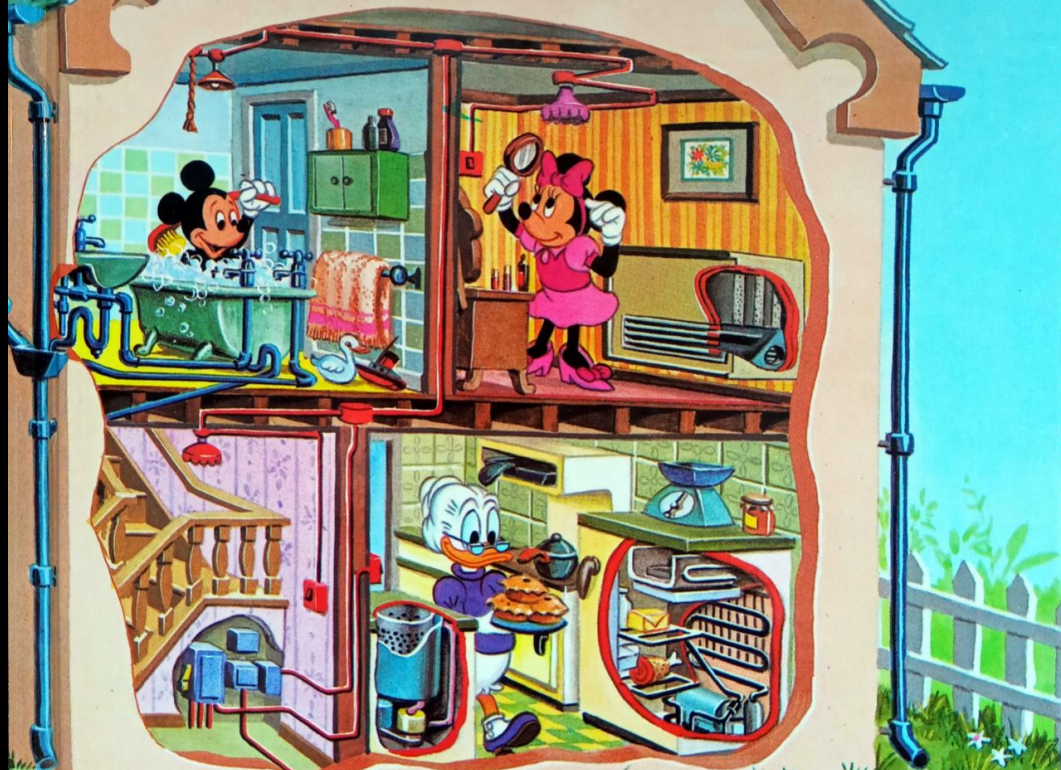


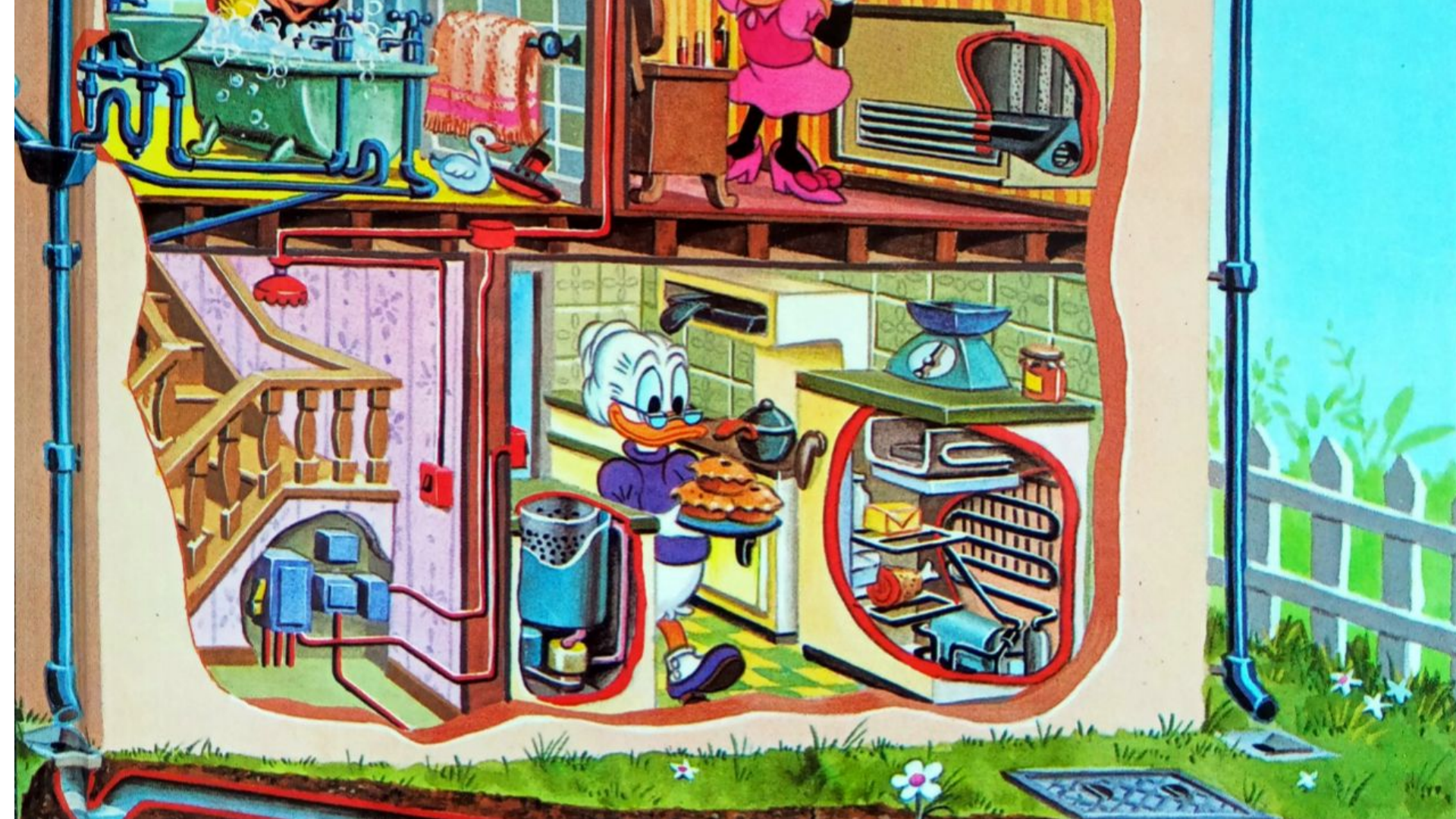
# Systems at Work & Play: Holism in an Agile World

