

## Logic and Propositional Relationships

The arena of formal logic and analyzing propositions can be daunting, is certainly challenging, but is deeply rewarding. While this topic by itself is far beyond the purpose or scope of this book, a few comments are appropriate for the student wishing to study the use of prepositions in passages such as the example above from Romans 3.

### Logic

It may surprise the student to learn that the field of logic is ever-changing, expanding, and used experimentally in fields from informational sciences to all branches of philosophy. There are, therefore, many different types of logic, which can be described at different levels of detail. For example, [simplicable.com](http://simplicable.com) lists twenty different types of logic, but many of those are sub-types of broader categories.<sup>1</sup> The higher-level categories can be described as different types of reasoning, which is how arguments are constructed and how conclusions are reached. Some of these types are listed as follows:

- Deductive reasoning
- Inductive reasoning
- Inference
- Informal logic
- Formal logic

These will not be explored here, but they are listed to show the student that the study and analysis of reasoned arguments (such as Paul used in Romans 3 and most of his epistles) can be done on a scientific basis and with established (and developing) tools. There are specialized terms and symbols used to label various parts of an argument (e.g.,  $\forall$ ,  $\exists$ ,  $\lambda$ ,  $\subseteq$ ,  $\supseteq$ ), which helps reveal whether or not arguments are properly constructed. If arguments are not properly constructed, the conclusion cannot be validated.

The last sentence above is important and needs to be explained. Logic, while aiming to establish the validity of truth claims, is not the same thing as truth itself. Logic is about the validity of the argument. In other words, something that is logical, because it follows all of the conventions of a properly constructed argument, is not necessarily true. The opposite also holds: something that is illogical, because it violates the conventions of properly constructed arguments, is not necessarily false. Logic helps test and validate an argument; it does not prove or validate truth claims.

The above paragraph is counter-intuitive and easily gives rise to being challenged, but read it carefully. It is reasonable to assume that if an argument is carefully constructed and leads necessarily to the conclusion being presented, the claim is probably true. That is not the point of the discussion above about the purpose of logic. If the student is focused on truth claims, then that leads us to a discussion about propositions (below).

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<sup>1</sup> Spacey, John. "20 Types of Logic." *Simplicable*, 12 May 2019, [simplicable.com/new/types-of-logic](http://simplicable.com/new/types-of-logic).

There needs to be a distinction between the *form* of an argument and the truth claims of its premises. An example should help.

Here is an argument that is logically sound:

- 1) All pigs can fly.
- 2) Wilbur is a pig.
- 3) Therefore, Wilbur can fly.

Although premise 1) is absurd and patently untrue, the argument follows the conventions of leading from premise to conclusion. The conclusion is valid and necessarily follows the premises. The problem, obviously, is that the truth claim of premise 1) is false.

### **Propositions**

Propositions are statements that are either true or false but not both. Propositions may be argued as being either true or false, but they cannot be merely opinion (true for me but false for you and vice versa). Because of the nature of propositions as truth statements, the term is often associated with mathematics. In philosophy and logical analysis, propositions are statements with either a positive truth value (the statement is true) or a negative truth value (the statement is false). Some examples are needed.

- 1) Dogs are mammals – a true statement
- 2) Dogs are insects – a false statement
- 3) Dogs are man’s best friend – a statement that is neither true nor false but both; it is opinion

In the course of argumentation, truth statements are often heatedly debated. The truth value of a statement is of utmost importance and significance in theology. While many theological debates revolve around the logic of an argument – is the line of reasoning being presented valid, logical? – it is the truth value of each proposition that is at the core of the debate.

Consider some propositions (truth claims) of Scripture:

- 1) all have sinned and fall short of the glory of God (Romans 3:23)
- 2) for the wages of sin *is* death (Romans 6:23a)
- 3) but the gift of God *is* eternal life in Christ Jesus our Lord (Romans 6:23b)
- 4) *there is* none who does good, No, not one (Psalm 14:3)
- 5) I am the way, the truth, and the life. No one comes to the Father except through Me (John 14:6)

All of the statements above are either true or false, but they cannot be both. The statements have no room for opinion. They may be debated as being true or false, but

they cannot be both. In debates of theology, it is relatively easy and straight forward to construct logical arguments from these statements, and the conclusion of those arguments will lead exclusively to one logical conclusion: all mankind is guilty before God of sin, under penalty of death, with only one recourse for salvation: Jesus Christ. From this line of reasoning, it is clearly seen that the heart of theological debate, when it is based on the claims of Scripture, is on the truth claims of its propositions. Either Scripture states truth, or it does not. If it does, the conclusions are inescapable; if not, all claims are merely opinion. I am convinced that each and every proposition of Scripture is only and always true.

To conclude this excursus, which was prompted by the discussion about prepositions, the student is encouraged to explore and practice exercises in logic and propositional analysis. What has been presented here is only introductory and is intended to show the need for and usefulness of examining the statements of Scripture with an awareness of how many passages present topics of eternal significance, especially in the New Testament and the epistles of Paul. All of Scripture is eternally critical, of course, but in the explanation of truth, progressively revealed and anticipated in the Old Testament, culminated and concluded in the New Testament, there are many passages where vitally important questions are raised and answered. Consider the utterly life-altering opening of Hebrews:

*God, who at various times and in various ways spoke in time past to the fathers by the prophets, has in these last days spoken to us by [His] Son, whom He has appointed heir of all things, through whom also He made the worlds; who being the brightness of [His] glory and the express image of His person, and upholding all things by the word of His power, when He had by Himself purged our sins, sat down at the right hand of the Majesty on high, having become so much better than the angels, as He has by inheritance obtained a more excellent name than they. - Heb 1:1-4 (NKJV)*

Read through that phenomenal statement and underline all of the adverbs and prepositions. The importance and significance of the use of those parts of speech are, truly, of eternal consequence.

There are many resources for the study of logic and propositional analysis, but a good starting point is Damer's *Attacking Faulty Reasoning*,<sup>2</sup> with the following caveats. Damer's book is not at all written from the perspective of a Christian worldview, but that has its benefits, such as being full of real-world examples. For a Christian convinced of the truth claims of Scripture, many of the examples in Damer's book are uncomfortable and even appalling. The book, however, provides excellent explanations of common fallacies in reasoning and helps sharpen the student's ability to construct valid arguments. It needs to be stressed, though, that the purpose for being able to identify faulty reasoning is not to win arguments. The student should take up the challenge to practice identifying faulty

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<sup>2</sup> Damer, T. Edward. *Attacking Faulty Reasoning: A Practical Guide to Fallacy-Free Arguments*. Wadsworth, Cengage Learning, 2013.

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reasoning for the purpose of learning how to sharpen his/her own reasoning but also to be able to listen with discernment and sensitivity to those who are unaware of their own poor reasoning, especially with regard to eternal matters. Most people simply repeat ideas they have heard before and that support their own preferences without careful thought. With sensitive insights, a wise believer may be able to point out errors in thinking and help show an unbeliever the wisdom and logic of the claims of Scripture. We will not argue people into the Kingdom of God, but we do not need to be afraid of insightful, reasoned discourse.