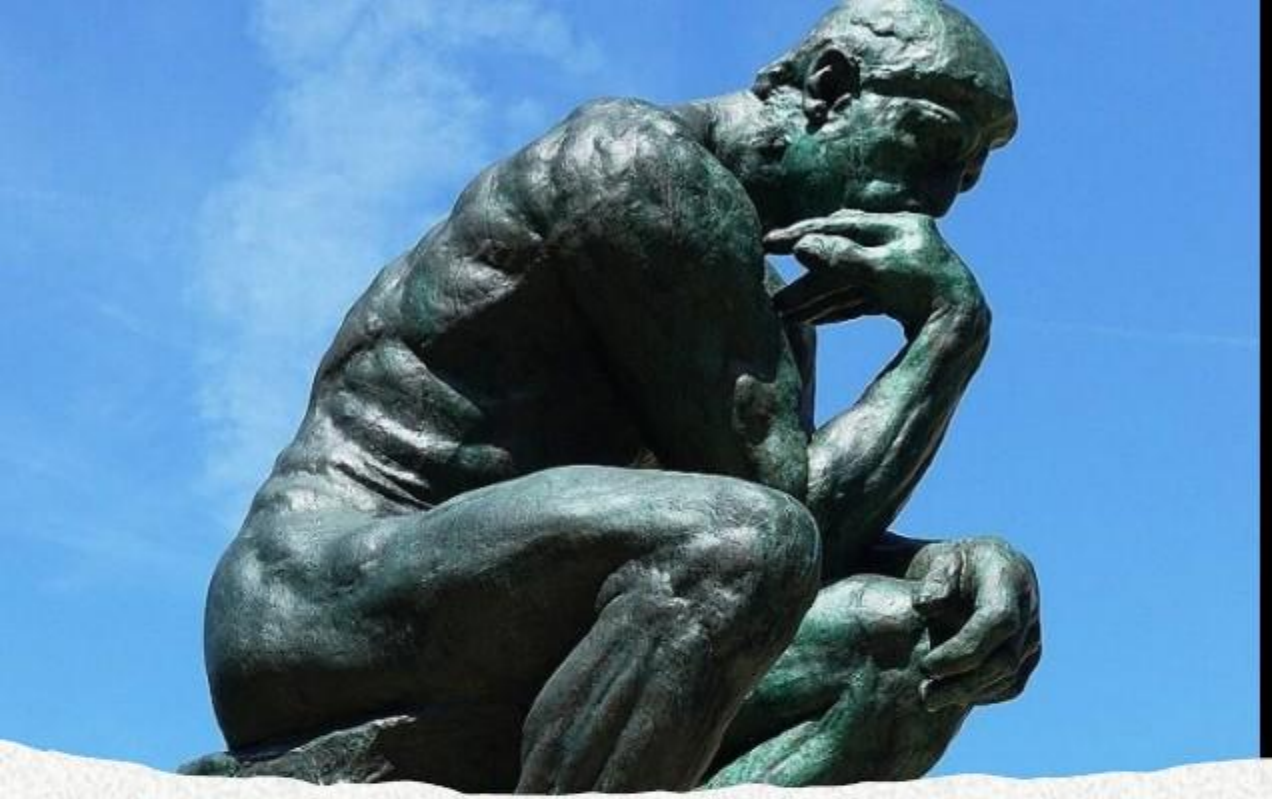

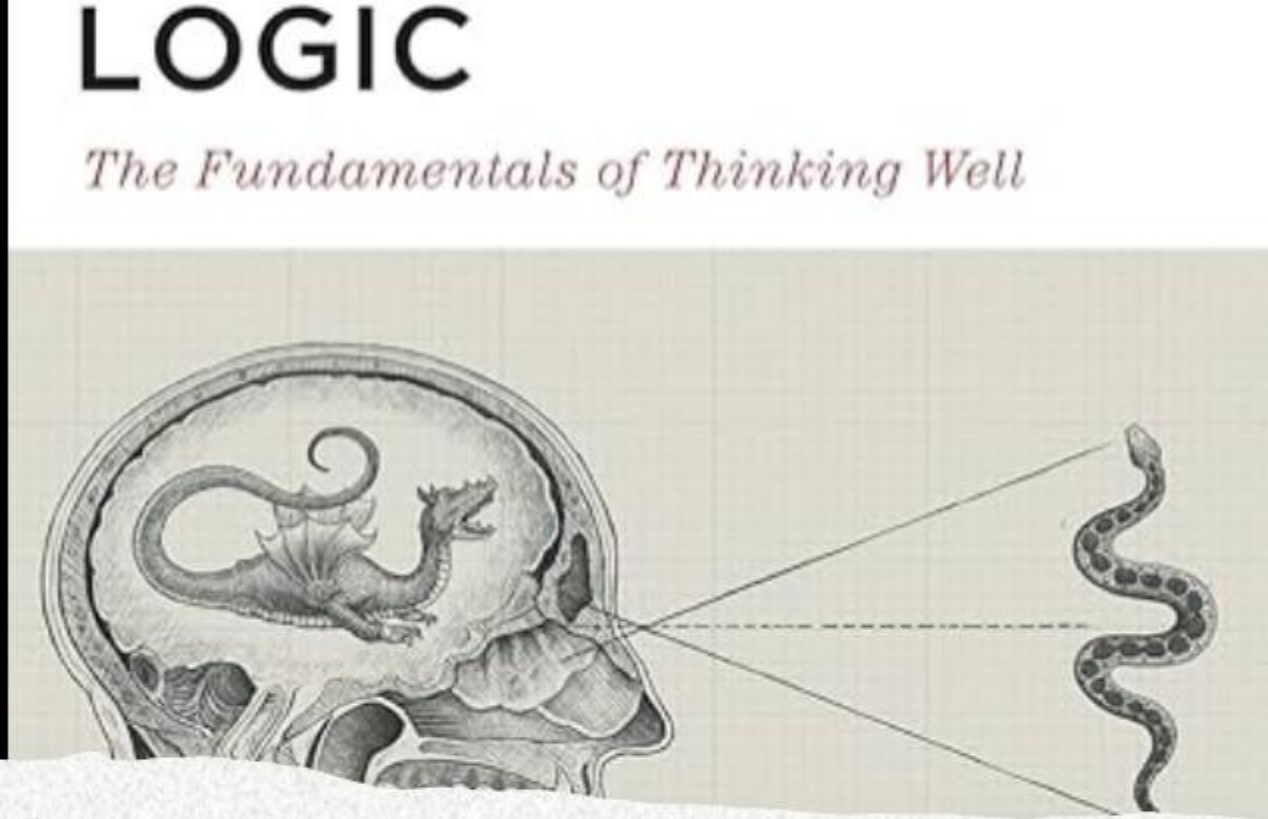


# Come Let Us Reason Together: Learning To Love God With All Thy Mind

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# Truth & Validity

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

7/27/25

# Validity

- When we examine a syllogism, the first thing you should look for is **validity**.
- We say that a syllogism is **valid** if the conclusion is necessarily true given that the premises are true.
- In other words, if the premises are true, and the syllogism is valid then the conclusion has to be true.
- If a syllogism has true premises and a false conclusion, we know it is **invalid**.
- In a valid syllogism, the premises may be false. But *if* they were true, the conclusion would have to be true also.
- This is because validity depends on the **form of the argument only**, not the truth of the statements.

# Validity

- Here is an example of a valid syllogism; one of the premises happens to be false, but the syllogism remains valid:
