.47	33.70	0.05%	0.01%	2.5
8	699.000	0.000293262	11.71%	77.01	36.24	1.42%	0.32%	5.0
9	784.838	0.000166291	6.64%	79.02	38.25	1.22%	0.27%	7.0
10	871.393	0.000195404	7.80%	80.83	40.06	1.15%	0.25%	8.8
11	958.277	0.000124209	4.96%	82.48	41.71	1.12%	0.23%	10.5
12	1043.820	0.000163276	6.52%	83.96	43.19	0.97%	0.20%	12.0
13	1120.920	0.000120266	4.80%	85.19	44.42	0.09%	0.02%	1.2
14	1228.010	8.82E-005	3.52%	86.77	46.00	1.82%	0.36%	2.8
15	1302.290	9.85E-005	3.93%	87.79	47.02	0.78%	0.15%	3.8
16	1336.380	0.000108206	4.32%	88.23	47.46	-3.05%	-0.60%	4.2
16	1399.730	0.000210104	8.39%	89.03	48.27	1.55%	0.30%	5.0
17	1465.360	0.000118533	4.73%	89.83	49.06	0.06%	0.01%	5.8
18	1560.400	7.53E-005	3.01%	90.92	50.15	0.63%	0.12%	6.9
19	1658.200	2.74E-005	1.10%	91.97	51.20	1.30%	0.24%	8.0
20	1723.950	4.46E-005	1.78%	92.64	51.87	0.06%	0.01%	8.6
21	1818.740	1.69E-005	0.68%	93.57	52.80	0.53%	0.10%	9.6
22	1896.370	3.41E-005	1.36%	94.29	53.52	0.06%	0.01%	10.3
23	1981.700	2.22E-005	0.89%	95.05	54.28	0.01%	0.00%	11.1
24	2068.610	3.49E-005	1.39%	95.80	55.03	0.05%	0.01%	11.8
25	2142.050	2.21E-005	0.88%	96.40	55.63	-0.54%	-0.10%	0.4
26	2238.480	1.64E-005	0.65%	97.16	56.39	-0.06%	-0.01%	1.2
27	2326.560	1.71E-005	0.68%	97.83	57.06	0.02%	0.00%	1.8
27	2358.740	1.86E-005	0.74%	98.07	57.30	1.41%	0.25%	2.1
28	2411.870	2.54E-005	1.01%	98.45	57.69	-0.01%	0.00%	2.5
29	2486.520	1.40E-005	0.56%	98.98	58.21	-0.47%	-0.08%	3.0
29	2532.530	1.25E-005	0.50%	99.30	58.53	1.37%	0.24%	3.3
30	2583.360	2.90E-005	1.16%	99.64	58.88	-0.04%	-0.01%	3.6
31	2649.210	1.76E-005	0.70%	100.08	59.31	-0.80%	-0.14%	4.1
32	2733.430	2.19E-005	0.88%	100.62	59.85	-0.85%	-0.15%	4.6

Sound 10 But – start

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	21.509	0.00153419	100.00%	16.75	0.00	0.00%	0.00%	4.7
5	98.216	0.00253988	165.55%	43.04	26.29	-8.68%	-3.52%	7.0
10	205.227	0.00155979	101.67%	55.80	39.05	-4.59%	-1.44%	7.8
15	322.536	0.00112048	73.03%	63.62	46.88	-0.03%	-0.01%	3.6
22	462.916	0.00192395	125.40%	69.88	53.13	-2.17%	-0.54%	9.9
24	517.181	0.00151587	98.81%	71.80	55.05	0.19%	0.04%	11.8
27	591.404	0.000880799	57.41%	74.12	57.37	1.84%	0.43%	2.1
33	720.399	0.000434158	28.30%	77.54	60.79	1.49%	0.33%	5.5
38	817.928	0.000438179	28.56%	79.73	62.99	0.07%	0.02%	7.7
40	851.734	0.000357704	23.32%	80.43	63.69	-1.00%	-0.22%	8.4
43	915.273	0.000615953	40.15%	81.68	64.93	-1.04%	-0.22%	9.7
45	958.000	0.000742898	48.42%	82.47	65.72	-1.02%	-0.22%	10.5
47	1012.170	0.00104396	68.05%	83.42	66.68	0.12%	0.03%	11.4
52	1109.070	0.000240342	15.67%	85.01	68.26	-0.84%	-0.17%	1.0
54	1152.400	0.000200912	13.10%	85.67	68.92	-0.78%	-0.16%	1.7
57	1215.410	0.000139625	9.10%	86.59	69.84	-0.87%	-0.17%	2.6
59	1270.080	8.22E-005	5.36%	87.35	70.61	0.08%	0.02%	3.4
61	1313.150	7.61E-005	4.96%	87.93	71.18	0.08%	0.02%	3.9
64	1367.560	7.09E-005	4.62%	88.63	71.89	-0.66%	-0.13%	4.6

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66	1409.610	5.33E-005	3.47%	89.16	72.41	-0.70%	-0.14%	5.2
68	1464.460	6.49E-005	4.23%	89.82	73.07	0.13%	0.02%	5.8
70	1505.900	3.03E-005	1.98%	90.30	73.55	0.02%	0.00%	6.3
73	1561.340	4.67E-005	3.04%	90.93	74.18	-0.56%	-0.11%	6.9
74	1601.450	2.48E-005	1.62%	91.37	74.62	0.61%	0.12%	7.4
77	1658.180	4.68E-005	3.05%	91.97	75.22	0.12%	0.02%	8.0
82	1754.670	4.23E-005	2.76%	92.95	76.20	-0.51%	-0.10%	8.9
86	1851.570	3.80E-005	2.48%	93.88	77.13	0.10%	0.02%	9.9
91	1948.570	3.11E-005	2.03%	94.76	78.02	-0.45%	-0.08%	10.8
92	1981.470	2.72E-005	1.77%	95.05	78.31	0.13%	0.02%	11.1
97	2078.440	3.23E-005	2.11%	95.88	79.13	-0.38%	-0.07%	11.9
101	2174.830	3.48E-005	2.27%	96.66	79.92	0.11%	0.02%	0.7
106	2271.750	4.38E-005	2.86%	97.42	80.67	-0.36%	-0.06%	1.4
110	2368.470	5.97E-005	3.89%	98.14	81.39	0.10%	0.02%	2.1
115	2466.370	9.51E-005	6.20%	98.84	82.10	-0.29%	-0.05%	2.8
120	2573.430	0.000178832	11.66%	99.58	82.83	-0.30%	-0.05%	3.6

