



THE LOGIC CLASSROOM EXERCISES 1-6

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EXERCISES STUDY ONE: PROPOSITIONS

Exercise 1.1: The Four Forms

Instructions: Choose the letter for the correct answer for each of the following.

a	A(ab)	f	undistributed
b	I(ab)	g	quantity
c	O(ab)	h	quality
d	E(ab)	i	universal
e	distributed	j	particular

1	The forms A and E are said to have _____ quantity.
2	The forms I and O are said to be _____ in quantity.
3	If the subject terms of forms are _____ the forms are universal.
4	If the predicate terms of forms are _____ the forms are affirmative in quality.
5	If the predicate terms of forms are _____ the forms are negative in quality.
6	The forms A(ab) and I(ab) are similar in _____, but dissimilar in _____.
7	The form with both particular quantity and affirmative quality is _____.
8	The form with both terms undistributed is _____.
9	The form with a distributed subject term, and an undistributed predicate term is the _____.
10	The form with both terms distributed is _____.
11	The form A(ab) differs from form _____ in both the distribution of terms,

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	quantity, and quality.
12	The formal qualities of the forms are defined in terms of whether or not the subjects and predicates of the forms are _____ or _____.

Exercise 1.2: Translating Propositions into Standard Form

Instructions: Rewrite each of the following propositions as standard A, E, I, or O forms. Use the letters in parentheses for subject and predicate terms for each. The Answers in the back of this book do the same. (If you cannot put them in standard form, you do not know what they mean.)

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1	No Christian is a secularist. (c,s)
2	Some children run to school. (c,s)
3	Only good students get A's. (s,g)
4	None but the brave deserve the fair. (f,b)
5	All except workers may enter. (w,e)
6	Only freshmen need use the back door. (b,f)
7	The poor always ye have with you. (w,p)
8	You always squirm out of an argument. (a,o)
9	Except the Lord build the house, they labor in vain who build it. (l,i)
10	Logic is the science of necessary inference. (l,s)
11	Whosoever committeth sin transresseth also the law. (l,s)
12	The fall brought mankind into an estate of sin and misery. (f,e)
13	Nothing worthwhile is easy. (w,e)
14	Whoso loveth instruction loveth knowledge. (i,k)
15	There is therefore now no condemnation to those who are in Christ Jesus. (j,c)
16	The sacraments of the New Testament are Baptism and the Lord's supper. (s,a)
17	In order to say something meaningful, one must use the law of contradiction. (m,l)
18	Some hold that God's sovereignty and man's responsibility are paradoxical. (s,p)

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19	Most of the questions in this exercise are easy (q,e)
20	Fifty percent of eligible voters did not vote. (f,v)

EXERCISES STUDY TWO: IMMEDIATE INFERENCE

Exercise 2.1 Immediate Inferences

Instructions: Choose the letter for the most correct answer from the list for each of the following items. For any instance of “ j “ (None of the Above) provide the correct answer.

a. contradiction	f. obversion
b. contraposition	g. subcontraries
c. contraries	h. subalterns
d. conversion	i. valid
e. invalid	j. none of the above

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ITEMS	STATEMENTS
1	The forms A(ab) and E(ab) are opposed as _____ meaning they cannot be true together but may both be false.
2	The forms I and O are opposed as _____ meaning they cannot both be false but may both be true.
3	The forms A(ab) and I(ab) can both be true or both be false meaning they are _____.
4	The relationship between the forms E and I is called _____.
5	If from for E(ab), we conclude E(ba), the inference is called _____.
6	_____ for the form O(ab) is not valid.
7	The form A(ab) implies A(b' a') by _____.
8	The form A(ab) implies E(a'b') by _____.

9	The inference $A(ab) < A(ba)$ is _____.
10	The inference $E(ab) < I(b'a')$ is _____.
11	The inference $A(ab) < I(ba)$ is _____.
12	The inference $I(ab) < I(b' a')$ is _____.
13	The strongest opposition between two forms is _____.
14	The _____ $E(ab)$ and $O(ab)$ are both false when $A(ab)$ is true.
15	_____ is valid for each of the four forms.

Exercise 2.2: Validity of Immediate Inferences

Instructions: Use the Clark Diagram. For each Item determine the validity or invalidity of the implication. Use “V” for valid; “I” for invalid. An implication or inference is valid when the form of the conclusion is true Every Time the form of the premise is true; otherwise, invalid.

