

# RSA® Conference 2019

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BETTER.

SESSION ID: HUM-T06

## Humans are ...

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CSO

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#RSAC



bad terrible perplexing  
awful confusing Thesis horrible atrocious  
incompetent

Humans are \_\_\_\_\_ at risk management.



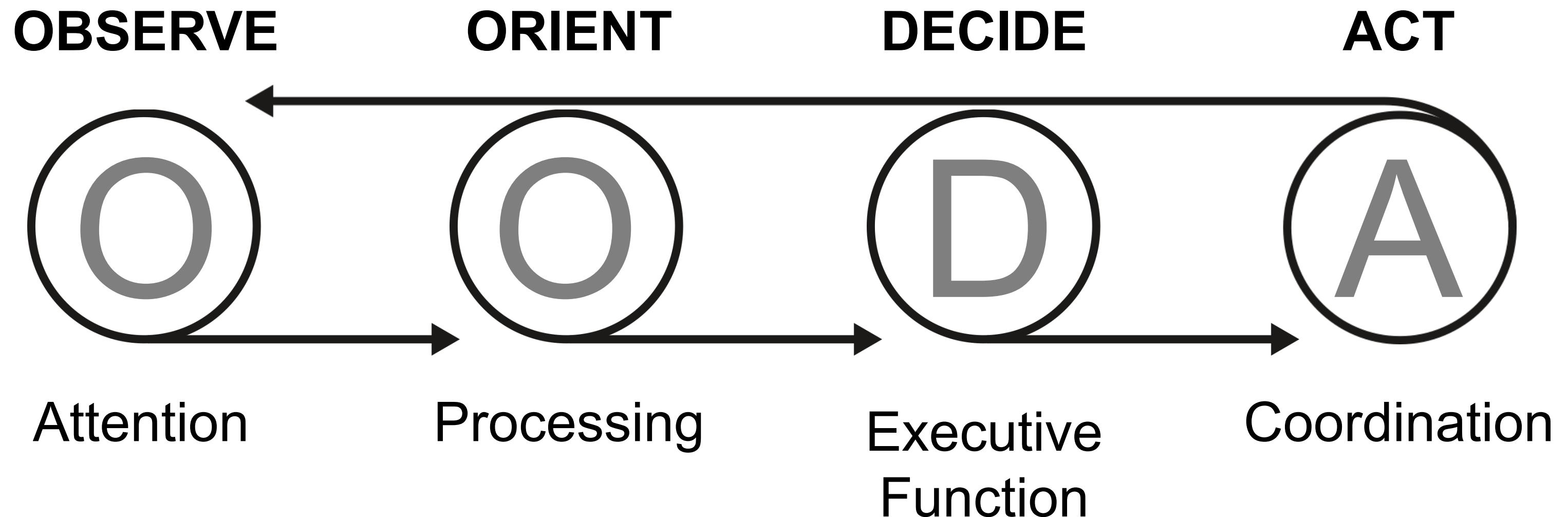
## Antithesis

Humans are awesome at risk management.



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# Decision Making: The OODA Loop





~~Stupid~~

# Why do people make “Bad” decisions?

*Incomprehensible*

**Business Owner**

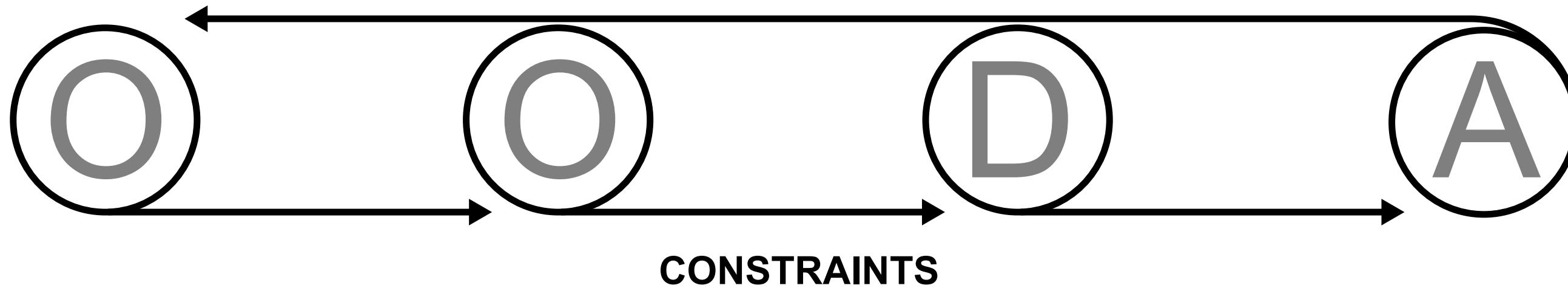


**Security**



*Modal bias!*

# The Power of Models



HAZARDS

# Historical paranoia



"Monkey on rope ladder" © CC-BY-SA 2010 Rachel Coleman Finch



# Prisoner's Dilemma

		Cooperate	Cheat
		Cooperate	-3 -1
Cooperate	Cooperate	-3	-10
	Cheat	-10	-5
Cheat	Cooperate	-1	-5
	Cheat	-5	-1

If we believe our “partner” will cheat on us, we'll cheat first.

40%



# Actual Prisoners in a Dilemma

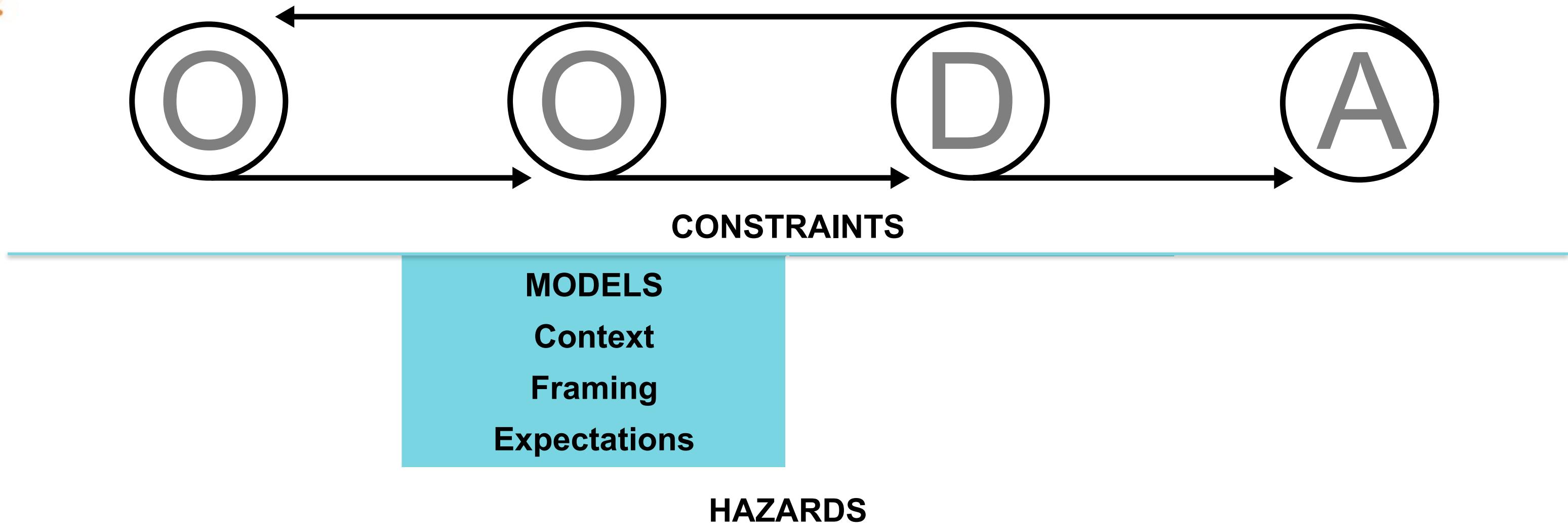
		Cooperate	Cheat
Cooperate	Cooperate	-3	-1
	Cheat	-3	-10
Cheat	Cooperate	-10	-5
Cheat	Cheat	-1	-5