Sound 11 *But – middle*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	87.084	0.00230012	100.00%	40.96	0.00	0.00%	0.00%	5.0
2	173.891	0.00153401	66.69%	52.93	11.97	-0.16%	-0.05%	4.9
3	260.618	0.00071957	31.28%	59.93	18.98	-0.24%	-0.07%	11.9
4	353.573	0.00102019	44.35%	65.21	24.26	1.50%	0.40%	5.2
5	440.018	0.000943016	41.00%	69.00	28.04	1.06%	0.26%	9.0
6	528.071	0.00267993	116.51%	72.16	31.20	1.07%	0.25%	0.2
7	614.641	0.00327207	142.26%	74.79	33.83	0.83%	0.19%	2.8
8	700.835	0.00155416	67.57%	77.06	36.10	0.60%	0.13%	5.1
9	787.414	0.00121391	52.78%	79.08	38.12	0.47%	0.10%	7.1
10	873.988	0.00123476	53.68%	80.88	39.93	0.36%	0.08%	8.9
11	968.518	0.00208777	90.77%	82.66	41.70	1.11%	0.23%	10.7
12	1055.050	0.00240145	104.41%	84.14	43.19	0.96%	0.20%	0.1
13	1140.960	0.000509992	22.17%	85.50	44.54	0.78%	0.16%	1.5
14	1227.110	0.000256227	11.14%	86.76	45.80	0.65%	0.13%	2.8
15	1313.880	0.000153248	6.66%	87.94	46.98	0.58%	0.11%	3.9
16	1400.340	0.00010042	4.37%	89.04	48.09	0.50%	0.10%	5.0
17	1486.700	8.58E-005	3.73%	90.08	49.12	0.42%	0.08%	6.1
18	1573.220	6.57E-005	2.85%	91.06	50.10	0.36%	0.07%	7.1
19	1658.820	4.62E-005	2.01%	91.97	51.02	0.25%	0.05%	8.0
20	1754.070	4.58E-005	1.99%	92.94	51.99	0.71%	0.13%	8.9
21	1840.510	4.09E-005	1.78%	93.77	52.82	0.64%	0.12%	9.8
22	1926.750	4.32E-005	1.88%	94.57	53.61	0.57%	0.10%	10.6
23	2013.060	3.83E-005	1.66%	95.33	54.37	0.51%	0.09%	11.3
24	2099.340	4.26E-005	1.85%	96.05	55.10	0.45%	0.08%	0.1
25	2186.060	4.56E-005	1.98%	96.75	55.80	0.41%	0.07%	0.8
26	2272.430	5.04E-005	2.19%	97.42	56.47	0.36%	0.06%	1.4
27	2359.220	5.97E-005	2.60%	98.07	57.12	0.34%	0.06%	2.1
28	2452.870	8.53E-005	3.71%	98.75	57.79	0.60%	0.10%	2.7
29	2539.610	0.00013172	5.73%	99.35	58.39	0.56%	0.10%	3.3
30	2626.150	0.000213185	9.27%	99.93	58.97	0.52%	0.09%	3.9
31	2713.340	0.000289782	12.60%	100.49	59.54	0.51%	0.09%	4.5
32	2808.850	0.000215336	9.36%	101.09	60.14	0.79%	0.14%	5.1
33	2895.650	0.000292377	12.71%	101.62	60.66	0.76%	0.13%	5.6
34	2948.790	0.000173034	7.52%	101.93	60.66	-0.41%	-0.07%	5.9
34	2981.400	0.000217572	9.46%	102.12	61.17	0.69%	0.12%	6.1

Sound 12 *But – end*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	85.936	0.000539545	100.00%	40.73	0.00	0.00%	0.00%	4.7
2	182.493	0.000485343	89.95%	53.76	13.04	6.18%	1.97%	5.8
3	257.441	0.000265392	49.19%	59.72	18.99	-0.14%	-0.04%	11.7
4	354.662	0.000208682	38.68%	65.27	24.54	3.18%	0.84%	5.3
5	430.338	0.000239425	44.38%	68.62	27.89	0.15%	0.04%	8.6
6	538.304	0.000552207	102.35%	72.49	31.76	4.40%	1.04%	0.5
7	580.143	0.000802156	148.67%	73.79	33.06	-3.56%	-0.84%	1.8
7	613.595	0.000794186	147.20%	74.76	34.03	2.00%	0.46%	2.8
9	751.699	0.000250491	46.43%	78.27	37.55	-2.81%	-0.63%	6.3
9	796.222	0.000179458	33.26%	79.27	38.54	2.95%	0.64%	7.3
10	850.468	0.00014599	27.06%	80.41	39.68	-1.03%	-0.22%	8.4
11	926.396	0.000166177	30.80%	81.89	41.16	-2.00%	-0.43%	9.9
11	971.940	0.000131061	24.29%	82.72	41.99	2.82%	0.59%	10.7
12	1033.010	0.000237988	44.11%	83.78	43.05	0.17%	0.04%	11.8
13	1118.790	0.000602908	111.74%	85.16	44.43	0.14%	0.03%	1.2
15	1261.730	4.91E-005	9.11%	87.24	46.51	-2.12%	-0.42%	3.2
15	1291.280	4.85E-005	8.99%	87.64	46.91	0.17%	0.03%	3.6
16	1358.240	2.58E-005	4.77%	88.51	47.79	-1.22%	-0.24%	4.5
17	1444.110	2.13E-005	3.94%	89.58	48.85	-1.15%	-0.22%	5.6
18	1540.980	1.29E-005	2.39%	90.70	49.97	-0.38%	-0.07%	6.7
18	1582.140	1.54E-005	2.85%	91.16	50.43	2.28%	0.43%	7.2
19	1656.240	1.23E-005	2.27%	91.95	51.22	1.44%	0.27%	7.9
20	1723.280	1.18E-005	2.19%	92.63	51.91	0.27%	0.05%	8.6
21	1764.240	1.15E-005	2.12%	93.04	52.32	-2.24%	-0.42%	9.0
21	1839.540	1.18E-005	2.19%	93.77	53.04	1.93%	0.35%	9.8
22	1906.300	1.03E-005	1.91%	94.38	53.66	0.83%	0.15%	10.4
23	2014.160	1.24E-005	2.30%	95.34	54.61	1.90%	0.34%	11.3
24	2089.360	1.04E-005	1.92%	95.97	55.24	1.30%	0.23%	12.0
26	2195.850	1.51E-005	2.81%	96.83	56.10	-1.72%	-0.31%	0.8
27	2284.040	1.50E-005	2.79%	97.51	56.79	-1.56%	-0.28%	1.5
28	2378.940	2.31E-005	4.28%	98.22	57.49	-1.13%	-0.20%	2.2

