Introduction to Logical Reasoning

Review Session for Exam #3

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The Skills You Have Practiced…

1. Diagramming categorical statements,
2. Analyzing categorical statements, and
3. Assessing categorical syllogisms (60% of the exam).

Categorical Statements

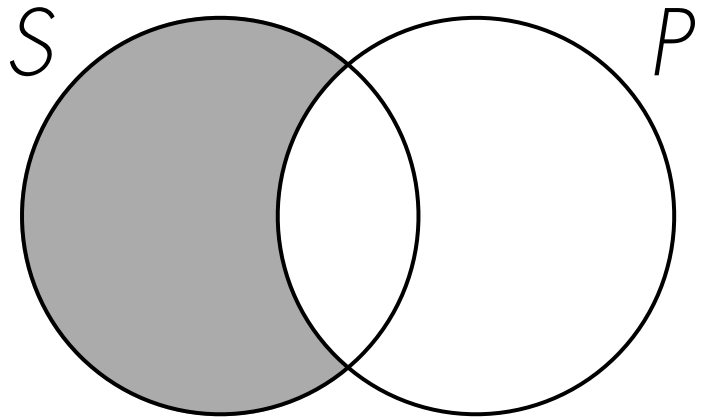
Be sure to practice taking a categorical statement written in English and identify its categorical structure. You do this by identifying the subject (*S*) and predicate (*P*) terms of the statement, along with that statement's *quantity* (universal or particular), *quality* (affirmative or negative), and *distribution* (distributed or undistributed).

Example

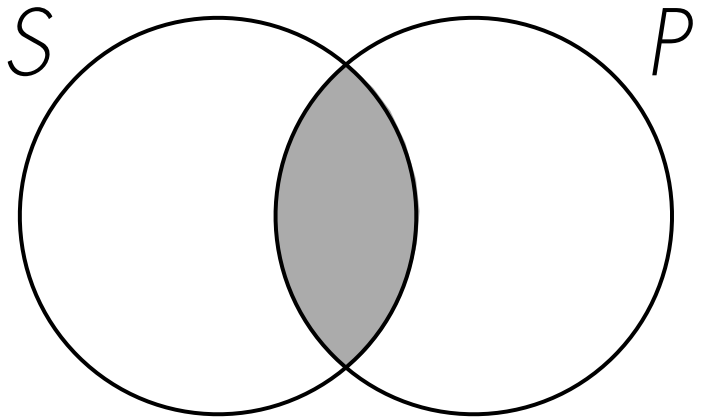
All logic students are good critical thinkers.

Categorical Statements

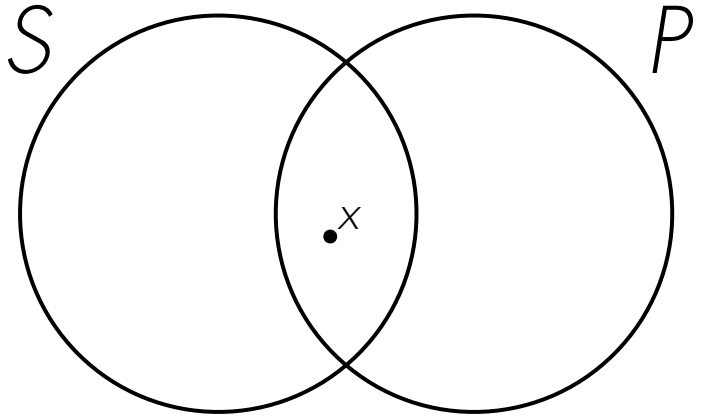
The four standard forms of categorical statements:



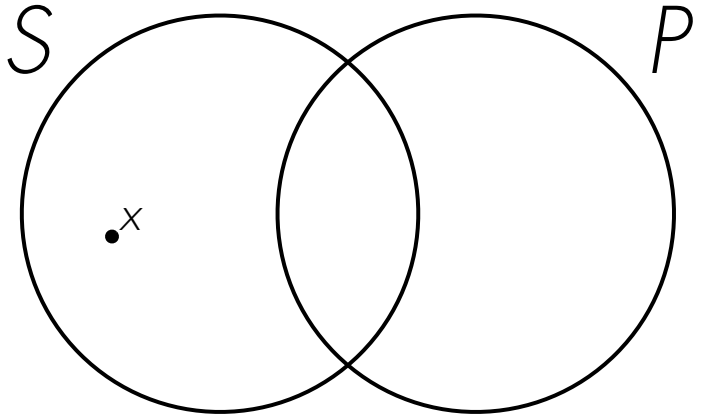
A: All *S* is *P*.



E: No *S* is *P*.



I: Some *S* is *P*.

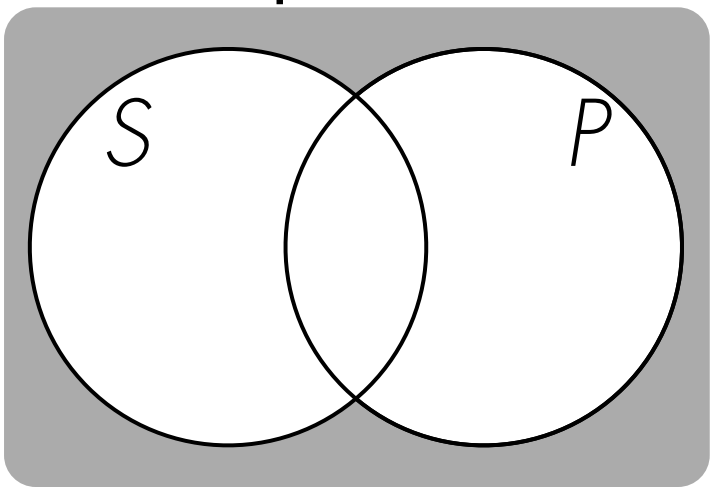


O: Some *S* is not *P*.

Common Problems

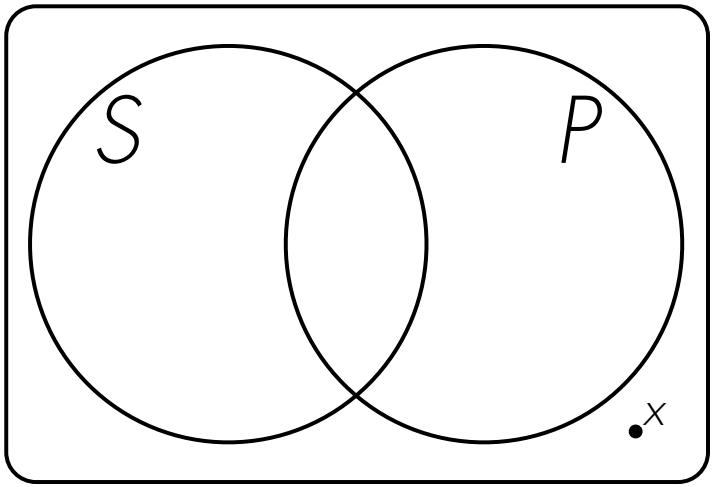
Generally, everyone seems to understand these four forms, though be on guard against mix-ups. Beyond that, do review some of the trickier non-standard categorical statements. The ones involving *complements* (i.e., non-*S* and non-*P*) are especially important to remember.

Examples



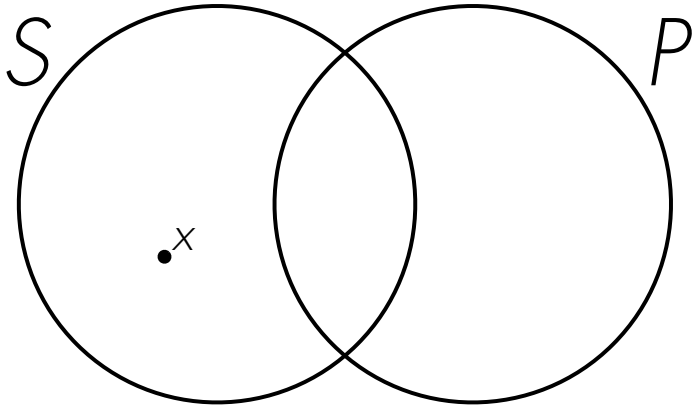
E's Contrapositive

(No non-*P* is non-*S*)



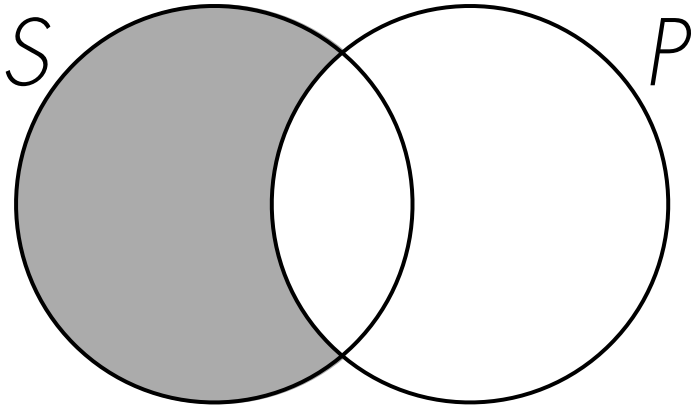
I's Contrapositive

(Some non-*P* is non-*S*)



O's Contrapositive

(Some non-*P* is not non-*S*)



