

A dark gray rectangular box is centered on a background of abstract, wavy lines in shades of blue and black. The lines create a sense of depth and motion, resembling ocean waves or ripples in water.

FAIR COINS, LOGICAL ABDUCTION, AND SEA MONSTERS

David Lyford-Tilley



The long tail

Flipping one hundred tails

Likely another
tails ("likes
tails")

Likely another
heads ("due")

50:50
("independent
trials")

Flipping one hundred tails

Likely another
tails ("likes
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Likely another
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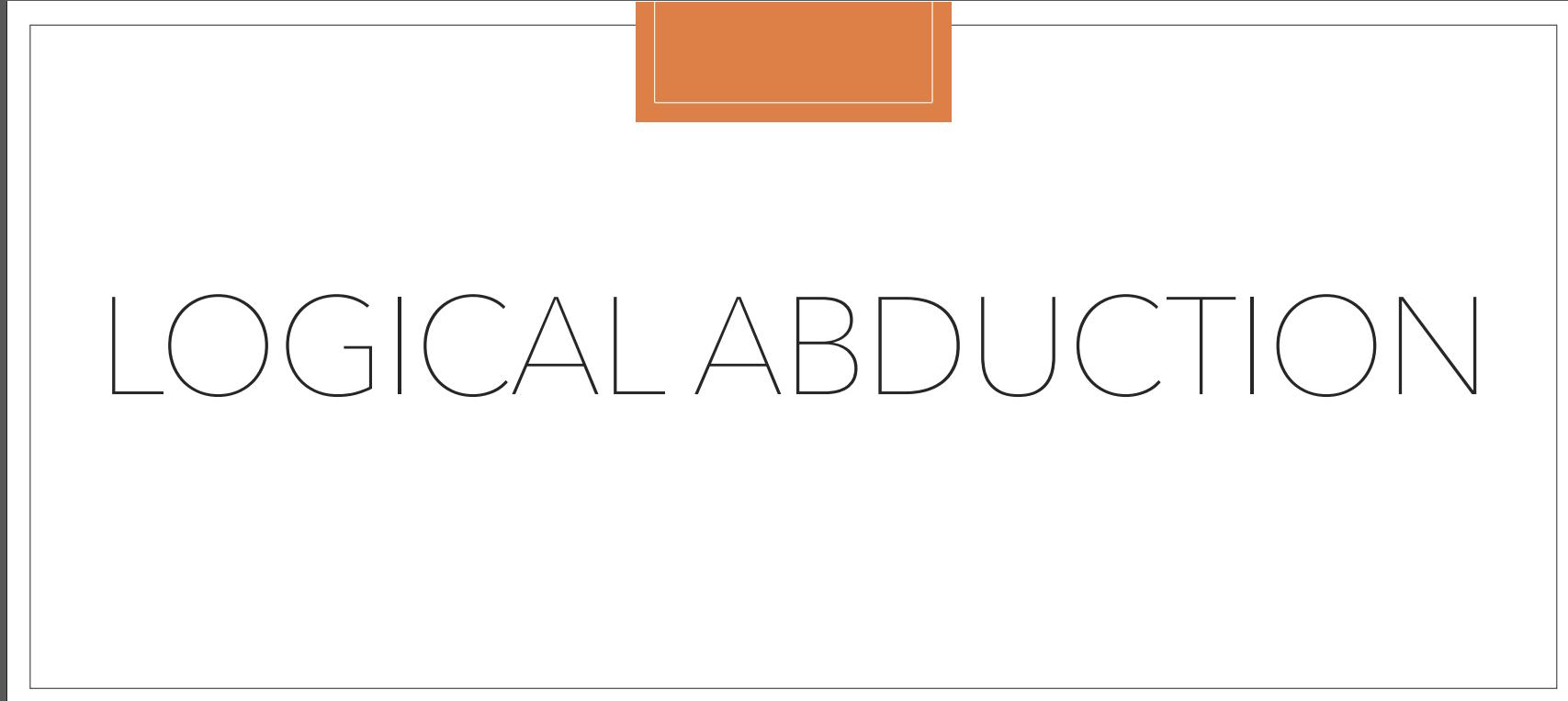
50:50
("independent
trials")

