Speaking about sound: Analytic Toolbox

1. Phenomenological properties

- Disappearing, volatile, time-bound
- "Intimacy", invasiveness (close your eyes, but… close your ears?)
- multidimensionality
- Emotive power, straight into limbic system -> manipulative power
- Sounds tell us about material qualities and processes
- Sounds connect people, shared experiences
- Sound gives us a complementary "image" of space: the eye analyzes distances and shapes hierarchically while sound gets a "big picture", which is dependent on further properties of the environment (wind, materials…)
- Sound is a sign of life

2. Acoustic Parameters

- Pitch -> Frequency (Hertz)
- Volume -> Amplitude (dB)
- Timbre -> Frequency spectrum, time dependent
    - Variations in amplitude (non-audible frequencies, e.g. vibrato, tremolo, hammering…)
    - Volume and density (amount, density and amplitude of contained frequencies)
    - Sharpness, brightness (amount of high frequencies) and their opposites
- Tone (simple, periodic waveform) vs. sound (periodic, but with more or less complex overtone structures) vs. noise (non-periodic sound)
- Spatial aspects: Directional perception (Sound Pressure Level (SPL), temporal difference, Head Related Transfer Functions (HRTF)) reverb (1st, 2nd and higher order reflections, spectrum influenced by properties of reflecting surfaces), echo/delay, filtering through occlusion or obstruction,
- Temporal aspects: Simplified description with Attack, Decay, Sustain, Release (ADSR) "envelopes".
- The main components of sound processing: Time (reverb, delay, chorus…), Frequency (equalizing, filtering…), Dynamics (compressor, limiter…)

3. Typological Categories (Schaeffer 1966)

Mass

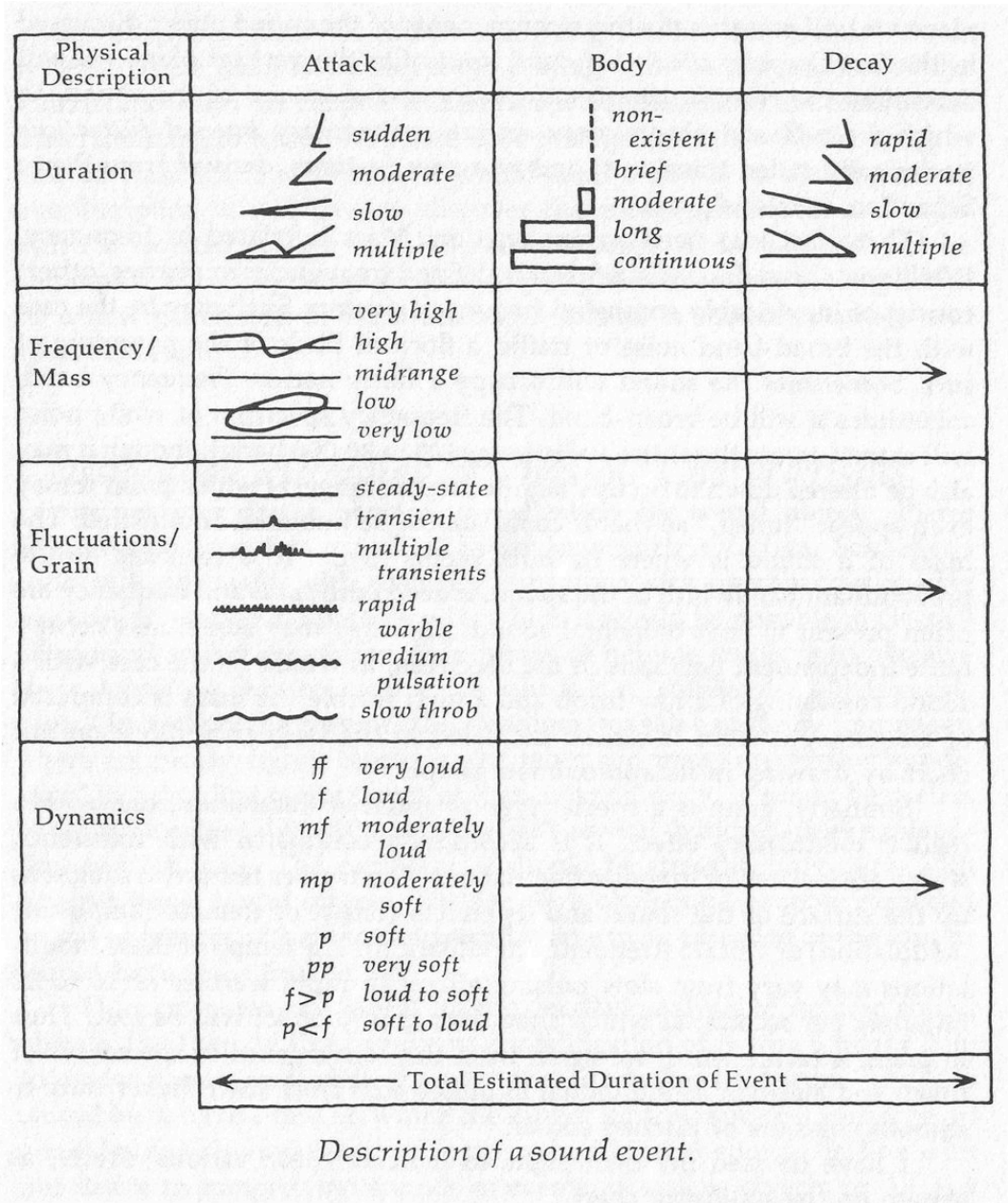
- Tonal
- Complex
- Varying

Sustaining energy

- Continuous
- Impulsive
- Iterative

4. Notation of Sounds (Schafer 1977)

1. Setting
   - Estimated distance from observer
   - Estimated intensity of original sound (dB)
   - Heard distinctly, moderately distinctly, or indistinctly over general ambiance.
   - Texture of ambiance: hi-fi, lo-fi, natural, human, technological
   - Isolated occurrence, repeated, or part of larger contexct or message
   - Environmental factors: no reverb, short reverb, long reverb, echo, drift, displacement
2. Graphical description of the sound event
   (see illustration below)



Description of a sound event.

5. Indexical Semantics: Informational content of acoustic events

Sound source	Space	Stimulation
Location	Shape	Kind
Shape	Size	Strength
Size	Material	Rhythm
Material		Speed
Movement		Properties of stimulator

6. Indexical Semantics: Categorization of Sources and Causes (Gaver 1993)

Description and categorization based on the properties of the physical sources and processes causing the sound.