Wil Wade



# How It Works in the HOME

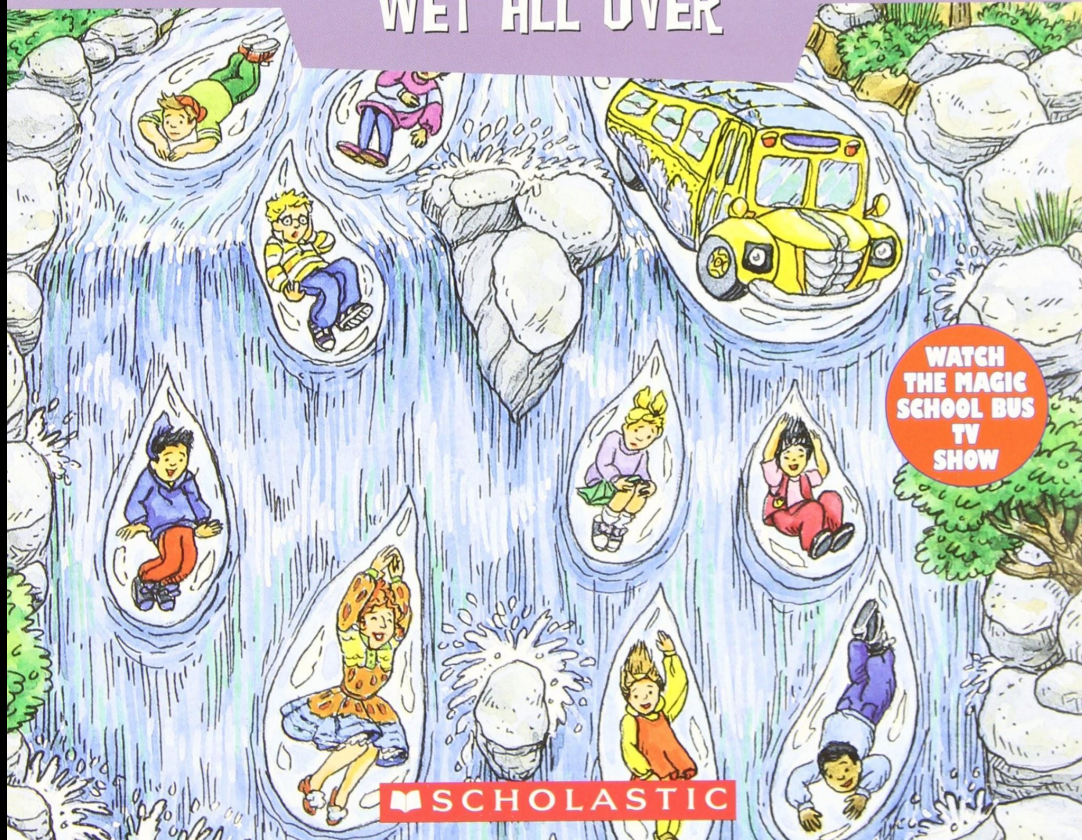





# The Magic School Bus®

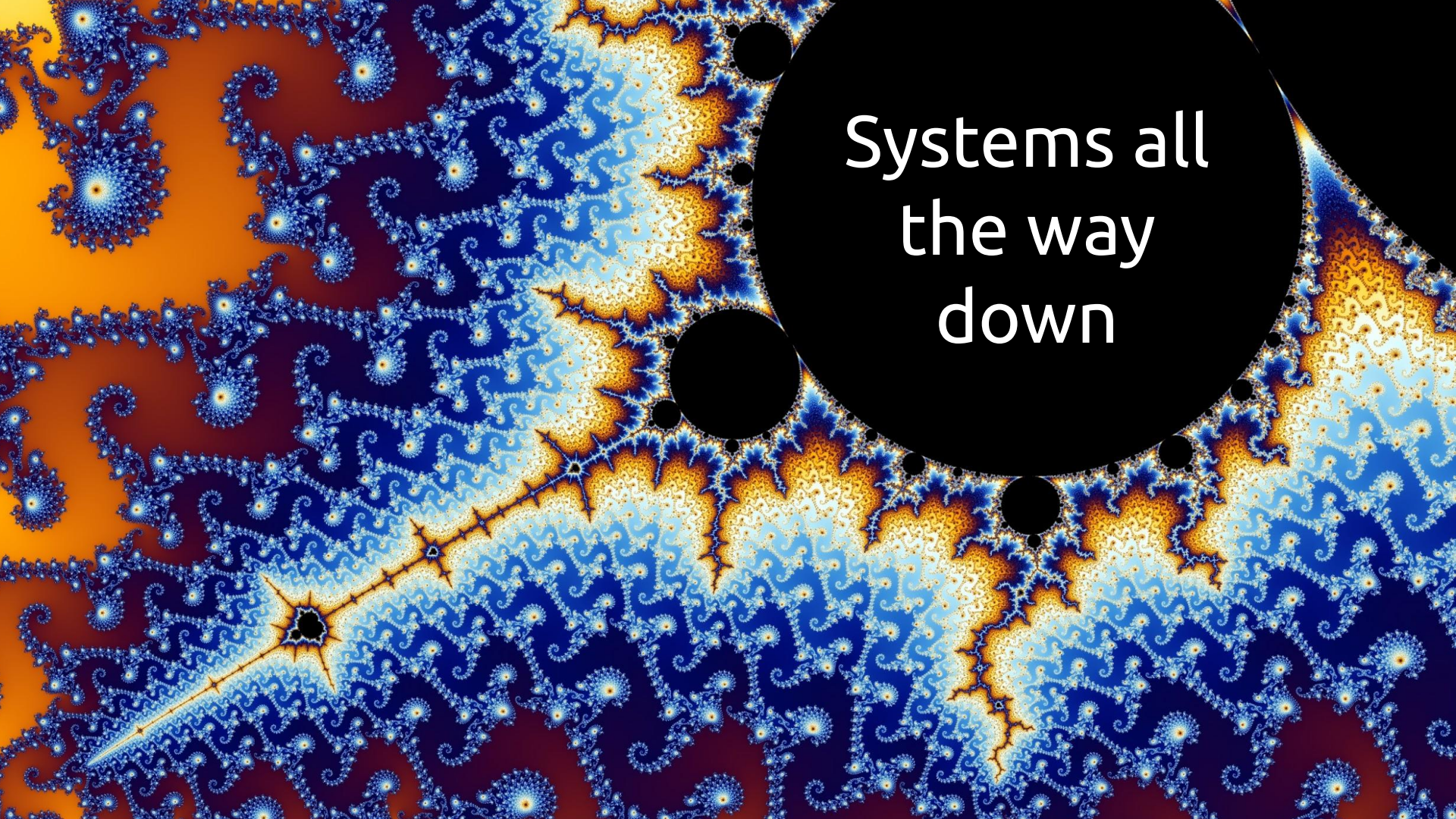


WET ALL OVER




WATCH  
THE MAGIC  
SCHOOL BUS  
TV  
SHOW

 SCHOLASTIC

The background is a highly detailed fractal image, likely a Mandelbrot set, rendered in a color palette of deep blue, bright orange, and dark red. The fractal exhibits intricate, self-similar patterns of spirals and branching structures. A large, solid black circle is positioned in the upper right quadrant, containing the text "Systems all the way down" in a white, sans-serif font. Several smaller black circles of varying sizes are scattered across the fractal background, some appearing to be part of the fractal's structure and others as separate elements.

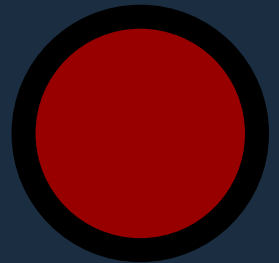
Systems all  
the way  
down



I sometimes say that generalists are the most specialized people of them all, so specialized they can't in fact do anything. Except make observations of that nature.

- Tyler Cowen

Language



microsystem  
adaptation exosystem  
chronosystem  
autonomous  
bounded feedback loop  
throughput  
boundaries transactions  
macrosystem dominance loop  
homeostasis regulator  
stock feedback  
reciprocal  
cybernetics dynamics flow  
suboptimization mesosystem stocks  
reciprocal transactions  
environment rationality



A structure of [things]  
connected by  
[relationships] that  
produces behaviors.