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29	2455.640	2.23E-005	4.14%	98.77	58.04	-1.46%	-0.26%	2.8
30	2563.200	1.39E-005	2.57%	99.51	58.78	-0.58%	-0.10%	3.5
31	2627.150	1.19E-005	2.20%	99.94	59.21	-1.38%	-0.24%	3.9
32	2766.640	2.49E-005	1.08%	100.83	59.87	-0.72%	-0.12%	4.8

Sound 13 You 2 – start

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	97.481	0.00216173	100.00%	42.91	0.00	0.00%	0.00%	6.9
2	194.859	0.0012017	55.59%	54.90	11.99	-0.05%	-0.02%	6.9
3	291.871	0.000570167	26.38%	61.89	18.99	-0.20%	-0.05%	1.9
4	388.781	1.05E-004	4.85%	66.86	23.95	-0.29%	-0.08%	6.9
5	486.390	7.93E-005	3.67%	70.74	27.83	-0.21%	-0.05%	10.7
6	583.115	1.09E-005	0.50%	73.88	30.97	-0.30%	-0.07%	1.9
7	679.501	2.21E-005	1.02%	76.52	33.62	-0.42%	-0.10%	4.5
8	787.628	1.04E-005	0.48%	79.08	36.17	1.00%	0.22%	7.1
21	2044.540	7.91E-006	0.37%	95.59	52.69	-0.12%	-0.02%	11.6
22	2142.040	1.19E-005	0.55%	96.40	53.49	-0.12%	-0.02%	0.4
23	2239.040	2.46E-005	1.14%	97.17	54.26	-0.13%	-0.02%	1.2
24	2291.890	1.27E-005	0.59%	97.57	54.66	-2.04%	-0.36%	1.6
24	2334.700	2.64E-005	1.22%	97.89	54.98	-0.21%	-0.04%	1.9
25	2433.790	1.25E-005	0.58%	98.61	55.70	-0.13%	-0.02%	2.6
26	2487.490	9.35E-006	0.43%	98.99	56.08	-1.85%	-0.33%	3.0
26	2530.280	1.08E-005	0.50%	99.28	56.38	-0.17%	-0.03%	3.3
27	2628.150	1.08E-005	0.50%	99.94	57.03	-0.15%	-0.03%	3.9
28	2732.910	1.89E-005	0.87%	100.62	57.71	0.13%	0.02%	4.6
28	2769.560	1.17E-005	0.54%	100.85	57.94	1.47%	0.25%	4.8
29	2830.940	1.89E-005	0.88%	101.23	58.32	0.14%	0.02%	5.2
29	2866.530	1.39E-005	0.64%	101.44	58.54	1.40%	0.24%	5.4
30	2927.460	3.65E-005	1.69%	101.81	58.90	0.10%	0.02%	5.8
30	2970.910	3.03E-005	1.40%	102.06	59.16	1.59%	0.27%	6.1
31	3025.240	5.40E-005	2.50%	102.38	59.47	0.11%	0.02%	6.4
32	3121.770	6.26E-005	2.90%	102.92	60.01	0.08%	0.01%	6.9
33	3218.600	0.000132721	6.14%	103.45	60.54	0.05%	0.01%	7.5
34	3315.430	0.000142776	6.60%	103.96	61.06	0.03%	0.01%	8.0
35	3423.250	0.000137691	6.37%	104.52	61.61	0.33%	0.06%	8.5
36	3478.670	9.78E-005	4.52%	104.80	61.89	-0.87%	-0.14%	8.8
37	3582.920	5.18E-005	2.40%	105.31	62.40	-0.66%	-0.11%	9.3
37	3614.770	3.37E-005	1.56%	105.46	62.55	0.22%	0.04%	9.5
37	3648.930	3.21E-005	1.48%	105.62	62.71	1.17%	0.19%	9.6
38	3714.340	2.42E-005	1.12%	105.93	63.02	0.27%	0.04%	9.9
39	3756.510	1.02E-005	0.47%	106.13	63.22	-1.19%	-0.19%	10.1
39	3812.190	1.53E-005	0.71%	106.38	63.47	0.27%	0.04%	10.4

