Overview: Klax World Model

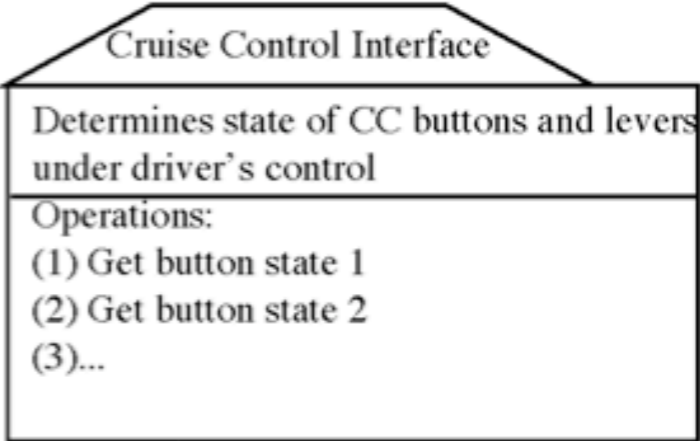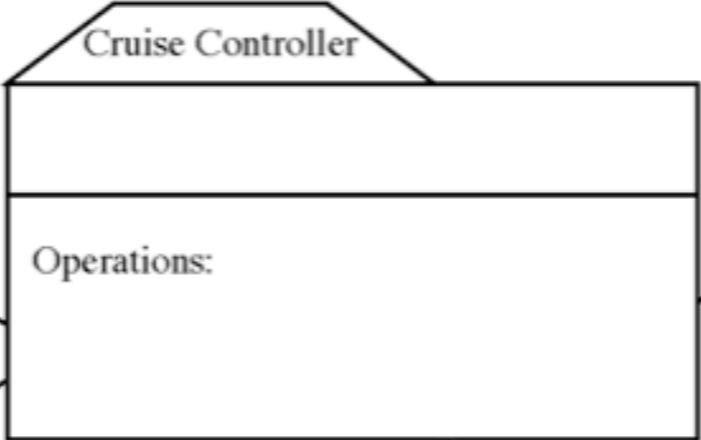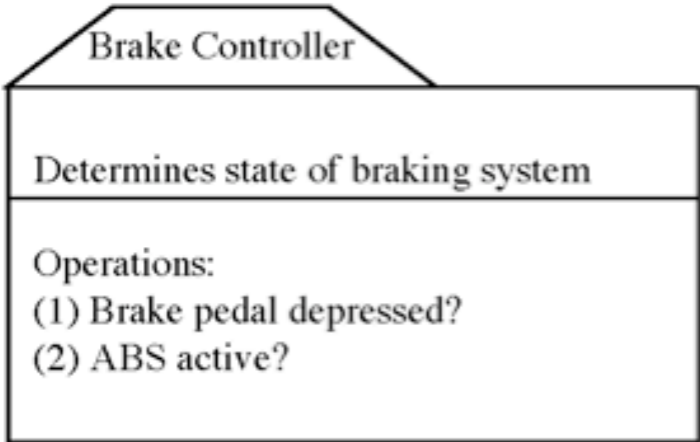*Justin R. Erenkrantz*
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ICS 52: Introduction to Software Engineering
Wednesday, October 6th, 2004

Important Notes...

- *Hard copies **must** be double-spaced*

- *Hard copies **can** be double-sided (duplex)*

- *A word to the wise: I will be traveling late next week and will have sporadic email access. **If** I reply, it'll be delayed.*