A large, chaotic pile of unsorted LEGO bricks and pieces in various colors including red, blue, yellow, green, black, white, and grey. The pieces are scattered and mixed together, with some recognizable parts like a black keyboard and a white 'POLICE' sign visible. A white rectangular box is overlaid in the center of the image.

Not a System

The relentless building block video puzzle.

# TETRIS



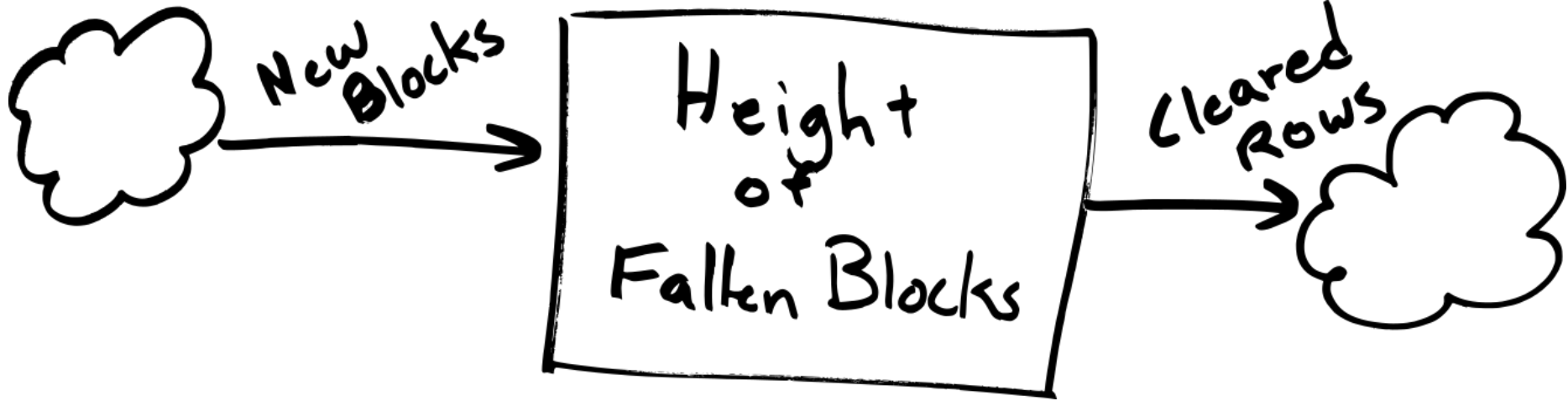
**Nintendo**

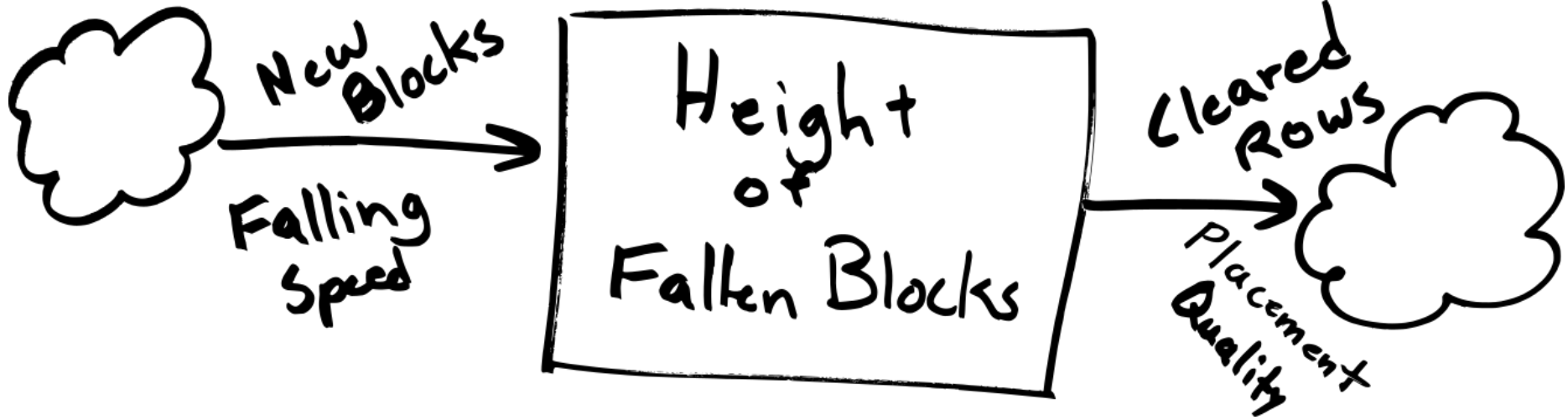
ENTERTAINMENT  
SYSTEM

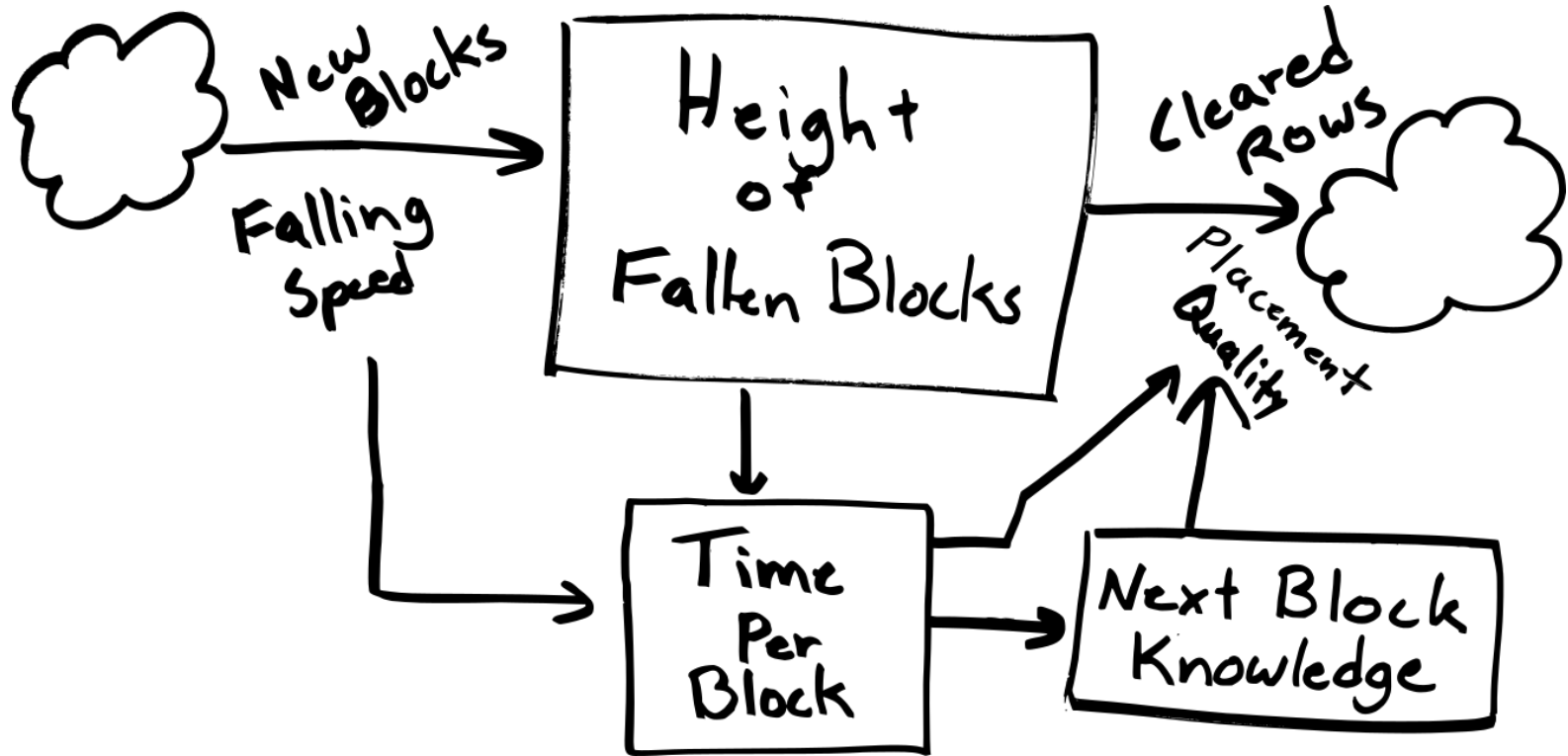
FROM  
RUSSIA  
WITH FUN!

