

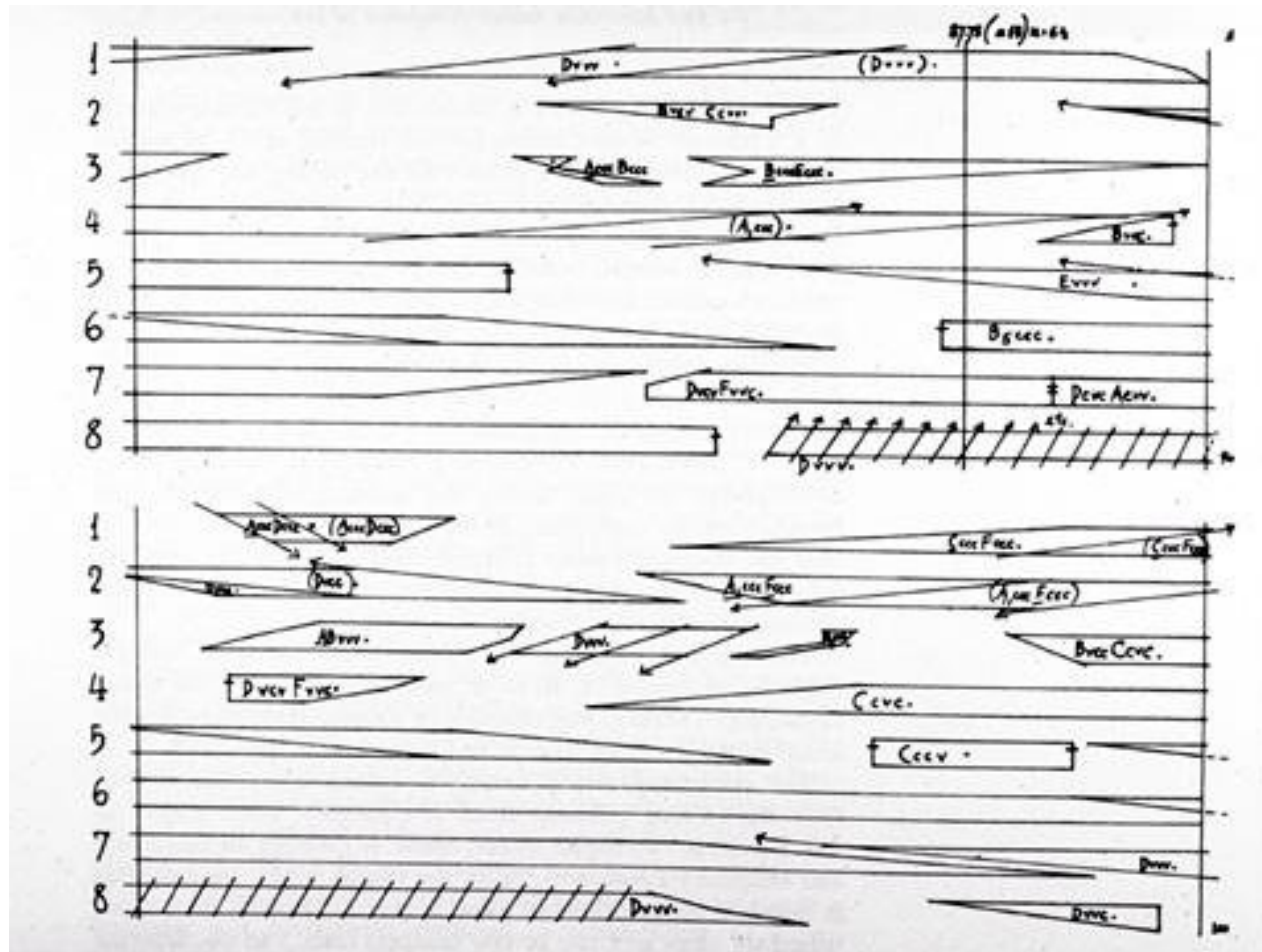
**MUS421–571.1**  
**Electroacoustic Music Composition**

Kirsten Volness – 20 Feb 2018

# Musique Concrète

- First commercial tape available 1947
- First stereo tape available 1949
- Pierre Schaeffer
  - RF (Radiodiffusion Française)
    - later RTF (Radiodiffusion-Télévision Française)
  - *Concert de Bruits* (1948)
  - Pierre Henry + others
  - GRM (Groupe de Recherches Musicales) (1958)
    - Xenakis, Ferrari, Boulez, Stockhausen, Varèse
  - Recording sounds and splicing together tape pieces

# John Cage – Williams Mix (1952)



# Cologne

- 1948 – Bell Labs Voder to Meyer-Eppler
- Eimert, Stockhausen, Maderna
  - WDR (Westdeutscher Rundfunk) 1951
  - Serialism
  - Synthesis
    - Sine waves as source instead of recordings

# Columbia–Princeton

- Tape music center at Columbia
  - Vladimir Ussachevsky and Otto Luening
- Collaborated for funding of RCA Mark II Synthesizer
  - Milton Babbitt at Princeton

# Milan

- Luciano Berio and Bruno Maderna
  - Studio di Fonologia Musicale (1955)
  - Less of an aesthetic agenda / free for all

