

MUS421–571.1
Electroacoustic Music Composition

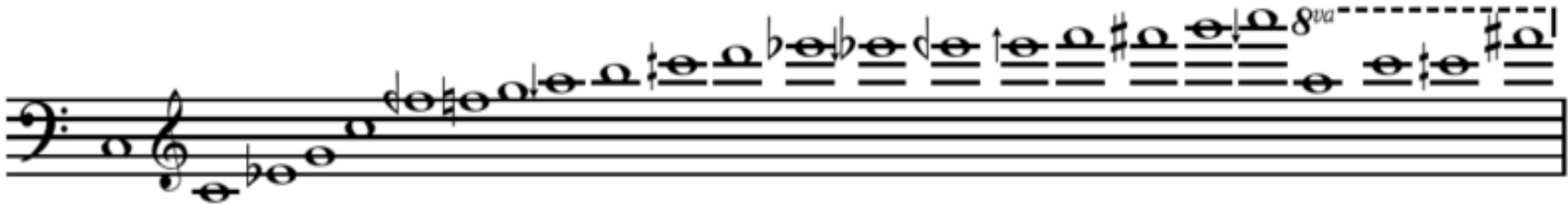
Kirsten Volness – 4 March 2016

Computer Music

- Bell Labs
 - Max Mathews
 - Music–N (beginning 1957)
 - Programs made on punch cards
 - *Bicycle Built for Two* (1961)
- Stanford (CCRMA)
 - John Chowning
 - FM Synthesis (1971) — Synclavier
- IRCAM (1970)
 - Pierre Boulez, Jean-Claude Risset

FFT / Sound Spectra

- FFT = Fast Fourier Transform
 - Algorithm, process by which one can analyze the spectral data in sound
- Jonathan Harvey's *Mortuos Plango, Vivos Voco* (1980)



Human and Superhuman Sounds

- Paul Lansky – *Idle Chatter, notjustmoreidlechatter*
- Trevor Wishart – *Tongues of Fire, Red Bird*