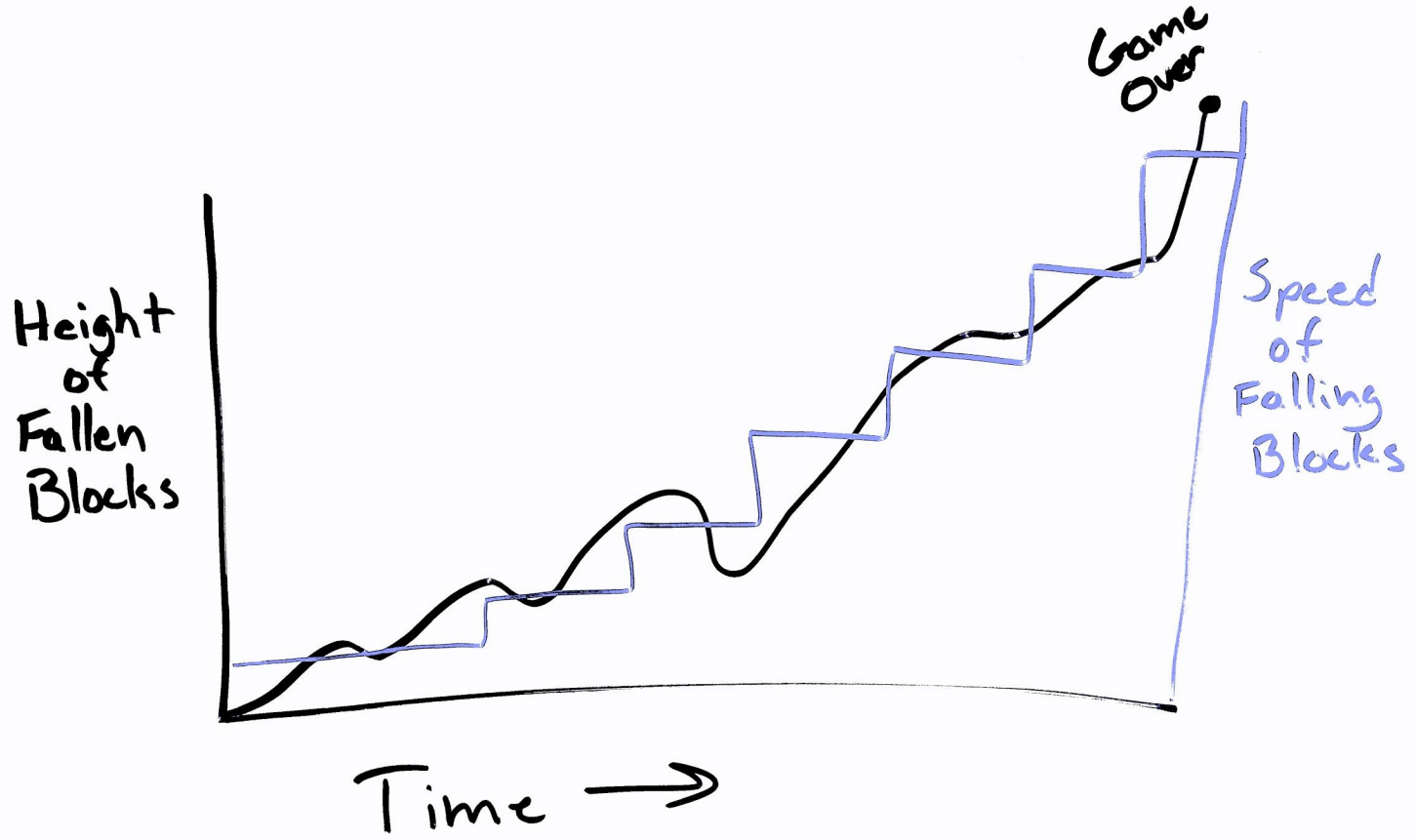


8014

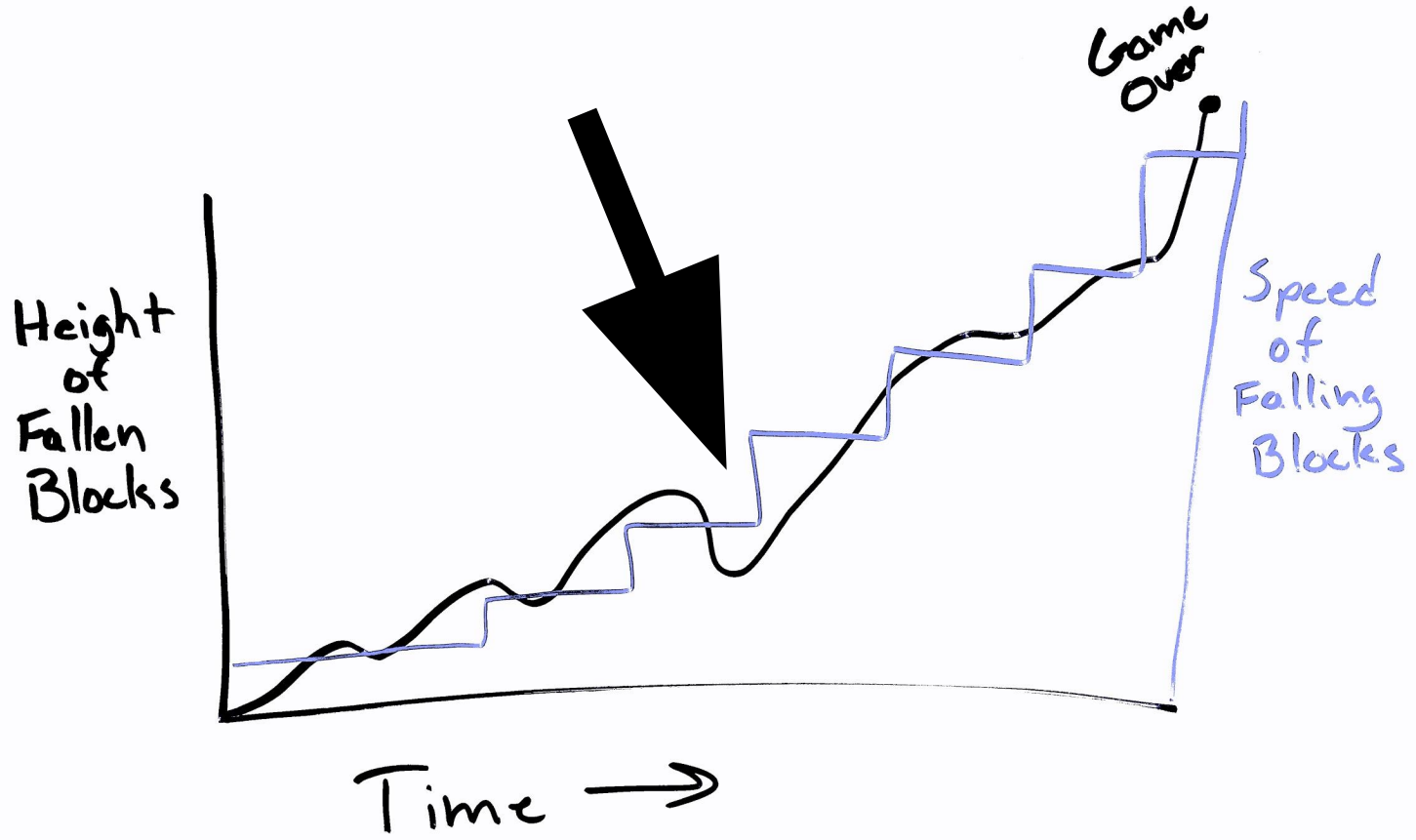




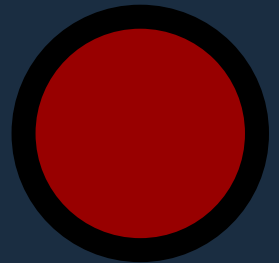








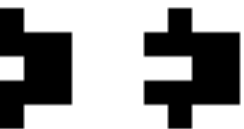