EXPRESSIONS	
1. $A(ab) < E(ab)$	7. $I(ab) < A(ab)$
2. $A(ab) < I(ab)$	8. $I(ab) < E(ab)$
3. $A(ab) < O(ab)$	9. $I(ab) < O(ab)$
4. $E(ab) < A(ab)$	10. $O(ab) < A(ab)$
5. $E(ab) < I(ab)$	11. $O(ab) < E(ab)$
6. $E(ab) < O(ab)$	12. $O(ab) < I(ab)$

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EXERCISES STUDY 3: SYLLOGISMS

Exercise 3.1 Definition Syllogisms

Fill in the blanks in each statement with the letter of the correct answer.

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a. conversion per accidens	g. minor term
b. first figure	h. fourth figure
c. major premise	i. second figure
d. major term	j. simple conversion
e. middle term	k. standard syllogism
f. minor premise	m. none of the above

1. A _____ is an inference with two premises and three terms, each appearing twice but never twice in the same proposition.
2. The _____ is the predicate of the conclusion of a standard syllogism.
3. The _____ is the subject of the conclusion of a standard syllogism.
4. The term that occurs in both premises, but not in the conclusion is the _____ .
5. The _____ is the one that contains the major term.
6. The _____ is the one that contains the minor term.
7. The lower case letter "s" in the names of valid syllogism means _____ of the preceding form.
8. The lower case "p" in some of the names of valid syllogisms means _____ .
9. The _____ is the subject term of the major premise and the predicate term of the minor premise of a standard syllogism.
10. The _____ is the predicate of both premises of a standard syllogism.
11. The _____ is the subject of both premises of a standard syllogism.
12. The _____ is the predicate of the major premise and the subject term of the minor premise of a standard syllogism.

Exercise 3.2: Syllogisms

Determine the validity of each by comparison with the frame names of valid syllogisms or by means of the Five Rules. Use "V" for valid; "I" for invalid.

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1. All thinking beings are existing beings. I am a thinking being; therefore, I am an existing being.
2. Some good Christians are communists because Some good Christians practice

what they preach; and All communists practice what they preach.
3. Suppose someone argues: No logic students swallow propaganda. The premises are: (1) No logic students are stupid; and (2) All stupid people swallow propaganda.
4. All whom the Son makes free are free indeed, because all who know the truth are free indeed; and all whom the Son makes free know the truth.
5. Descriptive sciences have no place for evaluations. Psychology is a descriptive science, among others. Therefore, psychology has no place for evaluations.
6. All that God does is good. God clearly predestinates evil. Therefore, God does good in predestinating evil.
7. No person who knows the Truth is a slave of sin. All whom the Son makes free are persons who know the Truth. Therefore, no person whom the Son makes free is a slave of sin.
8. Does it make sense to argue that some poor scholars are theologians because all theologians are former seminary students, and some seminary students were poor scholars?
9. Our sense organs change either by reason of aging or by reason of disease leading to deception. These changes usually occur without our knowing it. Therefore, we are often or almost always deceived.
10. Every system of philosophy must have a starting point, an axiom or set of axioms, for otherwise it could not start. Starting points cannot be demonstrated. Therefore, every system of thought must be based on an indemonstrable axiom.

Exercise 3.3: Deduction

Fill in the blanks in each statement with the letter of the correct answer.

a. axioms
b. theorem
c. Rule I (Deduction)
d. Rule II (Deduction)
e. strengthened form
f. weakened form
g. Five Rules (validity of syllogisms)
h. necessary & sufficient

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1. _____ are never deduced because they are the starting points of all deduction.
2. _____ states: if in any valid mood its premise and conclusion be interchanged and contradicted, the result is a valid implication.
3. _____ states that if any valid implication, if its premise be strengthened or its conclusion weakened, a valid implication will result.
4. The premise of a valid implication is a _____ of its consequent and the conclusion is a _____ of its premise.
5. There are _____ by which any standard syllogism may be tested for validity.
6. One proves a _____ by applying rules to the axioms.
7. The five rules are _____ , if you can't do without them and there is at least one invalid syllogism to which the given rule alone applies.

EXERCISES STUDY 4: MORE ARGUMENT FORMS

Exercise 4.1 Additional Argument Forms

Instructions: Fill in the blanks in each statement with the letter of the correct answer.

a. disjunctive syllogism	f. transitive syllogism
b.. affirming the consequent	g. modus ponens
c. complete	h. modus tollens
d. denying the antecedent	i. interdefinable
e. dilemma	j. valid

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STATEMENTS:
1. _____ has an implication as a premise and the antecedent of the implication as a second premise from which one concludes the consequent of the first.
2. The form of argument in which: X implies Y, and the 2nd premise is: Y is false; and the conclusion is therefore: X is false, is known as _____.
3. "X implies Y, and Y is true; therefore, X is true." This argument form exemplifies the fallacy of _____.

