Session 6
Basics of west coast approach

VA309 Modular Sound Synthesis @ EKA
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Informational / Organisational

Coursework 2 deadline postponed by a week!

New deadline is Nov 1st due to the workshop week.

Don't forget that this task and deadline still exist!

Recap of previous sessions

- What is used to generate a tempo signal? What are this signal's properties?

Recap of previous sessions

- Which module creates numerous related clocks out of a single clock source?

- What can it be used for?

Recap of previous sessions

- What is a sample & hold module?
- What can be used as a sample input?
- What effects could be made with S&H?

Today

- First half: brief history and basics demo of the west coast paradigm
- Second half: practical excercise

Back to the 1960s

- **1963 –** simultaneously with Bob Moog, Don Buchla makes his first commercial modular at the USA's other coast

- Is commissioned by two San Francisco Tape Music Center musicians, Ramon Sender and Morton Subotnick

- The core "modular synth" principle is *similar:* single function modules interconnected with patch cables

- the modules and the approach are *quite different:* no filters, no 12-tone keyboards, no ADSR envelopes, …

Some of the west coast style traits

- Detachment from 12tet scales and tonality in general
- Usage of electronics to create rhythms deemed impossible to play for humans
- Usage of audio-rate frequency modulation (FM) and audio feedback
- Attention to spacial aspects of sound – e.g. a quad setup was not uncommon
- Musical usage of randomness and chaos
- Enriching harmonically clean sounds (such as sinewaves) with wavefolders and distortions

TL:DR

- Moog was trying to expand on classic musical concepts by bringing electronics into the existing musical world
  → *east coast*

- Buchla was trying to defy existing musical concepts by using electronics for what humans cannot do or perceive
  → *west coast*

- (nowadays everything is mixed down into one boiling mishmash)

Buchla 100 series (1963-1970)
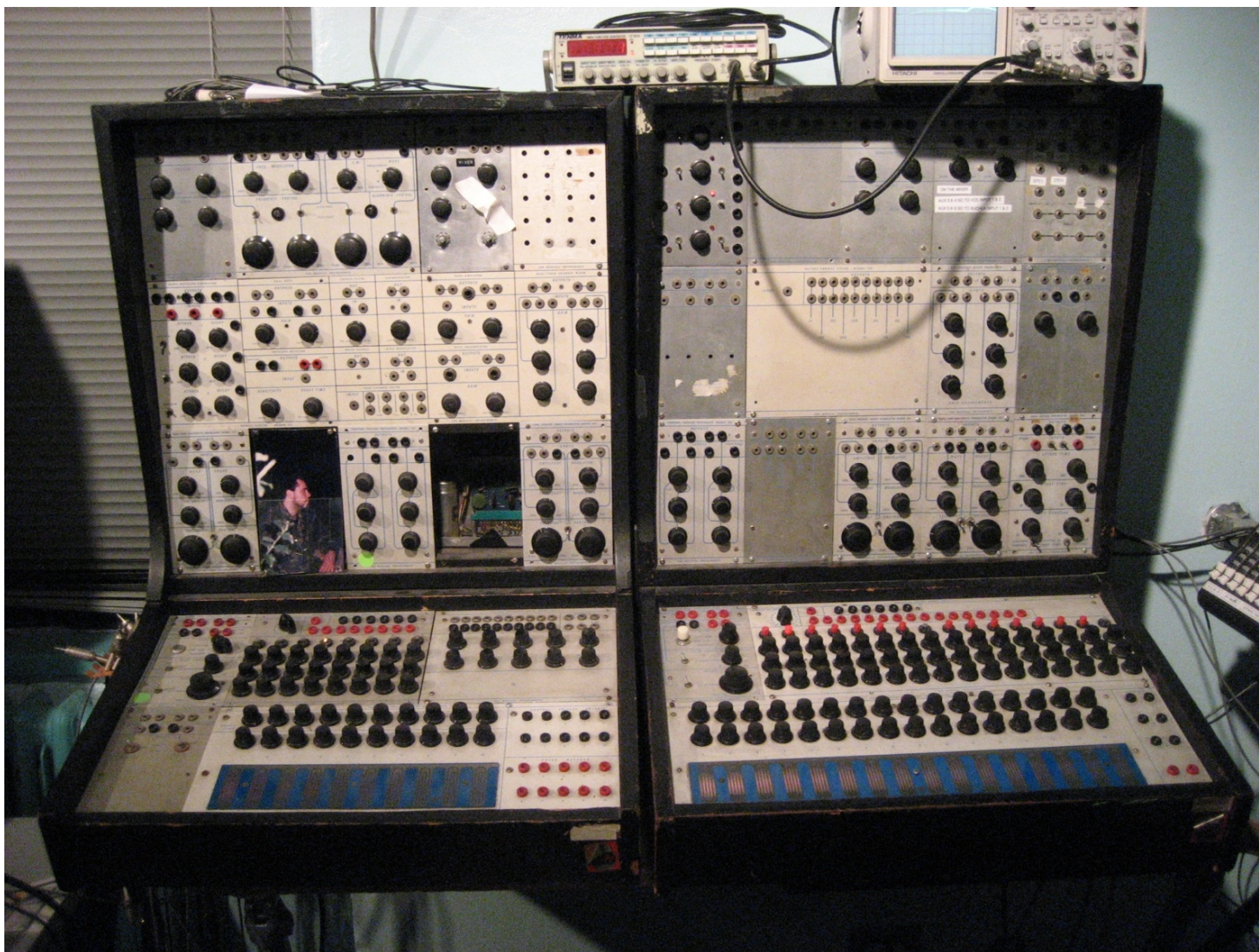
Buchla Music Easel (1973)