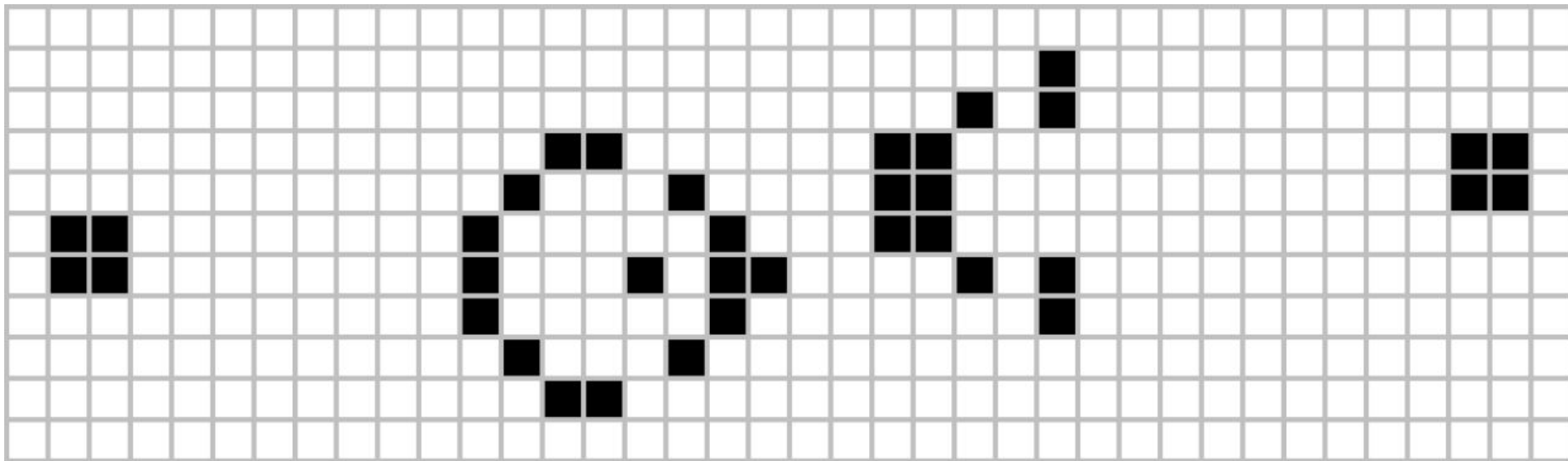
# Language



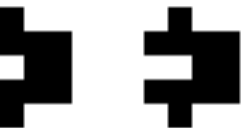
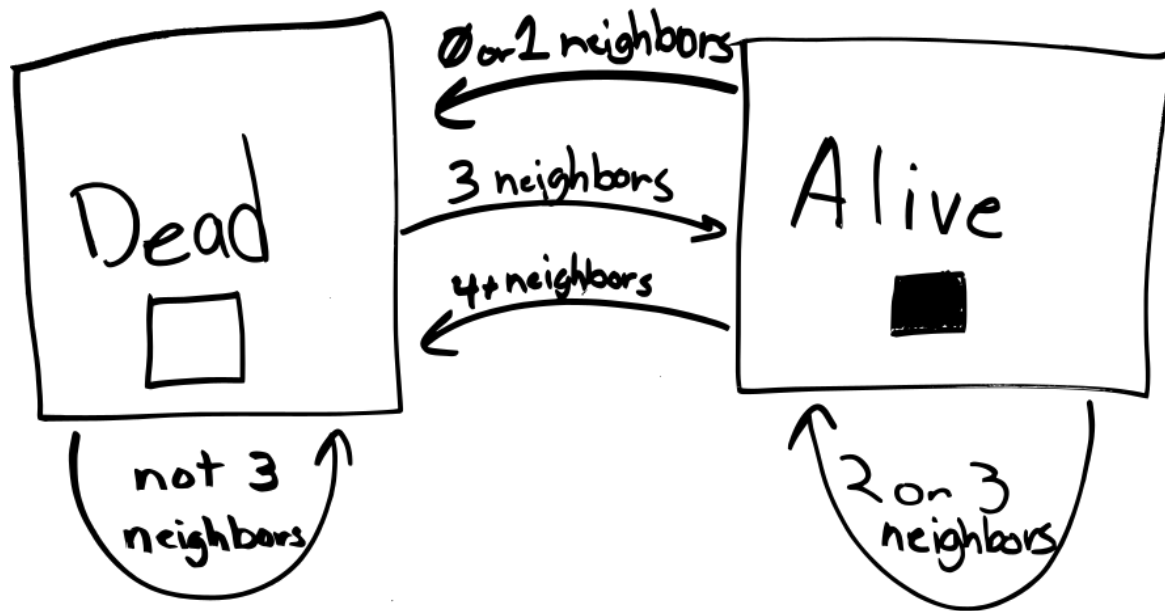
Non-linear



