

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
YAROSLAV MUDRYI NATIONAL LAW UNIVERSITY

# LOGIC

**Study guide  
for students  
of the first (bachelor's) higher education level  
of branch of knowledge 08 «Jurisprudence»  
specialization 081 «Law»,  
branch of knowledge 29  
«International relationships»  
specialization 293 «International law»**

Kharkiv  
«Pravo»  
2022

UDC 16(075.8)

L84

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*Recommended for publication by the Editorial Board  
of the Yaroslav Mudryi National Law University  
(Minutes №1 of January 20, 2022)*

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relationships” specialization 293 “International law” / comps.:  
O. G. Danilyan, O. M. Yurkevych, E. A. Kalnytskyi and others. –  
Kharkiv : Pravo, 2022. 106 p.

ISBN 978-966-998-401-2

ISBN 978-966-998-401-2

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Kalnytskyi E. A. and others, compiling, 2022  
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## ===== 1. Introduction

Cognitive activity, students' independence and active forms of learning play a key role in achieving the goals of humanitarian education. Traditional, stereotypical, mostly verbal teaching aids are no longer effective enough in the students' knowledge and skills acquisition.

The study guide is designed to improve the organization of students' self-studies in logic; it can be used in practical classes, for control work, tests and examinations. It contains general information on the number of lectures, practical classes, self-study tasks, the course description and the assessment procedure.

It will contribute to better pedagogical control, the main task of which is to shape the learning process by establishing feedback between students and teachers and obtaining final learning outcomes, as well as ensuring a deep mastery of the specifics of logic as the main academic subject. Teaching logic facilitates the formation and development of the logical culture of future lawyers.

As a result of studying this discipline, students are expected to:

- know the features of abstract thinking and its expression in language; have an idea of the nature and process of logical thinking, the basics of traditional and modern theories of concepts, statements, inferences, hypotheses, proofs, etc.;
- be able to use the laws and rules of logic for the construction and analysis of concepts, statements, inferences, hypotheses, proofs, rules of law; use the means of traditional and modern logic in the analysis of thoughts expressed in the natural language.

This study guide will be useful for anyone who seeks to master the logical knowledge that leads to correct thinking in search of truth.

## 2. Number of lectures, seminars and self-study hours

№	Topic	Total	Including		
			lectures	Practical lessons	Self – study
1.	Subject and Meaning of Logic. Thinking and Language	10	2	2	6
2.	Logical Characteristics of Concepts. Types of Concepts. Relations between Concepts. Logical Operations with Concepts	20	6	6	8
3.	General Characteristics of the Statement. Simple Statement. Compound Statement. Modal Statement. Basic Principles (laws) of Logic	18	4	6	8
4.	General Characteristics of Inferences. Types of Inferences. Direct Inferences. Deductive Inferences. Non-deductive Inferences	28	8	8	12
5.	Proof and refutation. Hypothesis.	12	2	2	8
	Final practical lesson	2		2	
Totally		90	22	26	42

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### 3. PROGRAMME OF ACADEMIC DISCIPLINE «LOGIC»

APPROVED

at the staff meeting of the Department of Philosophy of the Yaroslav  
Mudryi National Law University  
(protocol № 7 of the 29 December 2021)

#### **Unit 1. Subject and Meaning of Logic. Thinking and Language**

**Subject and Meaning of Logic.** Origin and meaning of the concept of logic. Intuitive and scientific logic. The place of logic in the structure of scientific cognition and the system of sciences.

The concept of «thinking». Sensory cognition and abstract thinking. Features of abstract thinking.

The concept of logical form (structure). Basic logical forms: concept, statement, inference. The concept of «the law of logic». Truthfulness and formal correctness of reasoning. History of the science of logic.

General theoretical and practical importance of logic. The importance of logic for legal studies and legal practice.

Methodological importance of logic for solving test cases of general educational legal competence.

**Thinking and Language.** The issue of the interrelation between thinking and language. Linguistic functions. Artificial and natural languages. Logical analysis of language as a way to identify logical forms and structures. Semiotic approach to language. The concept of «sign» and types of signs. Meaning and sense. Types of meanings. Levels of semiotic analysis of language. Semiotic «triangle».

Interaction of the language of logic and the language of law as semiotic systems. Language and meta-language of law and jurisprudence.

#### **Unit 2. Concept**

**Logical Characteristics of Concepts.** Basic logical means of concept formation: analysis, synthesis, comparison, abstraction, generalization.