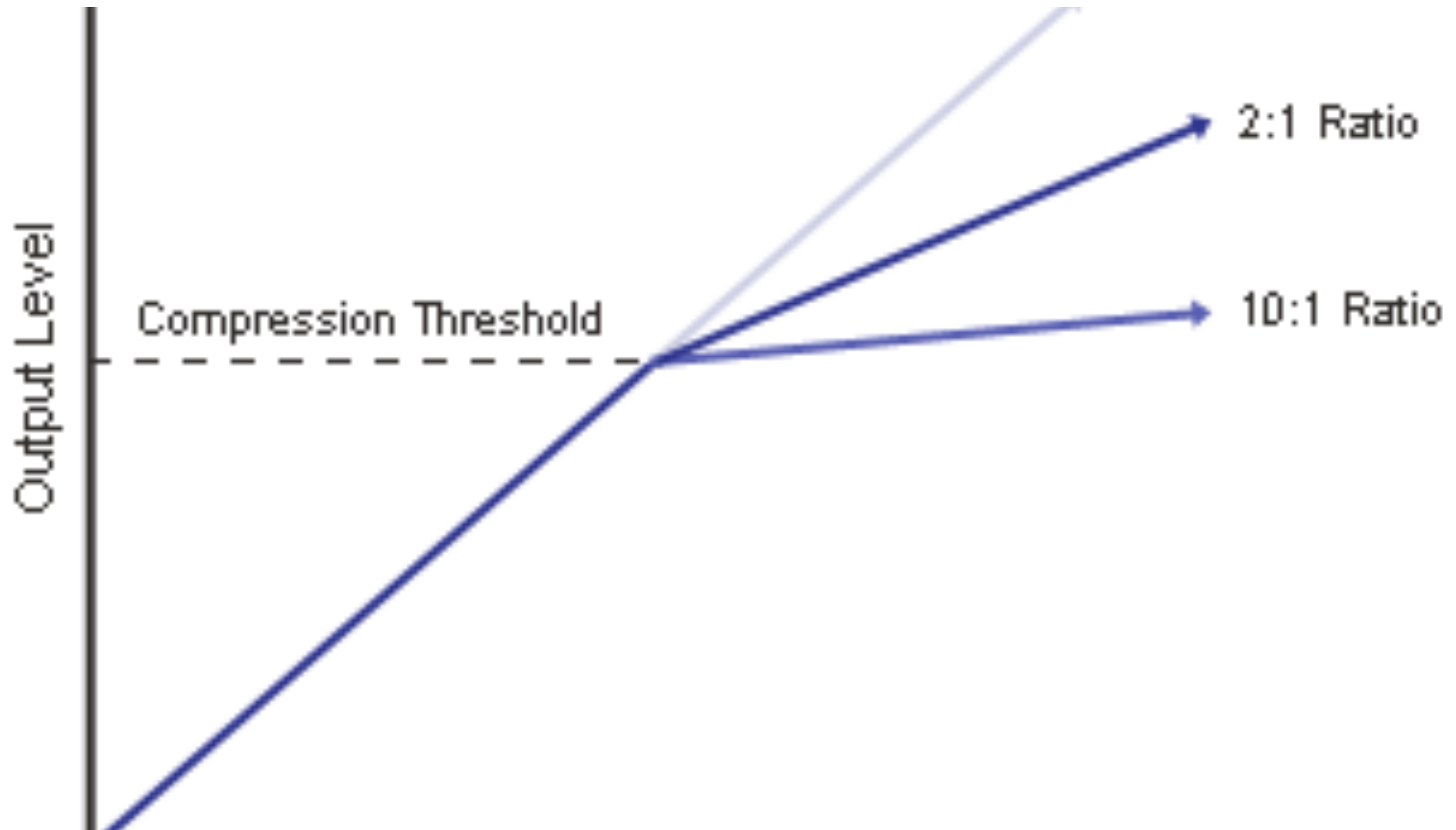
Summary

- Computer music allowed for new modes of composition
- Analytical / algorithmic approach
- Interest in human connection to sounds
- Increased possibility for performativity as technology develops towards invention of synthesizers

Compression

- Threshold – dB level at which compression takes effect (anything louder than -24dB is affected)
- Ratio – amount of compression applied (2:1 = anything louder than -24dB will be $\frac{1}{2}$ as loud)
- Knee – how abruptly the effect is applied
- Expansion – opposite effect (anything louder than -24dB is made 2x as loud)
- Multi-band compressor – changes level of compression based on various frequency ranges