4. Argument Form: X implies Y, and X is false; therefore, Y is false, is the fallacy of _____.
5. The _____ form consists of premises: X \supset Y, and X is false, to conclude: Y is true.
6. The argument form [(X \supset Y) (Z \supset W) (X \supset Z)] \supset (Y \supset W) is known as a(n) _____.
7. If the first two premises of a dilemma are not _____ inferences, the dilemma fails.
8. The disjunction premise of a dilemma must be a _____ disjunction or the dilemma fails.
9. The formula: (XY)' = (X' \supset Y') shows that conjunction and disjunction are _____.
10. The implication [(X \supset Y) (Y \supset Z)] \supset (X \supset Z) is known as _____.

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Exercise 4.2 Arguments & Definitions

Instructions: Determine the validity of each of the following.

1. If the party now in power wins the next election, then in all probability we shall go to war somewhere in the world. In all probability we shall go to war somewhere in the world. Therefore, the party now in power wins the next election.
2. If Jane is a good speller, then she can spell "syllogism." Jane is not a good speller. Therefore, Jane cannot spell "syllogism."
3. If students cheat on exams, this means the exams are too difficult. If the exams are too difficult, the instructor should be disqualified. Therefore, if students cheat on exams, the instructor should be disqualified.
4. If John stole the money, then he has a guilty conscience. He stole the money. Therefore, he has a guilty conscience.
5. If she is honest, she will not lie. She did not lie. Consequently, she is not dishonest.
6. Either this course is easily mastered, or it should not be listed in General Education. Either this course should be listed in General Education, or it should be abolished from the entire curriculum. Therefore, if this course is not easily mastered, it should be abolished from the entire curriculum.
7. If you do nothing, then you will be considered an accomplice. If you resist, then you will be accused of provoking disagreement. Either you do nothing, or you resist. Thus, either you will be considered an accomplice, or you will be accused of provoking disagreement.
8. Either this beaker does not contain acid, or it will turn litmus paper red. It does not turn blue litmus paper red. Therefore, the beaker does not contain acid.
9. If A then B is equivalent to Not-A or B is equivalent to it is Not the case that both A

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and not-B.

10. The denial of $A \cup B$ is equivalent to both Not-A and Not-B; and the denial of both A and B is equivalent to either Not-A or Not-B.

EXERCISES STUDY 5: TRUTH TABLES

Exercise 5.1: Truth Table – Functions

Part A Instructions: Match the truth table values in the columns, a through g, with the correct forms, 1 through 7.

x	y	a	b	c	d	e	f	g
T	T	T	T	F	F	T	F	F
T	F	F	F	T	T	T	F	F
F	T	T	F	T	F	T	F	T
F	F	T	F	T	F	F	T	T

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1. conjunction. _____
2. disjunction. _____
3. implication. _____
4. contradiction of conjunction. _____
5. contradiction of disjunction. _____
6. contradiction of implication. _____
7. contradiction of x. _____

Part B Instructions: Match the truth table values in the columns, a through g, with the correct forms, 1 through 10.

p	q	a	b	c	d	e	f	g
T	T	T	F	F	T	T	T	F

T	F	T	F	T	F	F	T	F
F	T	T	F	T	T	F	F	F
F	F	T	F	T	T	F	F	T

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1. $(p + q)'$ _____	6. $(pq)'$ _____
2. $(pp)'$ _____	7. $(p' + q')$ _____
3. $(p + p')$ _____	8. $(p' + q')$ _____
4. $(pq)'$ _____	9. $(p < p)'$ _____
5. $(p' + q)$ _____	10. $(p' + p)'$ _____

Exercise 5.2: Truth Table Analysis

Instructions: Do a truth table analysis of the following propositions.

Hawk Newton is good in either science or theology, but not both. Moreover, either he is good at logic or bad at theology. If he is not good in science, he is bad at theology. If he is bad at theology, he is good at logic.

What do these four premises imply, if anything? Is Hawk good in anything? In or at what?

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1. Hawk is good in either science or theology, but not both. $(s + t) (st)'$
2. Hawk is good at logic or bad at theology. $(l + t')$
3. If he is not good in science, he is bad at theology. $(s' < t')$
4. If he is bad at theology, he is good at logic. $(t' < l)$

Variables			1st	2nd	3rd	4th
s	l	t	$(s + t) (st)'$	$(l + t')$	$(s' < t')$	$(t' < l)$

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1	T	T	T				
2	T	T	F				
3	T	F	T				
4	T	F	F				
5	F	T	T				
6	F	T	F				
7	F	F	T				
8	F	F	F				
	i	ii	iii	iv	v	vi	vii

EXERCISES STUDY 6: INFORMAL FALLACIES AND DEFINITIONS

Exercise 6.1 Informal Fallacies True/False Statements

Instructions: Which of the following statements is true and which is false? If false, how could it be reworded so as to qualify as a true statement?