  - All dogs are brown animals.
  - All poodles are dogs.
  - Therefore, all poodles are brown animals.
- If it were in fact true that all dogs were brown, then all poodles would *necessarily* be brown. The problem with the syllogism is the falsehood of the first premise, not the structure of the argument.
- To test for validity, grant provisional "truth" to the premises, and then see if the conclusion would have to be true.
- Here is an example of an invalid syllogism, with all true premises and a true conclusion.
  - All dogs are mammals.
  - All dogs are canines.
  - Therefore, all canines are mammals.

# Validity

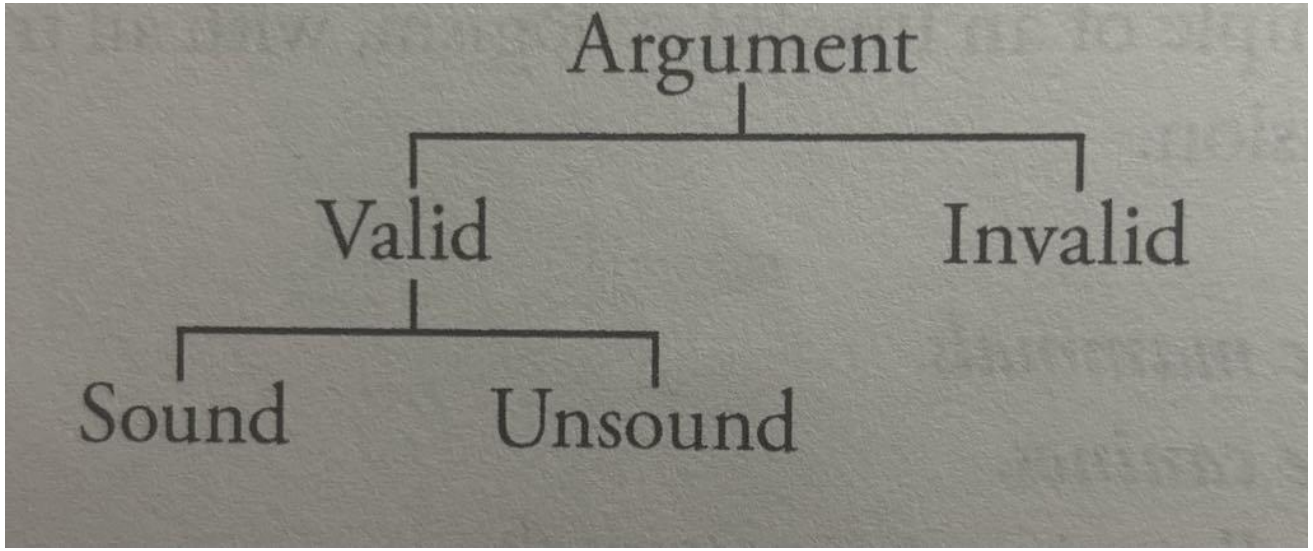
- Both of the above premises are true, and the conclusion is also true. But if you examine the syllogism carefully . . . you will see that the conclusion is not implied by the premises (substituting the word *animals* for *canines* makes this clear).
- It is lack of implication that makes the syllogism invalid.