Means of linguistic expression of concepts. Concept and word. Terms. The role of concepts in cognition.

Logical structure of the concept. Subject matter of concept. Features of objects and their types. Content of the concept as a system of essential features. Volume (scope) of concept. Classes (sets), types of sets, the concept of subsets. Individuals of classes (elements of the set). The law of the inverse relation between volume and subject matter of the concept.

**Types of Concepts.** Types of concepts according to scope (extensional characteristics of concepts). Zero concepts: false, hypothetical, and necessary. Non-zero concepts: general and singular, registering and non-registering, collective and non-collective, universal. Types of concepts by subject matter (intensional characteristics of concepts). Concrete and abstract, relative and irrelevant, positive and negative concepts.

**Relations between Concepts.** Comparable and non-comparable, compatible and incompatible concepts. Types of compatibility: equivalence (identity), intersection, subordination. Types of incompatibility: subordination, contraposition, contradiction, complementarity. Using Euler-Venn diagrams to express relations between concepts.

**Logical Operations with Concepts.** Generalisation and limitation of concepts.

Definition of concepts. Structural elements of definitions. Types of definitions. Techniques (similar to definitions). Rules and possible errors in definitions. The importance of definitions in the formation and development of legal concepts.

Operations with classes (volumes) of concepts: combining (addition), intersection (multiplication), formatting an addition to a class (subtraction).

Logical division of concepts. Structural elements of the division operation. Types of division. Mereological division. Rules for concepts division and their possible infraction.

Classification and its types. General scientific importance of division and classification of concepts.

### Unit 3. Statement

**General Characteristics of the Statement.** Statements, propositions, and sentences. Logical importance of statements. Simple and compound statements. Categorical and non-categorical statements.

**Simple Statement.** Structure of a simple statement. Types of simple categorical statements: attributive, relative, and existential. Types of attributive statements by quantity and quality. Definite and indefinite statements; statements with exclusion. The concept of «quantifier», types of quantifiers. Distribution of terms in statements, rules of distribution, and circular diagrams of relations between terms. Logical square. Types of relations between attributive statements with reference to the logical square.

**Compound Statement (Propositional).** Non-categorical statements. Compound statements and their types. Logical copulas. Formulae propositional. Conditions of the propositional truth values and their concise definition using truth tables (matrices).

**Modal Statements.** The concept of modality. Types of modalities. Deontic modality and formal analysis of legal norms.

**Basic Principles (laws) of Logic.** Definiteness, consistency, consequence and conclusiveness as the laws of correct thinking.

The concept of law of logic.

The law of identity, the law of excluded middle, the law of non-contradiction, and the law of sufficient reason. Conditions for the operation of the basic laws of logic. Typical logical errors when infringing the law of logic.

**Logic of questions and answers.** The concept of question. Structure and types of questions. Rules for asking questions. Incorrect questions. Answers and their types. Answering rules.

## Unit 4. Inference

**General Characteristics of Inferences. Types of Inferences.** The concept of inference. Structure of inferences. Types of knowledge contained in inference. Types of inferences according to the structural difference: deduction, induction, analogy. Demonstrative and non-demonstrative inferences.

**Direct Inferences:** structure and character of inference. Types of direct inferences: transformation, inversion, opposition to a predicate. Inferences according to the logical square and modal statements.

General characteristics of indirect inferences and their types.

**Deductive Inferences.** The concept of deductive inference: structure and character of inference. The concept of syllogism. Simple and compound deductive inferences.

Categorical syllogism. Structure of categorical syllogism. Axiomatic and general rules of categorical syllogism. Figures and moduses of categorical syllogism. Special figure rules. Correct moduses. Selection of correct moduses using Euler-Venn diagrams. Categorical syllogism with exude statements. Inferences from relative statements.

Inferences from compound statements. A purely conditional syllogism: the pattern and rule for obtaining an inference. Conditional and categorical syllogism: scheme, rules for obtaining an inference and moduses. Equivalent and categorical syllogism: patterns of correct formation. Separative and categorical syllogism: the rule of formation and inference patterns. Conditional and separative (lemmatic) syllogisms: formation patterns, rules and types (constructive and destructive dilemmas).

Enthymeme (truncated syllogism). Types of enthymemes. Polysyllogism: structure and types. Truncated and acronymous syllogisms (sorites and epicheiremas).

The importance of deduction for legal practice.