- *Office hours MW 3:30-5pm in ICS2 246*

- *These slides should be posted soon (Friday?)*

Cruise Control System

Brake Controller
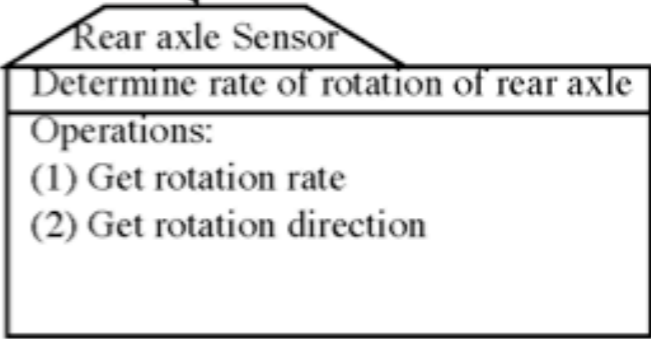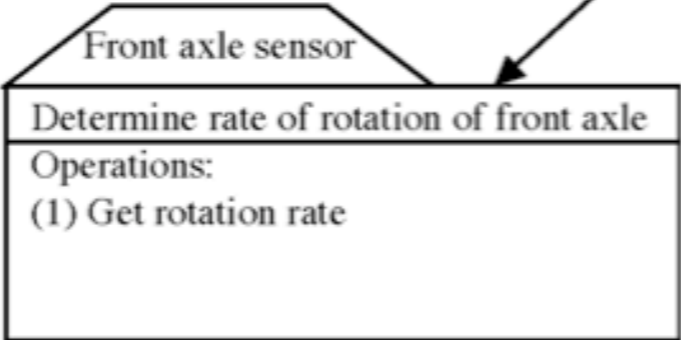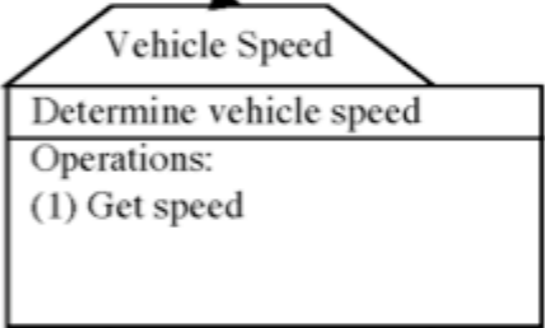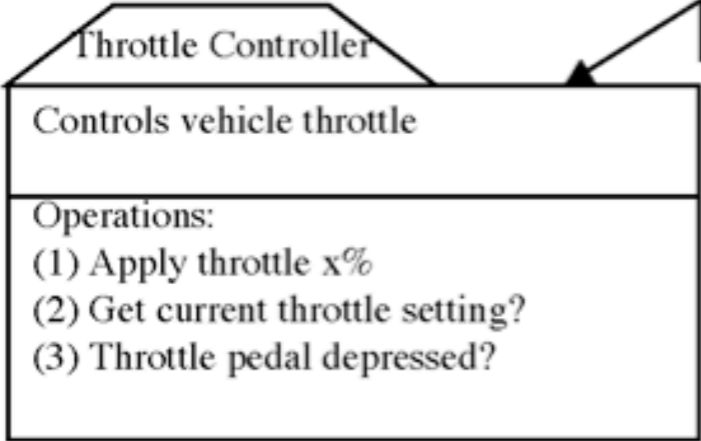
Determines state of braking system

Operations:
(1) Brake pedal depressed?
(2) ABS active?

Cruise Control Interface

Determines state of CC buttons and levers under driver's control

Operations:
(1) Get button state 1
(2) Get button state 2
(3)...

Cruise Controller

Operations:

Notes:

1. No transmission status?

2. CC doesn't access axle sensors directly

Throttle Controller

Controls vehicle throttle

Operations:
(1) Apply throttle x%
(2) Get current throttle setting?
(3) Throttle pedal depressed?

Vehicle Speed

Determine vehicle speed
Operations:
(1) Get speed

Front axle sensor

Determine rate of rotation of front axle
Operations:
(1) Get rotation rate

Rear axle Sensor

Determine rate of rotation of rear axle
Operations:
(1) Get rotation rate
(2) Get rotation direction

Cause and effect: Automobile

- *What happens when I turn wheel to right?*

- *...when I try to lower windows? Driver-side?*

- *...when I turn the wheel left before starting?*

- *...when I switch to reverse while driving?*

- *...when I apply emergency brake?*

- *...when I open the door with keys in?*

Goals of a good specification

- *Says what system does and doesn't do*
- ***Clearly*** *explains the system* ***comprehensively***
  - *Explain to a first-grader (aka computer)*
- *Take any system and* ***all*** *behavior would be defined by its specification*
- *Reverse applies too: Using just the specification, you can design the system*