Sound 14 You 2 – middle

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	97.934	0.00343545	100.00%	42.99	0.00	0.00%	0.00%	7.0
2	202.106	0.00250628	72.95%	55.53	12.54	3.19%	0.99%	7.5
3	299.788	0.00155216	45.18%	62.36	19.37	2.04%	0.56%	2.4
4	398.266	0.000318351	9.27%	67.27	24.29	1.67%	0.43%	7.3
5	495.791	0.000111587	3.25%	71.07	28.08	1.25%	0.30%	11.1
6	592.542	2.50E-005	0.73%	74.15	31.16	0.84%	0.20%	2.2
7	699.021	6.03E-005	1.75%	77.01	34.03	1.97%	0.44%	5.0
8	807.828	1.97E-005	0.57%	79.52	36.53	3.11%	0.67%	7.5
9	894.529	2.41E-005	0.70%	81.28	38.29	1.49%	0.32%	9.3
11	1087.360	1.24E-005	0.36%	84.66	41.67	0.94%	0.19%	0.7
13	1291.430	1.28E-005	0.37%	87.64	44.65	1.44%	0.28%	3.6
15	1464.320	1.33E-005	0.39%	89.82	46.83	-0.32%	-0.06%	5.8
15	1517.170	1.40E-005	0.41%	90.43	47.44	3.28%	0.62%	6.4
17	1701.630	2.55E-005	0.74%	92.42	49.43	2.21%	0.41%	8.4
18	1810.700	2.40E-005	0.70%	93.49	50.50	2.72%	0.50%	9.5
19	1906.990	4.82E-005	1.40%	94.39	51.40	2.49%	0.45%	10.4
20	1946.600	3.48E-005	1.01%	94.74	51.76	-0.62%	-0.11%	10.7
20	2003.960	6.83E-005	1.99%	95.25	52.26	2.31%	0.42%	11.2
22	2110.300	0.000137078	3.99%	96.14	53.15	-2.05%	-0.37%	0.1
23	2207.810	0.000172709	5.03%	96.92	53.94	-1.98%	-0.36%	0.9
23	2261.500	7.98E-005	2.32%	97.34	54.35	0.40%	0.07%	1.3
24	2338.250	0.000118478	3.45%	97.92	54.93	-0.52%	-0.09%	1.9
24	2390.640	0.000124137	3.61%	98.30	55.31	1.71%	0.30%	2.3
25	2475.370	5.25E-005	1.53%	98.90	55.92	1.10%	0.19%	2.9
26	2540.030	0.000189347	5.51%	99.35	56.36	-0.25%	-0.04%	3.4
27	2606.130	5.52E-005	1.61%	99.80	56.81	-1.44%	-0.25%	3.8
27	2639.270	8.79E-005	2.56%	100.01	57.03	-0.19%	-0.03%	4.0
28	2736.360	8.45E-005	2.46%	100.64	57.65	-0.21%	-0.04%	4.6
29	2808.050	5.86E-005	1.71%	101.09	58.10	-1.13%	-0.19%	5.1
30	2906.100	5.16E-005	1.50%	101.68	58.69	-1.09%	-0.19%	5.7
30	2938.470	4.99E-005	1.45%	101.87	58.89	0.02%	0.00%	5.9
31	3003.350	7.58E-005	2.21%	102.25	59.26	-1.07%	-0.18%	6.3
31	3036.240	7.21E-005	2.10%	102.44	59.45	0.01%	0.00%	6.4
32	3134.020	5.24E-005	1.52%	102.99	60.00	0.00%	0.00%	7.0
32	3166.830	6.72E-005	1.96%	103.17	60.18	1.05%	0.18%	7.2

Sound 15 You 2 – end

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	96.010	0.00264835	100.00%	42.65	0.00	0.00%	0.00%	6.6
2	191.826	1.93E-003	73.00%	54.63	11.98	-0.10%	-0.03%	6.6

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3	282.436	0.00180197	68.04%	61.33	18.68	-1.94%	-0.55%	1.3
4	378.779	0.000261247	9.86%	66.41	23.76	-1.37%	-0.36%	6.4
5	474.581	0.000116449	4.40%	70.31	27.66	-1.14%	-0.28%	10.3
6	570.818	2.26E-005	0.85%	73.51	30.86	-0.91%	-0.21%	1.5
7	667.091	5.62E-005	2.12%	76.20	33.56	-0.74%	-0.17%	4.2
8	762.675	2.45E-005	0.92%	78.52	35.88	-0.70%	-0.16%	6.5
9	859.016	3.43E-005	1.30%	80.58	37.94	-0.59%	-0.13%	8.6
10	949.181	1.82E-005	0.69%	82.31	39.67	-1.14%	-0.24%	10.3
11	1045.200	1.85E-005	0.70%	83.98	41.33	-1.03%	-0.21%	12.0
12	1141.760	1.87E-005	0.71%	85.51	42.86	-0.90%	-0.18%	1.5
13	1237.230	1.28E-005	0.48%	86.90	44.25	-0.87%	-0.17%	2.9
14	1333.550	2.06E-005	0.78%	88.20	45.55	-0.79%	-0.15%	4.2
15	1422.270	1.28E-005	0.48%	89.31	46.67	-1.24%	-0.24%	5.3
16	1519.050	4.87E-005	1.84%	90.45	47.81	-1.11%	-0.21%	6.5
17	1612.640	3.62E-005	1.37%	91.49	48.84	-1.20%	-0.23%	7.5
17	1647.020	1.26E-005	0.48%	91.85	49.21	0.91%	0.17%	7.9
18	1710.050	9.65E-005	3.64%	92.50	49.86	-1.05%	-0.20%	8.5
19	1799.280	0.000108895	4.11%	93.38	50.74	-1.37%	-0.25%	9.4
20	1905.800	0.000105348	3.98%	94.38	51.73	-0.75%	-0.14%	10.4
21	1993.810	7.37E-005	2.78%	95.16	52.51	-1.11%	-0.20%	11.2
22	2089.570	5.19E-005	1.96%	95.97	53.33	-1.07%	-0.19%	12.0
23	2186.560	0.000109466	4.13%	96.76	54.11	-0.98%	-0.18%	0.8
24	2281.870	3.76E-005	1.42%	97.50	54.85	-0.97%	-0.17%	1.5
25	2380.030	3.89E-005	1.47%	98.22	55.58	-0.84%	-0.15%	2.2
27	2573.140	1.36E-005	0.51%	99.58	56.93	-0.74%	-0.13%	3.6
30	2853.190	1.28E-005	0.48%	101.36	58.72	-0.94%	-0.16%	5.4
31	2949.020	1.10E-005	0.41%	101.94	59.29	-0.92%	-0.16%	5.9
32	3046.210	2.79E-005	1.06%	102.50	59.85	-0.85%	-0.14%	6.5
33	3133.950	2.85E-005	1.08%	102.99	60.34	-1.08%	-0.18%	7.0
33	3208.780	1.74E-005	0.66%	103.40	60.75	1.28%	0.21%	7.4
35	3326.670	1.45E-005	0.55%	104.02	61.38	-1.00%	-0.17%	8.0
36	3423.160	1.49E-005	0.56%	104.52	61.87	-0.96%	-0.16%	8.5
67	6417.090	1.30E-005	0.49%	115.40	72.75	-0.24%	-0.04%	7.4