# Conway's Game of Life

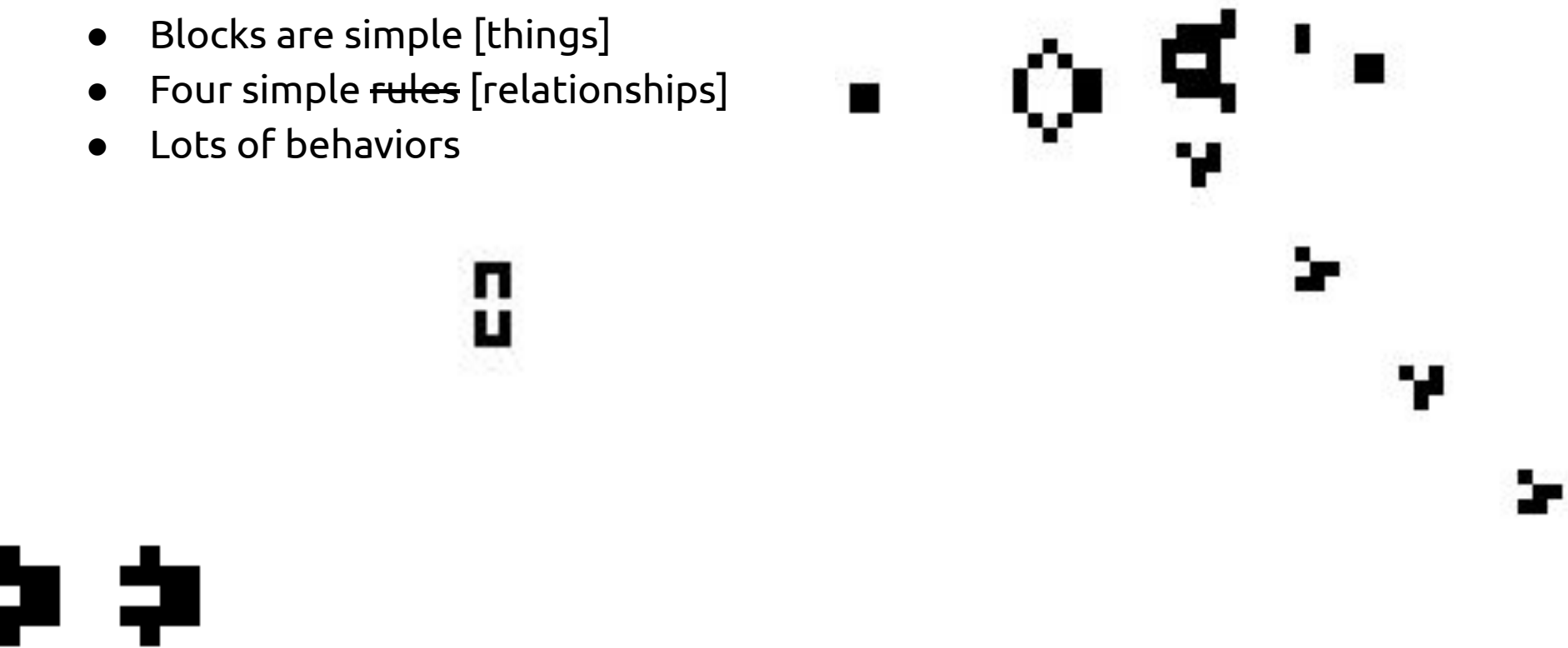


# Conway's Game of Life



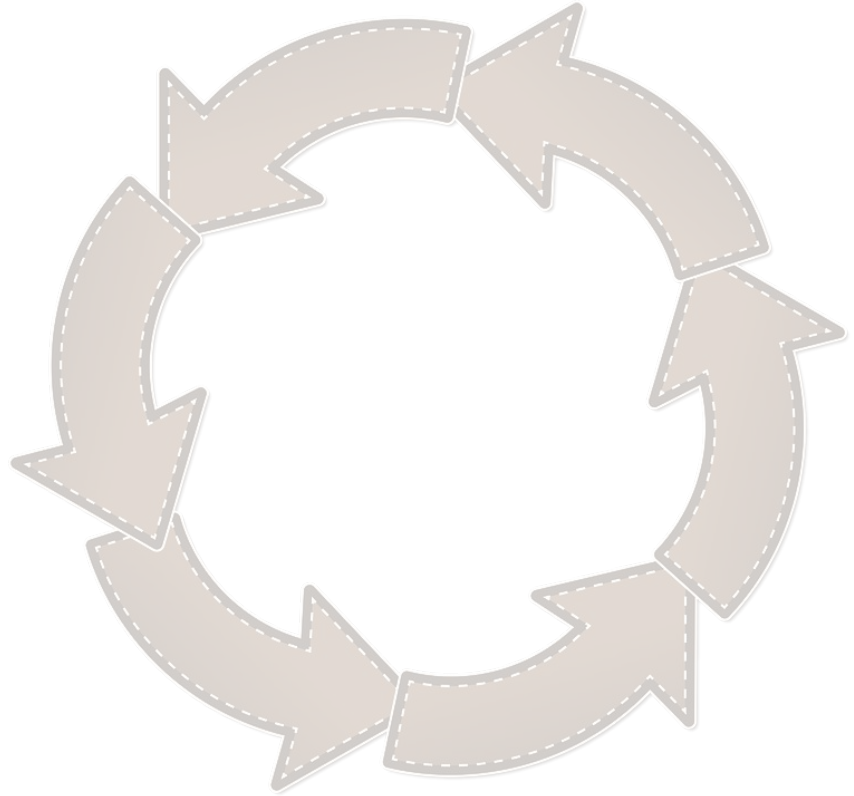
# Conway's Game of Life

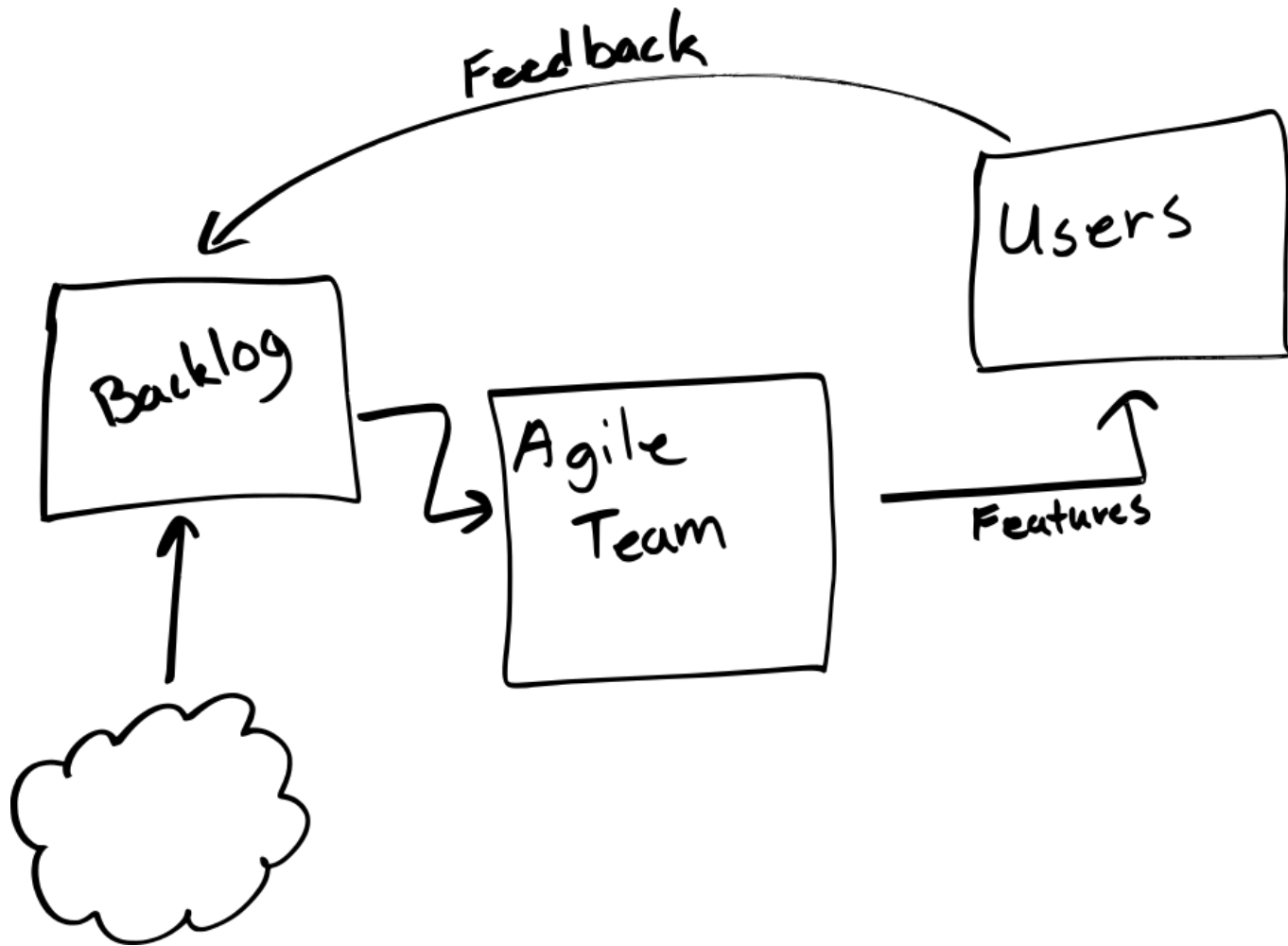
- Blocks are simple [things]
- Four simple rules [relationships]
- Lots of behaviors