**Non-deductive Inferences.** General characteristics and types of non-deductive (probable) inferences. Mathematical and logical probability. Degrees of probability.

Inductive inferences. Logical nature of induction. Structure and types of inductive inferences. Conditions for increasing the probability of inductive inference.

Inductive methods for establishing causal relations. The concept of «causality». Reduction in the setting of causal relations. Methods for setting causal relations between phenomena.

Statistical generalizations. Inductive nature of statistical generalizations. Population, example, and frequency of a feature. The interrelation between induction and deduction.

Inferences by analogy. The concept and general characteristics of analogy. Structure of analogy. Types of inferences by analogy. Conditions that increase the degree of probability of inferences by analogy.

The meaning of analogy as a logical basis for modelling.



## **Unit 5. Proof and Refutation. Hypothesis**

**Proof and Refutation.** Concept of proof. Structure of proof: thesis, arguments, demonstration. Types of proof: direct and indirect. Types of indirect proof: from the opposite (apogogic) and divisive (exclusion).

Concept of refutation. Methods of refutation. Rules of proof and possible logical errors in proof. Paralogisms, sophisms, and paradoxes. Methods of their elimination or solution.

**Hypothesis.** Hypothesis as a form of cognition. Definition of hypothesis. Types of hypotheses. Hypothesis formation and stages of its development. Criteria for selecting hypotheses. The role of inference and empirical experience in the formation of hypotheses. Hypothetical and deductive methods.

Logical means of confirmation of hypotheses. Refutation of hypotheses. Hypotheses in legal cognition.

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## 4. PLANS AND ASSIGNMENTS FOR PRACTICAL LESSONS

### SECTION I

#### Topic 1. Subject and importance of logic. Thinking and language

##### Practical lesson 1

###### Plan

1. The subject of logic as a science.
2. The concept of «thinking». Abstract and concrete thinking, their general characteristics.
3. Historical stages of development of the science of logic.
4. Thinking and language. Semiotics.
5. The importance of logic for jurisprudence and legal practice.

###### *Exercises*

*1. Identify logical forms of thought in expressions, if any. Establish their correctness.*

***Example.** All notaries are lawyers. P. is a notary. Thus, P. is a lawyer – inference.*

1. Some students study the theory of state and law. 2. Mamburbia kergudu. 3. No lawyer is a prosecutor. All prosecutors have higher legal education. Some of those with higher legal education are not lawyers. 4. Some lawyers are not notaries. 5. Student Petrenko. 6. This topic is the most difficult. 7. All students take exams. He does not pass exams, so he is a student. 8. Some students take the external examination in logic when entering the master's degree program. 9. If only. 10. All prosecutors are lawyers, so some lawyers are prosecutors. 11. Investigator is a lawyer. So, all investigators are experienced lawyers. 12. If some lawyers are notaries, it is not correct that no lawyer is a notary. 13. If a person has a fever, then this person is sick, and if a person is not sick, then he/she has no fever. 14. As every person in the right mind can study logic, so Petrenko can study logic. 15. Plato is a philosopher; Aristotle is a philosopher; Schopenhauer is a philosopher. So, all people are philosophers.

2. Give examples of concrete and abstract thinking using expressions of different logical forms.

3. Determine sense and the meaning of the following sets of verbal sign symbols.

**Example.** *State.* – The meaning of the sign «state» can be the following information: the territorial organisation of political power, which exists on a certain social basis, acts as an official representative of society and ensures the implementation of its policy through a special apparatus. The meaning of the sign is the object it denotes. Therefore, the meaning of the sign «state» is all states: Ukraine, France, USA, Japan and others.

1. Student. 2. Attorney. 3. The ideal state. 4. The Constitution of Ukraine. 5. Sign. 6. Modern logic. 7. The function of the state. 8. The President. 9. Social norm. 10. Monarchy.