# Truth

- Once the syllogism has been examined for validity (and it is found to be valid), it may then be examined with a view toward the truth or falsehood of the conclusion.
- If the syllogism is invalid, then there is no reason to proceed further. But if it is found to be valid, it is still necessary to examine the truth of the premises.
- If they are found to be true, then the conclusion must be true as well.
- If a syllogism is valid and the premises are true, it is said to be sound. The conclusion of a sound syllogism must be true.
- Do not confuse truth with validity! Once we learn the basic rules of formal logic, it is easy to see how prevalent this confusion is.
- In public debate, the applause is frequently reserved not for those who reason well but for those with whom the audience agrees.

# Truth

- Here is a final example where the premises are true and the conclusion is necessarily true.
  - All dogs are mammals.
  - All poodles are dogs.
  - Therefore, all poodles are mammals.
- This syllogism is valid and the premises are true, so the conclusion is also true.  This is a sound syllogism.
- The different types of syllogisms with respect to validity and truth can thus be arranged as shown.



# Truth

- You can see from the chart that there are two ways for a syllogism to be spurious: first, it can simply be invalid; second, it can be valid but unsound.
- A syllogism is valid if the truth of the conclusion follows from the truth of the premises.
- If a syllogism has true premises and a false conclusion, it is invalid.
- The validity of a syllogism is not the same thing as the truth of the conclusion.
- A syllogism may be valid and have a false conclusion.
- It may be invalid and a have a true conclusion.
- Or, as in a sound syllogism, it may be valid and have a true conclusion.
- Validity depends only on the form of the argument.

# Practice

# Testing Syllogisms

- The validity of a syllogism is determined solely by the form. Validity is not determined by the meanings of the individual statements.
- Certain forms are always valid, and the other forms are invalid.
- There are many ways to test the validity of a syllogism. We will concern ourselves with two: 1) counterexamples and 2) rules.
- Testing by counterexample—is accomplished through the substitution of terms.
  - Some Christians are not critical thinkers.
  - Some humanists are not critical thinkers.
  - Therefore, some humanists are Christians.
- This syllogism is invalid. Recall that *a syllogism with true* premises *and a false conclusion is necessarily invalid*.
- If we were to substitute terms in this syllogism such that the premises were obviously true and the conclusion obviously false, we would show the syllogism to be invalid.

# Testing Syllogisms

- For example, let us substitute *women*, *men*, and *lawyers* for *Christians*, *humanists*, and *critical thinkers*. The syllogism would then look like this:
  - Some women are not lawyers.
  - Some men are not lawyers.
  - Therefore, some men are women.
- Both syllogisms have the same form, and are therefore both valid, or both invalid. The second has an obviously absurd conclusion though both premises are true. Some women are not lawyers, and some men are not.
- If both premises are true (and they are), and the conclusion is false (which it is) then the problem has to be with the form of the syllogism. That is, it is invalid.

# Testing Syllogisms

- Let's consider another example (and counterexample).
  - No man is immortal.
  - Some angels are not men.
  - Therefore, some angels are immortal.
- To test with a counterexample, we want to contrast a syllogism with the same form, but with true premises and a false conclusion.
- We could do this:
  - No dogs are horses.
  - Some cats are not dogs.
  - Therefore, some cats are horses.
- It is much easier to see the problem with the second syllogism than with the first. Nevertheless, both have the same form, and stand or fall together. If the second is invalid, then so is the first—of necessity.

# Practice

- Suppose you wanted to write a counterexample for this argument:
  - All Paul's writings are first-century compositions.
  - Some epistles are not Paul's writings.
  - Therefore, some epistles are not first-century compositions.
- To write a counterexample, we start by making the conclusion false. If we substitute *students* for *epistles*, and *people* for *first-century compositions* we get:
  - All _____ are people.
  - Some students are not _____.
  - Therefore, some students are not people.
- The conclusion is false (since all students are people), so we simply need to find a middle term to make the premises true.

# Practice

# Works Cited

*Introductory Logic: The Fundamentals of Thinking Well*. Moscow, ID: Canon Press, 2014.