

Logic Lesson 8a
Validity of Arguments

1. In our study of logic we have noted the three acts of the mind. This is the framework for all of logic and thinking itself. It is very hard to overstate the importance of understanding this principle.
 - a. 1st act of the mind is apprehension: the concept/term. The issue is whether the concept is *clear or unclear*.
 - b. 2nd act of the mind is judgment: the proposition. The issue is whether the proposition is *true or false*.
 - c. 3rd act of the mind is reasoning: the argument. The issue is whether the argument is *valid or invalid*.
2. Most (but not all) of logic consists of deciding when arguments are valid. Valid is a technical term in logic. It does not mean just “acceptable.”
3. *An argument is logically valid when its conclusion necessarily follows from its premises.* That is, “if the premises are all true, then the conclusion must be true”—that is the definition of a valid argument.
4. An invalid argument is one in which the conclusion does not necessarily follow even if the premises are true.
5. For instance, this argument is valid.
All men are mortal.
And I am a man.
Therefore, I am mortal.
6. But this argument is not valid:
All men are mortal.
And all pigs are mortal.
Therefore all pigs are men.

This is invalid not just because the conclusion is false but because the conclusion does not follow from the premises.

7. This argument is also invalid, even though the conclusion (and also each premise) is true:
 All men are mortal.
 And Socrates is mortal.
 Therefore Socrates is a man.

This argument has the same logical form as the one above; it merely replaces “pigs” with “Socrates.”

8. An argument may have nothing but true propositions in it, yet be invalid. E.g.:
 I exist.
 And grass is green.
 Therefore Antarctica is cold.

9. An argument may have false propositions in it and yet be logically valid. E.g.:
 I am a cat.
 And all cats are gods.
 Therefore I am a god.

If both those premises were true (that I am a cat and that all cats are gods) it would necessarily follow that I was a god.

10. If an argument has nothing but clear terms, true premises, and valid logic, its conclusion must be true. If any one or more of these three things is lacking, we do not know whether the conclusion is true or false. It is uncertain.

11. Chart:

If the terms are	and the premises are	and the logic is	then the conclusion is
Clear	true	valid	true
Clear	true	invalid	uncertain
Clear	false	valid	uncertain
Clear	false	invalid	uncertain
Unclear	true	valid	uncertain
Unclear	true	invalid	uncertain
Unclear	false	valid	uncertain

12. Exercise. Use the above chart to tell whether the following statements are true or false. Assuming all the terms are clear and unambiguous,
- a. If an argument's conclusion is true, it must be logically valid.
 - b. If an argument's conclusion is not true, it cannot be logically valid.
 - c. If an argument's conclusion is not true, its premises cannot be true.
 - d. If an argument's premises are true and it is invalid, its conclusion must be false.
 - e. If an argument's premises are true and its conclusion is true, it must be valid.
 - f. If an argument's premises are true and its conclusion is false, it must be invalid.
 - g. If an argument's premises are true and it is valid, its conclusion must be true.

We will go over the answers to these in this Wednesday's Bible class.

Let's Keep Advancing in the Logos,

Pastor Don