

Logic Review

What distinguishes a course in moral philosophy is attention to moral reasoning. Logic is the skill of directing the acts of reason themselves, i.e., the skill of defining well and arguing well. It helps us to proceed orderly, easily and without error.

1. Definition

In the *Euthyphro*, Socrates makes three important points about definition.

First, the object of a definition—the *definiendum*—is a thing, not a word. When Socrates asks Euthyphro what *piety* is, he is not asking about the meaning of a word, he is asking about the nature of a virtue. He is doing moral philosophy, not compiling a dictionary.

Second, definitions have a distinctive structure. A definition has two parts, each of which has its own task.

The first part of a definition states the *genus* of the *definiendum*. It tells us what kind of thing we are defining. For example

Squares are geometrical figures

Utilitarianism is a moral theory

Marsupials are mammals

But the genus alone does not provide a complete definition. There are lots of moral theories. There are many kinds of mammals.

The definition is complete only when it tells us how the *definiendum* is different from other things that fit within the genus. That second part of the definition is called the *specific* [i.e., species-making] *difference*. So, not just any geometrical figure is a square.

Squares are geometrical figures *in which there are four equal sides and four right angles*.

Utilitarianism is just one of many competing moral theories. Which?

Utilitarianism is the moral theory which *says that acts are right to the extent that they promote the greatest happiness of the greatest number of people*.

Likewise,

Marsupials are mammals which carry their immature young in pouches.

Third, definitions state the essence of the *definiendum*, not just something that happens to be true of it. For a little comic relief in his *Statesman*, Plato defines *man* as *a featherless biped*. It may happen to be true that all, and only, man is a featherless biped, but the essence of man is stated in the classical definition

Man is a rational animal.

Similarly it may be true that utilitarianism is the moral theory defended by John Stuart Mill, but that is not the definition of utilitarianism, because, it does not state the essence of the theory. Better is the following:

Utilitarianism is the moral theory which *says that acts are right to the extent that they promote the greatest happiness of the greatest number of people.*

2. Argument

An argument is a discourse in which, certain things being asserted [the premises], something else [the conclusion] follows from their being so. Arguments, therefore, have two parts

the *premises*—the things asserted, &

the *conclusion*—what follows from the premises being so.

Not all discourses are arguments. A discourse might also be a description, a set of instructions, or a story.

Logic helps to evaluate arguments, i.e., to determine whether the arguments give us a good reason to accept the conclusion. Success in arguments requires two things

1. That the premises be true
2. That the conclusion be logically connected to the premises

A major part of the study of logic focuses on the question of how to determine whether the conclusion does in fact follow from the premises.

3. Syllogisms

In the ideal case, the truth of the conclusion follows of necessity from the truth of the premises, as in the argument

All dogs are mammals.
 All collies are dogs.
 So, all collies are mammals.

In this argument

If the premises are true, the conclusion must be true as well

Or, equivalently, to assert the premises and deny the conclusion would be to contradict oneself.

Or, still equivalently, the premises guarantee the conclusion.

Such an argument is called a valid argument, or a *sylllogism*.¹

Validity only guarantees that the conclusion logically follows from the premises, as happens in the above example, but not in the following one.

All dogs are mammals.
 No fish are dogs.
 So, no fish are mammals.

In that argument, both the premises are true and the conclusion is true as well, but the truth of the premises do not guarantee the truth of the conclusion. If one were to assert the premises and to deny the conclusion, one would be wrong, but one would not have contradicted oneself.

Validity does not require that the premises be true, which is a separate matter, though it is also necessary to the goodness an argument. The following argument is valid—if the premises were true, the conclusion would have to be true as well.

All dogs are mammals.
 All blackbirds are dogs.
 So, all blackbirds are mammals.

The fact that the second premise is false makes the argument a bad one, but not because of any problems with validity.

An argument with true premises and a valid form is called a *sound argument*.

Two types of syllogism can be distinguished—Stoic and Aristotelian.

