

# Why this stuff is hard

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Or: Why we'll never stop  
having outages

Or: You aren't actually  
doing it wrong

# Our journey together

1. The adaptive universe
2. Complexity forever
3. Local nature of perspective
4. Coordination
5. OK, so what?

# I. The adaptive universe and its consequences



# Dr. David Woods



1. Resources are finite

2. Change never stops



Finite resources

There's never enough time

There's never enough people

The law of stretched  
systems

It's really, really hard to  
build up capacity

Production pressure!

Deliver on those features...

...but don't break anything!

Double bind

Hard to find time to do  
reflection

# Planning vs reviewing

A dramatic photograph of a massive ocean wave crashing towards the shore. The wave's face is a deep, dark blue, while the spray and foam at the crest are bright white. The background shows more of the ocean under a hazy sky.

Unceasing change

Keep the system up in the  
face of change

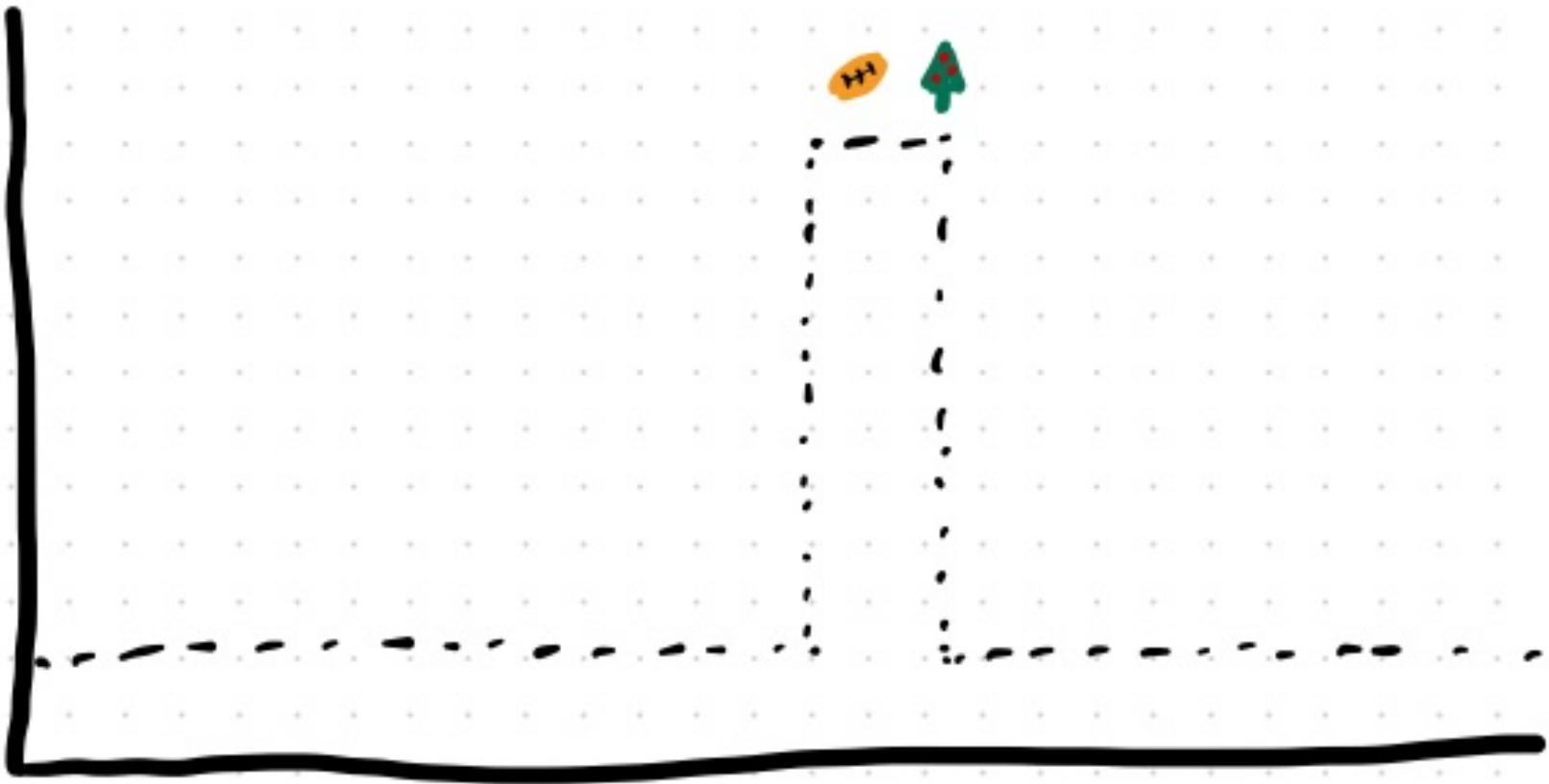
# Code freezes

Cost



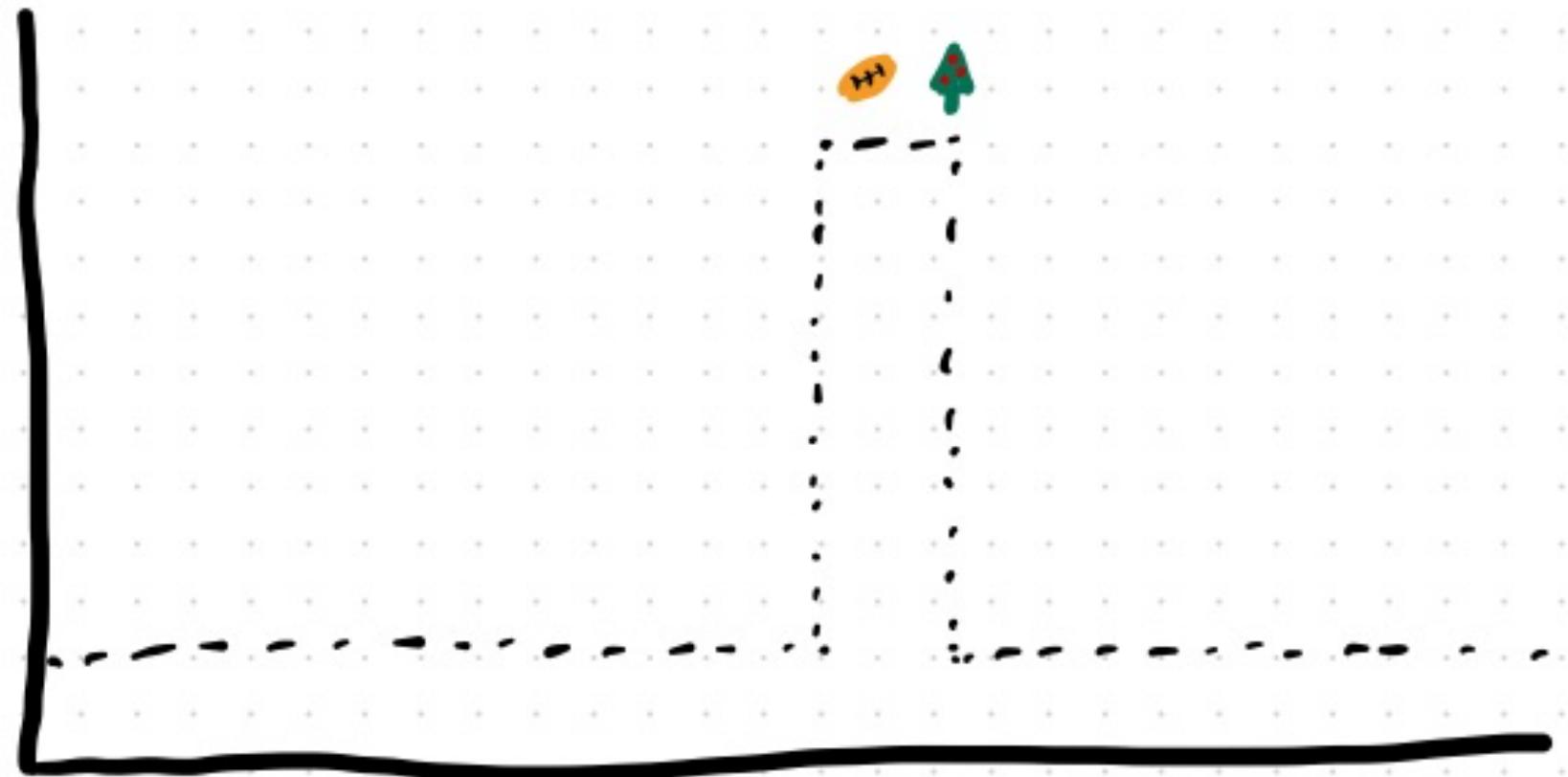
Time

Cost

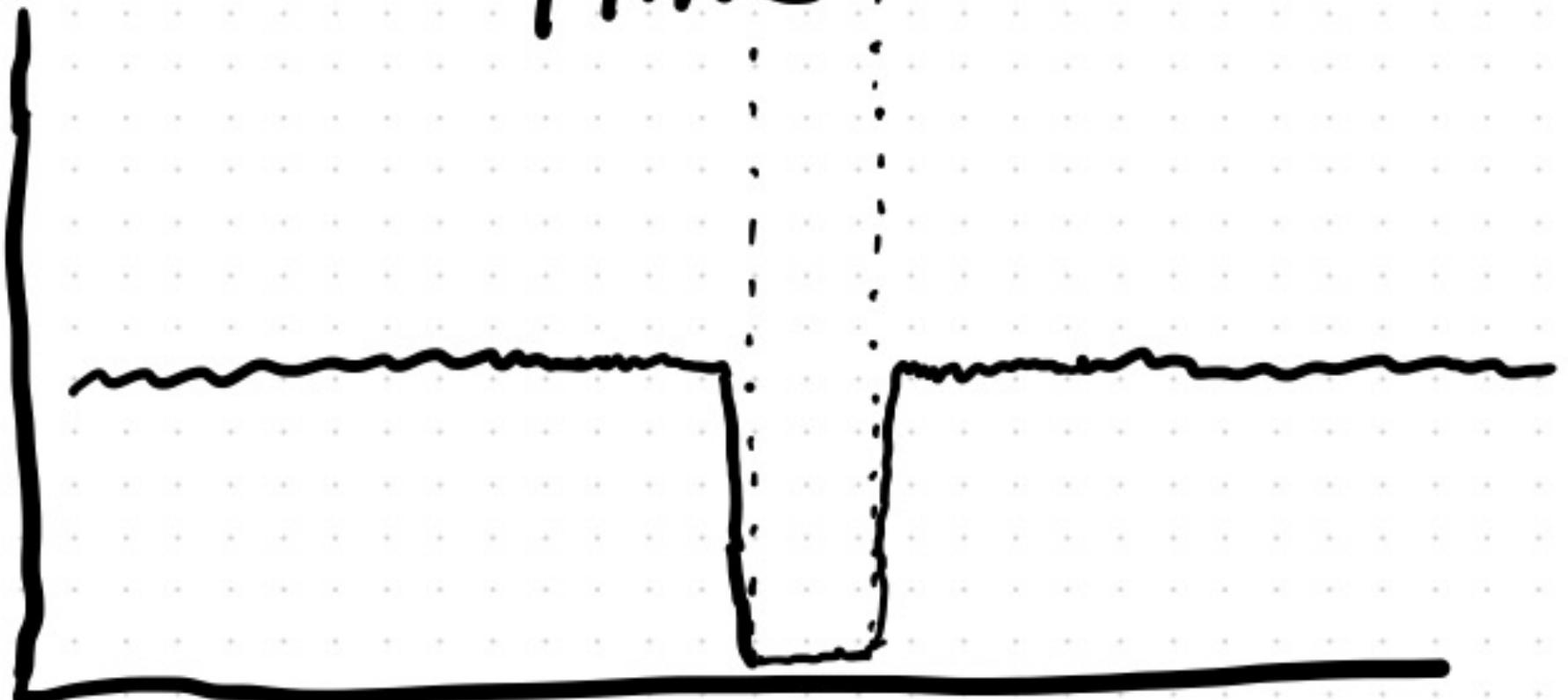


Time

Cost