Sound 16 *Can't - start*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	41.962	7.40E-004	100.00%	28.32	0.00	0.00%	0.00%	4.3
2	86.749	6.16E-004	83.29%	40.89	12.57	3.37%	1.42%	4.9
4	171.790	2.01E-004	27.11%	52.72	24.40	2.35%	0.77%	4.7
6	271.346	5.11E-005	6.91%	60.63	32.32	7.77%	2.18%	0.6
8	342.531	6.42E-005	8.68%	64.66	36.35	2.04%	0.54%	4.7
9	397.499	1.13E-004	15.33%	67.24	38.93	5.25%	1.34%	7.2
11	474.484	0.000101637	13.74%	70.31	41.99	2.79%	0.68%	10.3
12	514.548	0.000135951	18.38%	71.71	43.39	2.18%	0.52%	11.7
14	581.120	8.32E-005	11.25%	73.82	45.50	-1.08%	-0.25%	1.8
15	615.672	8.31E-005	11.24%	74.82	46.50	-2.19%	-0.51%	2.8
16	666.326	0.000132505	17.91%	76.18	47.87	-0.76%	-0.17%	4.2
17	730.914	0.000182204	24.63%	77.79	49.47	2.46%	0.54%	5.8
19	784.128	7.72E-005	10.43%	79.00	50.69	-1.65%	-0.36%	7.0
21	870.819	0.000385998	52.18%	80.82	52.50	-1.18%	-0.25%	8.8
22	905.473	0.000360671	48.76%	81.49	53.18	-1.92%	-0.41%	9.5
23	968.686	0.00065148	88.07%	82.66	54.35	0.37%	0.08%	10.7
25	1053.270	0.000747442	101.05%	84.11	55.80	0.40%	0.08%	0.1
26	1097.790	5.26E-004	71.17%	84.83	56.51	0.62%	0.13%	0.8
28	1162.460	0.000276055	37.32%	85.82	57.50	-1.06%	-0.21%	1.8
30	1239.970	1.04E-004	14.11%	86.94	58.62	-1.50%	-0.30%	2.9
31	1293.350	9.79E-005	13.23%	87.67	59.35	-0.57%	-0.11%	3.7
32	1323.930	8.16E-005	11.03%	88.07	59.76	-1.40%	-0.28%	4.1
33	1385.850	5.61E-005	7.59%	88.86	60.55	0.08%	0.02%	4.9
35	1482.840	8.24E-005	11.13%	90.03	61.72	0.96%	0.18%	6.0
36	1518.650	5.57E-005	7.54%	90.45	62.13	0.53%	0.10%	6.4
39	1624.820	1.68E-005	2.27%	91.62	63.30	-0.72%	-0.14%	7.6
40	1668.540	1.88E-005	2.54%	92.08	63.76	-0.59%	-0.11%	8.1
41	1711.080	1.33E-005	1.80%	92.50	64.20	-0.54%	-0.10%	8.5
42	1764.120	1.73E-005	2.33%	93.04	64.72	0.10%	0.02%	9.0
44	1841.190	3.05E-005	4.12%	93.78	65.46	-0.28%	-0.05%	9.8
47	1968.700	3.38E-005	4.57%	94.94	66.62	-0.18%	-0.03%	10.9
48	2024.380	2.24E-005	3.03%	95.42	67.11	0.51%	0.09%	11.4
50	2091.650	2.54E-005	3.43%	95.99	67.67	-0.31%	-0.06%	12.0
51	2151.810	1.58E-005	2.14%	96.48	68.16	0.55%	0.10%	0.5
52	2186.180	2.24E-005	3.03%	96.75	68.44	0.19%	0.03%	0.8

Sound 17 *Can't - middle*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	116.989	0.003814	100.00%	46.07	0.00	0.00%	0.00%	10.1
2	228.230	0.0023323	61.15%	57.64	11.57	-2.46%	-0.74%	9.6
3	345.405	0.0016489	43.23%	64.81	18.74	-1.58%	-0.42%	4.8
4	462.469	0.00247413	64.87%	69.86	23.80	-1.17%	-0.29%	9.9
5	580.944	0.00582024	152.60%	73.81	27.74	-0.68%	-0.16%	1.8
6	699.028	0.00427673	112.13%	77.01	30.95	-0.41%	-0.09%	5.0
7	817.818	0.00517126	135.59%	79.73	33.66	-0.13%	-0.03%	7.7
8	926.723	0.0047238	123.85%	81.90	35.83	-0.98%	-0.21%	9.9
9	1012.300	0.000948935	24.88%	83.42	37.66	-3.86%	-0.81%	11.4
10	1152.410	0.000427328	11.20%	85.67	39.30	-1.49%	-0.30%	1.7
11	1270.430	0.000206842	5.42%	87.36	41.29	-1.28%	-0.25%	3.4
12	1399.680	0.000166948	4.38%	89.03	42.97	-0.30%	-0.06%	5.0
13	1507.440	0.000122831	3.22%	90.32	44.25	-0.88%	-0.17%	6.3
14	1592.340	0.000104748	2.75%	91.27	45.20	-2.78%	-0.53%	7.3

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14	1626.030	0.000103464	2.71%	91.63	45.56	-0.72%	-0.14%	7.6
15	1743.950	0.000110509	2.90%	92.84	46.77	-0.62%	-0.12%	8.8
16	1821.190	0.000132285	3.47%	93.59	47.53	-2.71%	-0.50%	9.6
16	1885.250	0.000144563	3.79%	94.19	48.12	0.72%	0.13%	10.2
17	1938.650	0.000167765	4.40%	94.67	48.61	-2.52%	-0.46%	10.7
17	1970.830	1.82E-004	4.77%	94.96	48.89	-0.90%	-0.17%	11.0
17	2000.520	0.000190975	5.01%	95.22	49.15	0.59%	0.11%	11.2
18	2056.080	0.000199158	5.22%	95.69	49.63	-2.36%	-0.43%	11.7
18	2088.020	0.000158675	4.16%	95.96	49.89	-0.84%	-0.15%	12.0
19	2174.600	9.99E-005	2.62%	96.66	50.60	-2.17%	-0.39%	0.7
19	2229.510	8.84E-005	2.32%	97.09	51.03	0.30%	0.05%	1.1
19	2262.070	8.92E-005	2.34%	97.34	51.28	1.77%	0.31%	1.3
20	2293.590	1.03E-004	2.71%	97.58	51.52	-1.97%	-0.35%	1.6
20	2346.360	0.000147296	3.86%	97.98	51.91	0.28%	0.05%	2.0
20	2379.740	0.000165645	4.34%	98.22	52.16	1.71%	0.30%	2.2
21	2412.300	0.000131572	3.45%	98.46	52.39	-1.81%	-0.32%	2.5
21	2456.750	0.000123842	3.25%	98.77	52.71	0.00%	0.00%	2.8
21	2498.140	0.000103838	2.72%	99.06	53.00	1.68%	0.29%	3.1
22	2572.700	5.73E-005	1.50%	99.57	53.51	-0.04%	-0.01%	3.6
22	2604.070	5.75E-005	1.51%	99.78	53.72	1.18%	0.20%	3.8
23	2638.230	3.93E-005	1.03%	100.01	53.94	-1.95%	-0.34%	4.0