¹ Can there be invalid syllogisms? Yes, but an invalid syllogism is to a syllogism what counterfeit money is to money.

a. Stoic Logic

Stoic syllogisms are based on the logic of the words *if*, *or*, and *not-both*.

i. Hypothetical Syllogisms

Here are two ways of arguing for the truth of some proposition.

1. To prove that something is true, think of something true from which the conclusion follows. For example,

If all the world's leading intelligence services thought that Iraq had chemical weapons in 2003, then the President of the United States had a good reason to think that that was true.

All the world's leading intelligence services did think that Iraq had chemical weapons in 2003.

So, the President of the United States had a good reason to think that Iraq had such weapons.

This argument, called *Modus ponens*, can be symbolized as follows:

$$\begin{array}{l} P \rightarrow Q \\ P \\ \hline \therefore Q \end{array}$$

2. To prove that something is false, think of something false that would follow from it if it were true. Consider the argument in following passage, in which the historian seeks to prove that Nero did not start the great fire of 64 AD:

On the night of 18 July 64, when the sky was bright with a full moon, a fire broke out in Rome which raged for over a week; it destroyed at least ten of the fourteen Augustan regions, three of them being totally gutted. ... In their loss and misery, the city populace turned against Nero and accused him of starting the fire, while rumor added that he had watched the burning of the city from the tower of Maecenas and had sung as an aria over it his own 'Sack of Troy.' Neither charge can be taken seriously: if he had wished to destroy Rome he would hardly have chosen a bright moonlit summer night when the movement of his fire-raisers would have been hard to hide.²

His argument might be put as follows

² H. H. Scullard, *From the Gracchi to Nero: A History of Rome from 133 BC to AD 68*, 5th ed. (Routledge, 1982), pp. 308-309.

If Nero had ordered the fire set, it would not have occurred on the night of a full moon.
 The fire did occur on the night of a full moon.
 So, Nero did not order the fire to be set.

This argument, called *Modus tollens*, can be symbolized as follows:

$$\begin{array}{r} P \rightarrow Q \\ \underline{\sim Q} \\ \therefore \sim P \end{array}$$

Hypothetical syllogisms always contain two premises:

1. the if-statement, called a conditional or hypothetical, which has two parts:

If [*antecedent*], then [*consequent*]
antecedent \rightarrow *consequent*

2. the subsequent affirmation or denial of the appropriate part.

Affirming the antecedent or denying the consequent yields a syllogism. Denying the antecedent or affirming the consequent does not as the following examples show

If I get an A on every examination, then I get an A in the course, but I did not get an A on every examination.

If I get an A on every examination, then I get an A in the course. I did get an A in the course.

Symbolically

$$\begin{array}{r} P \rightarrow Q \\ \underline{\sim P} \\ \therefore \text{[no conclusion]} \end{array} \qquad \begin{array}{r} P \rightarrow Q \\ \underline{Q} \\ \therefore \text{[no conclusion]} \end{array}$$

Neither of these allow any conclusion to be drawn.

ii. Disjunctive Syllogisms

A third way of proving something is to draw up an exhaustive list of alternatives and then use a process of elimination, rejecting all but one. For example, in a recent comment, Harvard economist Greg Mankiw wrote:³

In a TV interview last month, Vice President Joe Biden said the following: “Every economist ... acknowledges that direct

³ <http://gregmankiw.blogspot.com/2009/01/is-joe-biden-disingenuous-or.html>

government spending on a direct program now is the best way to infuse economic growth and create jobs.” That statement is clearly false. ... So what is one to make of the vice president’s statement? As a logical matter, I can think of only four possibilities:

1. Biden knew what he was saying was false.
2. Biden was saying what he believed to be true and somehow got this incorrect idea in his head without talking about the issue with the very talented team of economists working for the new administration.
3. Biden talked to his economic advisers about the issue, and they purposefully misled him into thinking that there was a consensus among economists, even though there isn’t.
4. Biden’s advisers were themselves mistaken. They expected an overwhelming consensus of support for their fiscal plans and were surprised at the number of prominent economists on the opposite side the issue.