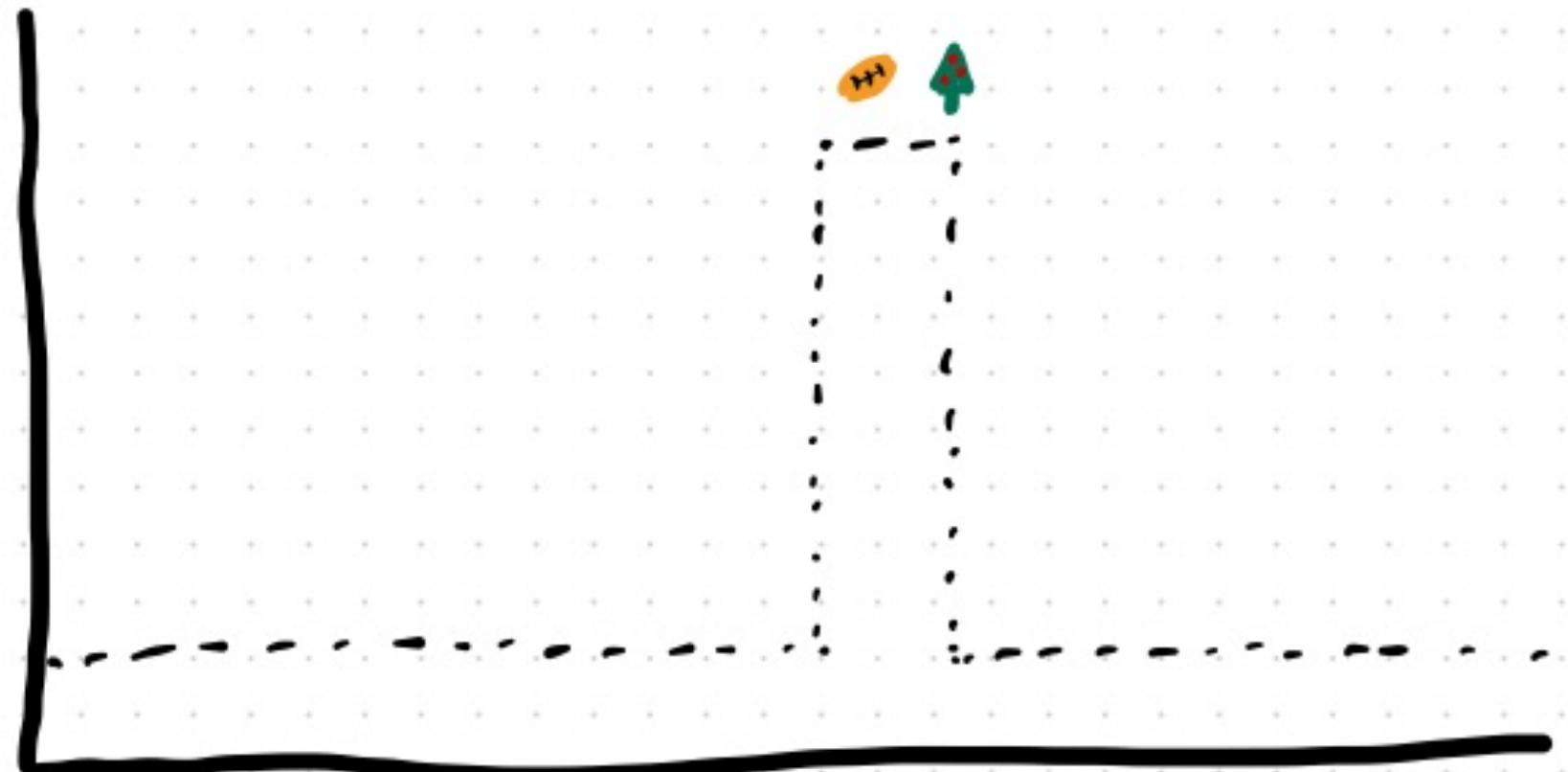


Charge

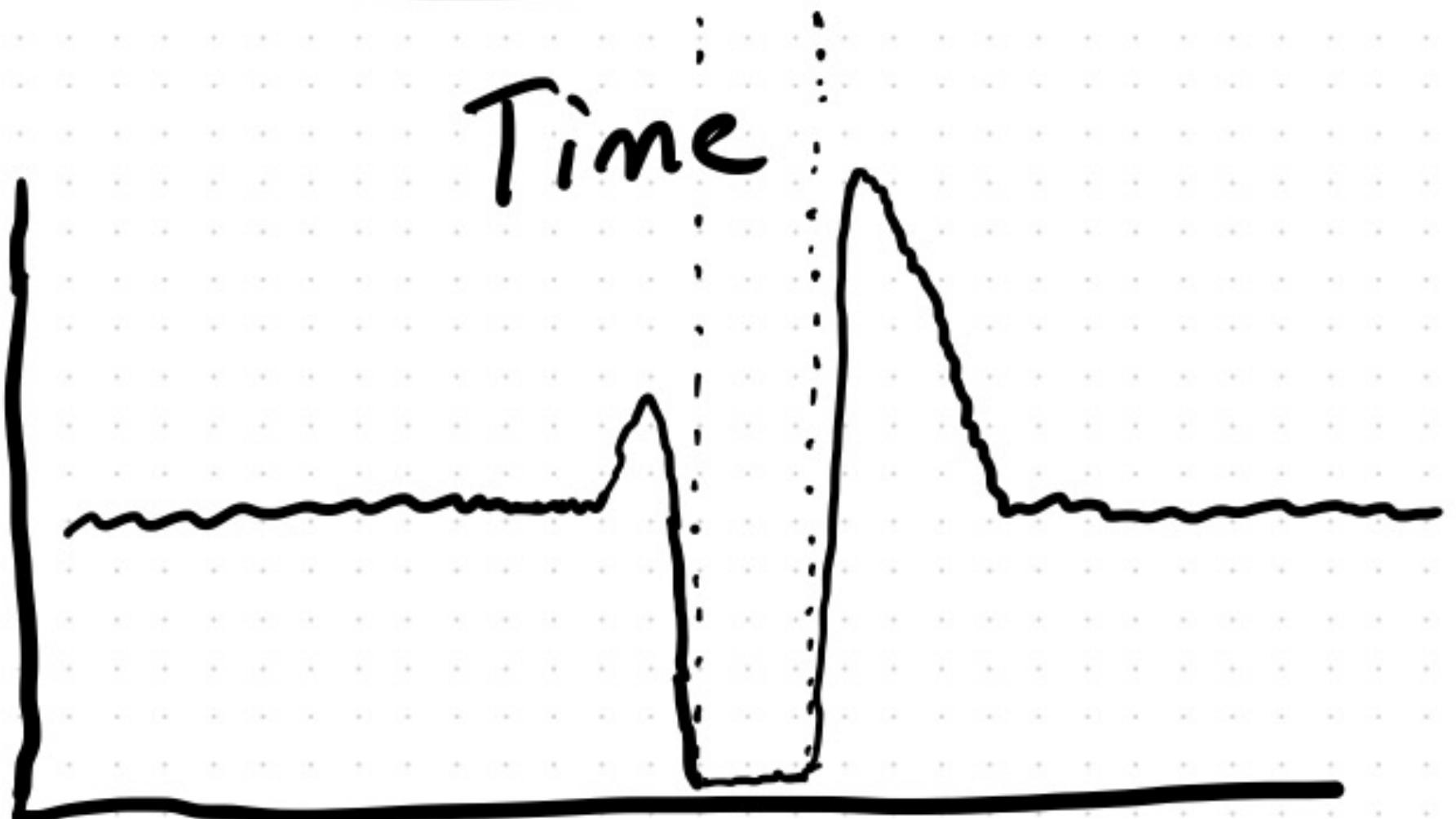


Time

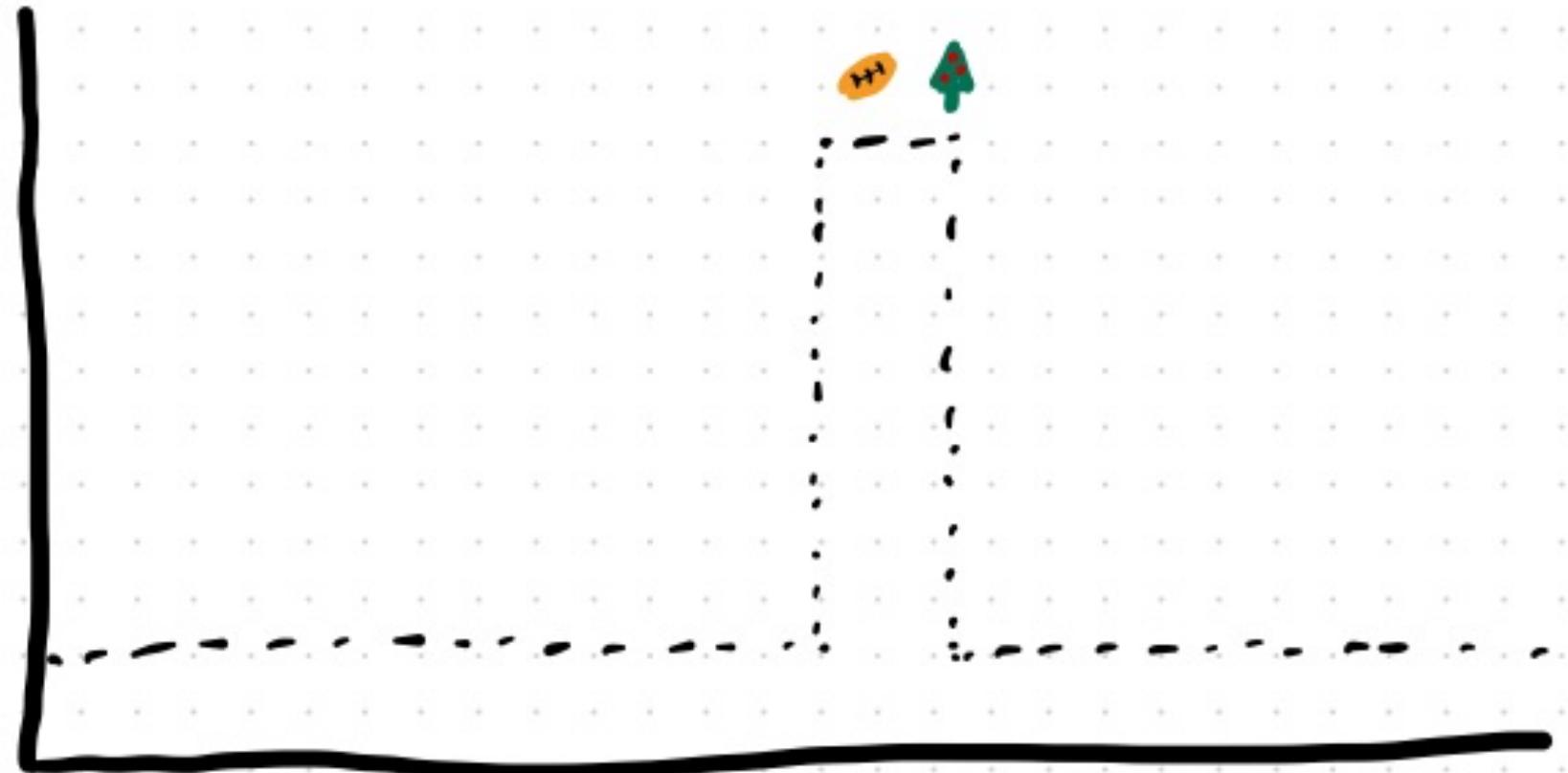
Cost



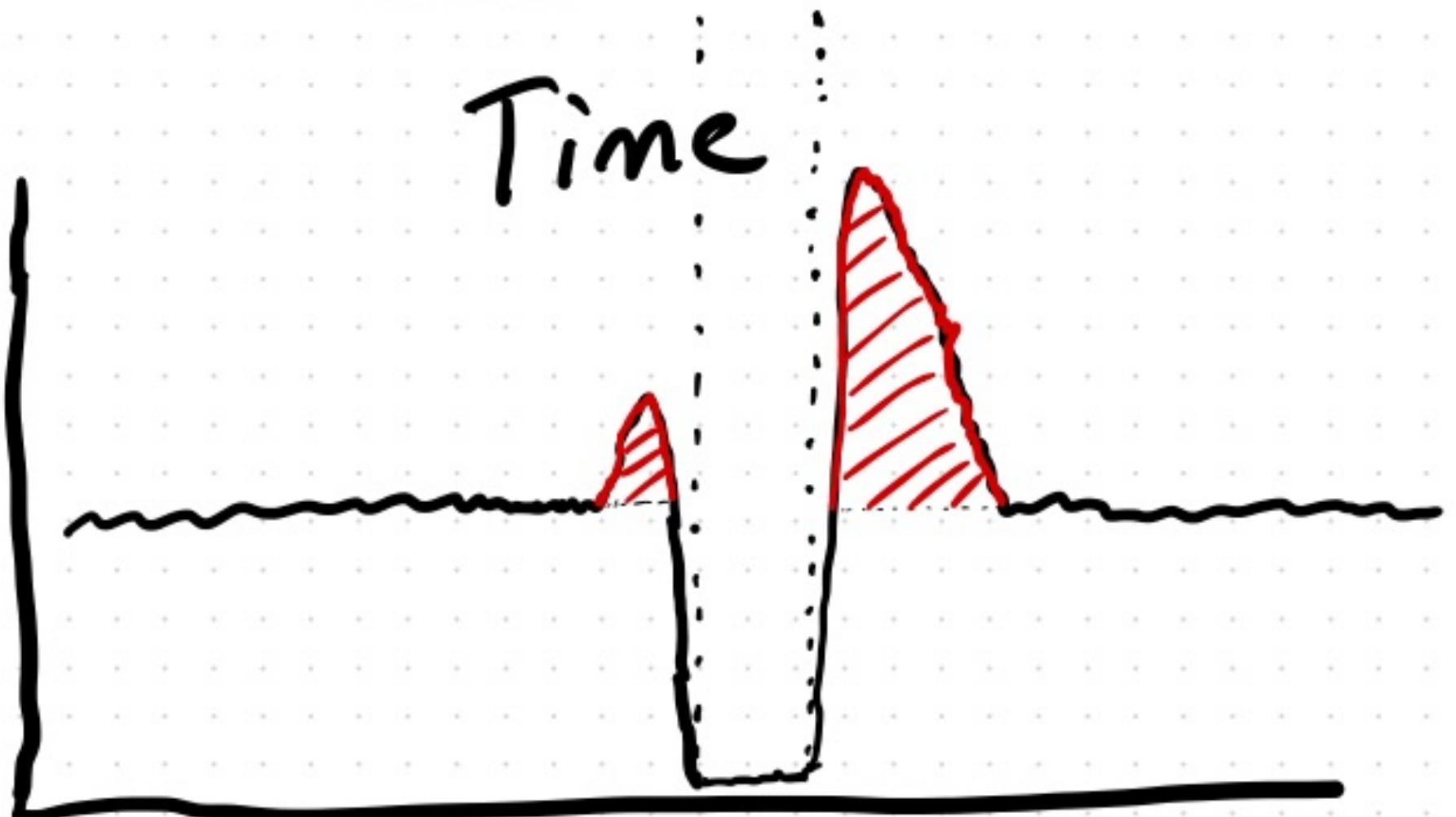
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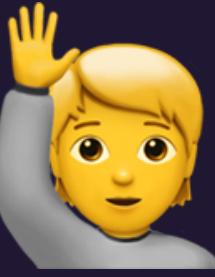


Cost



Charge





"on a hunch decided to look  
at..."

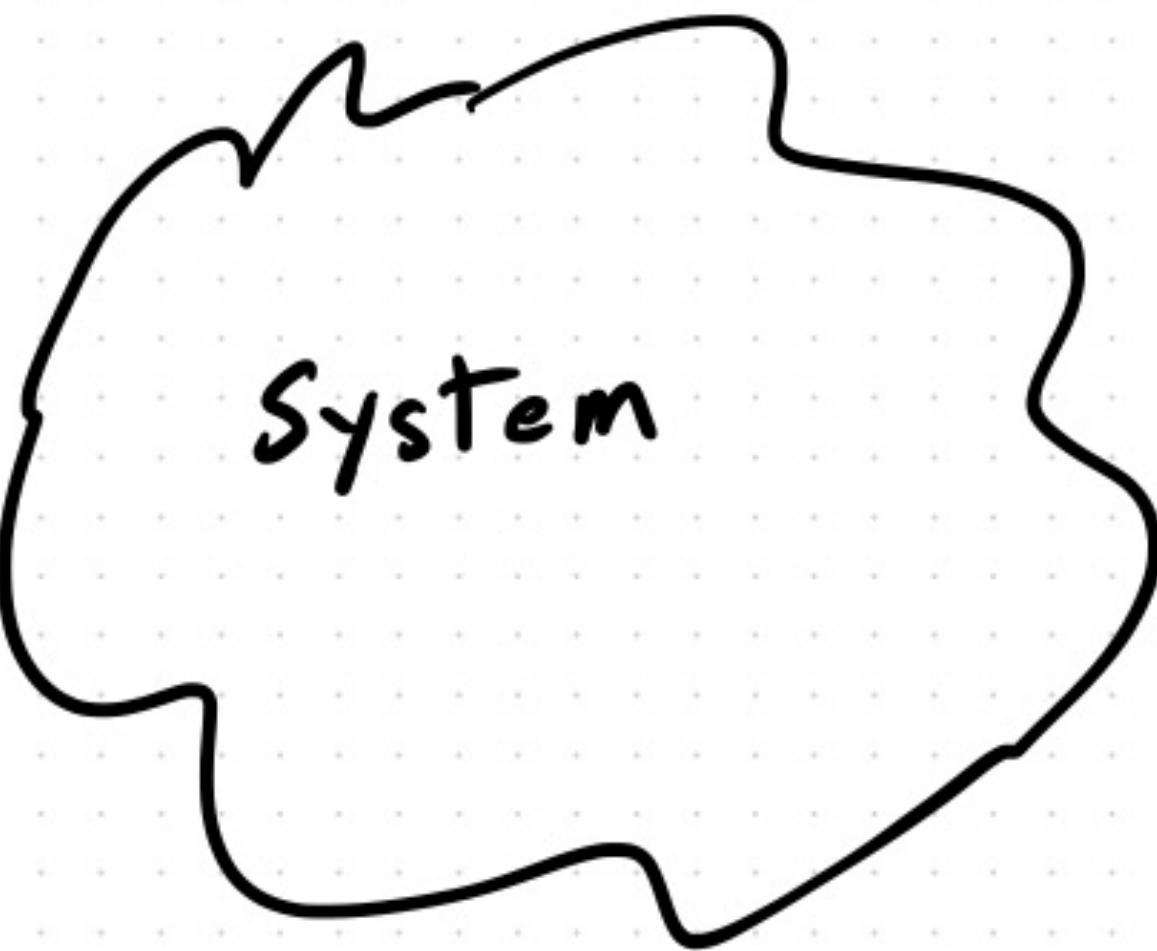
~ 4 : 00 PM PST

"What changed?"