**Different communities  
have different  
expectations!**

19%

# Risky Business

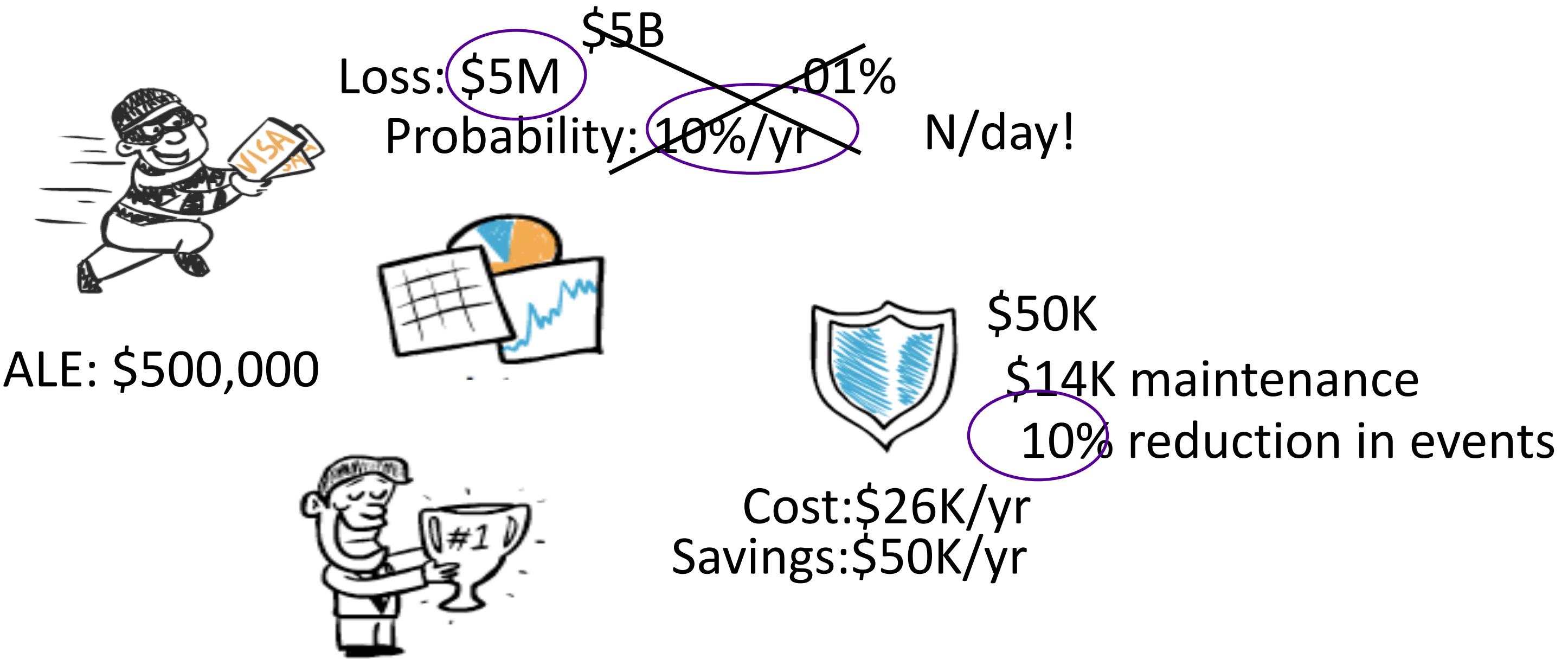


# Hazards used to be simple...





# So we think risk calculations ought to be easy





# Qualitative Risk Matrix

	High Damage	Moderate Damage	Low Damage
Very Likely	Priority 1	Priority 2	Priority 5
Likely	Priority 3	Priority 4	Priority 7
Unlikely	Priority 6	Priority 8	Priority 9

... but now risks are more complex.





# Cost Context Matters

You are given one opportunity to play a game.

A fair, 20-sided die will be rolled.

You bet X; if your number is rolled, you keep your bet, and get back  $20X$ ; otherwise, you lose your bet.

Your expected payout is thus 1.05.