I have no idea which of these hypotheses is correct. I suspect it is either the first or last.

Mankiw begins by listing four possibilities. Apparently doubting that the administrations economic advisor’s are either incapable of making themselves clear (#2) or are dishonest (#3), he hesitates between the other two. His argument can be symbolized as follows:

$$\begin{array}{c} P \vee Q \vee R \vee S \\ \sim Q \\ \hline \sim R \\ \hline \therefore P \quad \vee \quad S \end{array}$$

Of course, the ideal would be to eliminate all but one, making the simplest form of disjunctive syllogism look more like this:

$$\begin{array}{c} P \vee Q \\ \hline \sim Q \\ \hline \therefore P \end{array}$$

iii. Two Complex Forms of Stoic Reasoning

Two elaborations on these basic Stoic forms of reasoning are common enough to warrant special notice.

The first is the Chain Argument (or pure hypothetical syllogism) that in some respects resembles *Modus ponens*. For example,

If guns are outlawed only outlaws will have guns.
 If only outlaws have guns, our country will be a more dangerous place to live.
 So, if guns are outlawed, our country will be a more dangerous place to live.

This can be symbolized:

$$\begin{array}{l} P \rightarrow Q \\ \underline{Q \rightarrow R} \\ \therefore P \rightarrow R \end{array}$$

The second combines hypothetical and disjunctive premises into a dilemma. One example can be drawn from the life of St. Thomas More, when all subjects of the King of England were ordered to swear that he accepted the Act of Succession of 1533, which declared the King to be the head of the Church in England. He said about his situation, in effect:

If I swear that the Act of Succession is legal, I will be guilty of perjury and lose my soul.
 If I swear that the Act is illegal, I will be convicted of treason & lose my life.
 I have only two choices: swearing that the Act is legal or swearing that it is illegal. [In fact, he found a third alternative.]
 So, either I will be guilty of perjury and lose my soul or I will be convicted of treason and lose my life lose my life.

This can be symbolized:

$$\begin{array}{l} P \rightarrow Q \\ R \rightarrow S \\ \underline{P \vee R} \\ \therefore Q \vee S \end{array}$$

A variation can be found in Plato's complaint about Homer in the *Republic*:

If Homer speaks the truth then the heroes are the sons of the gods.
 If he speaks the truth then they did many wicked things.

But either they are not the sons of gods or they did not do many wicked things.

So, Homer does not speak the truth.

This can be symbolized:

$$\begin{aligned} P &\rightarrow Q \\ P &\rightarrow S \\ \hline \sim Q \vee \sim S \\ \therefore \sim P &[\vee\sim P] \end{aligned}$$

b. Aristotelian Logic

Aristotelian logic is based on the logic of the words *all*, *some*, and *none*.

i. Categorical Propositions

Categorical propositions have a subject-predicate structure that distinguishes them from existential statements, identity statements, and relations.

Categorical: All dogs are mammals.

Existential: There's a dog in this house.

Identity: Clark Kent is Superman.

Relation: Al is taller than Bob.

Other types of statement can often be interpreted categorically.

α. Types

Categorical propositions can have two kinds of subject:

singular terms,

expressed in names, e.g., General Eisenhower or World War II,

or in definite descriptions, e.g., the Allied Commander, and

universal terms, e.g., generals, wars, or dogs

Propositions with universal subjects must quantify the subject, i.e., it must specify whether the subject is taken

universally—e.g., “All generals ...” or “No generals...”

particularly—e.g., “Some generals ...”

which creates three kinds of propositions with respect to *quantity*:

Universal:	All generals outrank colonels.
Particular:	Some generals are division commanders.
Singular	General Eisenhower later became President.