Modules of the style: wavefolder

Wavefolder (adjacent devices: wave multiplier, waveshaper, distortion)
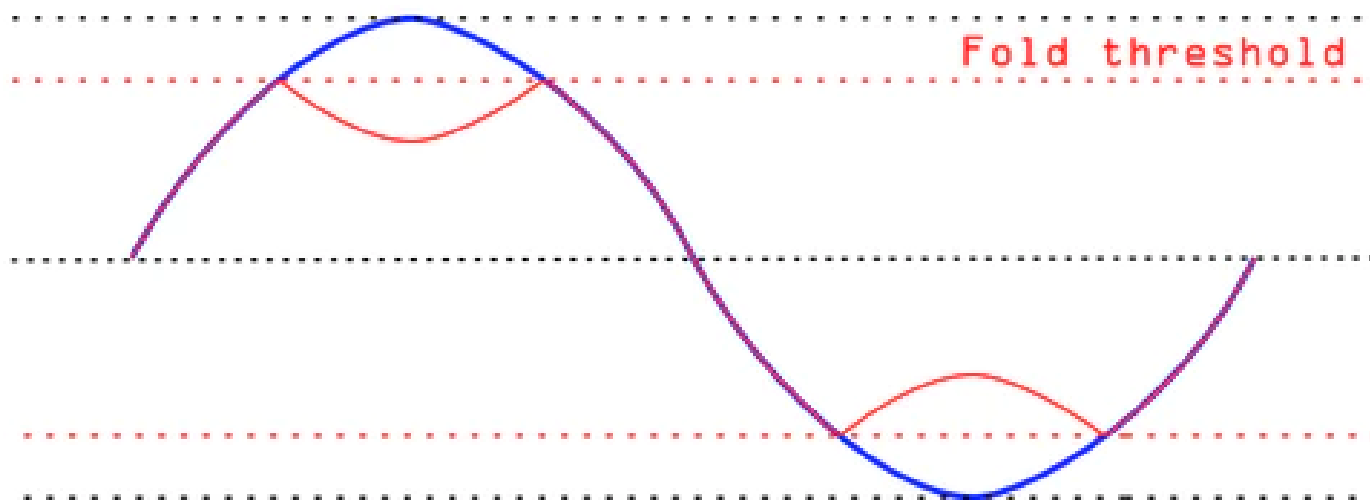
- Works best with **continuous signals** (sine, triangle, sawtooth) and *not* binary or stepped signals (pulse, S&H output)

- **Generates additional harmonics** by "folding", rectifying and distorting

- May have any number of parameters, all affecting the sound, some possibly affecting each other

    → *is a bit trickier to control than a VCF*

Wavefolding

Dry signal

Fold threshold

Folded signal

[image]

A-137 controls

- **Multiples** (CV input + attenuator and initial setting): amount of overtones
- **Folding level** (same): the threshold at which the wave becomes folded
- **Symmetry** (same): skews the positive/negative halves of the wave
- **Harmonics** (same): adds spiky high-order harmonics
- **Sound input** with input level
- **Sound output**

Modules of the style: low pass gate (LPG)

- A combination of a **low pass VCF** and a **VCA**

- **One** control for both volume and filtering

- **Louder = brighter, quieter = dimmer** (lowpass cutoff ~ VCA volume)

- Classic LPGs are **not resonant**

- **Vactrols** (LED + light dependant resistor) give classic LPGs their characteristic ringing and organic sound, because LDR's resistance cannot change instantly and has certain inertia