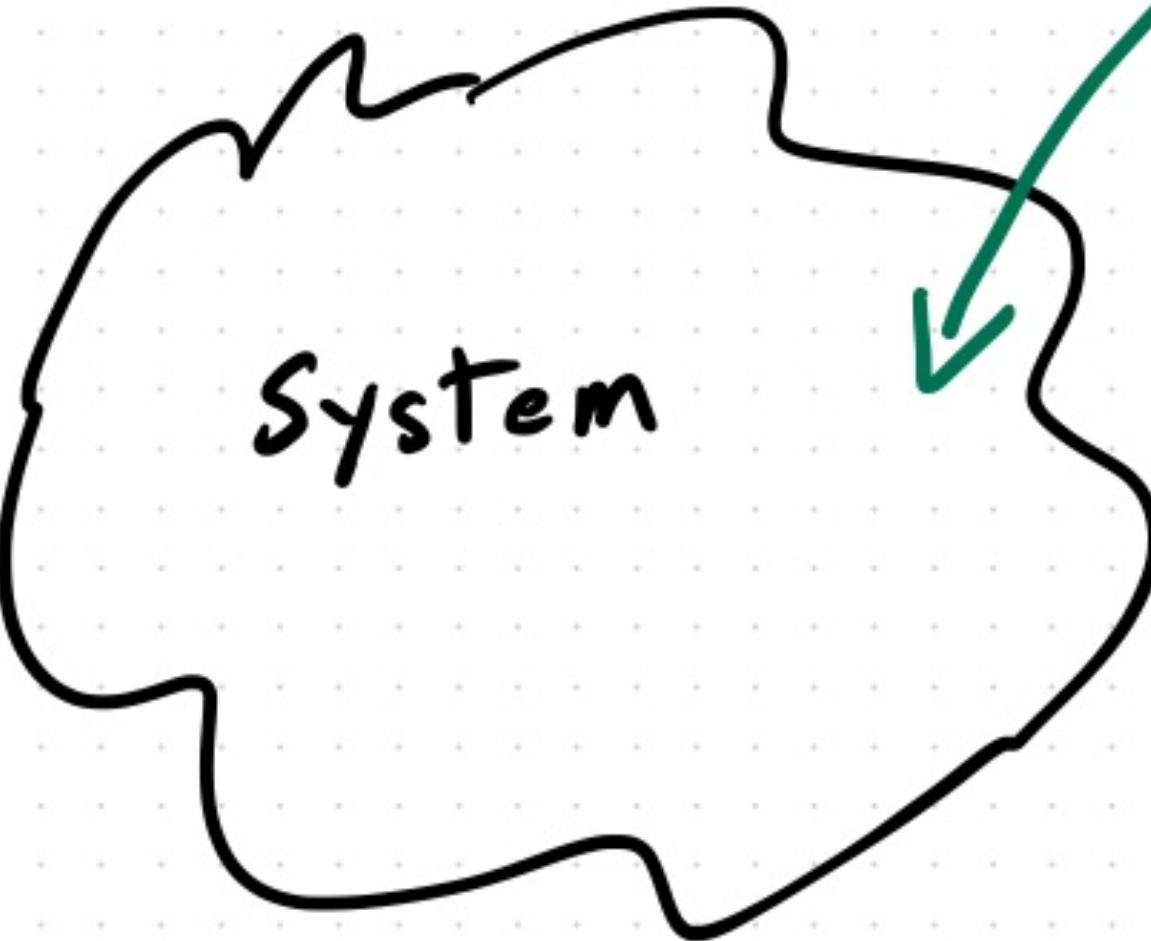
The world changes around  
us

We can't stop change

Environment



Environment

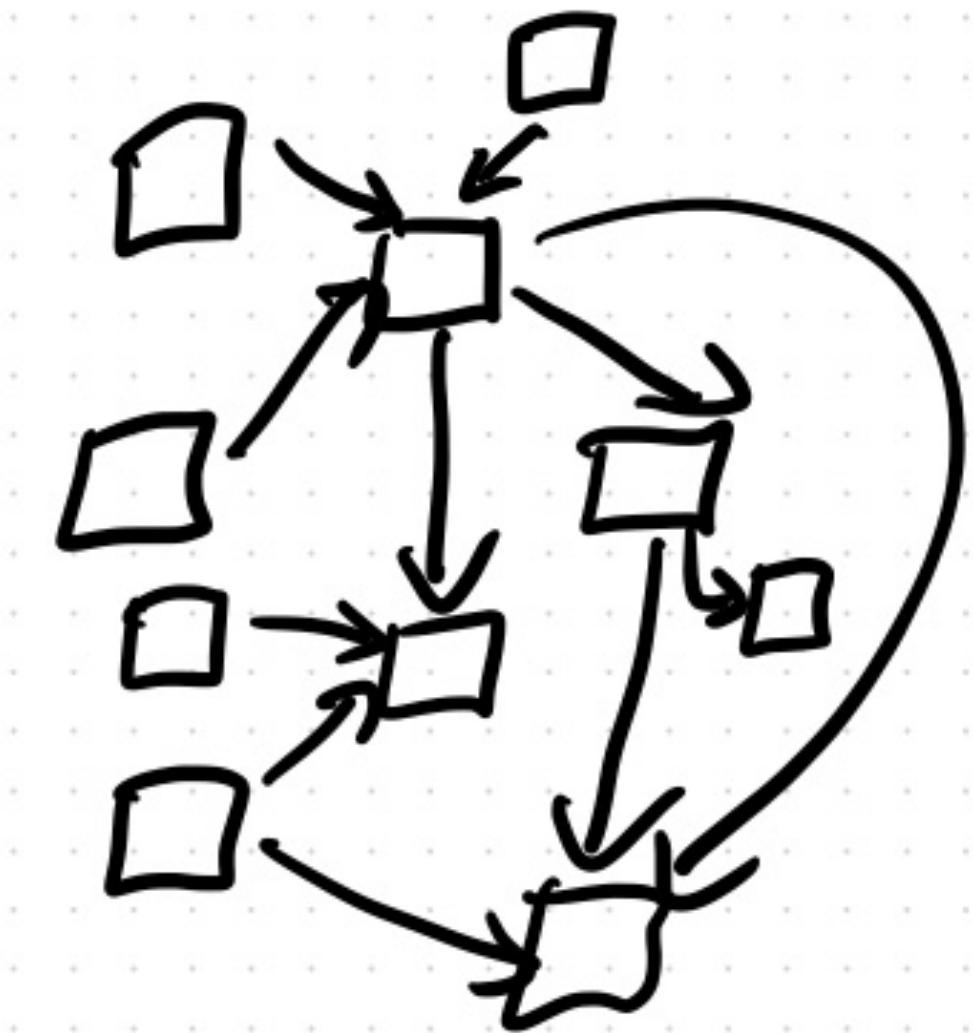


stuff we  
can control

If you think the future is  
scary, try the past!