For most purposes, singular propositions can be treated as universal propositions; they should not be treated as particular propositions.

In addition, categorical propositions must be either affirmative or negative. This is called the proposition's *quality*.

Crossing these two distinctions results in four kinds of categorical proposition, each of which is assigned a distinctive letter for symbolization.

Universal Affirmative	All S are P	Asp
Particular Affirmative	Some S are P	Isp
Particular Negative	Some S are not P	Osp
Universal Negative	No S are P	Esp

β. Opposition

Universal categorical propositions have two kinds of opposites. To the judgment that *All dogs are friendly* one could oppose either of two other statements

Some dogs are not friendly.

No dogs are friendly.

However, these two statements are not opposed to the original in quite the same way. The original and the first opposite must have opposite truth-values; one must be true and the other false. The original and the second opposite cannot both be true, though both could be false.

The first kind of opposition, in which the propositions must have opposite truth-values, is called *contradiction*. When the subject and the predicate of two categorical propositions are the same, opposite quantity and opposite quality create contradictory opposition. For example

A vs. O	All defensive wars are just	vs.	Some defensive wars are not just.
E vs. I	No executions are just	vs.	Some executions are just.

The second kind of opposition, in which the propositions cannot both be true, though both could be false, is called *contrariety*. When the subject and

the predicate of two *universal* categorical propositions are the same, the propositions are contrary opposites. For example

A vs. E All murderers should be executed. vs. No murderers should be executed.

ii. Categorical Syllogisms

Categorical propositions can also form syllogisms. For example:

All wars that inflict more harm than good are unjust.

All nuclear wars inflict more harm than good.

So, all nuclear wars are unjust.

These syllogisms provide more insight than do Stoic syllogisms. They analyze the conclusion into subject and predicate. Then they say what it is about the subject of the conclusion that makes the predicate apply to it. In order to do that, they need to say something about the subject of the conclusion in one premise and something about the predicate of the conclusion in the other.

α. Preliminary Concepts

In order to use or evaluate categorical syllogisms, several basic concepts are needed.

First, we need names for the terms found in the syllogism:

The predicate of the conclusion is called the *major term*.

The subject of the conclusion is called the *minor term*.

The term which occurs in both premises, but not in the conclusion, is called the *middle term*, in contrast to the major and minor terms, which are called *end terms*.

Second, we need names for the each of the premises. Unimaginatively,

The premise containing the predicate of the conclusion (the major term) is called the *major premise*.

The premise containing the subject of the conclusion (the minor term) is called the *minor premise*.

So, applied to the example syllogism used above

Major Premise: All *dogs* are mammals.

Minor Premise: All collies are *dogs*.

Conclusion: So, all collies are mammals.

the minor term is marked with an underline; the major term with a double underline. The middle term is in italics.

Distinguishing valid syllogisms from invalid arguments that look like syllogisms requires attention to two formal features of the syllogism as a whole—mood and figure.

The *mood of a syllogism* is the list of the forms of its constituent propositions in this order—major premise, minor premise, conclusion. For example

All dogs are mammals.
All collies are dogs.
So, all collies are mammals.

No dogs are birds.
All collies are dogs.
So, no collies are birds.

Mood: AAA

Mood: EAE

The *figure of a syllogism* is the specification of how the middle term is related to the end terms, i.e., of which it is the subject and of which the predicate. Aristotle distinguishes three different figures

1st Figure, in which the middle term is subject of the major term & predicated of the minor term

2nd Figure, in which the middle term is predicated of both end terms

3rd Figure, in which the middle term is subject of both end terms

For example

Figure I	All punishments necessary to protect society are justifiable. Some executions are punishments necessary to protect society. So, some executions are justifiable.
Figure II	All just trials give the defendant adequate opportunity to defend himself. Some trials in which the defendant lacks counsel is a trial which gives the defendant adequate opportunity to defend himself.. So, some trials in which the defendant lacks counsel are not just trials.
Figure III	Some acts of killing in self-defense are justifiable. All acts of killing in self-defense are acts that kill another human being. So, some acts that kill another human being are justifiable

Fourteen valid mood-figure combinations are given below. These fourteen syllogistic forms are not the only valid forms that are possible. There are ten others, but of these four are trivial special cases of the fourteen given; the other six (called “fourth figure” by their friends) put their terms in a perverted order. None is likely to be encountered in ordinary discourse.