Sound 18 *Can't - end*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	107.048	0.00327996	100.00%	44.53	0.00	0.00%	0.00%	8.5
2	214.228	0.00182347	55.59%	56.54	12.01	0.06%	0.02%	8.5
3	321.390	0.00123358	37.61%	63.56	19.03	0.08%	0.02%	3.6
4	428.413	0.00137403	41.89%	68.54	24.01	0.05%	0.01%	8.5
5	535.642	0.00275935	84.13%	72.41	27.88	0.08%	0.02%	0.4
6	636.733	0.0023042	70.25%	75.40	30.87	-0.86%	-0.20%	3.4
7	744.120	0.00141186	43.05%	78.10	33.57	-0.70%	-0.15%	6.1
8	851.271	0.00100979	30.79%	80.43	35.90	-0.60%	-0.13%	8.4
9	959.617	0.00175113	53.39%	82.50	37.97	-0.40%	-0.08%	10.5
10	1076.230	0.00191769	58.47%	84.48	39.96	0.54%	0.11%	0.5
11	1182.930	0.00109742	33.46%	86.12	41.59	0.46%	0.09%	2.1
12	1281.210	0.000441152	13.45%	87.50	42.97	-0.26%	-0.05%	3.5
13	1386.810	0.000268796	8.20%	88.87	44.35	-0.35%	-0.07%	4.9
14	1488.380	0.000208253	6.35%	90.10	45.57	-0.69%	-0.13%	6.1
15	1595.130	0.000170693	5.20%	91.30	46.77	-0.66%	-0.13%	7.3
16	1702.230	1.27E-004	3.87%	92.42	47.89	-0.62%	-0.12%	8.4
17	1809.440	0.00014673	4.47%	93.48	48.95	-0.57%	-0.11%	9.5
18	1916.550	1.64E-004	4.99%	94.48	49.95	-0.54%	-0.10%	10.5
19	2024.290	0.000196562	5.99%	95.42	50.89	-0.47%	-0.09%	11.4
20	2130.710	8.02E-005	2.44%	96.31	51.78	-0.48%	-0.09%	0.3
21	2238.640	7.46E-005	2.27%	97.16	52.64	-0.42%	-0.07%	1.2
22	2344.680	7.73E-005	2.36%	97.97	53.44	-0.44%	-0.08%	2.0
23	2452.480	8.90E-005	2.71%	98.74	54.21	-0.39%	-0.07%	2.7
24	2553.700	8.22E-005	2.51%	99.44	54.92	-0.60%	-0.10%	3.4
25	2660.860	1.16E-004	3.52%	100.16	55.63	-0.57%	-0.10%	4.2
26	2767.470	6.17E-005	1.88%	100.84	56.31	-0.57%	-0.10%	4.8
27	2874.490	8.78E-005	2.68%	101.49	56.96	-0.55%	-0.09%	5.5
28	2973.140	6.94E-005	2.12%	102.08	57.55	-0.81%	-0.14%	6.1
29	3088.630	9.92E-005	3.02%	102.74	58.21	-0.51%	-0.09%	6.7
30	3188.230	0.000104684	3.19%	103.29	58.76	-0.72%	-0.12%	7.3
31	3305.270	1.53E-004	4.66%	103.91	59.38	-0.40%	-0.07%	7.9
32	3413.990	0.000188969	5.76%	104.47	59.94	-0.34%	-0.06%	8.5
33	3509.810	8.70E-005	2.65%	104.95	60.42	-0.64%	-0.11%	8.9
34	3615.850	8.25E-005	2.52%	105.47	60.94	-0.65%	-0.11%	9.5
35	3717.220	5.47E-005	1.67%	105.94	61.41	-0.79%	-0.13%	9.9

Sound 19 *Hide - start*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	117.334	2.08E-003	100.00%	46.12	0.00	0.00%	0.00%	10.1
2	225.155	0.000548444	26.40%	57.40	11.28	-4.05%	-1.23%	9.4
3	343.800	0.000563348	27.11%	64.73	18.61	-2.33%	-0.63%	4.7
3	409.691	0.000252072	12.13%	67.76	21.65	16.39%	4.03%	7.8
4	463.114	0.000418682	20.15%	69.89	23.77	-1.33%	-0.33%	9.9
4	517.096	0.000403695	19.43%	71.80	25.68	10.18%	2.39%	11.8
5	592.296	0.000576791	27.76%	74.15	28.03	0.96%	0.22%	2.1
5	634.950	6.13E-004	29.52%	75.35	29.23	8.23%	1.85%	3.3
6	699.766	7.19E-004	34.60%	77.03	30.92	-0.60%	-0.14%	5.0
6	743.667	1.23E-003	58.98%	78.09	31.97	5.63%	1.23%	6.1
7	808.512	8.34E-004	40.13%	79.53	33.42	-1.56%	-0.34%	7.5
7	861.113	1.56E-003	74.99%	80.62	34.51	4.84%	1.03%	8.6
8	968.602	1.45E-003	69.99%	82.66	36.54	3.19%	0.66%	10.7
9	1031.510	6.39E-004	30.76%	83.75	37.63	-2.32%	-0.48%	11.8
9	1087.570	0.00151005	72.68%	84.67	38.55	2.99%	0.61%	0.7
10	1205.690	1.37E-003	65.98%	86.45	40.33	2.76%	0.55%	2.5
11	1313.540	1.06E-003	51.06%	87.93	41.82	1.77%	0.35%	3.9
12	1378.950	2.92E-004	14.06%	88.78	42.66	-2.06%	-0.41%	4.8
12	1442.470	6.40E-004	30.81%	89.56	43.44	2.45%	0.47%	5.6
13	1551.510	3.14E-004	15.09%	90.82	44.70	1.72%	0.33%	6.8
14	1604.640	0.000133417	6.42%	91.40	45.28	-2.32%	-0.44%	7.4
14	1667.980	2.52E-004	12.12%	92.07	45.95	1.54%	0.29%	8.1
15	1776.090	1.16E-004	5.59%	93.16	47.04	0.91%	0.17%	9.2
16	1828.760	9.81E-005	4.72%	93.66	47.55	-2.59%	-0.48%	9.7
16	1884.850	1.34E-004	6.46%	94.19	48.07	0.40%	0.07%	10.2
17	1969.950	9.06E-005	4.36%	94.95	48.83	-1.24%	-0.23%	11.0