We are prisoners of  
history

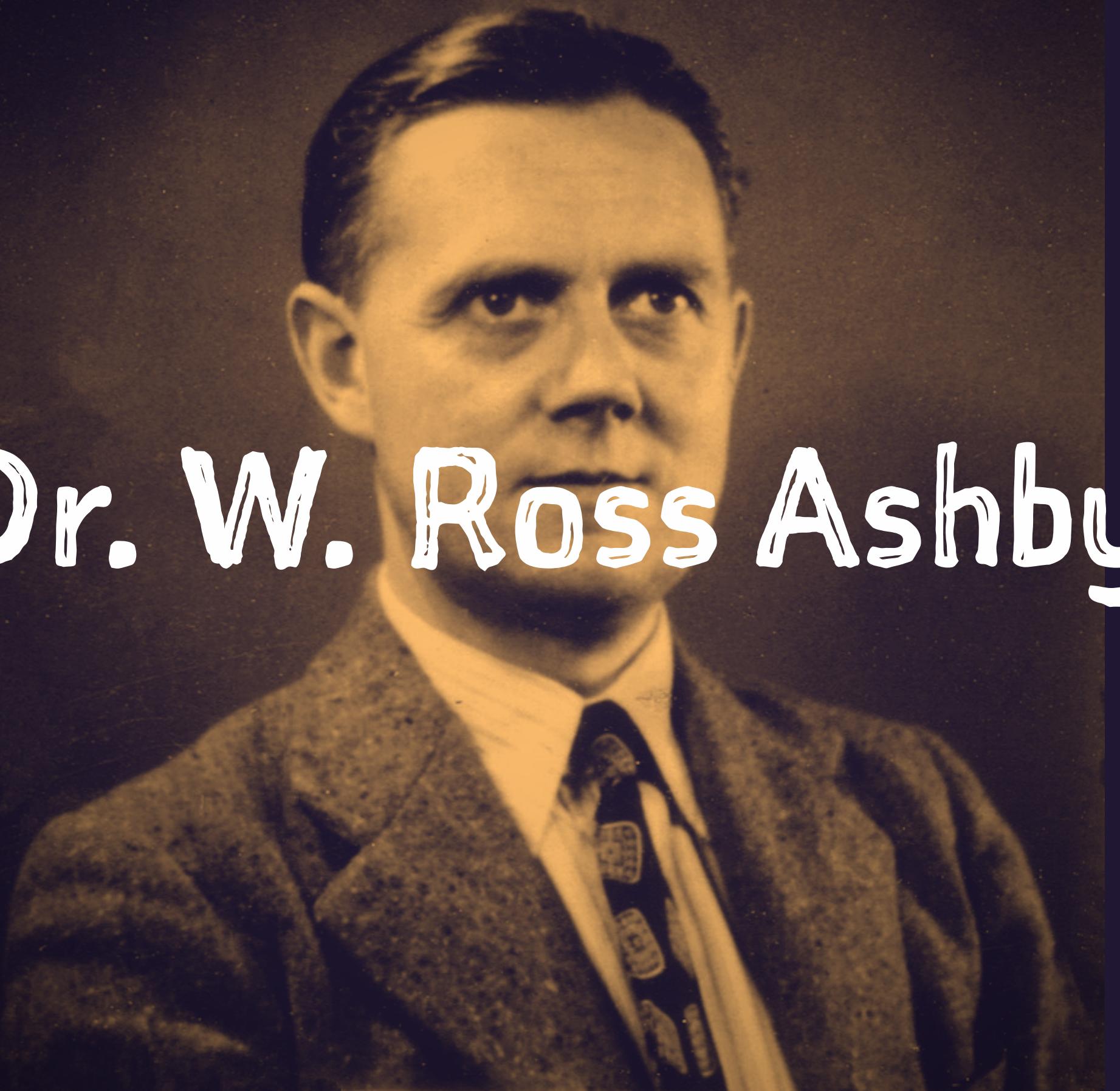
## II. The inevitability of complexity



We eliminate failure modes  
by adding complexity

We're in the control  
systems business

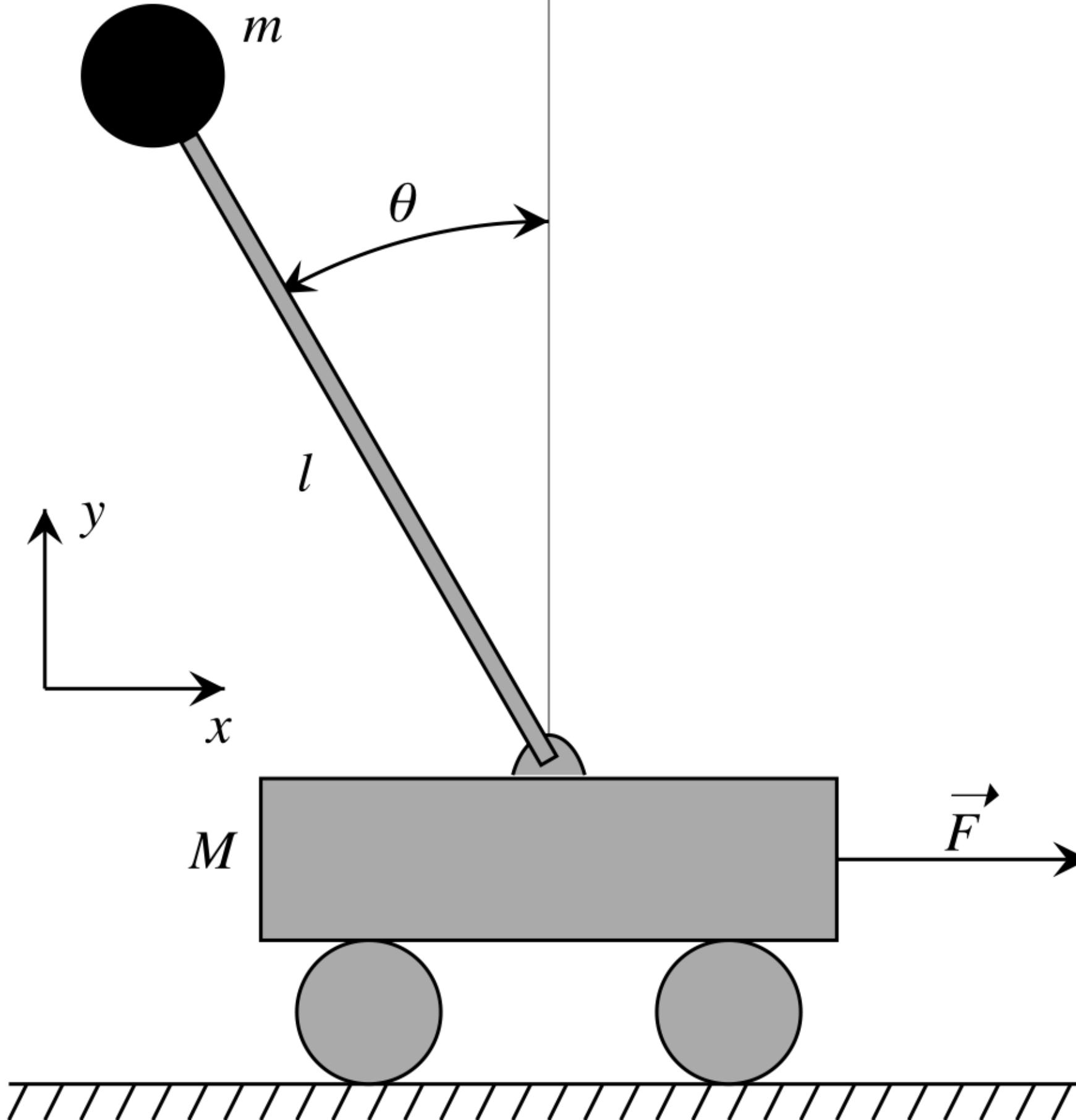


A black and white portrait photograph of Dr. W. Ross Ashby. He is a middle-aged man with dark hair, wearing a dark suit jacket, a light-colored shirt, and a dark tie with a small pattern. He is looking directly at the camera with a neutral expression.