# Agile

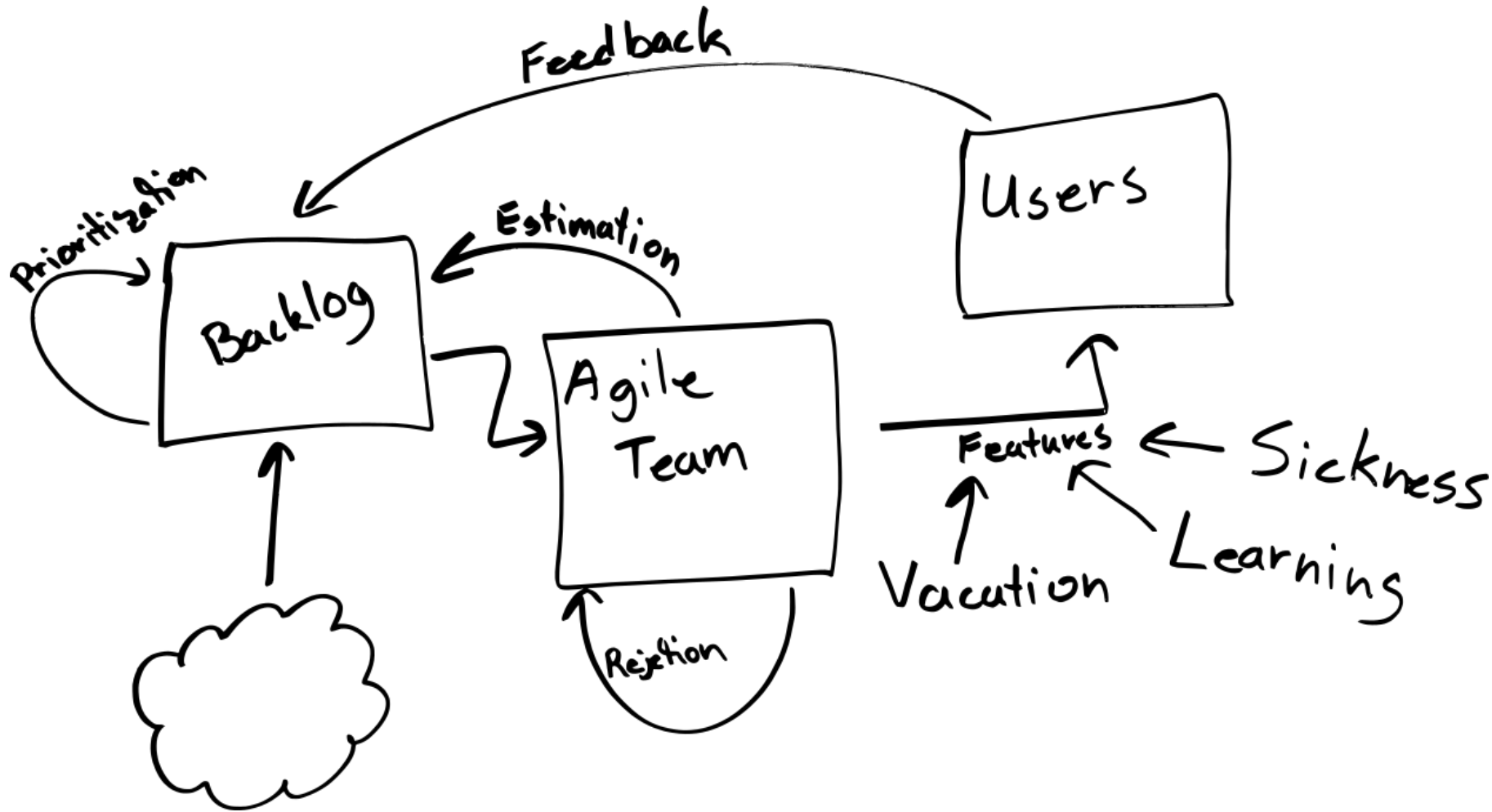
- Change is Good
- Small Steps
- Feedback Loops
- Cross Functional Teams



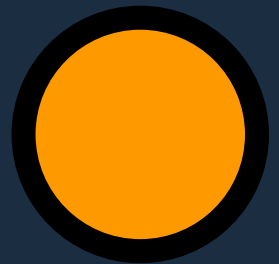




A structure of [things]  
connected by  
[relationships] that  
produces behaviors.



