

## Khong Wong Yai Octaves

The following figure is a screen grab of the 8 tunings of an octave recorded in the file 'KWY 378-756 762 768 774 780 786 792 798.wav' at

<https://yorkspace.library.yorku.ca/xmlui/handle/10315/34638>

The two tones on which the 7 tunings are based were recorded as tones 4 and 12 of UCLA's khong wong yai.

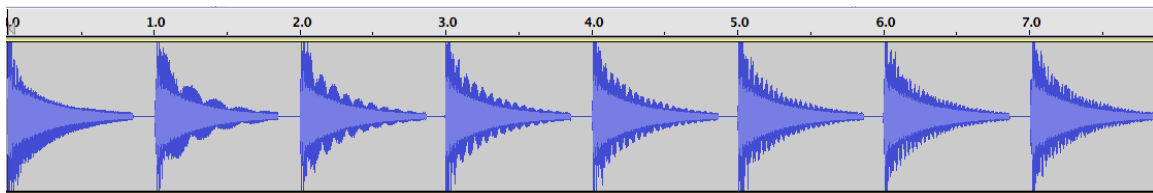
The original fundamental frequencies were 378 Hz and 760 Hz.

The upper tone was edited to produce the following frequencies:

756, 762, 768, 774, 780, 786, 792, and 798 Hz.

As well as the evident changes in pitch, there is beating at rates of 6 and 12 per second in the 2<sup>nd</sup> and 3<sup>rd</sup> pairs of tones, and roughness at increasing rates that correspond to differences between a 'frequency' of  $2 \times 378 = 756$  Hz and the upper tones' frequencies of 774, 780, 786, 792, and 798 Hz, amounting to 18, 24, 30, 36, and 42 per second.

In the figure, each octave lasts approximately 850 milliseconds, i.e., ~0.85 seconds, and differences in beating and roughness correspond to 6, 12, 18, 24, 30, 36, and 42 changes in the waveforms' amplitudes from the 2<sup>nd</sup> to the 8<sup>th</sup> pair of tones.



Also audible, especially in the initial tone-pairs, is a non-harmonic partial above the upper tone that corresponds to two frequencies of much smaller amplitude ~3300 and ~3100 cents above the lower tone.