Flipping one hundred tails

Likely another
tails ("likes
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Likely another
heads ("due")

50:50
("independent
trials")



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

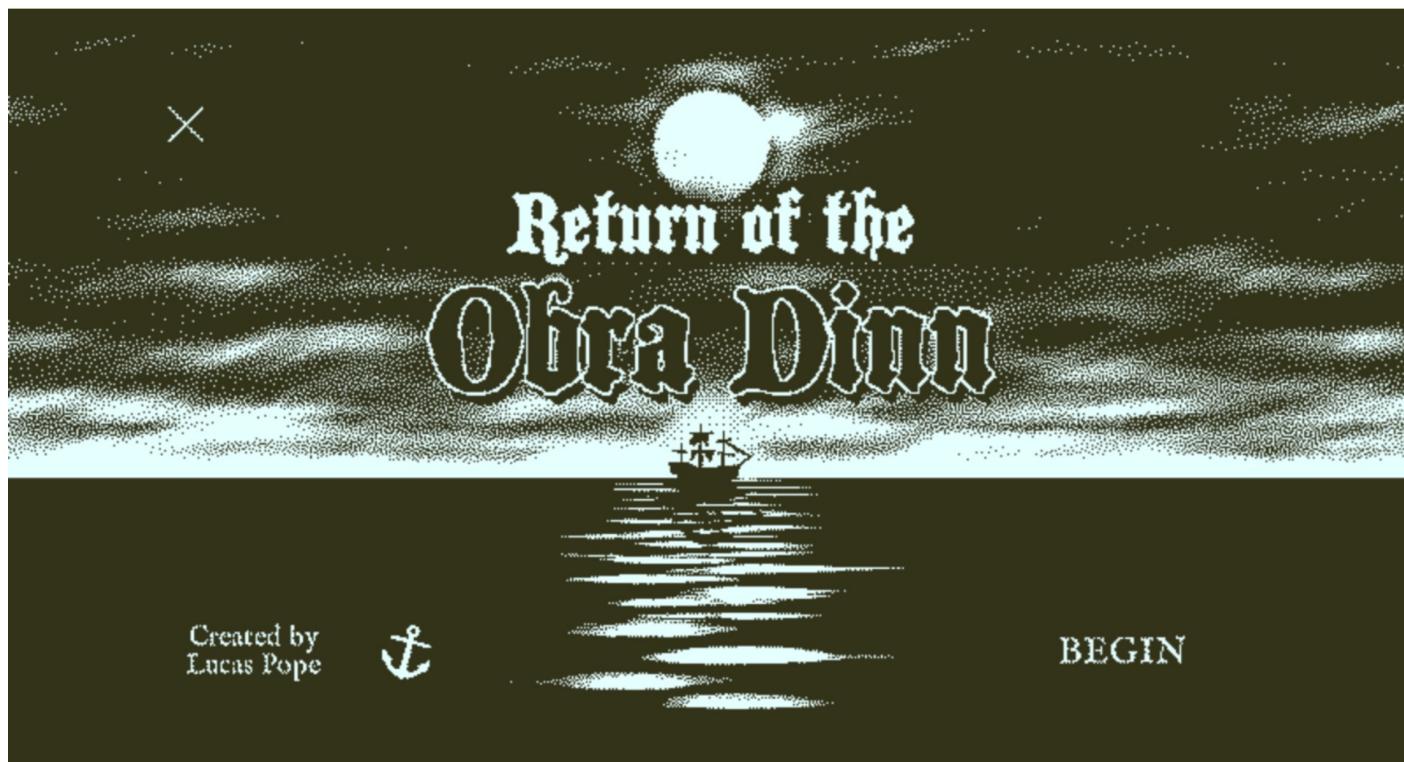
Abduction - inference to best explanation

- 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.