Non-linear



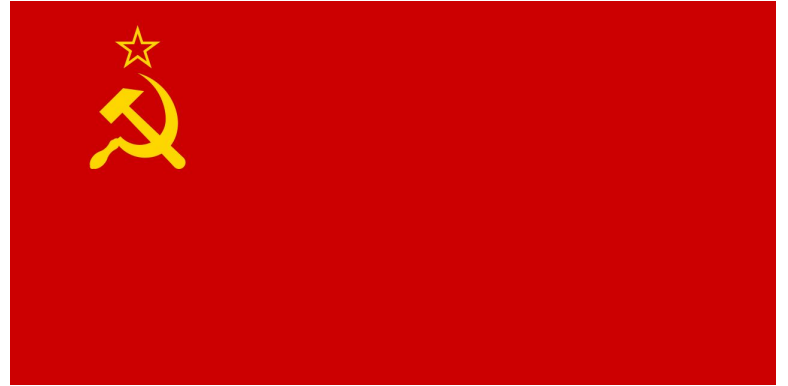
# Three Keys to Understanding Systems

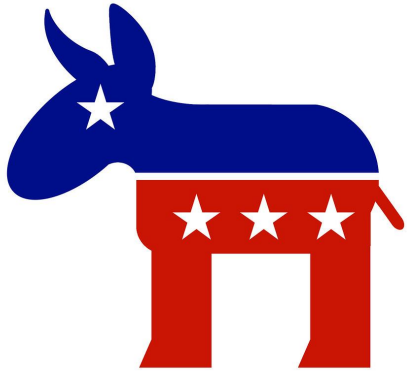


Right vs. Wrong



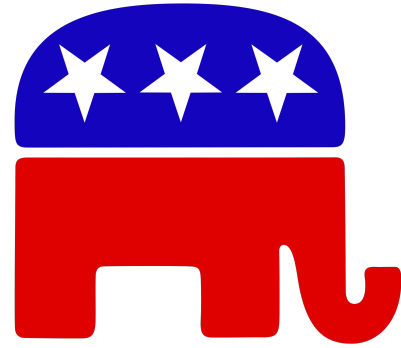
VS

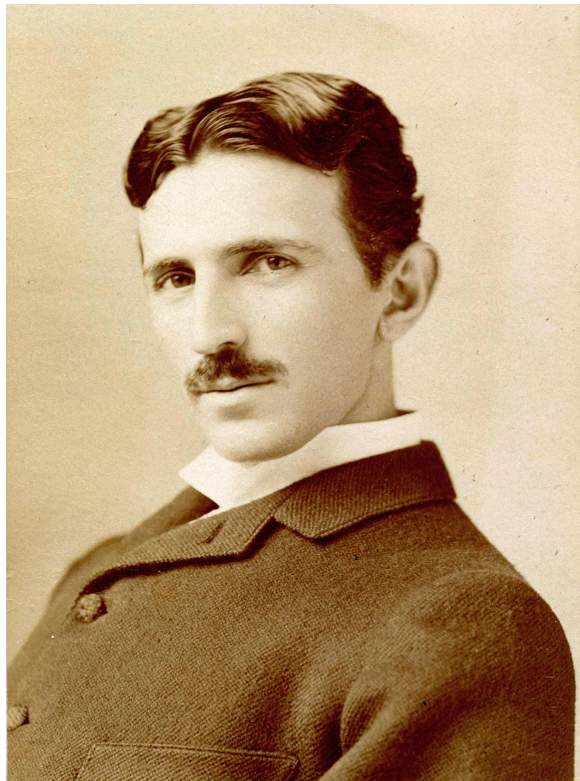




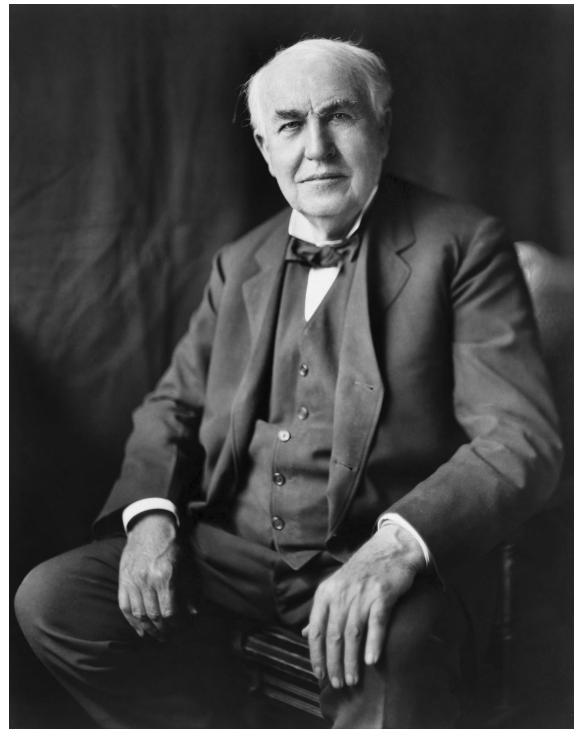
DakotaHart

VS





AC vs. DC





**VHS**

vs.

The Betamax logo consists of a stylized letter 'B' on the left, formed by three vertical lines in red, green, and blue. To the right of the 'B', the word 'etamax' is written in a lowercase, sans-serif font. The entire logo is enclosed in a thin black rectangular border.



vs.

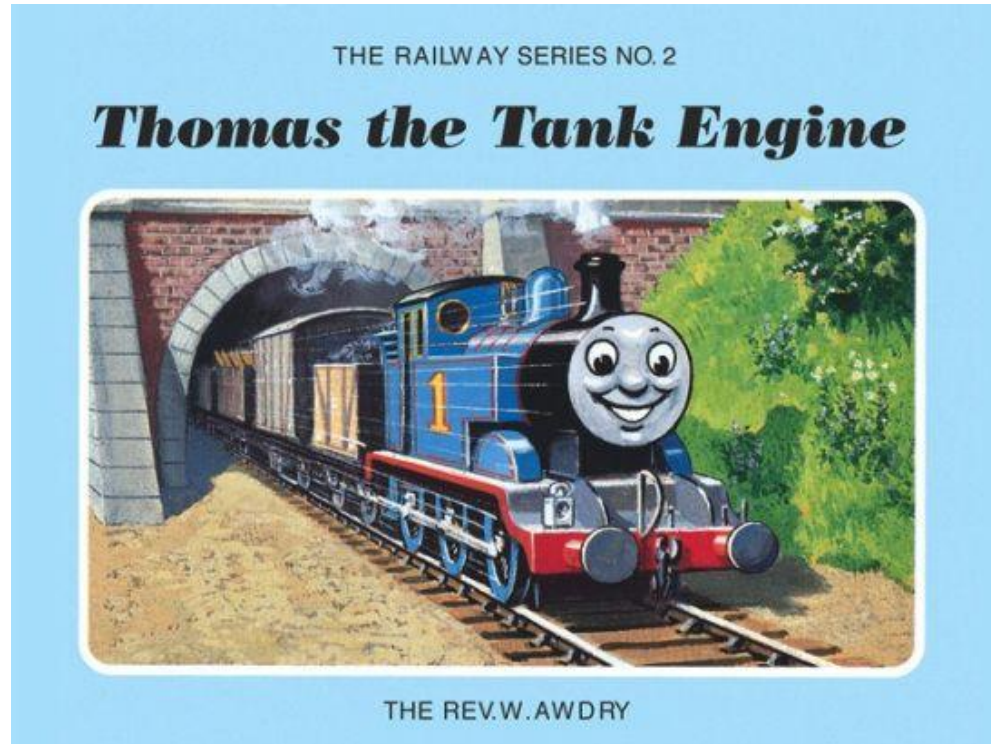


Right vs. Wrong


Right vs. Wrong



# (Really) Useful



# Discovery vs. Creation

**IBM** 

**XEROX®**



# Temporary Assumptions

Weak opinions,  
weakly held



# Three Keys to Understanding Systems



# Modeling: The Very Short Version



Look for [things]

Look for [relationships]

Can you explain behaviors?



Time



# Incentives Matter

An aerial photograph of a soccer field with white boundary lines and two goals. The field is green and has several players in various colored jerseys scattered across it. Long shadows are cast across the field from the left. A white circle is drawn around the center of the field, containing the word "Goals" in a large, bold, black sans-serif font.

Goals

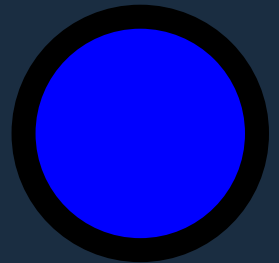


Picking Boundaries

# Modeling: The Very Short Version



# Common System Problems



# Delayed Feedback



# Limits





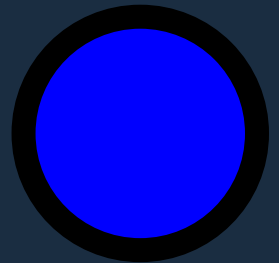
**Systems are Resilient**

Systems are Resilient

*Until they aren't*

# Unintended Side Effects

# Common System Problems



A structure of [things]  
connected by  
[relationships] that  
produces behaviors.

# Questions?

@wilwade

github.com/wilwade

Dev @CarbonFive

Resources:

- *Thinking in Systems: A Primer* by Donella Meadows
- *Once Upon a Complex Time: Using Stories to Understand Systems* by Richard Brynteson
- *System Thinking - Creative Holism for Managers* by Michael C. Jackson
- *How It Works in the Home* by Walt Disney Productions