KLAX!!!
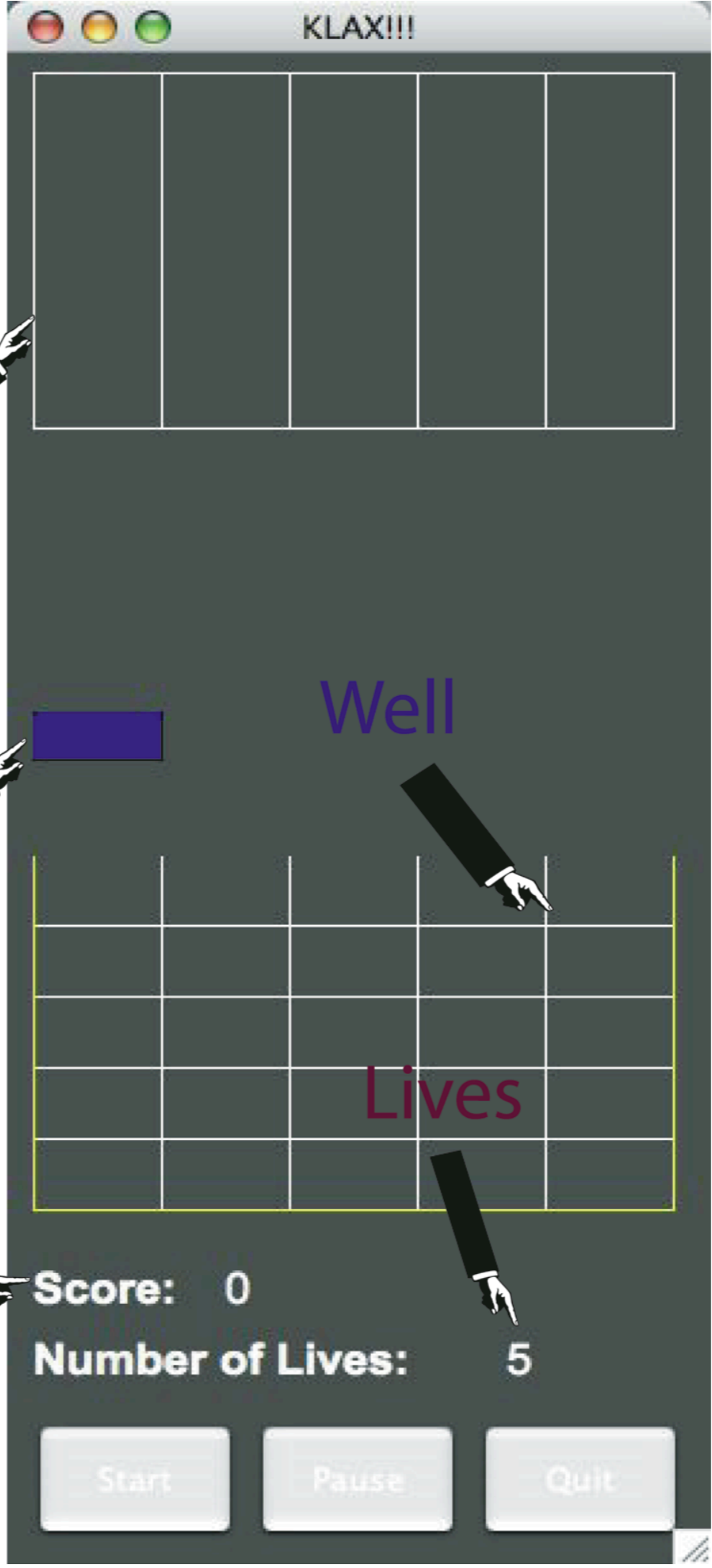
Chute

Well

Palette

Lives

Score

Score: 0

Number of Lives: 5

Start   Pause   Quit
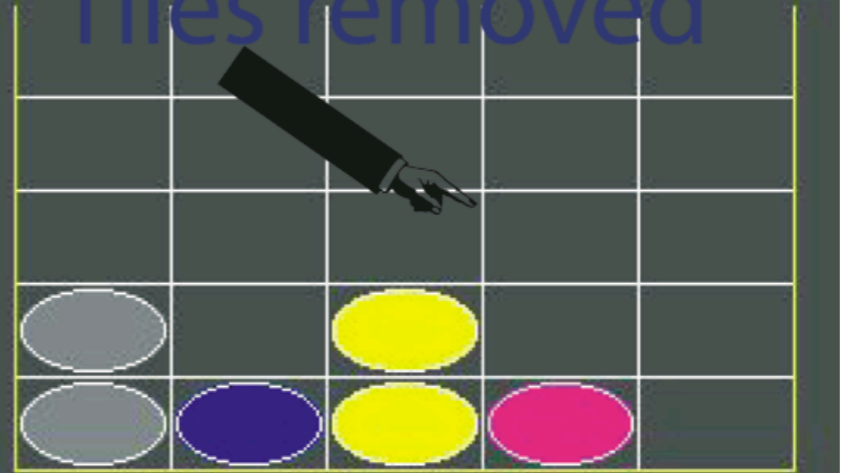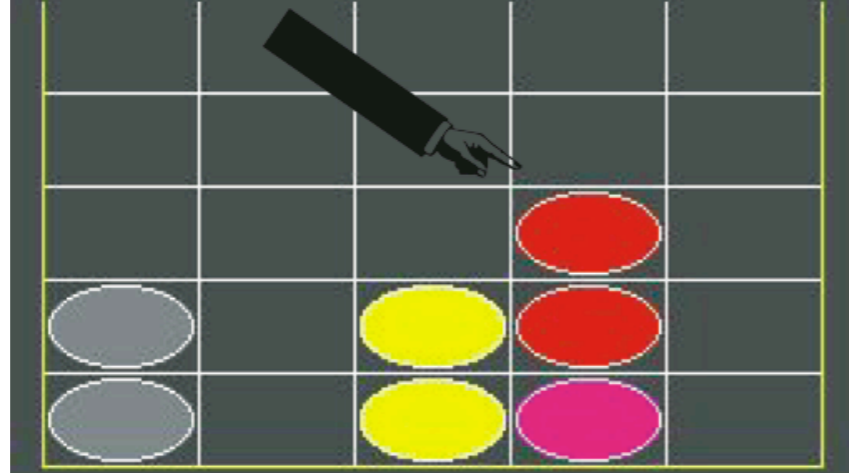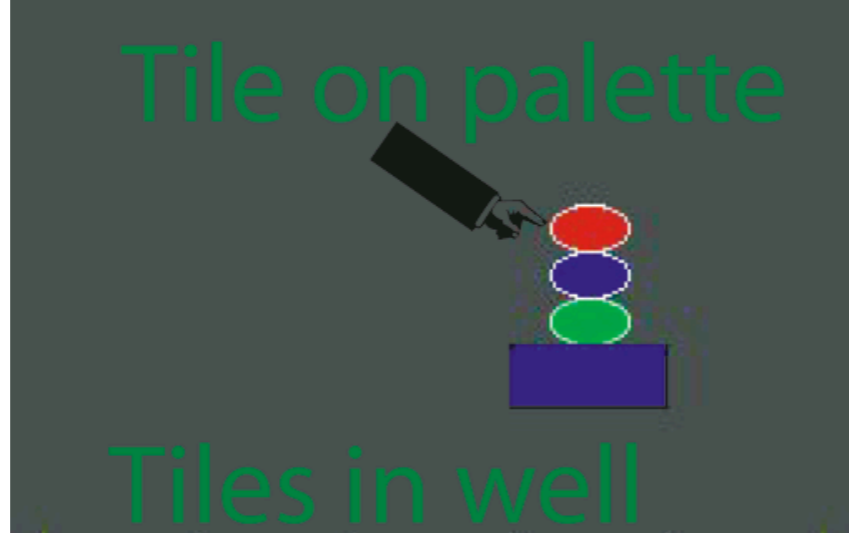
Questions you should answer

- *Object-oriented analysis: Try to abstract!*

- *Try to answer the 4 W's + H.*

- *Who uses X? What is X? Where is X? When is X used?*

- *How many of X? How does X change?*

- *Can X change? When can X change?*

What is X?

- *Describe the visual features of X*
  - *Color, shape, size?*
  - *Is there meaning or relevance?*
- *Describe the functionality of X*
  - *What is the intended purpose?*
  - *How does the user influence X?*

Tile in chute

No tile in chute

Tile on palette

Red tile not on palette

Tiles in well

Tiles removed

Score: 310

Score: 365

Number of Lives: 4

Number of Lives: 3

Start   Pause   Quit

Start   Pause   Quit

Cause and effect: Palette

- *What if a palette misses a tile?*

- *What if a palette is underneath a tile?*

- *What if a palette is full? (What is full?)*

- *What if a tile drops on an empty well?*

- *What if a tile drops on a partially full well?*

- *What if a tile drops on a full well?*

Cause and effect: User Input

- *What happens when I hit left at 1st column?*

- *...when I hit right at 1st column?*

- *...when I hit down with no items?*

- *...when I hit down with four items on palette?*

- *...when I hit left before I hit 'start'?*

- *...when I hit 'Start' after I die?*

Role of the prototype

- *Guide on what these answers should be*

- *However, the prototype is not perfect*

- *You will be forced to use common sense*

  - *Where is the prototype incorrect?*

  - *These are great for future changes!*

  - *Include justification as to why incorrect*