In written form, categorical statements can be represented easily with the following symbolic formalism:

Empty Class, i.e. a Class that has no members is denoted by the symbol of zero.

S = 0 means that S is an empty Class. There are no members in S.

Not empty Class, i.e. Class with members in it denoted by inequality.

S =/= 0 means that S is NOT an empty class.

The complement of a class is denoted with a bar on top of the class symbol. We will use the symbol of prime, denoted by a vertical bar after the symbol.

The complement of class S, in textbooks is denoted by $\bar{S}$, in my text is denoted by S'.

Class of things that belong to two classes is denoted by juxtaposing the symbols of the two class.

SP means class of all things that belong to classes S and P.

E.g.

S: All Swiss individuals

P: All paratroopers

SP: All Swiss individuals who are also paratroopers

SP is also called the 'intersection' or the 'product' of the classes S and P.

A type: $SP' = 0$ I type: $(SP) \neq 0$

E type: $SP = 0$ O type: $(SP') \neq 0$

E-type = No S is P

Class of members common between S and P does not exist.

SP = 0

I-type = Some S is P

Class of members common between S and P exists

SP =/= 0

O-type = Some S is not P

(There exists) S that is (not P)

SP'=/= 0

A-type = All S is P

Whatever is in S is also in P.

There is no S that is (not in P)

S that is (not in P) (does not exist)

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SP' = 0