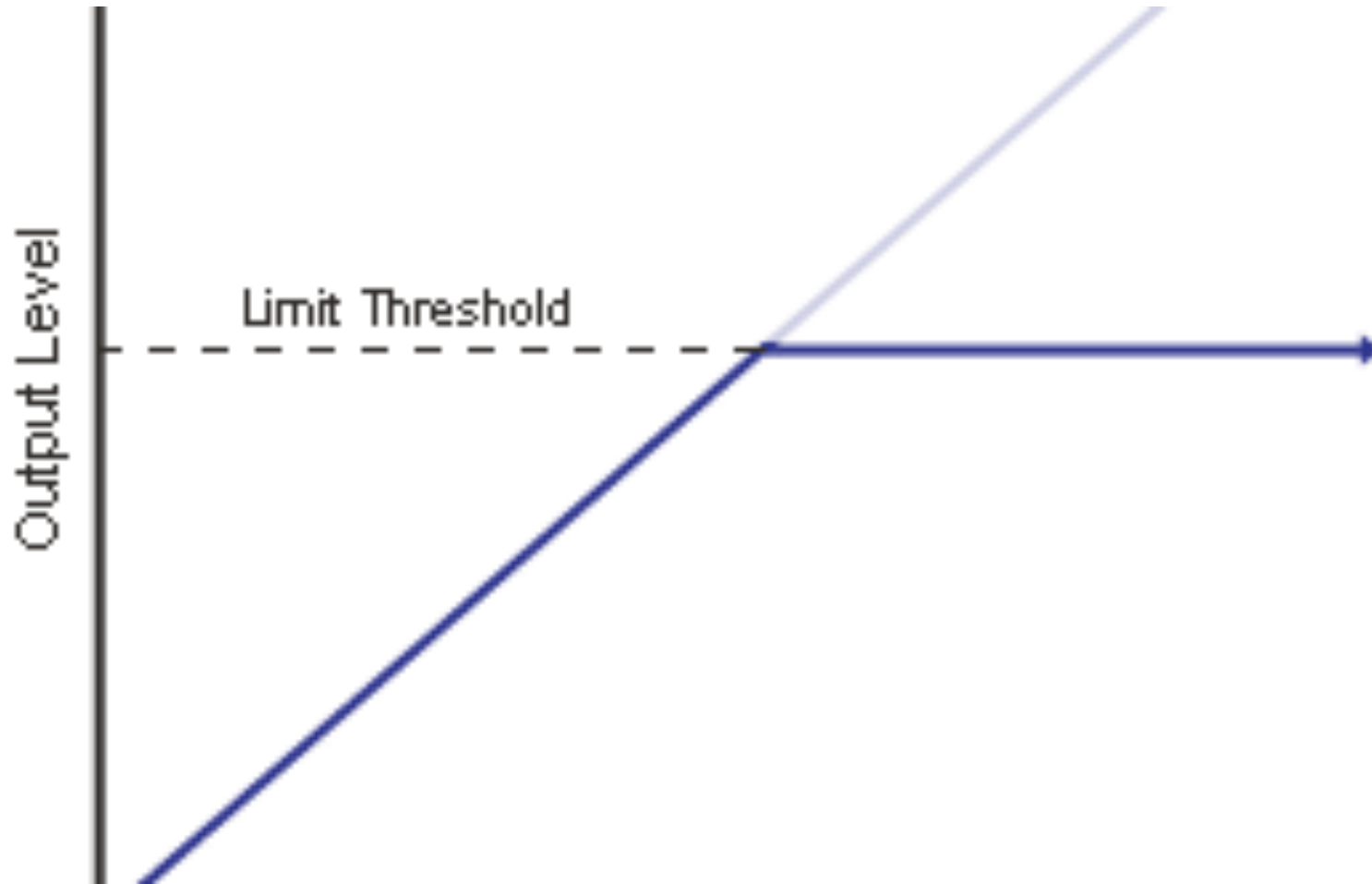
Compression



Limiting

- Creates hard cut off at set threshold (no sound will be louder than -3dB if -3dB is threshold)
- Useful for mastering final mix
- Useful for ensuring your recording will not clip

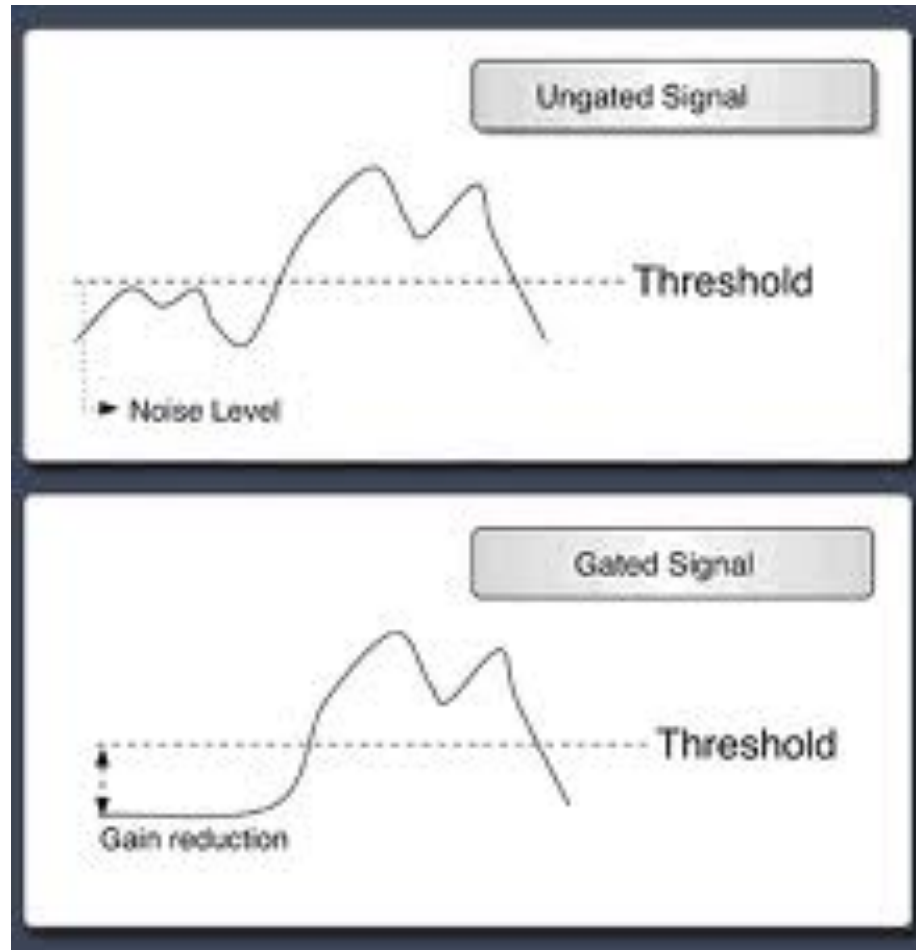
Limiting



Gating

- Allows only the sound that exceeds the threshold to be heard
 - Often used with snare drum so only loudest part of sound is heard (changes sound envelope)
- Sidechain
 - Allows the envelope of one sound to be mapped onto another

Gating



Listening Examples

- Janet Jackson – *What Have You Done For Me Lately?*
- Phil Collins – *In the Air Tonight*
- David Bowie – *Heroes*
- Daniel Worley – *Freak Show*
- Elainie Lillios – *Arturo*
- Evan Chambers – *Lament*