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17	2002.260	8.45E-005	4.07%	95.23	49.12	0.38%	0.07%	11.2
18	2088.370	1.08E-004	5.20%	95.96	49.84	-1.12%	-0.20%	12.0
19	2195.540	0.000139655	6.72%	96.83	50.71	-1.52%	-0.27%	0.8
20	2303.520	0.000204941	9.86%	97.66	51.54	-1.84%	-0.33%	1.7
20	2377.860	8.78E-005	4.23%	98.21	52.09	1.33%	0.23%	2.2
21	2431.640	0.00014461	6.96%	98.60	52.48	-1.31%	-0.23%	2.6
21	2478.490	4.81E-005	2.32%	98.93	52.81	0.59%	0.10%	2.9
22	2529.270	1.19E-004	5.71%	99.28	53.16	-2.02%	-0.35%	3.3
22	2636.300	1.69E-004	8.13%	100.00	53.88	2.13%	0.37%	4.0

Sound 20 *Hide - middle*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	87.336	2.48E-003	100.00%	41.01	0.00	0.00%	0.00%	5.0
2	174.131	0.00140163	56.47%	52.95	11.95	-0.31%	-0.10%	5.0
3	267.349	5.67E-004	22.86%	60.37	19.37	2.04%	0.58%	0.4
4	354.731	7.41E-004	29.86%	65.27	24.26	1.54%	0.41%	5.3
5	441.507	6.33E-004	25.49%	69.06	28.05	1.11%	0.28%	9.1
6	528.010	9.42E-004	37.96%	72.16	31.15	0.76%	0.18%	0.2
7	614.017	1.71E-003	68.85%	74.77	33.76	0.44%	0.10%	2.8
8	700.226	2.99E-003	120.58%	77.04	36.04	0.22%	0.05%	5.0
9	796.342	0.00205422	82.77%	79.27	38.26	1.31%	0.29%	7.3
10	882.817	1.40E-003	56.45%	81.06	40.05	1.08%	0.23%	9.1
11	979.088	6.12E-004	24.66%	82.85	41.84	1.91%	0.40%	10.8
12	1066.640	4.47E-004	18.01%	84.33	43.32	1.78%	0.36%	0.3
13	1153.050	0.000410507	16.54%	85.68	44.67	1.56%	0.31%	1.7
14	1249.550	0.00046303	18.66%	87.07	46.06	2.20%	0.43%	3.1
15	1336.190	0.000391491	15.77%	88.23	47.22	2.00%	0.39%	4.2
16	1399.490	0.000405248	16.33%	89.03	48.03	0.15%	0.03%	5.0
16	1433.190	0.000457697	18.44%	89.44	48.44	2.56%	0.49%	5.4
17	1494.260	6.87E-004	27.69%	90.17	49.16	0.64%	0.12%	6.2
17	1528.160	5.68E-004	22.88%	90.55	49.55	2.93%	0.55%	6.6
18	1582.980	5.89E-004	23.71%	91.16	50.16	0.70%	0.13%	7.2
19	1678.610	5.32E-004	21.45%	92.18	51.17	1.16%	0.22%	8.2
20	1765.540	3.75E-004	15.10%	93.05	52.05	1.08%	0.20%	9.1
21	1852.440	0.00055545	22.38%	93.89	52.88	1.00%	0.18%	9.9
22	1938.100	0.000438637	17.67%	94.67	53.66	0.87%	0.16%	10.7
23	1993.020	0.000364209	14.67%	95.15	54.15	-0.78%	-0.14%	11.2
23	2023.910	0.000410497	16.54%	95.42	54.41	0.76%	0.14%	11.4
24	2079.470	0.00024831	10.00%	95.89	54.88	-0.79%	-0.14%	11.9
24	2120.650	0.000275372	11.10%	96.23	55.23	1.17%	0.21%	0.2
25	2166.310	0.000251056	10.12%	96.60	55.59	-0.78%	-0.14%	0.6
25	2206.740	0.000389633	15.70%	96.92	55.91	1.07%	0.19%	0.9
26	2253.410	0.000228698	9.21%	97.28	56.27	-0.76%	-0.14%	1.3
26	2293.410	0.000340464	13.72%	97.58	56.58	1.00%	0.18%	1.6
27	2379.150	0.000440098	17.73%	98.22	57.21	0.89%	0.16%	2.2
28	2465.470	0.000331688	13.36%	98.84	57.83	0.82%	0.14%	2.8
29	2551.230	0.000316323	12.75%	99.43	58.42	0.73%	0.13%	3.4

