If an argument is not valid, it is invalid

The statements in an argument need not have an analogue in the real world

Eg: Thousand < Billion
Million < Billion
Thousand < Million is invalid
Thousand ><= Million, although you never see that IRL

What about arguments like:

New Delhi is the capital of India.
London is the capital of the UK.
Hence, Paris is the capital of France.

Premises are true. Conclusion is true. Is the argument valid?
No.

Argument needs evidence-based conclusion.
Premises should establish the truth of the conclusion.
So, the conclusion has to deal with the same things that premises deal with.
Arguments have to follow the requirement of logical consequence, i.e. conclusion has to follow from its premises. Conclusion cannot drop out of nowhere.
An argument that does not follow this requirement is an invalid argument.
We will learn more about the requirement of correct form when we do syllogism.

no definitive answer to:
Most snake-bites lead to death
A snake bit John
John will most likely die

Sparrows lays eggs. Birds lay eggs. Sparrows are birds.
WRONG. Birds aren't the only animals laying eggs

P = He who owns a gram of plutonium is a millionaire. Pranesh Bhargava does not own one gram of the plutonium.
C = Pranesh Bhargava is not a millionaire.
invalid

P = Only he who owns a gram of plutonium is a millionaire. Pranesh Bhargava does not own one gram of the plutonium.
C = Pranesh Bhargava is not a millionaire.
valid

Validity is a requirement, but not strong enough for good arguments.

Example: All triangles are round things. All round things are three-dimensional. Therefore, all triangles are three-dimensional.

Problem... This argument has no analogue in the real world. Everything is imaginary. What's the point of such an argument except for mental exercises.

An argument with obviously false premises and false conclusion turns out to be valid.

Validity is a conditional
If the premises are true
Then the conclusion is true

Anything STRONGER?

Soundness: (i) Valid
(ii) Premise is true

Tall people have longer limbs. Kobe Bryant is tall. Tf, He has longer limbs.

Donald Trump is an intelligent man. Intelligent men are always poor. Tf, Donald Trump is poor.

All robots contain life. Humans are robots. Tf, Humans have life.

- Thus, an argument can be: Inductive or Deductive.
- Deductive argument can be: Valid or Invalid
- Valid deductive argument can be: Sound or unsound

Who checks the truth values of the propositions? Scientists and researchers.

Who checks the validity? Logicians.

Are inductive arguments valid?