β. Validity, Figure by Figure

α. First Figure

The first figure is, according to Aristotle, the fundamental figure. It shows most clearly the subsumption of a case under a rule. Rules are always universal, but may be affirmative or negative. Examples of rules would be

All wars that inflict more harm than good are unjust.

No military action whose harmful effects cannot be controlled is morally permissible.

In a syllogism rules like that are applied to a case (of wars that inflict more harm than good or of military actions whose harmful effects cannot be controlled). Cases are always affirmative. Examples of cases would be

All nuclear wars inflict more harm than good.

All military uses of biological weapons are military actions whose harmful effects cannot be controlled.

Applying the rules to the cases allows us to draw a conclusion:

Rule: All wars that inflict more harm than good are unjust.

Case: All nuclear wars inflict more harm than good.

Result: So, all nuclear wars are unjust.

Or:

Rule: No military action whose harmful effects cannot be controlled is morally permissible.

Case: All military uses of biological weapons are military actions whose harmful effects cannot be controlled.

Result: So, no military uses of biological weapons are morally permissible.

Schematically

Amb	Emb
<u>Adm</u>	<u>Adm</u>
∴ Adb	∴ Edb

That gives us two valid moods in first figure—AAA and EAE, commonly called *Barbara* and *Celarent*. Taken together, these two figures constitute the *dictum de omni et nullo*—the rule of all and none. All other syllogistic forms are derived from these.

Weakening the conclusion—making the case a matter of some rather than all—requires us to weaken the conclusion, but does not otherwise affect the validity of the syllogism. So,

- Rule: All wars that inflict more harm than good are unjust.
 Case: *Some* nuclear wars inflict more harm than good.
 Result: So, *some* nuclear wars are unjust.

Or, with a negative rule:

- Rule: No military action whose harmful effects cannot be controlled is morally permissible.
 Case: *Some* military uses of biological weapons are military actions whose harmful effects cannot be controlled.
 Result: So, *some* military uses of biological weapons are *not* morally permissible.

Schematically

Amb	Emb
<u>Idm</u>	<u>Idm</u>
∴Idb	∴Odb

This gives us two more valid moods—AII and EIO, *Darii* and *Ferio*.

Note that the conclusion of a first-figure syllogism can be in any form—A, E, I, or O.

2. Second Figure

Second-figure syllogisms are formed from premise pairs that share a predicate. They work by showing that the major term has some feature that the minor term lacks, or vice versa. For example

Second-figure syllogisms always have negative conclusions. They work by showing that the major term has some feature that the minor term lacks, or vice versa. For example, Thomas Sowell⁴ argues that speculation is not gambling:

What gambling involves, whether in games of chance or in actions like playing Russian roulette, is creating a risk that would otherwise not exist, in order either to profit or to exhibit one's skill or lack of fear. What economic speculation involves is coping with an *inherent* risk in such a way as to minimize it

⁴ *Basic Economics*, 3d ed. (Basic Books, 2007), p. 262.

and to leave it to be borne by whoever is best equipped to bear it.

Although the predicates are not quite the same in the two premises, the argument could be put in slightly different words:

Gambling involves creating a risk that would otherwise not exist.

Economic speculation does not involve creating a risk that would otherwise not exist.

So, economic speculation is not gambling.

Like first-figure syllogisms, second-figure syllogisms begin with a rule (and so with a universal statement, either A or E). Unlike first-figure syllogisms, however, their minor premise does not present a case and may be in any logical form. In the second example below, the minor premise is negative, which is not allowed in first figure.

