

## Last lecture

- Psychoacoustics, why and how of sound \*effects\*

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- Context and devices, phones, games, radio, cinema etc, media classes

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- Psychoacoustics, why and how of sound \*effects\*
- Context and devices, phones, games, radio, cinema etc, media classes
- Tools, programming, control over sounds - INTERACTIVE \*in real time\*

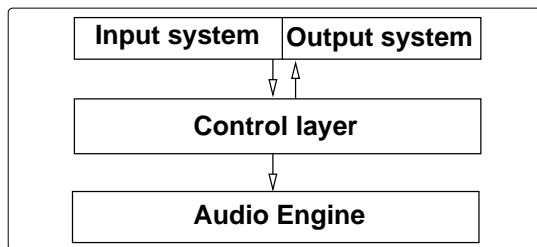


Figure: Interactive audio systems layer 1

## Building simple patches

- Objects, boxes, arithmetic etc, printing, 'domains' (message and signal)

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- Hot and cold inlets, evaluation order

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- Objects, boxes, arithmetic etc, printing, 'domains' (message and signal)
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- Lists, packing and unpacking lists
- Hot and cold inlets, evaluation order
- Float boxes

## Message domain review

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- Message domain delays, metro and bang sequencing
- Counters
- Cycling and sequencing with select and modulo
- Brief introduction to arrays and graphs

## Simple oscillators and envelopes

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- Cosine of a phasor, cosinusoidal oscil
- Lines and envelope generators
- Sub-patching revisited

# Phone signalling tones

Imagine you have received a script for the following scene:

spy 1: *Picks up telephone* (sfx: **Dialing tone from handset**)

spy 1: *Dials number* (sfx: **Ringling tone from handset**)

spy 2: "Hello, this is the Badger."

spy 1: "This is Fox. The dog has the bone, the seagull flies tonight."

spy 2: "Good, Fox. Now the Americans will pay for their deception... hold on..."

(sfx: **click - telephone line goes dead**)

Create the sound effects for telephone tones heard through the handset when making the call.

# CCITT tones table

Tone name	Frequencies	Modulation	Purpose
Dial tone	480Hz + 300Hz	Continuous	Indicate ready to receive
Ringing tone	480Hz + 300Hz	On 2s, off 4s	Indicate remote ring

	1209Hz	1336Hz	1477Hz	1633Hz
697Hz	1	2	3	A
770Hz	4	5	6	B
852Hz	7	8	9	C
941Hz	*	0	#	D

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- DTMF signals

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- Dialing tone, busy tone, ringing tone
- Telephone line and handset as a filter
- DTMF signals
- Using a lookup table made from message boxes

## Conditional and dynamic control changes

- Random numbers and control

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- Random 'music'