Propositions: building blocks of logic

Proposition

A statement that has a truth value (i.e. is true or false) and is "well-formed"

Propositions are the basic building blocks in symbolic logic.
Here are two propositions.

All cats are mammals

True, (and a proposition)

All mammals are cats

False, but is well-formed and has a truth value, so still a proposition.

Are These Propositions?

2 + 2 = 5

x + 2 = 5

Akjsdf!

Who are you?

There is life on Mars.

Implication ($p \rightarrow q$)

"If it's raining, then I have my umbrella"

*It's useful to think of implications as promises. An implication is false exactly when you can **demonstrate** I'm lying.*

	It's raining	It's not raining
I have my umbrella	No lie. True	No lie. True
I do not have my umbrella	**LIE! False**	No lie. True

p	q	$p \rightarrow q$
T	T	T
T	F	F
F	T	T
F	F	T

Lecture 1 Activity

Introduce yourselves!

Go to pollev.com/uwcse311

You have to login, but no "points" are associated; these help me adjust explanation.

Break this sentence down into its smallest propositions and convert it into logical notation.

"If I read the book or watch the movie, then I'll know the plot."