Example	Schema	Name
No just war violates the principle of proportionality. All modern wars violate the principle of proportionality. So, no modern wars are just wars.	Epm <u>Asm</u> ∴Esp	Cesare
All punishments that are just are punishments necessary to the suppression of crime. No executions are necessary to the suppression of crime. So, no executions are just punishments.	Apm <u>Esm</u> ∴Esp	Camestres

As in the first figure, weakening the minor premise requires weakening the conclusion, but does not otherwise affect the validity of the syllogism.

Example	Schema	Name
No just war violates the principle of proportionality. <i>Some</i> modern wars violate the principle of proportionality. So, <i>some</i> modern wars <i>are not</i> just wars.	Epm <u>Ism</u> ∴Osp	Festino
All just punishments are punishments necessary to the suppression of crime. <i>Some</i> punishments authorized by US law <i>are not</i> punishments necessary to the suppression of crime. So, <i>some</i> punishments authorized by US law <i>are not</i> just punishments.	Apm <u>Osm</u> ∴Osp	Baroco

λ. Third Figure

Third-figure syllogisms are formed from premise pairs that share a subject. For example,

The punishment given to Timothy McVeigh was justifiable.

The punishment given to Timothy McVeigh was an execution.

Third-figure syllogisms always have particular conclusions. They work by showing that since one subject has two features, at least some things that have one feature have the other. Or, that at least some things that have one feature lack the other. For example,

The punishment given to Timothy McVeigh was justifiable.

The punishment given to Timothy McVeigh was an execution.

Some executions are justifiable.

Six moods are valid in the third figure.

Example	Schema	Name
The punishment given to Timothy McVeigh was justifiable. The punishment given to Timothy McVeigh was an execution. Some executions are justifiable.	Amp <u>Ams</u> ∴Isp	Darapti
Some acts of killing in self-defense are justifiable All acts of killing in self-defense are acts that kill another human being. So, some acts that kill another human being are justifiable.	Imp <u>Ams</u> ∴Isp	Disamis
All uses of military force that meet the criteria of the just-war theory are justifiable. Some uses of military force that meet the criteria of the just-war theory are acts that kill another human being. So, some acts that kill another human being are justifiable.	Amp <u>Ims</u> ∴Isp	Datisi
The punishment given to Timothy McVeigh was not wrong. The punishment given to Timothy McVeigh was an act that killed another human being. So, some acts that kill another human being are not wrong.	Emp <u>Ams</u> ∴Osp	Felapton
Some violations of unjust laws are not wrong. All violations of unjust laws are violations of the law. So, some violations of the law are not wrong..	Omp <u>Ams</u> ∴Osp	Bocardo
No acts required by justice are wrong. Some acts required by justice are violations of the law [e.g., of the Fugitive Slave Law]. So, some violations of the law are not wrong.	Emp <u>Ims</u> ∴Osp	Ferison

Since third-figure syllogisms always have particular conclusions, their conclusions always contradict a corresponding universal statement. Therefore, third-figure syllogisms are particularly useful in refuting universal propositions (e.g., rules). For example, to refute the claim that *No wars ever lead to the establishment of democracy*, one must provide a syllogism whose conclusion is *Some wars lead to the establishment of democracy*. This can be done by finding a counter-example, something that was a war and was followed by post-war democracy. For example,

The Allied war against Japan in World War II led to the establishment of democracy.

The Allied war against Japan in World War II was a war.

So, Some wars lead to the establishment of democracy.

