

Geometric Improvisations Leading to a Musical Instrument - Thesis - Master of Architecture  
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Analogy of the String  
Sound Explorations: designing non-material things  
Audio samples and description:

1. Minuet\_in\_G\_mod\_7\_10sec: sin-wave, sample from Minuet in G by Johann Sebastian Bach, translated into "geometric" musical scale with 7 notes/octave, 1 music bar duration = 10 seconds.

2. Minuet\_in\_G\_mod\_7\_1sec: same as above, 1 music bar duration = 1 second.

3. Minuet\_in\_G\_mod\_9\_1: same as above, translated into "geometric" musical scale with 9 notes/octave.

4. Orchestra\_piano\_1\_5\_oct\_32\_131\_5sec: exploring bass tones. using first 5 variants (see diagram, "Analogy of the String", five top lines), within a frequency range of 32 Hz and 131 Hz.

5. Orchestra1\_79\_53: sin-wave sample simultaneously playing all ten variants within an octave. This was an attempt to find a suitable point in time over which to mirror the geometric pattern (i.e. a point at which all variants either begin or end with respect to each individual timing measure per variant/sin-wave). Estimated time 79.53 seconds.

6. Orchestra96\_piano\_1\_5\_10\_oct\_131: The term "piano" in the context of this particular sound sample denotes the sound quality generated by adding over-tones to the fundamental frequency used in constructing each sound variant. Base frequency for first variant is 131 Hz, range of one octave.

7. Orchestra96\_piano\_5\_8: same as above, uses 5th, 6th, 7th and 8th sound variants.

8. Orchestra96\_piano\_full: same as above, uses all sound variants within octave.

9. Oud sample: (not computer-generated) First sound upon stringing the instrument.

10. Piano\_15678: sampling of one piano note, with an additional four sounds derived from stretching the piano sound sample into time measures equal to the 5th, 6th, 7th and 8th variant, this manipulation of sound duration is in measure with the proportions derived from the geometric pattern as would be for the placement of each variant within the structure of the drawing.

11. pianoscale: one note/sound recorded from a piano, stretched to the proportions of each potential variant, 1 octave.

12. xylophone\_145678: same as above, using one xylophone sample, and five additional variants derived from stretching the original sample to the 4th, 5th, 6th, 7th, and 8th measure.

13. xylophone\_234567: same as above, including 8th variant.

14. xylophonescale: 1 octave derived from stretching single xylophone sample to create a variety of sounds that correspond proportionately to each other in accordance with measures derived from the geometric pattern used throughout this study.

Note: The term "variant" describes a relation to placement, and pitch variation within the geometric pattern.  
All sound studies were computer-generated using MatLab, courtesy of Mr. Barbar Akle.

sound-samples in .wav format