Sound 21 *Hide - end*

NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class
1	20.648	6.36E-005	100.00%	16.04	0.00	0.00%	0.00%	4.0
4	84.548	0.00158347	2490.01%	40.44	24.41	2.37%	1.01%	4.4
8	163.149	0.000814524	1280.84%	51.82	35.79	-1.23%	-0.41%	3.8
12	246.380	0.000455861	716.84%	58.96	42.92	-0.56%	-0.17%	11.0
16	324.571	0.00039165	615.87%	63.73	47.69	-1.76%	-0.48%	3.7
20	408.283	0.000566176	890.31%	67.70	51.67	-1.13%	-0.29%	7.7
23	483.861	0.000863375	1357.66%	70.65	54.61	1.89%	0.46%	10.6
28	570.253	0.000452105	710.94%	73.49	57.45	-1.37%	-0.32%	1.5
32	656.322	0.000217583	342.15%	75.92	59.88	-0.67%	-0.15%	3.9
34	699.908	9.21E-005	144.82%	77.04	61.00	-0.30%	-0.07%	5.0
36	734.025	0.000149454	235.02%	77.86	61.82	-1.25%	-0.28%	5.9
40	817.569	8.37E-005	131.60%	79.73	63.69	-1.01%	-0.22%	7.7
43	893.809	4.56E-005	71.75%	81.27	65.23	0.67%	0.14%	9.3
48	981.185	3.08E-005	48.48%	82.88	66.85	-1.00%	-0.21%	10.9
52	1065.430	3.83E-005	60.19%	84.31	68.27	-0.77%	-0.16%	0.3
56	1151.360	2.86E-005	45.04%	85.65	69.61	-0.43%	-0.09%	1.7
59	1228.420	3.08E-005	48.38%	86.77	70.74	0.84%	0.17%	2.8
64	1312.400	2.02E-005	31.75%	87.92	71.88	-0.69%	-0.14%	3.9
67	1390.400	2.02E-005	31.75%	88.92	72.88	0.50%	0.10%	4.9
72	1484.220	2.45E-005	38.60%	90.05	74.01	-0.16%	-0.03%	6.0
75	1552.560	2.39E-005	37.65%	90.83	74.79	0.26%	0.05%	6.8
79	1637.460	2.67E-005	42.06%	91.75	75.71	0.38%	0.07%	7.8
84	1724.490	3.20E-005	50.39%	92.65	76.61	-0.57%	-0.11%	8.6
87	1799.530	3.46E-005	54.40%	93.38	77.35	0.18%	0.03%	9.4
89	1843.730	1.07E-005	16.86%	93.80	77.77	0.33%	0.06%	9.8
91	1884.980	2.35E-005	36.92%	94.19	78.15	0.32%	0.06%	10.2
95	1969.270	2.87E-005	45.17%	94.95	78.91	0.39%	0.07%	10.9
99	2045.660	4.09E-005	64.29%	95.60	79.56	0.07%	0.01%	11.6
101	2089.590	3.97E-005	62.39%	95.97	79.93	0.20%	0.04%	12.0
103	2132.830	5.99E-005	94.16%	96.33	80.29	0.29%	0.05%	0.3
107	2207.350	7.38E-005	116.02%	96.92	80.88	-0.09%	-0.02%	0.9
109	2250.710	2.81E-005	44.23%	97.26	81.22	0.00%	0.00%	1.3
111	2293.520	5.28E-005	83.04%	97.58	81.54	0.07%	0.01%	1.6
115	2378.240	4.97E-005	78.10%	98.21	82.17	0.16%	0.03%	2.2
119	2455.080	4.35E-005	68.33%	98.76	82.72	-0.08%	-0.01%	2.8

Appendix 9

Sound 1 Sweeping Gesture – start										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class		
1	33.227	0.0179405	100.00%	24.28	0.00	0.00%	0.00%	0.00%	0.3	
2	66.681	0.0149715	83.45%	36.33	12.06	0.34%	0.16%	0.3		
3	107.655	0.0143147	79.79%	44.63	20.35	8.00%	3.08%	8.6		
4	139.619	0.0124321	69.30%	49.13	24.85	5.05%	1.77%	1.1		
6	212.774	0.00142043	7.92%	56.42	32.15	6.73%	2.04%	8.4		
8	268.636	0.000945462	5.27%	60.46	36.18	1.06%	0.30%	0.5		
11	376.709	0.000350688	1.95%	66.31	42.04	3.07%	0.80%	6.3		
13	429.027	0.000165625	0.92%	68.56	44.29	-0.68%	-0.17%	8.6		
15	505.038	9.3369E-005	0.52%	71.39	47.11	1.33%	0.32%	11.4		

Sound 2 Sweeping Gesture – End										
NHN	Frequency	Amplitude	Amp Ratio	Pitch (MIDI #)	Interval from Fundamental	Diversion (Hz)	Diversion (Pitch)	Pitch Class		
2	62.554	0.022123	105.82%	35.23	10.49	-8.36%	-4.11%	11.2		
1	34.131	0.0209067	100.00%	24.74	0.00	0.00%	0.00%	0.7		
3	116.765	0.0145317	69.51%	46.03	21.29	14.04%	5.20%	10.0		
5	185.057	0.0115543	55.27%	54.01	29.27	8.44%	2.67%	6.0		
9	313.929	0.0097532	46.65%	63.16	38.42	2.20%	0.60%	3.2		
6	194.729	0.00770193	36.84%	54.89	30.15	-4.91%	-1.56%	6.9		
7	247.216	0.00737832	35.29%	59.02	34.28	3.47%	1.01%	11.0		
2	72.765	0.0071464	34.18%	37.85	13.11	6.60%	3.01%	1.8		
4	120.112	0.00677171	32.39%	46.52	21.78	-12.02%	-4.55%	10.5		
11	367.293	0.0049344	23.60%	65.87	41.13	-2.17%	-0.57%	5.9		
14	494.697	0.00377677	18.06%	71.03	46.29	3.53%	0.85%	11.0		
24	828.405	0.00360408	17.24%	79.95	55.21	1.13%	0.24%	8.0		
21	702.015	0.00317007	15.16%	77.09	52.35	-2.06%	-0.46%	5.1		
13	440.459	0.00246047	11.77%	69.02	44.28	-0.73%	-0.18%	9.0		
18	615.444	0.00241272	11.54%	74.81	50.07	0.18%	0.04%	2.8		
20	669.300	0.00216821	10.37%	76.26	51.52	-1.95%	-0.45%	4.3		
16	547.885	0.00192122	9.19%	72.80	48.06	0.33%	0.08%	0.8		
27	923.452	0.00157575	7.54%	81.83	57.09	0.21%	0.04%	9.8		
28	969.802	0.00146054	6.99%	82.68	57.94	1.48%	0.31%	10.7		
10	345.190	0.00123693	5.92%	64.80	40.06	1.14%	0.30%	4.8		
32	1099.670	0.00120219	5.75%	84.86	60.12	0.68%	0.14%	0.9		
31	1045.280	0.00117552	5.62%	83.98	59.24	-1.21%	-0.25%	12.0		
34	1152.500	0.00104011	4.98%	85.67	60.93	-0.69%	-0.14%	1.7		
26	883.732	0.00100824	4.82%	81.07	56.33	-0.41%	-0.09%	9.1		
30	1011.180	0.000899637	4.30%	83.41	58.67	-1.25%	-0.26%	11.4		
13	427.380	0.000565472	2.70%	68.50	43.76	-3.68%	-0.94%	8.5		
14	464.309	0.000319824	1.53%	69.93	45.19	-2.83%	-0.71%	9.9		
16	538.697	0.000219669	1.05%	72.50	47.76	-1.36%	-0.32%	0.5		

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