Dr. W. Ross Ashby

# Ashby's Law of Requisite Variety

"Only variety can destroy  
variety"

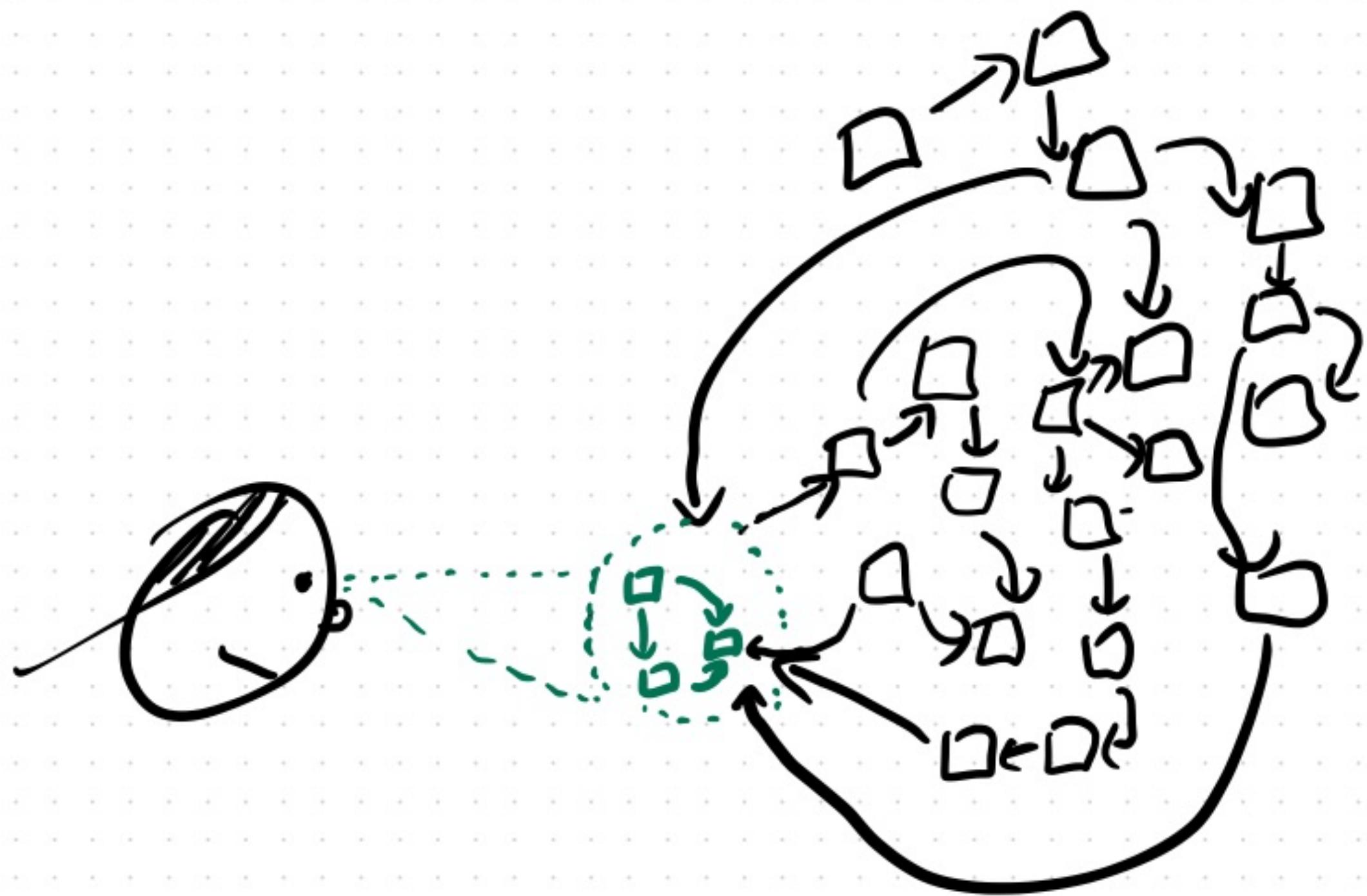


Better control means a  
more complex model

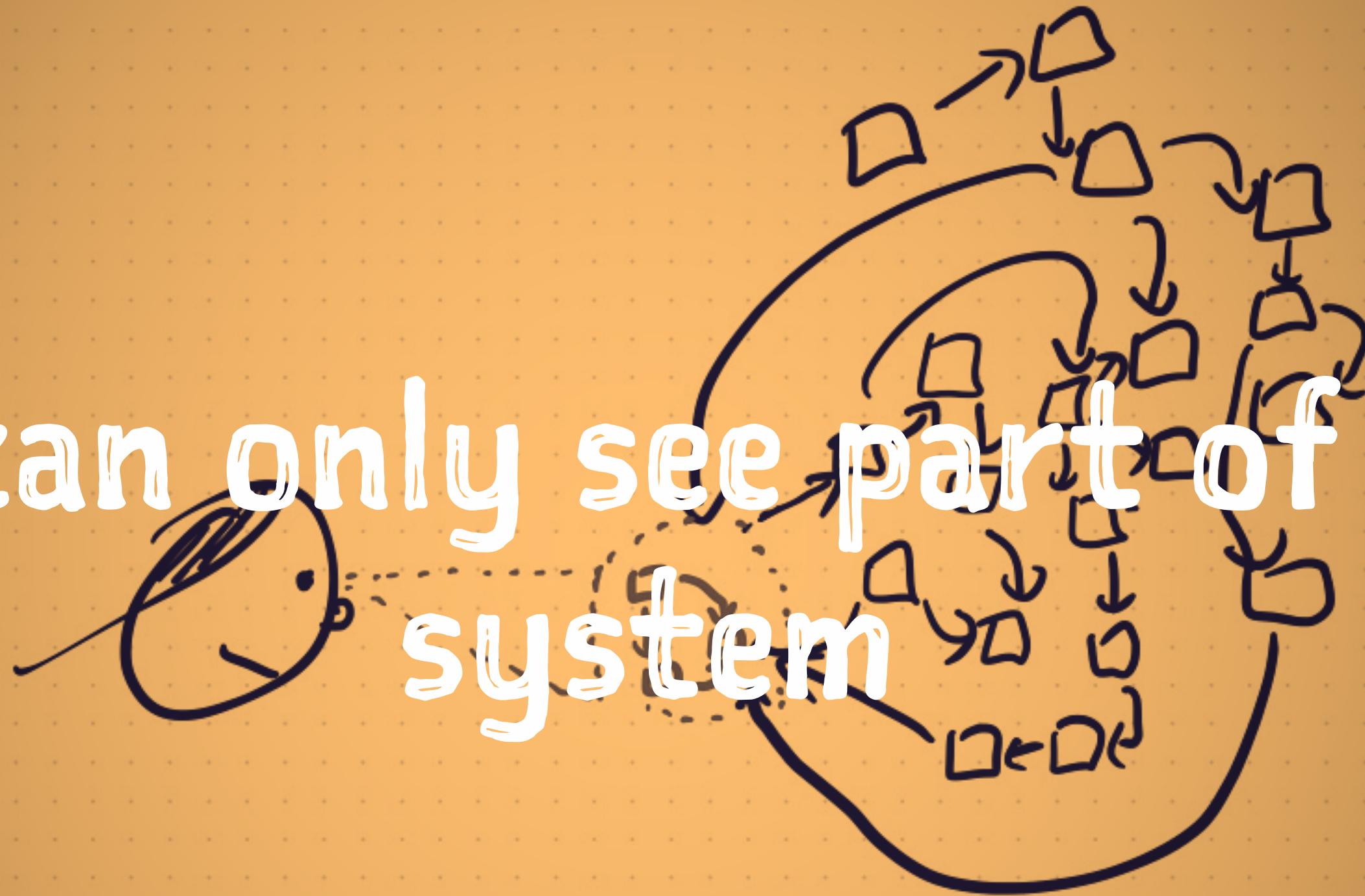
Q: But, what about  
reducing accidental  
complexity?

# A: Finite resources

# III. The local nature of perspective



We can only see part of the system



Our understanding is  
always partial

Can't see the interactions  
by looking at the  
components

"Dark debt"

We have local rationality

Something somebody didn't  
know

Getting the info into the  
heads of the people who  
need it

The moment an action is  
performed, it ceases to  
exist.



