



FAIR COINS,  
LOGICAL ABDUCTION,  
AND SEA MONSTERS

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The long tail

# Flipping one hundred tails

Likely another  
tails ("likes  
tails")

Likely another  
heads ("due")

50:50  
("independent  
trials")

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# LOGICAL ABDUCTION

# Logical deduction & induction

## Deduction - syllogism

- All men are mortal
- Socrates is a man
- Therefore, Socrates is mortal

## Induction - inference

- So far I've enjoyed most MathsJam talks
- The next talk is at MathsJam
- I'll probably enjoy it

# Logical abduction

## **Abduction - inference to best explanation**

- The surprising fact, C, is observed
- But if A were true, C would be a matter of course,
- Hence, there is reason to suspect that A is true.



# SEA MONSTERS



Return of the  
Obra Dinn



Oh dear

The squid! Where is my Frenchman?

NEXT

Do you have a  
plaster?

- My friend Jim wears a hat
- That person is wearing a hat
- Therefore, that person must be Jim

# Thesis

- It is surprising that this man was torn apart by a kraken
- I hear that the bosun’s mate was torn apart by a kraken
- The simplest explanation is that this man is the bosun’s mate

This is **not** bad reasoning.

Being rent asunder by a sea monster is normally *very rare*.

This is natural reasoning, it’s common sense, it’s absolutely the right way to approach the real world, and we shouldn’t put it down.