4. Give three examples of iconic signs and index signs.

5. Solve logical tasks (based on the materials of the teacher).

6. Perform test assignments to determine the level of development of logical thinking (based on teacher's materials).

## **Topic 2. Concept. Logical characteristics of Concepts. Types of Concepts. Relations between Concepts**

### **Practical classes 1, 2**

#### **Plan**

1. General characteristics of the concept as a form of thought. Concept and word.

2. Logical structure of concept. The law of the inverse relations between the content and scope of concept.

3. Types of features that make up the content of the concept.

4. Extensional characteristic of content (types of concepts by scope).

5. Intensification characteristic of content (types of concepts by content).

6. The relations of compatibility between concepts. Represent them using Euler-Venn diagrams.

7. The relationship of incompatibility between concepts. Their representation using Euler-Venn diagrams.

### *Exercises*

*1. Specify the word that expresses a concept. Define: denotation that corresponds to the concept; objective and semantic meaning of the concept.*

**Example.** *Car: denotation – any car as an object; objective meaning – a class of cars created by generalising the common features of all cars; semantic meaning (meaning) – general semantic characteristics of the car class (wheeled vehicle, which is driven by a power source, has at least four wheels, is designed for non-rail roads and is used to transport people and goods, etc.).*

1. Lawyer. 2. Synopsis of logic. 3. Really. 4. Students present at the practical lesson of logic. 5. Five. 6. We. 7. Early. 8. Theory of state and law. 9. Prevent. 10. Exist.

*2. Define the logical structure of the concept.*

**Example.** *Man: the volume of the concept covers all people on the planet, the content of this concept consists of the features «living being», «endowed with intelligence», «the subject of socio-historical activity» and «the subject of culture».*

1. Law. 2. Lawyer. 3. Democratic state. 4. Student. 5. Code. 6. Victim. 7. The Constitution of Ukraine. 8. Right. 9. Bill of Rights (USA). 10. Ukrainian language.

*3. Describe the concept relation, using the law of the inverse relations between the content and scope of concepts. In which cases does this law not apply?*

**Example.** *Lawyer (A). Prosecutor (B). – The concept of «lawyer» has a larger volume than the concept of «prosecutor» (all prosecutors are lawyers, but not all lawyers are prosecutors). The content of the concept «lawyer» (a specialist who has professional knowledge in the field of legal science, law and legal practice) is narrower than the content of the concept «prosecutor» (which includes all the semantic characteristics*

*of a lawyer and is characterised as the main legal representative of the prosecution in civil law countries with a system of investigation or in common law countries with an adversarial system). In the transition from the concept of «lawyer» to the concept of «prosecutor», the scope of the concept as a thought form decreases, and the content increases.*

1. Constitution of Ukraine (A). Constitution (B). 2. Civil code (A). Code (B). 3. Grade in the exam (A). Grade «excellent» on the exam (B). 4. Memorial (A). Memorial to the victims of the Holodomor in Kharkiv (B). 5. Legal consciousness (A). Legality (B). 6. Yaroslav Mudryi National Law University (A). National University (B). 7. Famous Ukrainian jurist Mykola Gredeskul (A). Famous Ukrainian film director Oleksandr Dovzhenko (V). 8. Budget (A). State budget (B). 9. Kharkiv Human Rights Group (A). The Supreme Court of Ukraine (B). 10. The city of Kyiv (A). Ukrainian city (B).

*4. Define the classes of objects that are generalised on the basis of the following signs:*

**Example.** *A living being that has the ability to think abstractly. On the basis of the given signs, the class of people is generalised.*

1. To be conscious. 2. To study at a higher education institution. 3. To be a specialist who has professional knowledge in the field of law. 4. To be a defender of the Homeland. 5. To be a territorial entity, to have sovereignty; political power; rely on a certain social base. 6. To be the basic law of the state. 7. To ensure the supremacy of state power within the state and its independence in foreign relations. 8. To ensure that a nation exercises its inalienable right to self-determination and self-development. 9. To be the directions of activity of the state within the country. 10. To consist of three elements: forms of power, forms of government, forms of state and political regime.

*5. Name which signs are significant for the following classes and which are not.*

**Example.** *The thermometer has 1) a scale of measurement; 2) a glass case; 3) a tube filled with liquid; 4) is designed to measure body temperature.*

*Sings: 1) a scale of measurement; 2) a glass case; 3) a tube filled with liquid are insignificant; 4) designed to measure body temperature is significant.*

1. Felt-tip pen – stationery; for writing; and drawing; with ink; has a tip made of porous material; green; 18 cm long; leaves a mark on the paper; has a plastic case. 2. The state is a sovereign political-territorial organisation of society, which has power, which is exercised on the basis of legal norms that ensure the protection and coordination of public, group and individual interests. 3. Lawyer (Latin *advocatus* – requested) – a lawyer who, having a special status, provides legal assistance to individuals and legal entities, protects the suspect, accused, defendant, convict, the victim of defamation or psychological violence, represents the interests of individuals or legal entities. 4. