

## Hypothetical Syllogisms

Come Let Us Reason Together: Learning To Love God With All Thy Mind

8/24/25

### Hypothetical Syllogisms

- A \_\_\_\_\_ is a statement that affirms an outcome based on a condition. It has the form *If P then Q*.
- A \_\_\_\_\_ is an argument that uses only hypothetical statements. This form of argument employs hypotheticals, as follows:
  - If P then Q.
  - If Q then R.
  - Therefore, if P then R.
- We can use the symbol  $\supset$  for *if . . . then*. When we do, the whole argument is symbolized like this:
  - $P \supset Q$
  - $Q \supset R$
  - $\therefore P \supset R$
- This is a valid argument which, in fact, could be translated into an AAA-1 categorical syllogism.

### Hypothetical Syllogisms

- Here is an example of a valid, purely hypothetical syllogism:
  - If I study, then I will get good grades.
  - If I get good grades, then my parents will be pleased.
  - Therefore, If I study then my parents will be pleased.
- We see that the hypothetical statements combine two categorical statements into one new *if . . . then* statement.
- The categorical statement after the *if* is called the \_\_\_\_\_, usually abbreviated *P*.
- The statement after the *then* is called the \_\_\_\_\_, abbreviated *Q*.
- The antecedent of the above conclusion is \_\_\_\_\_, and the consequent is \_\_\_\_\_.

## Hypothetical Syllogisms

- Pure hypothetical syllogisms can also be invalid. Consider this argument:
  - If you are a woman, then you are a human.
  - If you are a man, then you are a human.
  - Therefore, if you are a woman, then you are a man.
- This argument follows this form.
  - If P then Q                       $P \supset Q$
  - If R then Q                       $R \supset Q$
  - Therefore, if P then R            $\therefore P \supset R$
- Some syllogisms combine hypothetical and categorical statements. These are called \_\_\_\_\_. We will consider two valid forms and two invalid forms.

## Hypothetical Syllogisms

- The first form we will consider is called \_\_\_\_\_. It looks like this:
  - If P then Q
  - P
  - Therefore, Q
- If we put terms from real life into the argument, we could obtain this:
  - If I study, then I will get good grades.
  - I study.
  - Therefore, I will get good grades.
- You can see that the first statement is a hypothetical statement, and the second is a categorical statement. If this is expressed with symbols only, we can clearly see the form of **modus ponens**.
  - $P \supset Q$
  - P
  - $\therefore Q$

## Hypothetical Syllogisms

- A second type of argument is called \_\_\_\_\_. The form of argument is:
  - If P then Q
  - Not Q
  - Therefore, not P

- With the same real terms we used above, the argument would be:
  - If I study, then I will get good grades.
  - I did not get good grades.
  - Therefore, I did not study.
- In symbols, modus tollens would thus be:
  - $P \supset Q$
  - $\sim Q$
  - $\therefore \sim P$

## Hypothetical Syllogisms

- There are also two fallacies that take a similar form to the arguments presented above. The first is the fallacy of \_\_\_\_\_, so named because the second premise affirms the consequent of the hypothetical statement. This is how it looks:
  - If P then Q                       $P \supset Q$
  - Q                                      Q
  - Therefore, P                       $\therefore P$
- With terms from the real world inserted, we see a form of invalid argument which is all too familiar.
  - If I study, then I will get good grades.
  - I got good grades.
  - Therefore, I studied.
- This is what is called a \_\_\_\_\_ [“it does not follow”], meaning “it does not follow.” The student may have gotten good grades some other way—cheating, for example.
- The initial statement does not say that studying is the only way to get good grades.

## Hypothetical Syllogisms

- The other fallacy is called \_\_\_\_\_, because the antecedent of the hypothetical statements is denied in the second premise.
  - If P then Q                       $P \supset Q$
  - Not P                               $\sim P$
  - Therefore, not Q                 $\therefore \sim Q$

- A real-life example is
  - If I study, then I will get good grades.
  - I did not study.
  - Therefore, I will not get good grades.
- This is a *non sequitur*. You might not study but still luck out and get good grades.

## Summary

- Hypothetical syllogisms are very common arguments in normal English. Pure hypothetical syllogisms employ only *if . . . then* statements.
- Mixed hypothetical syllogisms employ hypotheticals and categoricals.
- There are two valid forms of mixed hypothetical syllogisms: modus ponens and modus tollens.
- There are two invalid forms: affirming the consequent and denying the antecedent.

UNIT FOUR: ARGUMENTS IN NORMAL ENGLISH

**Exercise 33** (20 points)

Analyze each of the following arguments and write down its form in the blank provided: *pure hypothetical*, *modus ponens*, *modus tollens*, *affirming the consequent*, or *denying the antecedent*.

1. If you are lazy, then you will be poor. Henry is poor, and it follows that he is therefore lazy. \_\_\_\_\_
2. The Bible teaches that if a man is generous, then he will prosper. We know that Mike is not generous, and therefore he cannot prosper. \_\_\_\_\_
3. If you speak too much, sin will not be absent. If sin is not absent, then it is present. Thus if you speak too much, sin is present. \_\_\_\_\_
4. If a ministry is of God, then it will succeed. The Mormon church is successful. We can conclude that it is blessed by God. \_\_\_\_\_
5. If you are kind to the poor, then you are lending to the Lord. Paul is kind to the poor. He is therefore lending to the Lord. \_\_\_\_\_
6. If you visit your neighbor too much he will get sick of you. My neighbor is not sick of me, so I don't think I visit too much. \_\_\_\_\_
7. If you don't answer a fool according to his folly, then he will think that he is wise. Sharon did not answer him according to his folly. He must think he is wise. \_\_\_\_\_
8. If a country is rebellious, it has many rulers. Argentina has had many rulers; it must be a rebellious country. \_\_\_\_\_
9. If a man is lawless, even his prayers are detestable. Larry is not at all a lawless man. So his prayers must not be detestable. \_\_\_\_\_

*Continued on next page.*

10. "If you are willing, you can make me clean." "I am willing," Jesus said. "Be clean."
11. If recycling were necessary, then it would be profitable. Recycling is not yet profitable. So it must not be necessary.
12. If a man gives gifts, then everyone wants to be his friend. Everyone wants to be Gordon's friend. Gordon must give out a lot of gifts.
13. If they receive you they receive me. If they receive me, then they receive Him who sent me. So if they receive you, they receive Him who sent me.
14. If I kill you, then you will die. I promise that I will never kill you. Therefore, you will never die!
15. If you flog a mocker, then the simple will learn prudence. We don't flog mockers. That must be why we have so many imprudent people.
16. If you are rich, then many will want to be your friend. No one wants to be Jessica's friend. She must not be rich.
17. If you honor the Lord with your wealth, then He will bless you greatly. Mr. Spence has always honored the Lord this way. He will be blessed.
18. If you fear the Lord, then you will love wisdom. A man who hates wisdom must not fear the Lord.
19. If you are a Christian, then you will read your Bible. I know a man who reads the Bible. He must be a Christian.
20. If they had belonged to us, they would have remained with us. But they went out from us. This showed that they did not belong to us.



**Exercise 34** (16 points)

Analyze the following paragraph. Separate the various arguments (there are four), and determine whether they are valid or not. Identify each argument by name.

If Paul went to Ephesus, then he wouldn't write the Ephesians a letter. But he did write them a letter, which means that he didn't go to Ephesus. But if Paul didn't go to Ephesus, then he would not have known the people there. We know, however, that Paul did go to Ephesus, therefore he did know the people there. If he knew the people in Ephesus, then he would have known the saints in Colossae too. But we know that he did not know the Christians in Colossae, which means that he didn't know the Ephesians. If Paul didn't know the Ephesians, then he would have written them a letter. He wrote them a letter, and this proves that he did not know them.

1. \_\_\_\_\_

Name \_\_\_\_\_ Valid? \_\_\_\_\_

2. \_\_\_\_\_

Name \_\_\_\_\_ Valid? \_\_\_\_\_

3. \_\_\_\_\_

Name \_\_\_\_\_ Valid? \_\_\_\_\_

4. \_\_\_\_\_

Name \_\_\_\_\_ Valid? \_\_\_\_\_