

PURE NUMERICAL BOOLEAN SYLLOGISMS

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A. Undefined notions.

1. Let a, b, c, d , etc. be general terms (which may be empty).
2. Let m, n , and q be integers greater than or equal to zero.
3. $A^+n bc$, read: "At most $n b$ are not c ."
4. $I^+n bc$, read: "More than $n b$ are c ."

B. Definitions.

1. $E^+n bc = \text{df } \sim I^+n bc$

"At most $n b$ are c " means "Not more than $n b$ are c ."

2. $O^+n bc = \text{df } \sim A^+n bc$

"More than $n b$ are not c " means "It is false that at most $n b$ are not c ."

(3-6) Standard categorical forms (Boolean interpretation):

3. $A bc = \text{df } A^+0 bc$

"Every b is c " means "At most zero b are not c ."

4. $E bc = \text{df } E^+0 bc$

5. $I bc = \text{df } I^+0 bc$

6. $O bc = \text{df } O^+0 bc$

7. A^+ and E^+ forms are called *quasi-universal*, I^+ and O^+ *particular*.

8. A numerical argument is called *pure* when all its propositions have quantifiers.¹

C. Immediate inferences.

1. Contradictories:

- a. $A^+n bc$ and $O^+n bc$ are contradictories.
- b. $E^+n bc$ and $I^+n bc$ are contradictories.

2. Contraries:

- a. $A^+n bc$ and $O^+m bc$ are contraries iff $m > n$.
- b. $E^+n bc$ and $I^+m bc$ are contraries iff $m > n$.