**Would you bet \$1?**

**Would you bet \$10?**

**Would you bet \$100?**

**Would you bet \$1,000?**

**Would you bet \$10,000?**

**Would you bet \$100,000?**

**Would you bet \$1,000,000?**

**You value something by  
*what you give up to get it.***



# Peltzman Effect

PERCEIVED  
RISK



RISK  
REDUCTION

# The Spotlight



## CONSTRAINTS

### MODELS

Context

Framing

Expectations

### RISKS

Costs

Fears

Expected outcomes

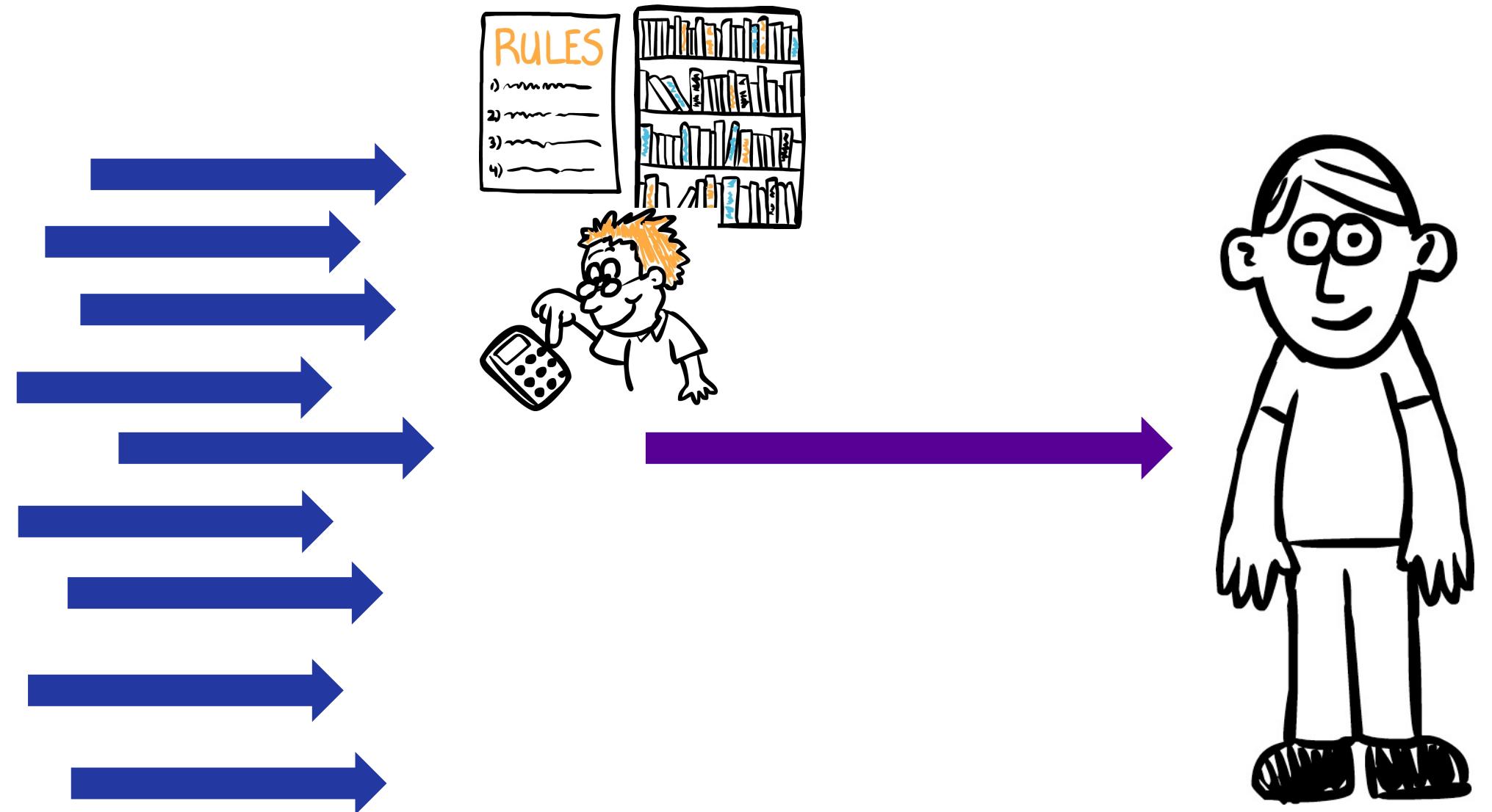
## HAZARDS

Confirmation  
bubbles

Hindsight  
expectations

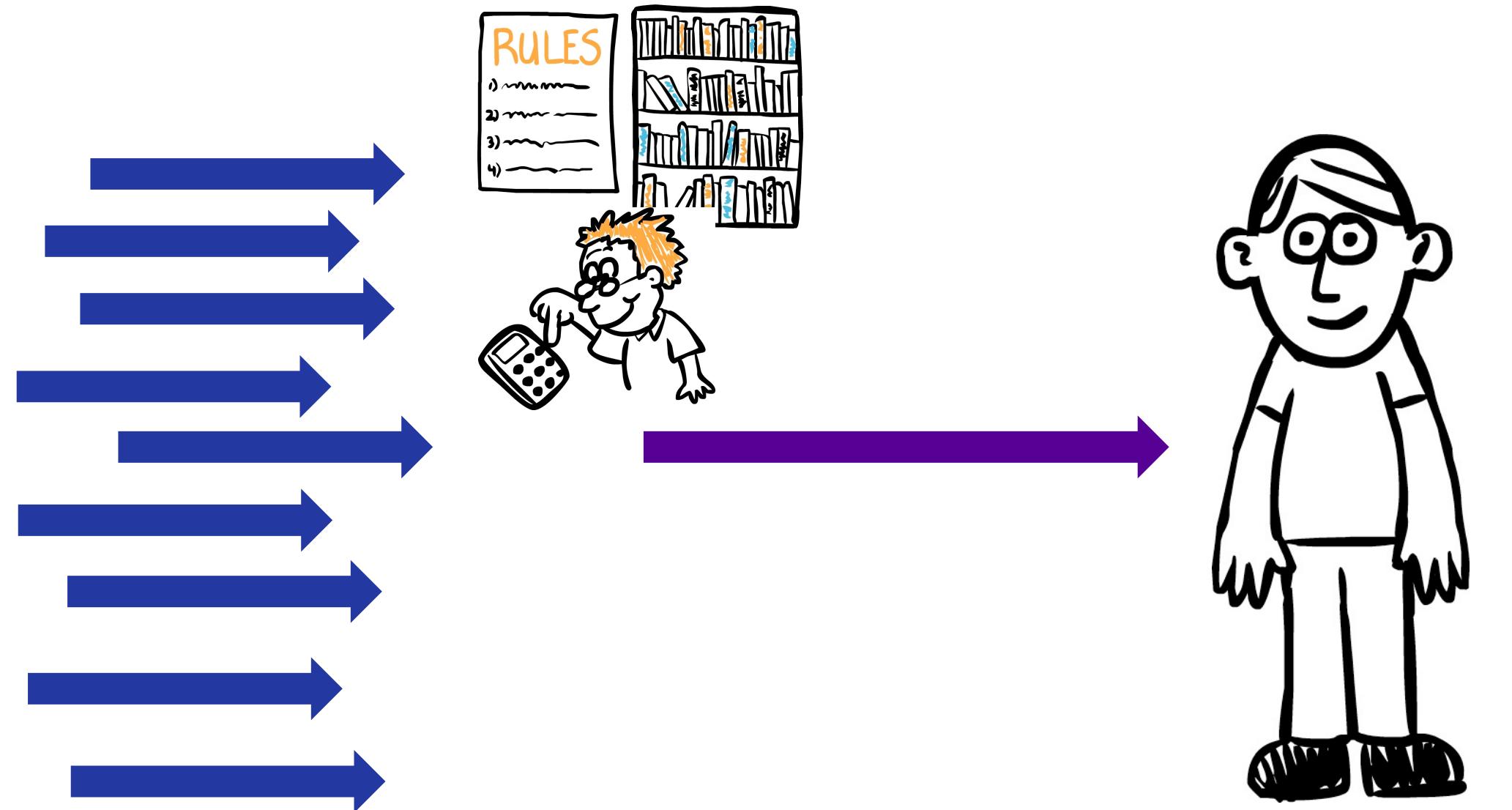


# Attention Filtration



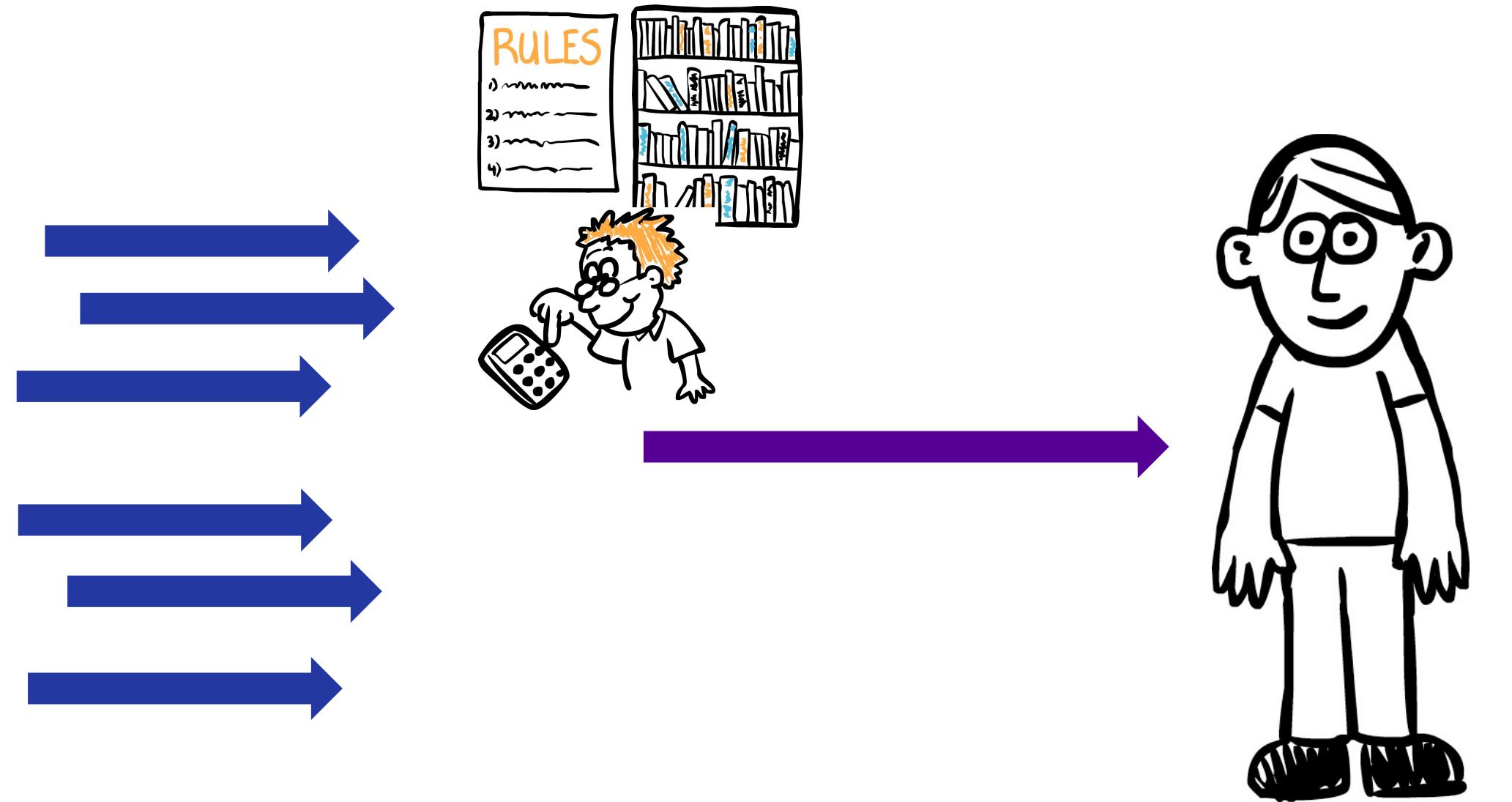


# Cognitive Blindness



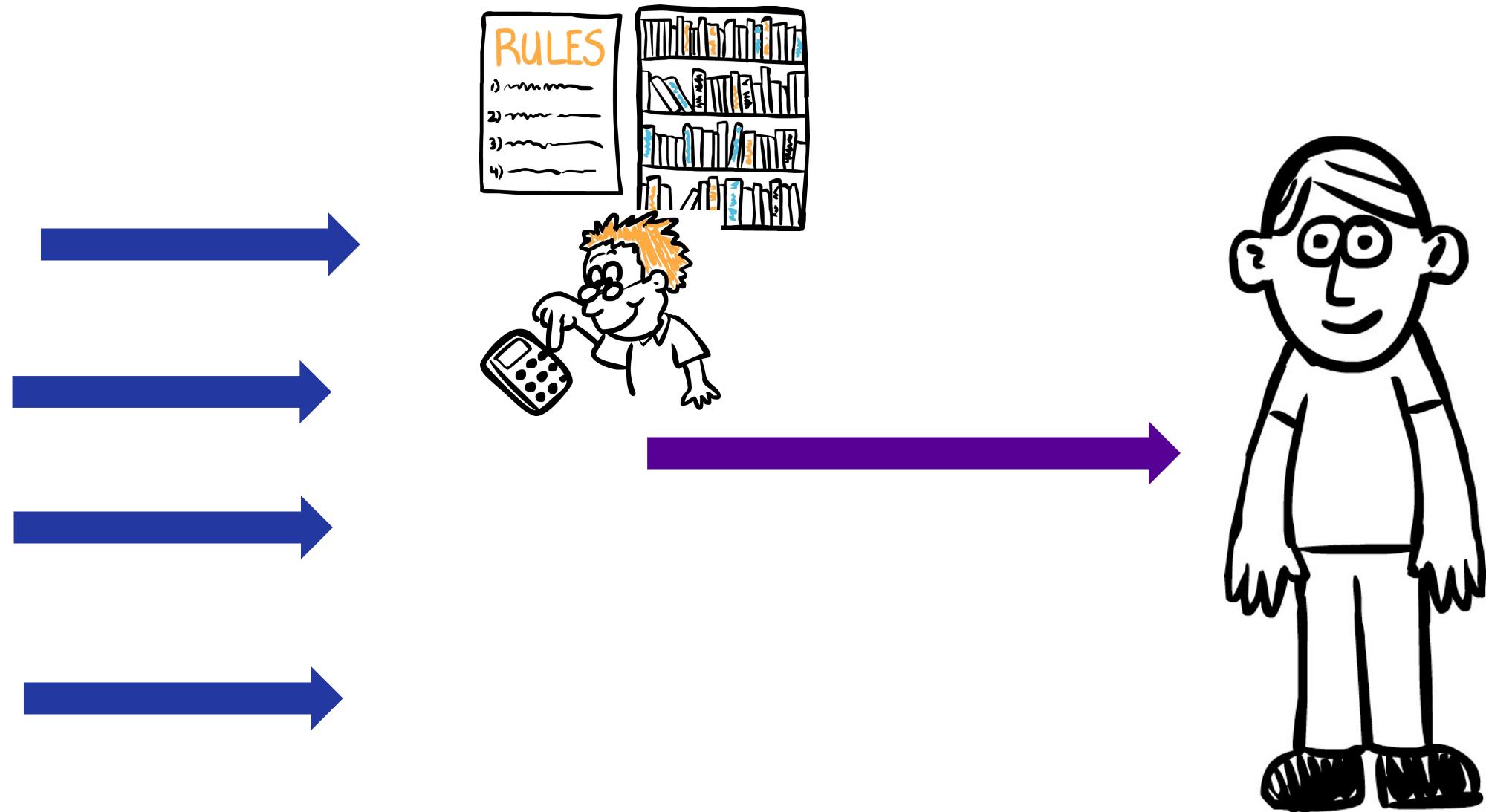


# Recency Bias





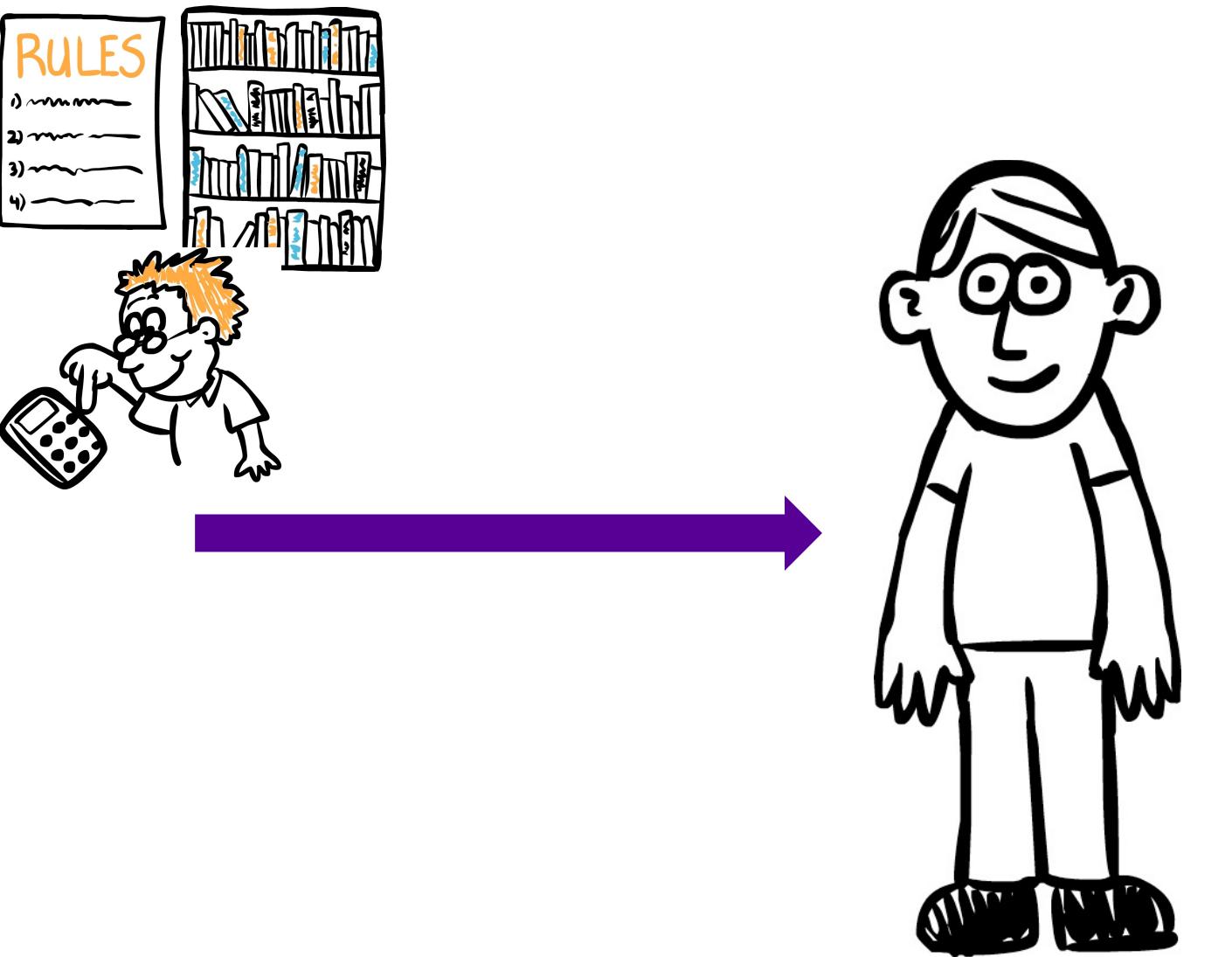
# Tribal Bias



**We discount  
the “far away”!**