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1. Fallacies are classified as either formal or informal.
2. Informal Fallacies are fallacies of form rather than content.
3. Argumentum Ad Baculum is classified as a Fallacy of Relevance.
4. The Fallacy of Accident occurs when one assumes as a premise the conclusion intended to be proved.
5. The Fallacy of False Dilemma poses two and only two alternatives when there are more than two choices.
6. Fallacies of Relevance are a smaller class than Fallacies of Ambiguity.
7. Fallacies of Ambiguity include two that speak of the relation between the attributes of a part or parts and the whole.

8. Amphibology is a Fallacy of Relevance.
9. Ad hominem is a form of argument that deduces conclusions unacceptable to another person's premises.
10. Lexical Definition introduces a new term or new use for an old term.
11. The purpose of a Precising Definition is the reduction or elimination of vague terminology.
12. Synonymous definitions have the same connotation and denotation if any.
13. Definiens designates the term or phrase to be defined.
14. That portion of a definition that provides the meaning of a term is called the definiendum.
15. One way to avoid counterfeit argument is by means of clear and precise definitions of vague or ambiguous terminology.

Exercise 6.2 Fallacies Defined

Instructions: Fill in the box next to each item with the letter of the most correct answer. If no correct answer is listed, choose " p " None of the Above.

a. accent	i. amphibology
b. ad baculum	j. circular reasoning
c. ad hominem (abusive)	k. complex question
d. ad ignorantiam	l. composition
e. ad misericordiam	m. division
f. ad populum	n. post hoc
g. ad verecundiam	o. false dilemma
h. equivocation	p. none of the above

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1. When one appeals to force or threat of force to cause acceptance of a conclusion.
2. When instead of trying to disprove the truth of what is asserted, one attacks the person's situation, beliefs, or character.
3. Whenever it is argued that a proposition is true (false) simply on the basis that it has not been proved false (true).

4. The attempt to win popular assent to a conclusion by arousing the feelings and enthusiasms of the multitude, or appealing to popular opinion.
5. An appeal to the feeling of respect people have for the famous to win assent to a conclusion.
6. When one argues that another must choose one of two choices without having proven that the choices are mutually exclusive.
7. When one considers only exceptional cases and generalizes to a rule that fits them alone.
8. When one assumes as a premise for an argument the very conclusion one intends to prove.
9. When pity is appealed to for the sake of getting a conclusion accepted.
10. When we confuse the different meanings a single word or phrase may have.
11. When a statement's meaning is unclear because of the loose way in which its words are combined.
12. When words or phrases of a statement are emphasized or stressed producing a different meaning from the original.
13. When one reasons fallaciously from the properties of the parts of a whole to the properties of the whole itself.
14. Assuming without proof that a prior event explains or is the cause of a subsequent event.
15. When one argues fallaciously that what is true of a whole must be true of each of its parts.

Exercise 6.3 Definitions

Instructions: Fill in the blank(s) in each item with the letter of the most correct answer. If no correct answer is listed, choose " n " None of the Above.

a. analytic	h. ostensive
b. denotative	i. persuasive
c. designative	j. precisising
d. genetic	k. stipulative
e. genus & difference	l. synonymous
f. lexical	m. theoretical
g. operational	n. none of the above

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1. A definition that reports the conventional meaning of a term is known as a(n) _____ definition.
2. Definitions that introduce a term either having no previous meaning or assigning a new one are said to be _____ .
3. If a definition gives a more precise meaning to a term, it is call a(n) _____ definition.
4. Definitions given for the purpose of solving theoretical problems (among other matters) are called. _____ .
5. _____ definitions are attempts to change attitudes toward either favorable or unfavorable connotations or denotations.
6. Definitions according to method are classified as _____ or _____ .
7. A definition that lists the members of the term/class being defined is known as _____ .
8. A definition whose definiendum and definiens are exact equivalents in every respect are said to be _____ .
9. _____ definition is a designative one in which the definiens provides an analysis of the meaning of the definiendum.
10. A statement of the way in which members of a subclass differ from other members of the general class is a definition by _____ .
11. _____ definition describes the origin or development of the class being defined.
12. _____ definition specifies a set of procedures for determining whether a term can be correctly applied.

Download Exercise Answer Key 1-6 at: <http://logic-classroom.weebly.com>

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