

# PHIL Class 11

ophidia airport has a problem with snakes, they sneak onto 8% of planes

**how many** planes take off from the airport for at least a 1/3 chance of a snake on a plane.

$1 - (1 - 0.08)^n \geq 1/3$

by trial and error  $n$  must equal 5

## Unit 2

### Chapter 5, explanation

#### Scientific Reasoning

Not just for science.

Abby works at the Rollercoaster casino in Luckyville. Going through the day's buy-in records, she's surprised that someone bought \$800,000 of chips with \$20 bills. "Wow," she thinks. "That's a lot of cash."

"I wonder if this is a criminal, like a drug trafficker, laundering dirty money!" She knows that criminals use casinos to get rid of large amounts of cash that would attract attention at a bank. Casinos give them a cheque when they bring back their chips.

"Wait, probably the Save-Our-Souls megachurch down the road had a mega-bake sale fundraiser, and bet the money at the Rollercoaster roulette table." She's never heard of drug traffickers in Luckyville.

But she decides to investigate. She figures that if SOS had a bake sale, there would be photos on Facebook, so she looks up the SOS Facebook page.

What is Abby's **observation**? Someone bought \$800k of chips with cash.

Her answer is a hypothesis. *Not all hypothesis are not explanations.*

Her **hypothesis** are:

- 1\_ This is a criminal, like a drug trafficker, laundering dirty money!
- 2\_ The megachurch down the road had a mega-bake sale

The **prediction** is:

There are bake sale photos on the SOS FB page.

The prediction isn't just something someone thinks is true, it's more of an expectation and there is a way to check it.

#### Explanatory Hypothesis

Inference to the best *competing* explanation (IBE)

Why are young people having so little sex?

**observation**

In many western countries people are having sex later in life, with fewer people, and less often.

**non-competing explanations**

- decline in couplehood
- hook up culture, dating apps
- economic stress, careerism
- anxiety depression
- smartphones, streaming television
- lower rates of child sexual abuse

...

So it could be produced by many different factors

**observation**

A seal got an eel stuck up its nose

**competing explanations**

1\_ A seal surprised an eel, and it accidentally swam into the seal's nose

2\_ A seal ate an eel and then regurgitated it the wrong way

*these are competing, one way an eel is going into the nose and one way the eel is going out.*

Alternative hypothesis

- cannot both happen

NOT(F and G)

$P(F) + P(G) \leq 1$

Next class: judging