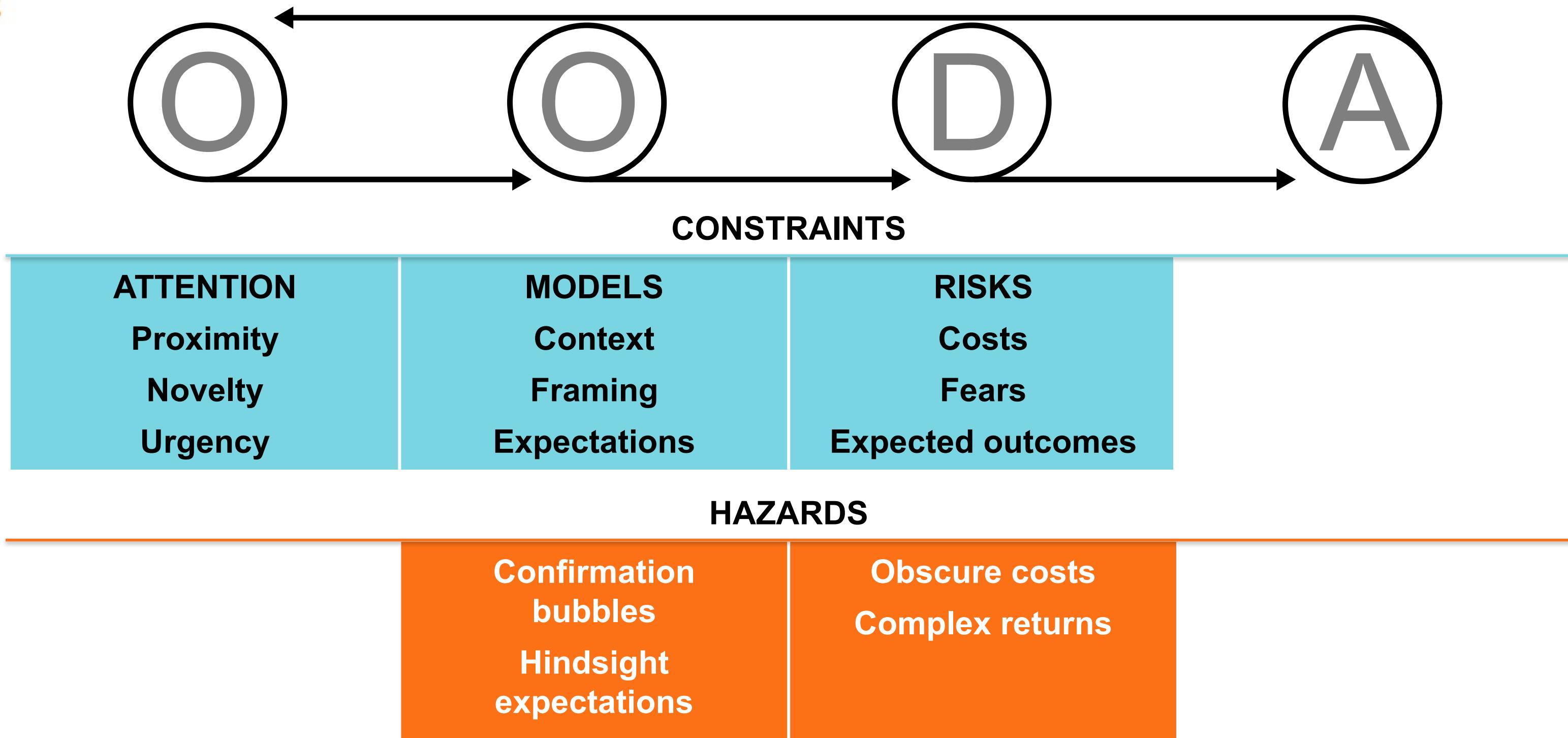


# Surprise



***We prioritize  
the shocking!***

# The Response Playbook





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# System 1 vs System 2

LEFT

LEFT

LEFT

LEFT

RIGHT

RIGHT

RIGHT

RIGHT



#RSAC

# System 1 vs System 2

LEFT

LEFT

RIGHT

RIGHT

RIGHT

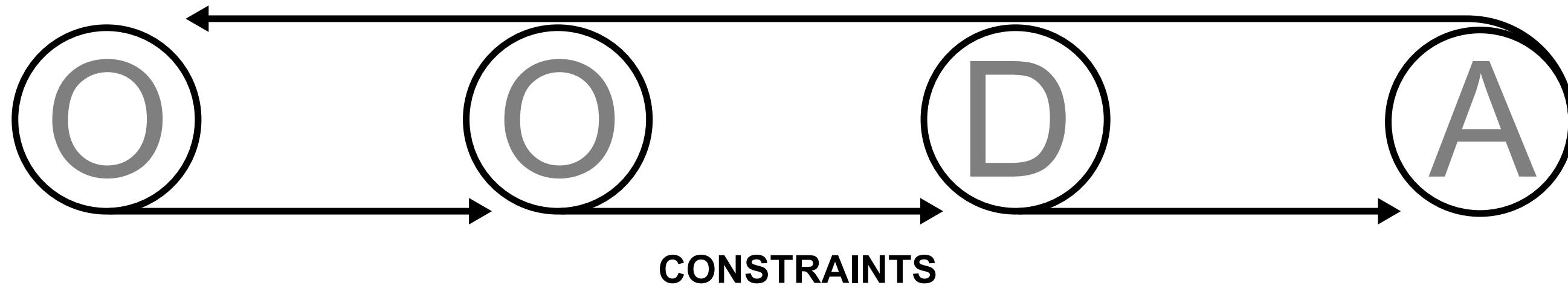
LEFT

RIGHT

LEFT



# Doing What We Know



ATTENTION	MODELS	RISKS	TRAINED RESPONSES
Proximity Novelty Urgency	Context Framing Expectations	Costs Fears Expected outcomes	Practice Repetitive Low risk

## HAZARDS

Distributed social networks Fast information flow Virtual proximity	Confirmation bubbles Hindsight expectations	Obscure costs Complex returns
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# Synthesis

Humans are *situationally*  
awesome at risk management.