So, the counter-example becomes the middle term of a third-figure syllogism. Mood by mood:

Rule	Counter-example (Middle Term)	Refutation	Form
No executions are justifiable.	the punishment given to Timothy McVeigh	The punishment given to Timothy McVeigh was justifiable. The punishment given to Timothy McVeigh was an execution. Some executions are justifiable.	AAI
No acts that kill another human being are justifiable.	acts of killing in self-defense	Some acts of killing in self-defense are justifiable. All acts of killing in self-defense are acts that kill another human being. So, some acts that kill another human being are justifiable.	IAI
No acts that kill another human being are justifiable.	uses of military force that meet the criteria of the just-war theory	All uses of military force that meet the criteria of the just-war theory are justifiable. Some uses of military force that meet the criteria of the just-war theory are acts that kill another human being. So, some acts that kill another human being are justifiable.	AII
All acts that kill another human being are wrong.	The punishment given to McVeigh	The punishment given to Timothy McVeigh was not wrong. The punishment given to Timothy McVeigh was an act that killed another human being. So, some acts that kill another human being are not wrong.	EAO
All violations of the law are wrong.	violations of unjust laws	Some violations of unjust laws are not wrong. All violations of unjust laws are violations of the law. So, some violations of the law are not wrong.	OAO
All violations of the law are wrong.	acts required by justice	No acts required by justice are wrong. Some acts required by justice are violations of the law. So, some violations of the law are not wrong.	EIO

c. Non-syllogistic Arguments

There are, however, good arguments in which the conclusion only follows with some probability from the premises.

Generalizations provide a clear example. Carefully done public opinion polls give us a good reason to believe that the public favors or opposes a certain candidate for public office.

The most common form of probable reasoning in moral philosophy, however, is analogy. The categorical syllogism applies a rule to a case and

gets a result (a judgment about another case). Analogy, by contrast, proceeds directly from one case to another. A paradigm of such reasoning is legal reasoning from a precedent to the case at hand:

In 1977, during Dukakis' first term as Governor, the Massachusetts legislature passed a bill requiring teachers to lead their classes in the pledge each day. Following standard state practice, Dukakis sought an advisory ruling on the bill from his attorney general as well as the state supreme court. Both found the bill unconstitutional: the landmark 1943 U.S. Supreme Court decision *West Virginia State Board of Education v. Barnette* held that requiring a student to recite the pledge under the threat of expulsion violated the Constitution's guarantee of freedom of speech and worship.⁵

The argument of the advisory ruling might be put as follows:

A law requiring a student to recite the Pledge under the threat of expulsion violates the Constitution's guarantee of freedom of speech and worship.

The proposed Massachusetts law (requiring teachers to lead their classes in the pledge each day) is like the law requiring a student to recite the Pledge under the threat of expulsion.

So, the proposed Massachusetts law violates the Constitution's guarantee of freedom of speech and worship.

The form would be

Thing A has property C.

Thing B is like thing A in respects relevant to C-ness

So, thing B has property C also.

Syllogistic reasoning is particularly vulnerable to formal mistakes—affirming the consequent of a hypothetical, even though only affirming the antecedent allows a conclusion to be drawn, or using a mood that is not valid in the figure of the syllogism. Probable reasoning seems not to be vulnerable to this problem. Still, one must distinguish good from bad reasoning here. Generalizations, for example, are bad if the sample on which they are based is unrepresentative. Similarly, analogies are bad if the analogues are not similar in the respect relevant to the subject. Consider an argument attributed to Bolshevik dictator Vladimir Ilich Lenin:

⁵ Richard Stengel, "Taking the Pledge," *Time* 5 Sep 1988.

Why should freedom of speech and freedom of press be allowed? Why should a government which is doing what it believes to be right allow itself to be criticized? It would not allow opposition by lethal weapons. Ideas are much more fatal things than guns. Why should any man be allowed to buy a printing press and disseminate pernicious opinions calculated to embarrass the government?

Revised to highlight the analogical structure of the argument, this would be:

Opposition by lethal weapons is reasonably prohibited by a government which is doing what it believes to be right.

Using a printing press to criticize the government is like opposition by lethal weapons.

So, using a printing press to criticize the government is reasonably prohibited by a government which is doing what it believes to be right.

The second premise is implausible and for that reason the analogy is a false one.