A's Contrapositive

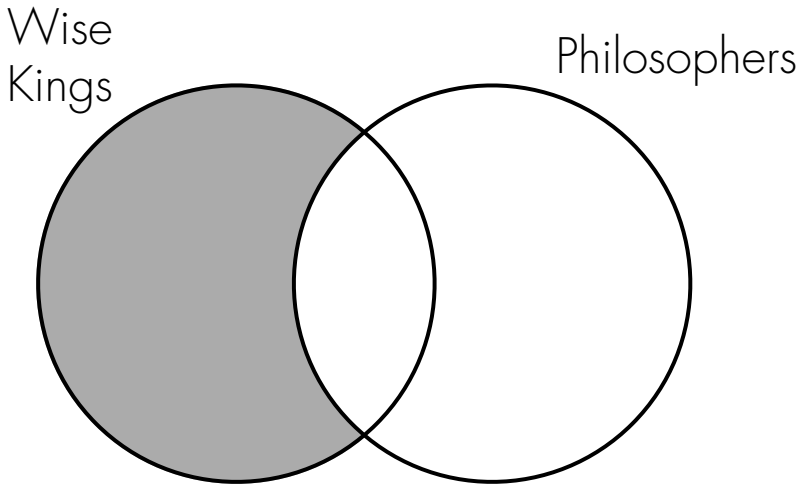
(All non-*P* is non-*S*)

Common Problems

In addition, do not forget the difference between "the only" and "only". Both establish a universal, affirmative (that is, **A**-type) categorical claim. However the category indicated as "the only" is usually the subject term (*S*), whereas the category indicated as "only" is usually the predicate term (*P*).

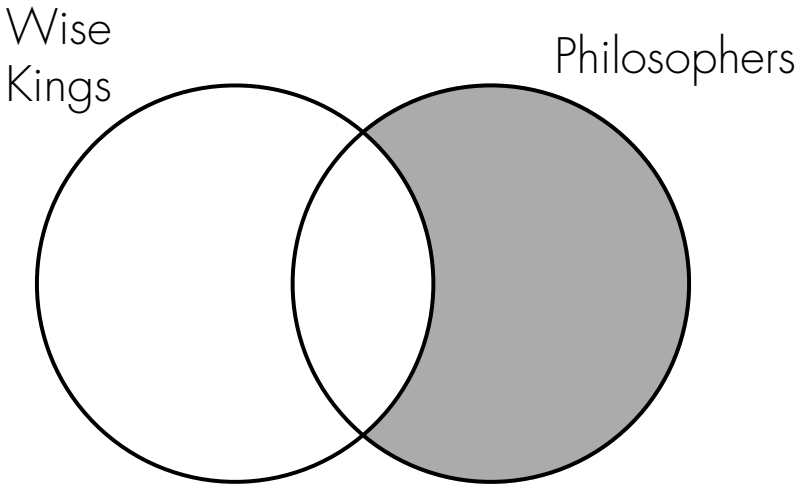
Example

The only wise kings
are philosophers.



A Statement:
All wise kings are philosophers.

Only wise kings
are philosophers



A Statement:
All philosophers are wise kings.

Categorical Statement Analysis

Once you have diagrammed a categorical statement, then you can use the truth or falsity of this statement to determine whether you know anything about other categorical statements. We saw this with the square of opposition, along with the operations of conversion, obversion, and contraposition.

Common Problems

Generally people often try to do too much in their heads. Just draw the Venn diagrams for everything. This will make it much easier on you to determine if the truth (or falsity) of one categorical statement tells you whether a second categorical statement is true, false, or undetermined. But do not forget to write down a clear and succinct explanation!

Example

Suppose that the following statement is true:

> All logic students are good critical thinkers.

Is the following statement true, false, or undetermined?

> No non-good critical thinkers are non-logic students.

Categorical Syllogisms

Remember that a categorical syllogism will always involve only three statements: two premises and a conclusion. The task is to identify the major (*P*), minor (*S*), and middle (*M*) terms, to diagram the premises accordingly, and to finally check whether the conclusion "appears" within that diagram.

Common Problems

The most common problems are (1) not shading in areas correctly and (2) not being sure when the dot goes on a line or not. Furthermore, be sure to draw the conclusion's Venn diagram *separately*, so you can check it against the premises more easily.

Example

All logic students are hard workers, and so all logic students are good critical thinkers because some hard workers are good critical thinkers.

Next Meeting...

Exam #3 will will be held in **lecture hall 1202** and begin promptly at 3:00PM. Please show up and be seated by that time.

Be aware that you will be asked to put anything you bring (including cell phone) in the aisle or the back of the room. You will *not* be able to leave the room until you finish the exam. Plan accordingly.

You will be provided with  , two pencils, one pen, and plenty of scratch paper.