Immediate inferences

⇒ Complement :

Class: Collection of entities that share a certain characteristic/attribute

Complementary class: don't share

Class = males

Complementary class : non-male

Relative complementary class: within a subclass collection of all entities that do not share a certain characteristic / attribute.

Subclass: humans
class = males
Relative complementary class = females

Complement of a complement of class = Class itself

Square of opposition is used in order to draw immediate inference on the basis of logical opposition.

Immediate inference = Inference that can be drawn provided one proposition.
Provided only one proposition, you can infer a new proposition.

Logical oppositions = Relationship between categorical propositions.

Immediate Inferences

(i) Xchg subj & predicate

(ii) using or avoiding negatives

(1) Conversion: if true

No dogs are cats — Nothing is both

No cats are dogs — then

(2) Then from a given statement, we can derive another proposition. We have names for such statements:

Convertend is the original proposition, whose truth value is known.

Converse is the proposition derived through conversion.

Converse follows from its convertend (original).

One proposition is converse of the other.

What kind of sentences can be converse of each other?

Conversion is possible when there is one object that has characteristic of S as well as P.

not necessarily ("some" type) only

But A type cannot have conversions

Similarly O type

Conversion = Forming a new proposition

(i) by interchanging the subject and predicates

(ii) Not changing the quantity and quality (some remains some, and no remains no).

Obversion:

An object can be in a set or in a Complement set.

Suppose

Prop = Some student is indoors

Some and all

Obverse = Some student is not non indoors

Prop: All students are indoors

Obverse: No student is non indoors

Prop: All graduates are literate

Ob v Prop: No graduates are non literate

The relationship is called obversion.

Original proposition is called the obvertend.

Inferred proposition is called the obverse (which was tagged as obverse proposition in earlier slides).

Obversion is arriving at a proposition by

(i) changing the quality of the proposition (affirmative to negative and vice-versa)

(ii) replacing the predicate with its complement (not the subject)

O type: some politicians are not smart

I type: some politicians are non-smart.

Contraposition

In very short:

If you find an object in a set, then you won't find it in complement set.
If you find an object in Q, then in non-Q, you won't find it.

If you find all students indoors, then in non-indoors, you won't find students. You will only find non-students there.

P: all voters are citizens
All non citizens are non voters

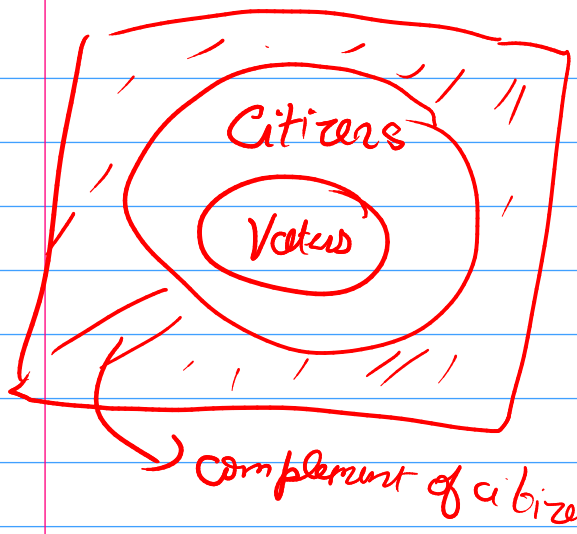
Interchange the subj & Predicate
and use their complements

S → non P
P → non S

Some students are NOT idealists
Some non idealists are NOT non students

If you find an object in a set, then you won't find it in complement set.
If you find an object in Q, then in non-Q, you won't find it.

If you find all students indoors, then in non-indoors, you won't find students. You will only find non-students there.
If all the students are inside the class, then outside the class, there are only non-students.



All voters are citizens

⇒ all non citizens are non voters

(you need to interchange)

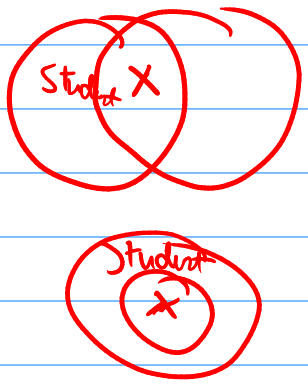
A & O type have contraposition

Some students are idealists

Trial contra: Some non-idealists are non students

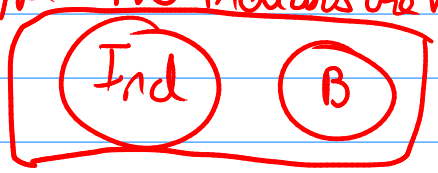
⇒ some people have to be both non idealists and non students

∃ members outside both sets but I doesn't describe about the complement set of both! there can be no one whose a non-student



I type no contraposition

E type: No indians are British



Trial contra:
No non British are non Indians

Are there any non British & non indians?

Statement is implying ⇒ are there only indians or British? Yes

WRONG!

Eg: Americans ⇒ E type has no contraposition