

Syllogism

Venn diagram method

Tick, Cross Method

→ statements are premises

Ex → (i) All dogs are cats

(ii) All cats are dogs

→ dogs is subject and cats is predicate

→ The word that occurs in both, is the middle term.

Standard Statements

① All dogs are cats

→ Universal Affirmative

② No dog is cat

→ Universal Negative

Particulars

③ Some dogs are cats

Particulars

④ Some dogs are not cats.

	Affirmative	Negative
Universal Affirmative	✓	X
Universal Negative	✓	✓
Particular Affirmative	X	X
Particular Negative	X	✓

✓ means Distributive

X means undistributed.

Rules for deduction

Rule 1: \rightarrow Every deduction should contain three and only three distinct terms

Rule 2: The middle term must be distributed at-least once in the premises.

Rule 3: \rightarrow if one premises is negative, then the conclusion must also be negative

Rule 4: \rightarrow if one premises is particular, then the conclusion must also be particular.

Rule 5: \rightarrow if both premises are negative, no conclusion can be drawn.

Rule 6: if both premises are particular, no conclusion can be drawn

Rule 7: No term can be distributed in the conclusion, if it is not distributed in premises atleast once.

Ex 1: \rightarrow AU dogs are cats
UA: \rightarrow AU cats are pigs

Conclusion: ① AU dogs are pigs UA

② AU pigs are dogs UA

\rightarrow Rule 7 violated can't be concluded

Ex-2 UA: AU Cats are dogs ✓
 UA: AU Cats are pigs ✓
 Middle Term: Position diff hai.
 posn doesn't matter.

→ X X left here (after elimination of middle term)
 PA: { Some dogs are pigs
 Some pigs are dogs } ✓ valid conclusions.

Ex-3 AU dogs are Cats X
 AU pigs are Cats X
 → MT NOT distributed

NO conclusion :-)

Ex-4 AU Cats are dogs ✓ UA
 some Cats are pigs ✓ PA
 Conclusion: { Some dogs are pigs
 some pigs are dogs } ✓ valid conclusions
 Rule: 4

Ex-5 AU dogs are cats ✓ UA
 NO Cats is pig ✓ UN
 Rule 3: Negative
 NO dog is pig ✓
 NO pig is dog ✓
 Rule 7: →

Ex-6

UA:

All dogs are cats

PA:

Some cats are pigs

MT:

Not distributed hence NO conclusion.

Ex-7

UA:

All dogs are cats

All cats are not pigs

PA:

Some cats are pigs

No conclusion: Because MT is not distributed.

Ex-8

UA:

All cats are dogs

PN:

Some cats are not pigs

Rule 3 + Rule 4 \Rightarrow PN

Some dogs are not pigs
Some pigs are not dogs.

Ex-9

No dogs are cats

No cats are pigs

No conclusion.

Ex-10

No dogs are cats

Some cats are not pigs

No conclusion.