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Faith Bible Church

<http://www.fbcweb.org/doctrines.html>

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Building Mental Muscle & Growing the Mind through Logic

Lesson 3b – Overview of Syllogisms & answers to 3a

<http://www.fbcweb.org/Doctrines/logic3b.pdf>

A. Syllogisms

1. A syllogism is a logical argument made up of three sentences called propositions. A proposition is what we call a sentence that affirms or denies something when we use it in a syllogism.
2. Each proposition is made up of two terms, like a subject and a predicate in grammar.
3. The syllogism is an argument that *only* has three parts: two premises and a conclusion.
4. The key to the whole argument is how the terms relate to one another as they are put together in the premises.
5. There are three kinds of propositions.
 - a. Hypothetical—“*if this, then that.*”
 - b. Disjunctive—“*Either this or that.*”
 - c. Categorical—“*This is that.*” (We have not studied this one.)

B. The syllogisms we have been studying include:

1. Modus Ponens: Affirming the Antecedent (pseudo modus ponens is when one affirms the consequent). The letters refer to propositions. I have switched from Ps and Qs to Xs and Ys lest someone thinks that P refers to “premise.” The letters stand for sentences which in logic are called propositions.

$X \rightarrow Y$ (if this, then that)

X (this)

—————
Y (therefore, that)

2. Modus Tollens: Denying the Consequent (pseudo modus tollens is when one denies the antecedent).

$X \rightarrow Y$ (if this then that)

$\neg Y$ (there is no that)

$\neg X$ (therefore, there is no this)

3. Disjunctive Syllogism (“ \vee ” stands for “or”).

$X \vee Y$ (this or that)

$\neg X$ (there is no this)

Y (therefore, the conclusion is that)

C. Using syllogisms is called deductive logic because it involves deducing particular conclusions from general statements.

D. The biggest difference between deductive arguments and inductive arguments is that deductive yields necessary conclusions whereas inductive yields only probable conclusions. In deduction a person goes from general to particular whereas in induction one goes from particular to general.

1. Examples of deductive arguments (from whole to part= guaranteed).

All believers are saved (major premise).

I am a believer (minor premise)

Therefore, I am saved (conclusion).

All believers with positive volition are advancing in their spiritual lives.

She is a believer with positive volition.

Therefore, she is advancing in her spiritual life.

2. Examples of inductive arguments (from part to whole = only probable).

Socrates was Greek

Most Greeks eat fish

Therefore, Socrates ate fish.

Every swan ever observed thus far has been white.

Therefore, the next swan observed will probably be white

Every Charismatic I have ever met was anti-intellectual

Conclusion: Therefore, Charismatics are anti-intellectual

E. Quiz (label as modus ponens, pseudo modus ponens, modus tollens, pseudo modus tollens, or disjunctive syllogism).

1. If God exists (antecedent), then man has a meaning in life (consequence) $X \rightarrow Y$
 Man has meaning in life. $\frac{Y}{X}$
 God must exist.

2. If Christ did not rise from the death, then we are lost in our sins (1 Cor. 15:17). $\neg X \rightarrow Y$
 It is not the case that Christ did not rise from the dead. $\frac{\neg(\neg X)}{\neg Y}$
 We are not lost in our sins.

3. If the Bible is the word of God, then it is inerrant, $X \rightarrow Y$
 The Bible is the Word of God. $\frac{X}{Y}$
 It is inerrant.

4. If evolution is true, then second law of thermodynamics is wrong. $X \rightarrow \neg Y$
 But the second law of thermodynamics is not wrong. $\frac{\neg(\neg Y)}{\neg X}$
 Evolution is not true.

5. Either the law of entropy is not true or the universe had a beginning $\neg X \vee Y$
 The law of entropy is not “not true” $\frac{\neg(\neg X)}{Y}$
 The universe had a beginning.

6. Either the study of logic helps in the pursuit of Truth or it is a waste of time. $X \vee Y$
 The study of logic is not a waste of time. $\frac{\neg Y}{X}$
 Logic helps in the pursuit of Truth

ANSWERS

1. Pseudo modus ponens (because it affirms the consequence instead of the antecedent).

2. Pseudo modus tollens (because it denies the antecedent instead of the consequence).

3. Modus ponens (because one is affirming the antecedent in the minor premise).

4. Modus tollens (because one is denying the consequence in the minor premise)

5. Disjunctive syllogism.

6. Disjunctive syllogism.

NB: The issue (in this third act of the mind: reasoning/argument) is not if the conclusion is true or false (that would be in the 2nd act of the mind: judging). In the third act of the mind it is only about whether the form is valid or invalid.