A-101-2 controls

- **CV input 1** (no attenuator, NOT 1v/o)

- **CV input 2** (with attenuator)

- **Audio input** (with volume control)

- **Audio output**

- **Gate inputs** to externally force a mode

- Overall level **indicator**

- **Initial level** (affects both volume and tone)

- **Resonance setting** (no CV over reso, 0 = 'classic LPG')

- **Function select switch:** LP (lowpass VCF), L+V (classic LPG), VCA. Usually kept at center

Let's build a simple west coast style patch!
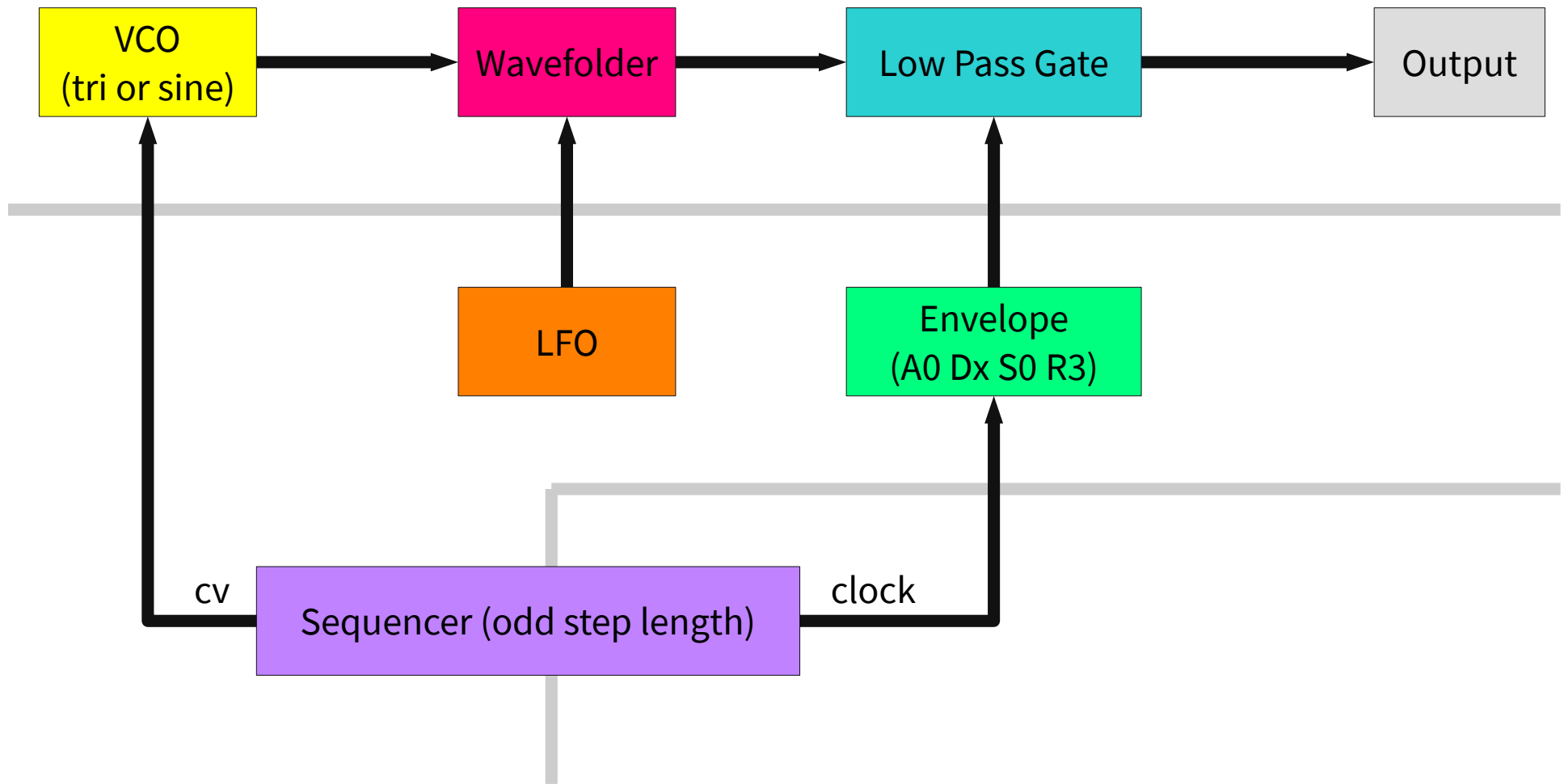
Exercise!

- Build a patch similar to the basic idea from the previous slide
- Add a bit of your personal flavor to it!