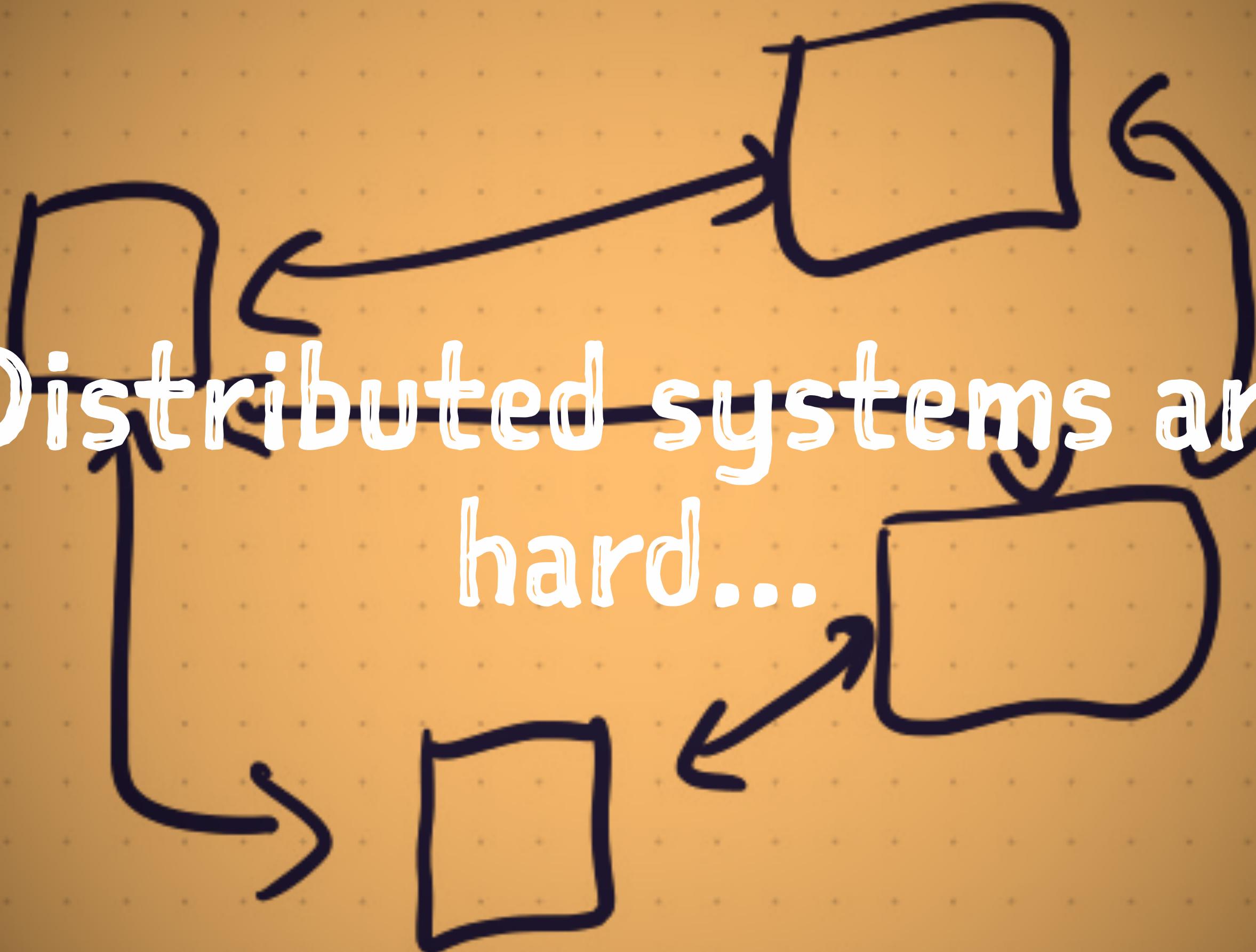
Dr. Karl Weick, Sensemaking in Organizations

Work is invisible

It's hard to watch experts  
in action

# IV. Communication and coordination

Distributed systems are  
hard...





Incident response is a team  
sport

Communication is hard

Especially in a remote/  
hybrid world

"Anyway... we're dead in  
the water until this figures  
itself out."





Dr. Laura Maguire

v. OK, so what?

1. We can't escape the  
adaptive universe

2. We can't reduce complexity in the long run

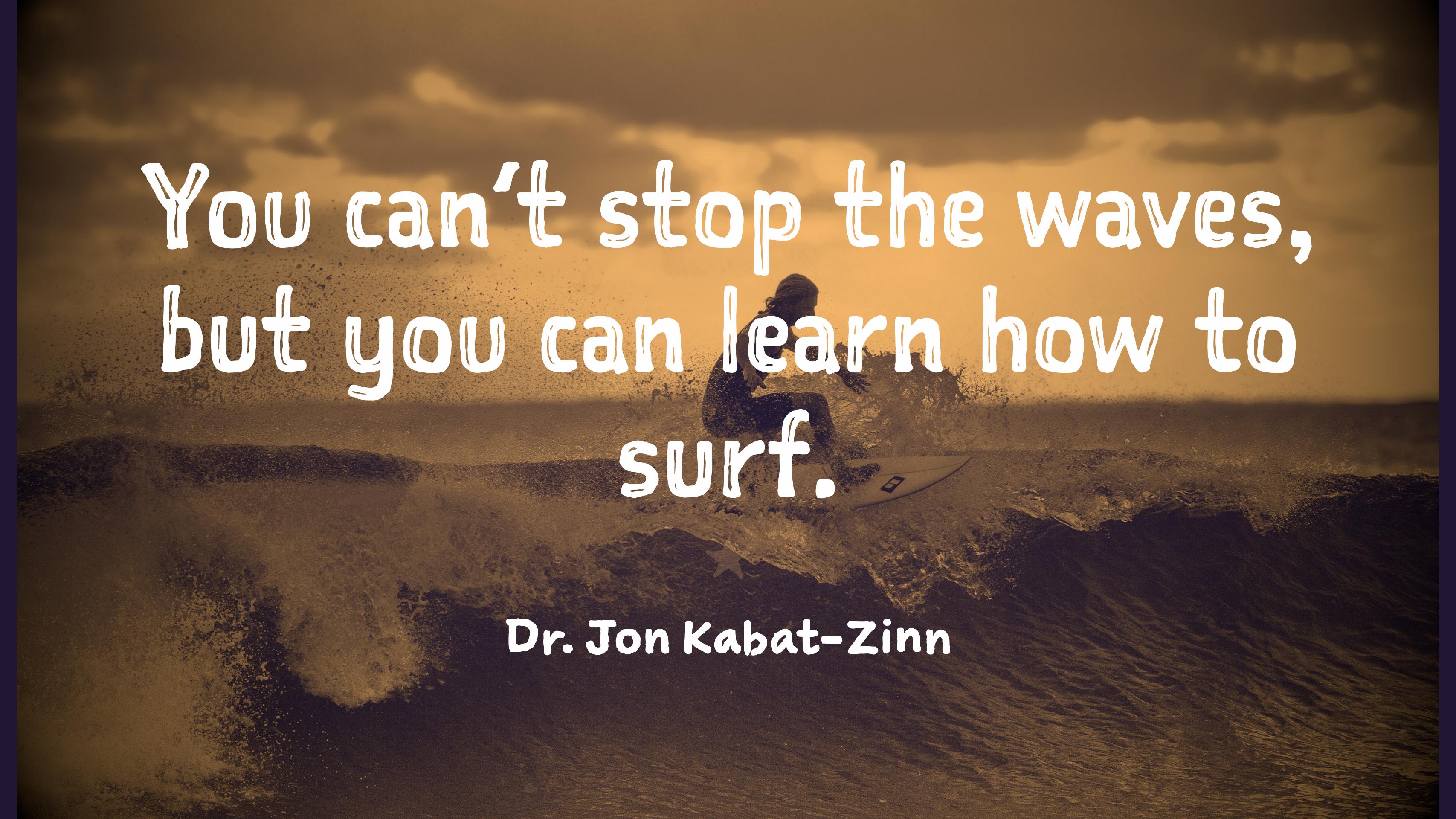
3. We can't step outside  
our own local perspective

4. We can't do it alone

These are all constraints

We can get better at  
navigating them

That means treating skills  
as first class

A black and white photograph of a surfer riding a wave. The surfer is positioned in the center, facing away from the camera towards the horizon. The ocean is choppy with white-capped waves. The sky above is filled with dramatic, layered clouds. The overall mood is contemplative and peaceful.

You can't stop the waves,  
but you can learn how to  
surf.

Dr. Jon Kabat-Zinn

# Image credits

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