# Tokyo

- NKH (Nippon Houso Kyokai / Japanese Broadcasting Corporation)
  - Toshiro Mayuzumi and Minao Shibata
  - Stockhausen, Cage visited

# Brussels World's Fair 1958



Philips Pavilion – designed by Le Corbusier and Iannis Xenakis



# Summary

- Technology gains greater influence over musical form and content
  - Varèse
- Influence of new systems of musical organization
  - Serialism, Futurism, Atonality, Structure/math
- Variety of communities exploring new possibilities, performance situations

# Recording Basics

- Start with quiet space!
- Microphones + XLR cables
  - Dynamic vs. condenser (phantom power)
  - Large diaphragm vs. small diaphragm
- Mic Placement
- I/O: input and output
- Record enable track
- Check levels (headroom?)
- Need pop filter or windscreens?
- Rec+play to begin recording
- Label your takes right away or take notes
- Normalize / noise reduction = step one

# SPACE



The Multiverse

# Panning

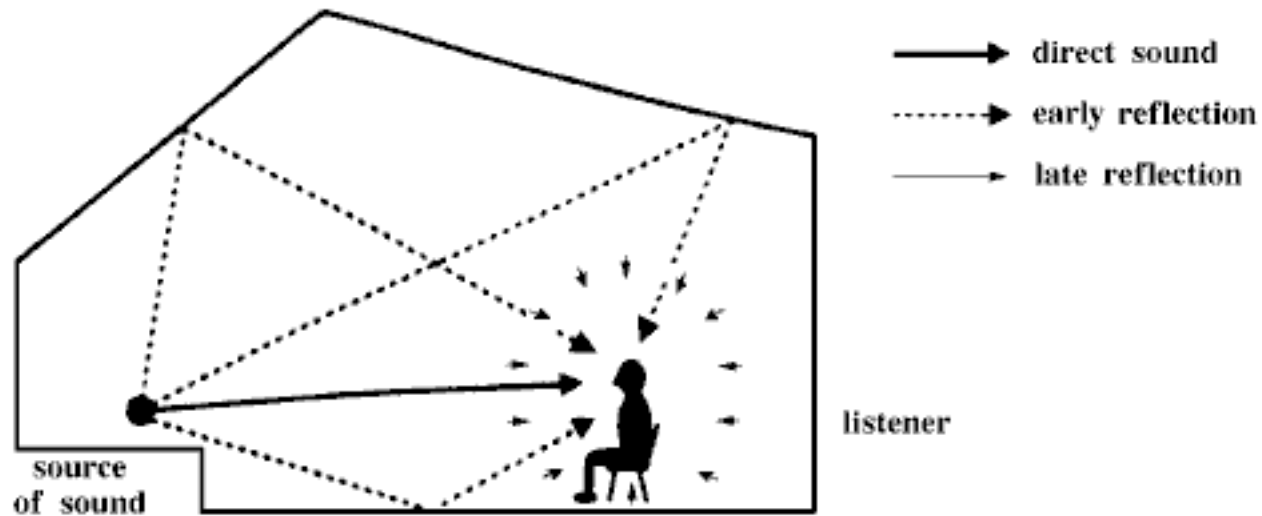
- Changing the location from which a sound originates
- Panorama
- Speaker configurations
  - Stereo (Left / Right)
  - Surround (Left / Center/ Right / Rear Left / Rear Right)
  - Octaphonic (Left, Front Left, Front Center, Front Right, Right, Rear Right, Rear Center, Left Right)
  - The “.1” in 5.1 refers to a separate subwoofer channel
  - LFE (low-frequency effects) + crossover
- Easier to differentiate Left/Right than Front/Rear

# Delay

- Echo – distinct iterations
  - Slapback – early automatic double tracking
- Controls
  - Dry: unaffected source sound
  - Wet: processed sound
    - Mix refers to Wet/Dry signal balance
  - Delay/Time: in ms (milliseconds), how much later the echo begins
  - Feedback: sound resonates with itself, adding amplitude and more echos – can be dangerous!
  - Depth/Rate refer to modulation (next week)

# Reverb(eration)

- Direct signal: dry sound from source
- Early Reflections: first bounce
- Reverb: multiple bounces / passes around the room



# Reverb(eration)

- Also echoes, but indistinct iterations
- Dry / Wet Mix: same concept as with delay
- Time or Decay: how long the reverb lasts
- Pre-delay: how long after the attack of the dry signal the reverb kicks in
- Diffusion: how clear or diffuse the reverberations are
- HF cut (high frequency cut) and LP filter (low pass filter) – changes frequency content of reverb
- Reverb damping – which frequencies are affected and to what extent
- Room shape / size — relates to time

# Listening Examples

- Luciano Berio – *Thema–Omaggio a Joyce*
- Terry Riley – *A Rainbow in Curved Air*
- Matmos – *Reconstruction*
- Pink Floyd – *Us and Them*
- Elvis Presley – *Heartbreak Hotel*
- Johnny Cash – *I Walk The Line*
- Buddy Holly – *Peggy Sue*
- The Ronettes – *Be My Baby*
- Led Zeppelin – *When the Levee Breaks*
- Queen – *Bicycle Race*
- Belle & Sebastian — *Act of the Apostle I*