# The End of the Right Situation?



## CONSTRAINTS

### ATTENTION

Proximity

Novelty

Urgency

### MODELS

Context

Framing

Expectations

### RISKS

Costs

Fears

Expected outcomes

### TRAINED RESPONSES

Practice

Repetitive

Low risk

## HAZARDS

Distributed social networks

Fast information flow

Virtual proximity

Confirmation bubbles

Hindsight expectations

Obscure costs  
Complex returns

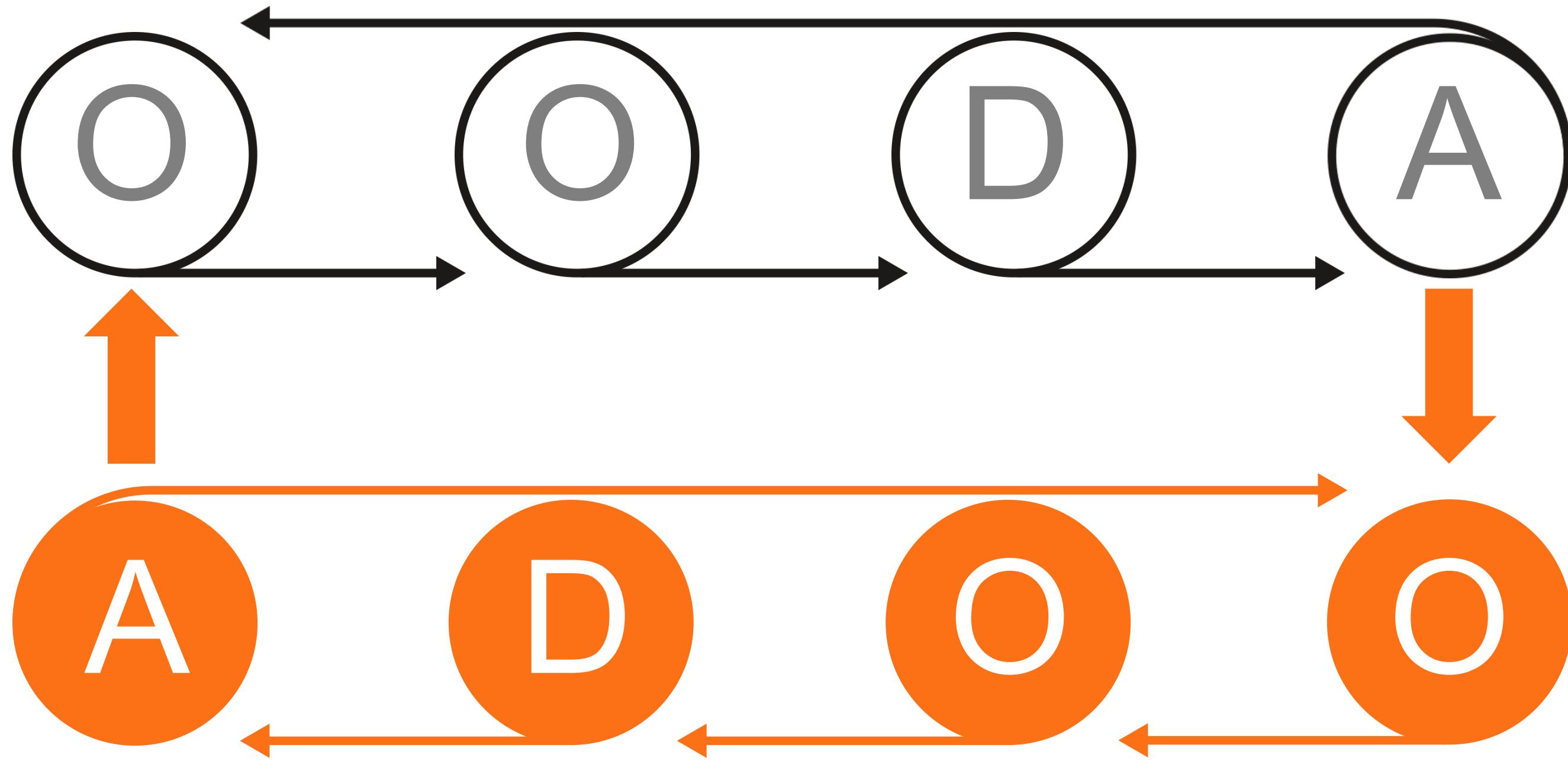
Repurposed responses

Dunning-Kruger



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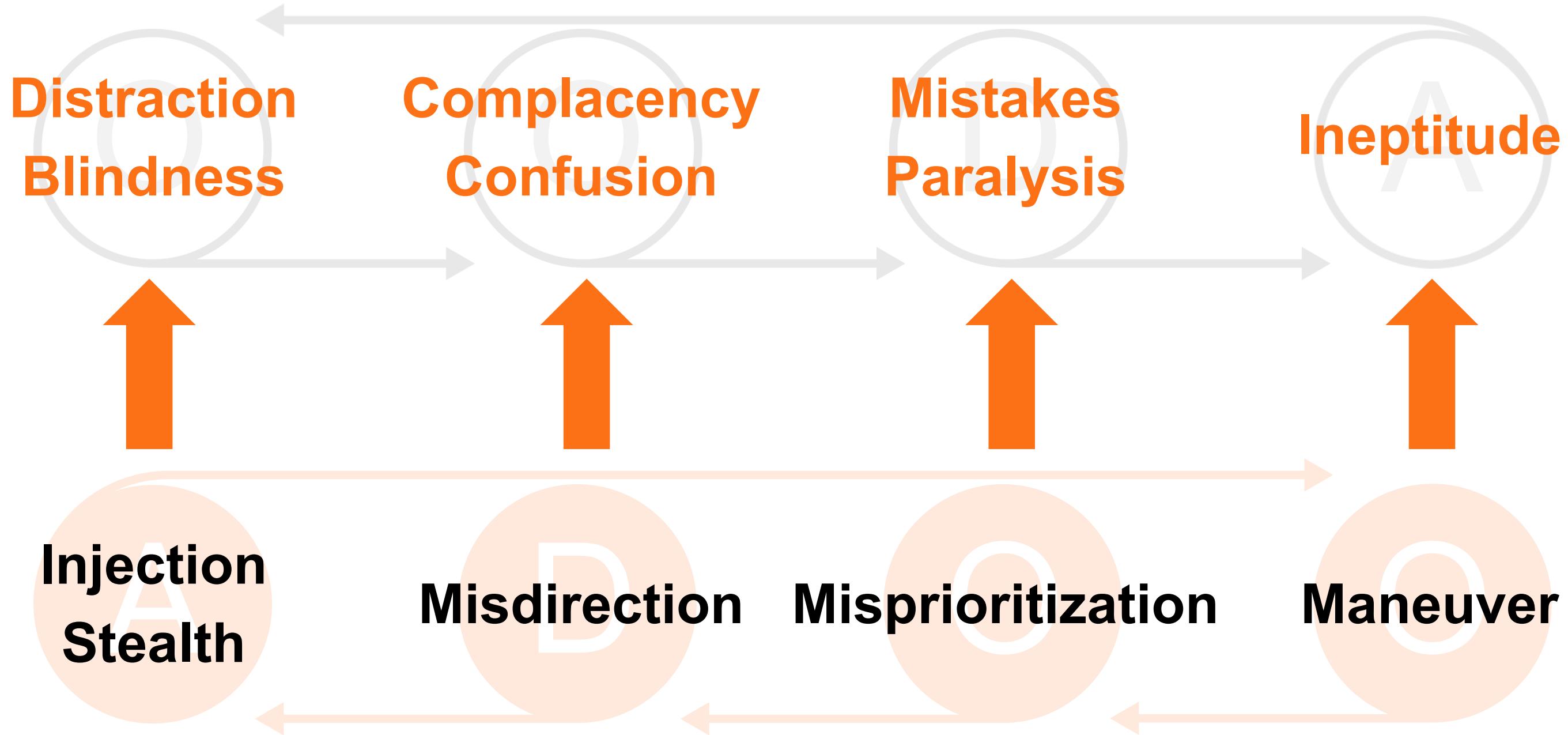
# Improvement through Adversarial Learning





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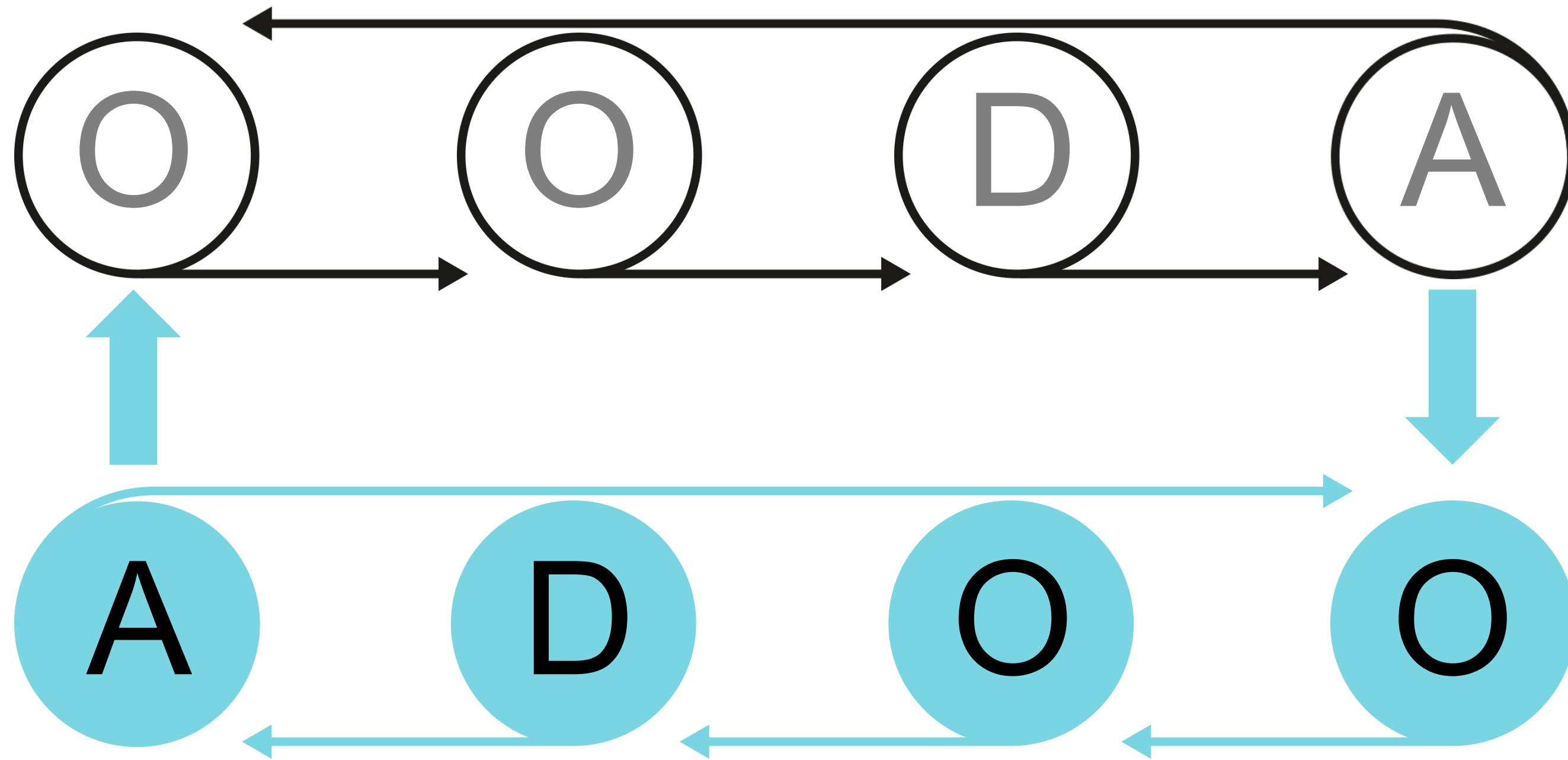
# OODA Skills





