Chapter 14. Meeting 14, Interfaces: Sequencers, Rhythm Machines, and Samplers

14.1. Announcements

• Music Technology Case Study Drafts due next Tuesday
  Draft should meet minimum requirements of final paper
  Contact me with questions or problems
  Submit draft digitally by midnight on Tuesday

• Next Tuesday: bring your laptops with PD-Extended and Martingale

14.2. Quiz

• 10 Minutes

14.3. Listening: Oswald

• Audio: John Oswald, "Black"

14.4. Reading: Oswald


• 1960s: Mellotron, tape-based sample playback machine where each key pressed a tape-head onto a tape

• 1979: Fairlight Computer Musical Instrument (CMI): first polyphonic digital sampler
  YouTube (http://www.youtube.com/watch?v=n6QsusDS_8A)

• 1984: Ensoniq Mirage sampler: first affordable sampler
• Can an instrument or a timbre be considered a composition, like a sample?
• Is it a problem that musical notation does not have a quotation mark?
• How can a casual home listener become a more active listener?
• Why, in Oswald’s view, might all popular or folk music be public domain?

14.5. The Sequencer

• Numerous early synthesizers by Moog, Buchla, and ARP offered various forms of step sequencers

• At a minimum, provided a series of voltages that could be stepped through

• A custom-shaped LFO

• The Sonology Variable Function Generator: a custom sequencer capable at running at the audio rate
14.6. Moog 960 Sequential Controller

• Sequential controller provided a sequence of voltages that could be used to control any musical parameter

• Moog 960 Sequential Controller (1968)
• Permitted 8 steps, each step with three voltages
• Each step could be played, skipped, or used as a point of loop-back
• With a Moog 962, three rows could be treated as one 24 step sequence
• Output could be shifted by another, independent voltage to create arpeggios
• Examples
  YouTube (http://www.youtube.com/watch?v=H2zpMKKamWI)
  YouTube (http://www.youtube.com/watch?v=gNmzyZaqVwI)
• Arturia virtual Moog modular, with row 1 modulating oscillator frequency and row 2 modulating filter cutoff frequency

14.7. Drum Machines: Early Experiments: Rhythmicon

• 1931: Henry Cowell commissioned Termin to build a machine that could play complex rhythms
• Could produce sixteen parts
• Schillinger with the Rhythmicon
14.8. Drum Machines: Organ Accompanists

- 1959-1964: Wurlitzer Sideman

  Analog sound sources employing tubes
14.9. Drum Machines: Analog Drums

- 1970s: Rhythm Ace, by Ace Tone (later Roland)
• 1978: Roland CR-78: programmable drum machine, analog drum voices
  preset rhythms for Waltz, Bossa Nova and Rhumba; preset fills and variations
• 1980: Roland TR-808 Rhythm Composer

transistor rhythm (TR); sixteen sounds; 32 programmable steps

Image courtesy of dAvid on Flickr.

• Numerous software emulations available: http://www.hobnox.com/index.1056.de.html

14.10. Afrika Bambaataa

• Associated with Afro-futurism
• From the South Bronx and development of hip-hop in the late 1970s
• Embrace of analog drum sounds and drum machines when not broadly accepted

14.11. Listening: Bambaataa

• Audio: Afrika Bambaataa, "Planet Rock" 1982

- 1979: Linn Electronics LM-1
  
  First programmable sampling drum machine; 18 sounds, $5000

- 1982: LinnDrum
  
  $3000

Courtesy of Roger Linn Design. Used with permission.
• 1984: Linn 9000

Sampling drum machine with MIDI sequencer
• 1988: Akai MPC60

Linn worked with Akai to create MPC series
recent: Akai MPC1000

64 track MIDI sequencer, 32 voice stereo sampler, compact flash data storage
• Pete Rock on the MPC (1:43, 2:43)
  YouTube (http://youtube.com/watch?v=Faad8AmCl8c)

• Examples
  YouTube (http://www.youtube.com/watch?v=gFWazOuwwgw)

14.13. Listening: Public Enemy
• Audio: Public Enemy: "Fight the Power"

Figure 1: “Fight the Power,” opening groove

- Why does Walser see the use of transcriptions as important?
• What are common arguments why rap is not music?
• What techniques of sampler misuse and audio production are used to create the Bomb Squad sound?