

Building Mental Muscle (power to conceptualize) through Logic Exercises

Lesson 1b – Answer and Explanations

Answers in Green

Translate and identify the following verses.

Meaning of symbols:

\vee = or

\rightarrow = if . . . then

____ = therefore

1. Deuteronomy 30:19, "I call heaven and earth to witness against you today, that I have set before you life (P) and death (Q), the blessing and the curse. So choose life in order that you may live, you and your descendants,

$P \vee Q$

Translate this symbolic logic (extract logical concepts from the verse).

P=life or Q=death (God lays out the two alternatives)

-Q (In His exhortation He urges them not to choose death)

P (Conclusion: "So/therefore choose life")

The name of this law of logic Disjunctive Syllogism

2. 1 John 1:9, If we confess our sins (P), He is faithful and righteous to forgive us our sins and to cleanse us from all unrighteousness (Q).

$P \rightarrow Q$

P

Q

Translate this symbolic hypothetical syllogism (2nd and 3rd lines are actually not in the verse, you will need to add those concepts in making the argument).

If we confess our sins, He will forgive and cleanse us from all unrighteousness

We confess our sins

Therefore, He forgives us and cleanses us from all unrighteousness

The name of this hypothetical syllogism Modus Ponens

ANSWERS AND EXPLANATION

1. The answer to the first one is “disjunctive syllogism.” This one is a bit tricky. It requires logically conceptualizing what is really going on in the passage. This would include what is implied, too. The practice of doing this really helps build mental muscle (for future studies). For example, when a person wants to increase his grip, he may squeeze a rubber ball repeatedly to build strength. Squeezing the ball is really not the goal, gaining strength is the goal. Doing logic exercises is like squeezing the ball, it builds mental strength. Its practice adds clarity to conceptualization. Further explanation of these exercises and terms:

a. A **syllogism** is a deductive argument with three parts: a major premise, a minor premise, and a conclusion based on the two premises. Three syllogisms we have studied at FBC are modus ponens, modus tollens, and disjunctive.

Modus Ponens (“Mood of Affirming” the antecedent which is P)

If P then Q	(major premise)
P	(minor premise)
Therefore Q	(conclusion)

Modus Tollens (“Mood of Denying” the consequent which is Q)

If P then Q	(major premise)
$\neg Q$	(minor premise)
Therefore, $\neg P$	(conclusion)

Disjunctive syllogism

P or Q	(major premise)
$\neg Q$	(minor premise)
Therefore, P	(conclusion)

b. Now let’s look at our passage:

Deuteronomy 30:19, "I call heaven and earth to witness against you today, that I have set before you life (P) and death (Q), the blessing and the curse. So choose life in order that you may live, you and your descendants,

Disjunctive syllogism

P (life) \vee Q (death)
$\neg Q$ (God tells them they do not want Q/death)
Therefore, He concludes with P (“ So , choose life”)

By conceptualizing the passage in logical format, one can see that in the argument God provides two options, and after negating Q because of the consequences, He concludes with an appeal for believers to choose life (P) which is the supergrace life. He wants all believers to move into the promised life. He provides both options (P \vee Q), and then He tells them they do not want death (Q), therefore **He concludes** with exhortation to life (P).

2. The second exercise is straightforward case of modus ponens. Again, like all syllogisms, this is a deductive argument. The *first step* in modus ponens is remember that the name means to affirm. So look for affirmation in the minor premise (second line). The next step is to make sure that you are affirming the antecedent and not the consequent (Q). If one affirms the consequent then one is involved in an invalid argument which we call pseudo modus ponens. Look at the difference between a true modus ponens (affirming the antecedent) versus a pseudo modus ponens. One way that might help to remember is MPAA – modus ponens affirms antecedent)

a. True Modus Ponens = always affirms the antecedent

If it rains (P), my car will get wet (Q)

It rained (P)

Therefore, my car is wet (Q)

b. Pseudo Modus Ponens – invalid because it affirms the consequent

If it rains (P), my car will get wet (Q)

My car is wet (Q) = invalid because I am affirming the consequent

Therefore, it rained = invalid, maybe the lawn sprinklers “wet” the car

3. If you did not get the first question correct, don’t get discouraged. The key was “v,” the “or” (also it did not have the \neg sign as per excluded middle). This one was very difficult, and the fact that I did not leave three lines, and I asked for “a law of logic” instead of type of syllogism made it more difficult (sorry about my irrationality here). **If you did get it right anyway, then you are a genius.** Maybe you are ready to write your own logic book. I have yet to find one that was error free. Go figure!

4. If you had trouble with the second question, review the modus ponens examples in this lesson.

5. If you got the second one right, then you possess at least one good set of mental building blocks that the Bible assumes its readers possess. These blocks will come in very handy in presenting good solid arguments for God and the faith, and upcoming advanced studies on the essence and existence of God.

6. Breakdown of deductive and inductive arguments (again, all syllogisms are deductive)

DEDUCTION

From general to particular

from general to general

from cause to effect

a priori reasoning

philosophical reasoning

necessary conclusion

INDUCTION

from particular to general

from particular to particular

from effect to cause

a posteriori reasoning

scientific reasoning

probable conclusion

Always in the Logos (at least positionally—but not always rationally or experientially),

Pastor Don