LAB SESSIONS – PHIL 1 – WEEK 5

EXERCISES

A. Answer the Following open question to the best of your possibility. Limit ½ page A4

1. What is the existential import and why is it important?
2. Describe the two interpretation of the existential import in detail (Aristotle vs Boole) and try to reflect on their epistemological repercussions for science
3. Which interpretation of the existential import is currently accepted? And why?

Answer 3: Modern logic rejects existential import for a number of reasons. The most significant for our purposes have to do with the nature of universal claims and our understanding of what it means to say of a proposition that it is false. Starting with the latter, ask yourself what would have to be the case about the world for you to claim that an A type proposition is false. Consider the claim "All swans are white". In order for that claim to be false, we need to know that there is at least one non-white swan. Imagine how you might argue with someone who insists that it is true that "A" swans are white". You would produce as evidence for the falsity of the claim the existence of a non-white swan. "No," you might argue, "not all swans are white, for here is a swan that is brown." But now suppose for a minute that there were no swans at all. What sort of evidence could you produce, in the total absence of any swans, against the claim that all swans are white? Obviously, you couldn't produce a non-white one because there aren't any swans at all. In the absence of any evidence for a falsifying instance to the universal claim, you should accept the claim. But now extend that reasoning to universal claims about empty classes and non-existent objects. Universal claims about empty sets are all true, because there are no falsifying instances.

1. Determine whether the following inference is valid on the modern interpretation of the square of opposition; if the inference is valid, explain why; and if the inference is undetermined, explain why.

   → If the A-proposition is true, the E-proposition is_____.

undetermined.

2. Determine whether or not the following inference is valid on the modern interpretation of the square of opposition; if the inference is valid, explain why; and if the inference is undetermined, explain why.

   → If the O-proposition is false, the A-proposition is_____.

ANSWER: True. This inference is valid. A- and O-propositions are contradictories. They cannot be simultaneously true or simultaneously false. Hence, if one is true, the other must be false, and vice-versa. Here are some examples:

All stringed instruments are guitars. (False)
Some stringed instruments are not guitars. (True)

Some Blue Jays are not birds. (False)
All Blue Jays are birds. (True)

B. Explain the point or points at which, in each argument, the mistaken existential assumption is made

(1) No mathematician is one who has squared the circle.
therefore, (2) No one who has squared the circle is a mathematician;
therefore, (3) All who have squared the circle are nonmathematicians;
therefore, (4) Some nonmathematician is one who has squared the circle.

ANSWER: Step (3) to step (4) is invalid. The inference at this point is conversion by limitation (that is, from "All *S* is *P*" to "Some *P* is *S*"), which was acceptable in the traditional interpretation but is invalid in the Boolean interpretation. This step relies on an inference from a universal proposition to a particular proposition, but for Boole the classes in a universal proposition cannot be assumed to have members, whereas the classes in a particular proposition do have members. Thus the invalid passage from (3) to (4) permits the inference that the predicate class in (4) is not empty, and therefore that there *is* someone who has squared the circle In inferring (4) from (3), one commits the existential fallacy.

(1) It is false that: Some mermaids are members of college sororities; *therefore* (2) It is true that: Some mermaids are not members of college sororities. (From which it follows that there exists at least one mermaid.)

ANSWER: Step (1) to step (2) is invalid: (1) asserts the falsehood of an **I** proposition; (2) asserts the truth of its corresponding **O** proposition. Because both **I** and **O** propositions do have existential import, both *can* be false (in the Boolean interpretation) if the subject class is empty. The subject class *is* empty in this case, because there are no mermaids. Hence the inference from the falsehood of (1) to the truth of (2) is invalid.

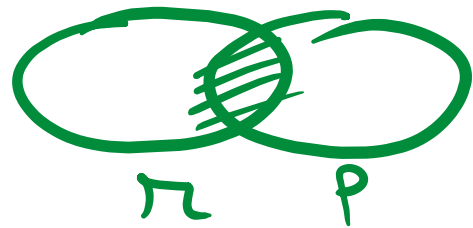**C. Diagram the following statements using Venn Diagrams**
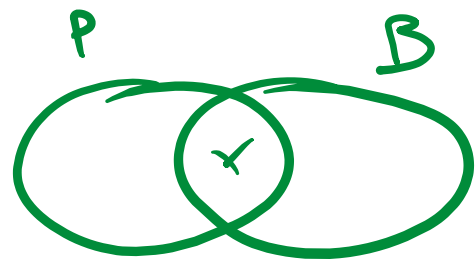a. Some sculptors are painters
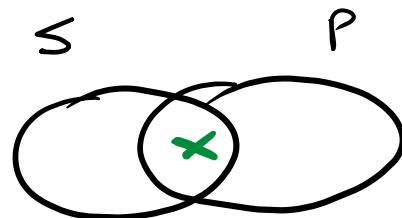
b. No shopkeepers are members

c. No modern paintings are photographic likenesses of their objects.

d. Some patients exhibiting all the symptoms of schizophrenia have bipolar disorder


D. Use the Venn diagram to determine if the following immediate inference forms are valid from the Boolean standpoint, conditionally valid from the Aristotelian standpoint, or invalid (reflect on existential import). double check with the square of opposition). double check your results with the square of opposition)
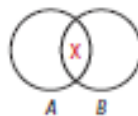
a. All *A* are *B.*
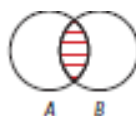Therefore, it is false that no *A* are *B.*

. All *A* are *B.*
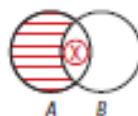
False: No *A* are *B.*
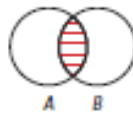(invalid, Boolean; conditionally
valid, Aristotelian)

b.It is false that some *A* are *B.*
Therefore, no *A* are *B.*
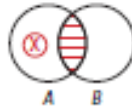
False: Some *A* are *B.*
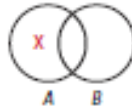
No *A* are *B*.
(valid, Boolean)

c. No *A* are *B*.
Therefore, some *A* are not *B*.

. No *A* are *B*.

Some *A* are not *B*.
(invalid, Boolean; conditionally
valid, Aristotelian)

E. Rewrite in standard categorical propositions, individuate subject, predicate, copula and quantifiers. Say which term gets distributed, if any

1. Any television show that depicts violence incites violence.

All tv shows that depict violence are tv shows that incite violence.
A statement

2. Manipulators do not make good friends.

No manipulators are good friends
E statement

3. None but pirate ships fly the Jolly Roger.

All ships that fly the Jolly Roger are pirate ships.
A statement

4. A man is a bachelor only if he is unmarried.

All bachelors are unmarried men.
A statement

5. No shellfish except oysters make pearls.

All shellfish that make pearls are oysters.
A statement

6. Shows that Martin Short are in are always peculiar.
**All shows that Martin Short is in are peculiar shows.
A statement**

F. what logic form?

a. If I am Miley Cyrus, I am crazy."

and

"I am not crazy."

Then there is no way in hell I am Miley Cyrus.

ANSWER: MODUS TOLLENS

B. If I am in Tatarstan, I am in Russia."

and

"I am in Tatarstan."

Then it must be true that I am in Russia.

ANSWER: MODUS PONENS

C. I will choose soup or I will choose salad.

I will not choose soup.

Therefore, I will choose salad.

ANSWER: DISJUNCTIVE SYLLOGISM