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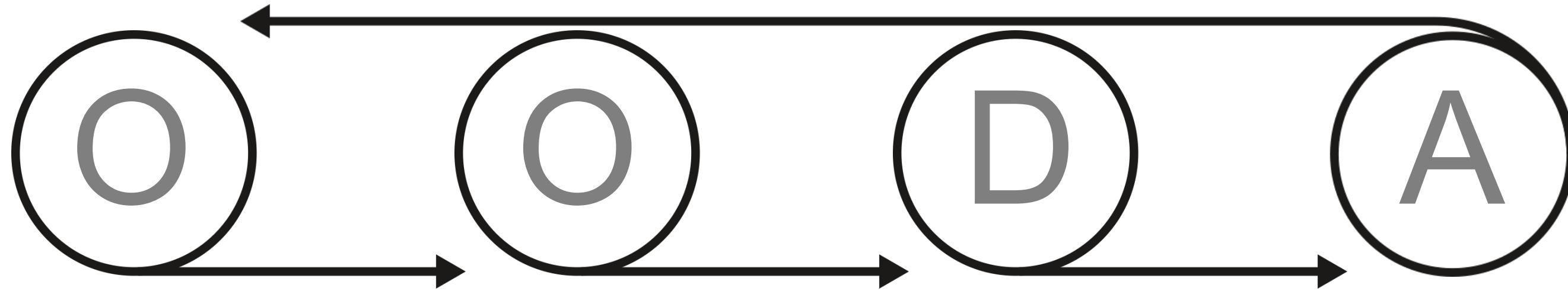
# Improvement through Introspection





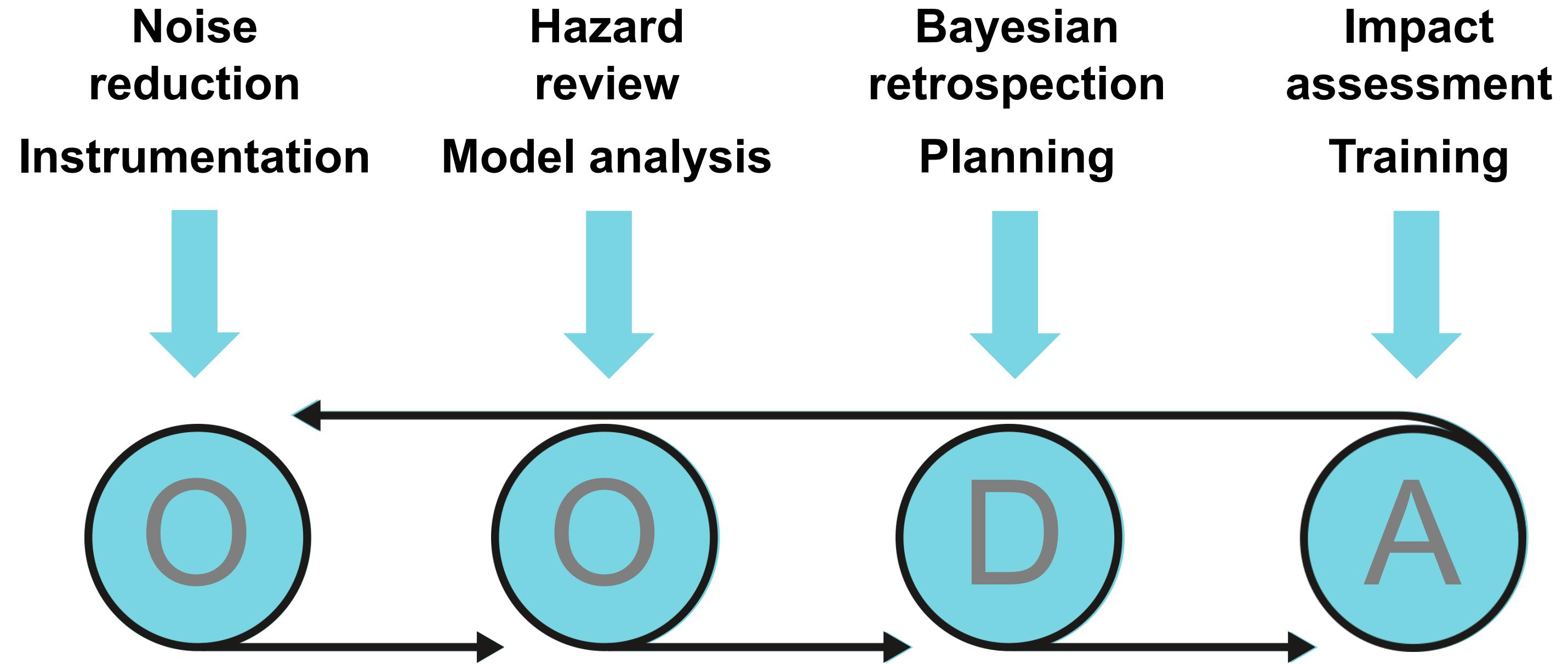
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# OODA Improvements





# OODA Improvements



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# ANSWERS?

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