

# 1. Stoic Logic—Elementary Forms

**A. For each of the following forms, determine whether it is valid. If it is, give its name.**

	Problem	Validity	Form Name
1	$\begin{array}{l} p \supset q \\ \underline{p} \\ \hline \phantom{p} q \end{array}$	Valid	Modus Ponens
2	$\begin{array}{l} p \supset q \\ \underline{\sim p} \\ \hline \phantom{p} \sim q \end{array}$	Invalid	—
3	$\begin{array}{l} p \supset q \\ \underline{q} \\ \hline \phantom{p} p \end{array}$	Invalid	—
4	$\begin{array}{l} p \supset q \\ \underline{\sim q} \\ \hline \phantom{p} \sim p \end{array}$	Valid	Modus Tollens
5	$\begin{array}{l} p \vee q \\ \underline{p} \\ \hline \phantom{p} q \end{array}$	Invalid	—
6	$\begin{array}{l} p \vee q \\ \underline{\sim q} \\ \hline \phantom{p} \sim p \end{array}$	Invalid	—
7	$\begin{array}{l} p \vee q \\ \underline{\sim p} \\ \hline \phantom{p} q \end{array}$	Valid	Disjunctive Syllogism
8	$\begin{array}{l} p \vee q \\ \underline{p} \\ \hline \phantom{p} \sim q \end{array}$	Invalid	—
9	$\begin{array}{l} p \uparrow q \\ \underline{p} \\ \hline \phantom{p} q \end{array}$	Invalid	—

10	$\begin{array}{l} p \uparrow q \\ \hline \bar{p} \\ \hline \bar{\sim}q \end{array}$	Valid	Disjunctive Syllogism (with “not-both”)
11	$\begin{array}{l} p \uparrow q \\ \hline \sim p \\ \hline \bar{\phantom{p}} q \end{array}$	Invalid	—
12	$\begin{array}{l} p \uparrow q \\ \hline q \\ \hline \bar{\phantom{q}} \sim p \end{array}$	Valid	Disjunctive Syllogism (with “not-both”)

**B. Identify the premises, conclusion, and form of the following arguments. Then determine whether the argument is valid.**

	Problem	Form	Validity
1.	Mary studied French or German in college. She did not study German. So, she studied French.	Disjunctive Syllogism	Valid
2.	Mary studied French or German in college. She studied German. So, she did not study French.		Invalid
3.	Either St. Paul is the largest city in Minnesota or Bloomington is. St. Paul is not the largest city in Minnesota. So, Bloomington is.	Disjunctive Syllogism	Valid
4.	If Crusoe's island had never been visited by anyone but him, then there would not have been any footprints but his on the sandy beach. But there was a footprint on the sandy beach and it was not his, so the island had been visited by people other than Crusoe.	Modus Tollens	Valid
5.	If this man had expected to die, he would have left a will. And here is a will in his own hand. So, he must have expected to die.		Invalid
6.	If there is no freedom of the will, giving advice would be useless. But it is not useless. So, there must be freedom of the will.	Modus Tollens	Valid
7.	If Socrates had really corrupted the youth of Athens, the relatives of the corrupted youth would have been in court to testify against Socrates, but they were not there. So, he must not really have corrupted the youth of the city.	Modus Tollens	Valid
8.	If this syllogism is a case of denying the antecedent, then it's invalid. But it's not a case of denying the antecedent, so it's valid.		Invalid
9.	Either President Clinton attended Yale or he attended Harvard. We know he attended Yale. So, he didn't attend Harvard.		Invalid

10.	Either we're out of gasoline or the fuel gauge is broken. We're not out of gasoline. So, the fuel gauge must be broken.	Disjunctive Syllogism with 'or'	Valid
11.	John cannot have both gone to the party and studied hard. He went to the party. So, he did not study hard.	Disjunctive Syllogism with 'not both'	Valid
12.	If Iraq refused to live by the conditions of the cease-fire agreed to after the First Gulf War then President Bush was within his rights in using military force against Iraq. And, in fact, Iraq did refuse to live by the conditions of the cease-fire agreed to after the First Gulf War. So, President Bush was within his rights in using military force against Iraq.	Modus Ponens	Valid
13.	If Euthyphro's second definition (that the pious is what is loved by the gods and the impious what is hated by the gods) is correct, then some actions are both pious and impious at the same time. But no action is both pious and impious at the same time, so Euthyphro's second definition is incorrect.	Modus Tollens	Valid
14.	Had the early Muslims thought that <i>hadith</i> [traditions about what Muhammad said and did] was as important as the Quran they would have taken steps to record it; but in fact they did not do so. — Alfred Guillaume, <i>Islam</i>  CONCLUSION: Early Muslims did not think that <i>hadith</i> was as important as the Quran.	Modus Tollens	Valid
15.	If there had been evil in my heart the Lord would not have listened. But truly God has listened. — Psalm 66  CONCLUSION: There was not evil in my heart.	Modus Tollens	Valid

16.	<p>If the multiregional- evolution hypothesis is correct, then we would expect to find early examples of modern humans appearing more or less simultaneously throughout the Old World. That is not what we see.—Richard Leakey, <i>The Origin of Humankind</i></p> <p>CONCLUSION: If the multiregional- evolution hypothesis is not correct.</p>	Modus Tollens	Valid
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