

Logic

Aristotelian Syllogistic: Immediate Inference

The Definition of Immediate Inference

- Immediate inference is the direct inference of one proposition from another.
 - Immediate inference requires that the terms in the premise & the conclusion be the same (or be complements of one another).
 - Thus, they state the logical relations among categorical propositions with different but related subject & predicate.
 - The terms do not have to be in the same place in the two propositions.
 - i.e., the subject of the premise might be the predicate of the conclusion.
 - The quantity & quality of the premise & conclusion may or not be the same.

Kinds of Immediate Inference

- Obversion
- Conversion
- Contraposition

Obversion

- The obverse of a proposition is a proposition with changed quality & complemented predicate.
- E.g., Some dogs are brown, so some dogs are not non-brown.
- Always valid.
- See earlier lecture.

Conversion

- The simple converse of a proposition is a proposition of the same quantity and quality as the original but with the subject and the predicate reversed
- Valid for E & I propositions.
 - No mammals are birds, so no birds are mammals.
 - Some dogs are brown, so some brown animals are dogs.
- For A propositions
 - not generally valid
 - All Saddam Hussein's friends were opponents of the Gulf War.
So all opponents of the war were friends of Saddam Hussein.
 - but valid for definitions
 - All men are rational animals, so all rational animals are men.
 - & valid after weakening (conversion *per accidens*)
 - All men are mammals, so some mammals are men.
- Not valid for O propositions
 - Some dogs are not collies, but not "some collies are not dogs."

Contraposition

- The contrapositive of a proposition is the proposition with the same quantity & quality, but with the subject and predicate interchanged & complemented
- Valid for A & O propositions (only)
 - All horses are large hoofed mammals having a short-haired coat, a long mane, and a long tail,
 - So, all animals that are not large hoofed mammals having a short-haired coat, a long mane, and a long tail are non-horses.
 - Some horses are not stallions
 - So, some non-stallions are not non-horses.
- This is equivalent to obversion, conversion, & obversion again.
 - Some horses are not stallions.
 - So, some horses are non-stallions. [by obversion]
 - So, some non-stallions are horses. [by conversion]
 - So, some non-stallions are not non-horses. [by obversion]