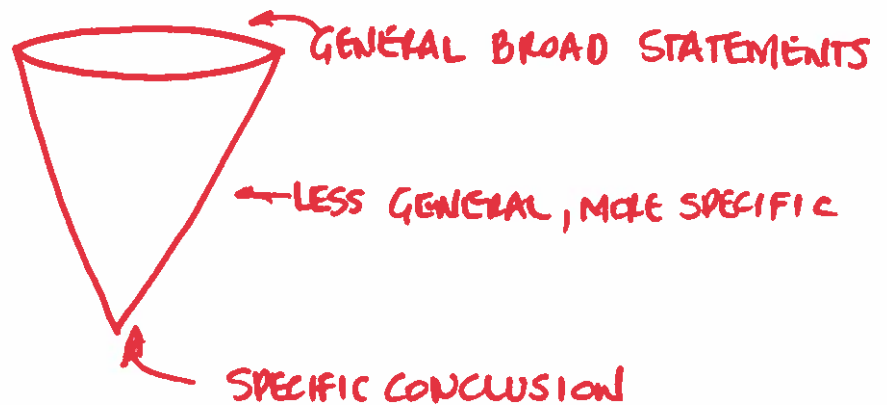


Section 1.3: Deductive Reasoning Versus Inductive Reasoning

What is Deductive Reasoning?

IN LOGIC, GENERAL STATEMENTS WHICH NARROW IN GENERALITY TO A SPECIFIC CONCLUSION IS CALLED DEDUCTIVE REASONING.



Examples of Deductive Reasoning:

① ALL FISH HAVE GILLS.

A BASS IS A FISH.

∴ A BASS HAS GILLS.

↑
THEREFORE

② A HUMANS ARE MORTAL.

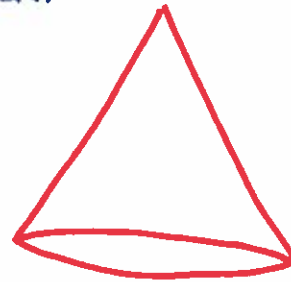
JOHN IS HUMAN.

∴ JOHN IS MORTAL.

What is Inductive Reasoning?

INDUCTIVE REASONING USES SPECIFIC STATEMENTS TO SUPPORT A GENERAL, BROAD CONCLUSION. IF A COUNTEREXAMPLE IS FOUND, THE INDUCTIVE ARGUMENT IS DISPROVEN.

DANGEROUS



LIST OF SPECIFIC STATEMENTS

GENERAL CONCLUSION

Examples of Inductive Reasoning

- ① THE SUN ROSE IN THE EAST MONDAY.
THE SUN ROSE IN THE EAST SATURDAY.
THE SUN ROSE IN THE EAST FRIDAY.

∴ THE SUN RISES IN THE EAST EVERY DAY.

COUNTEREXAMPLE?

VALID

- ② 11 IS A PRIME NUMBER.
13 IS A PRIME NUMBER.
17 IS A PRIME NUMBER.

∴ ALL ODD NUMBER ARE PRIME NUMBERS.

∴ ALL PRIME NUMBERS ARE ODD. X ②

COUNTEREXAMPLE: 15, 9, 21
INVALID

- ③ BILL LIKES BEER.
JACK LIKES BEER.
SAM LIKES BEER.

∴ ALL MEN ARE ALCOHOLICS.

COUNTEREXAMPLE: ERIK

- ④ KATIE LOVES JOHN.
KATIE LOVES BRETT.
KATIE LOVES SAM.

∴ KATIE HAS 3 SONS AND LOVES THEM.

COUNTEREXAMPLE: NONE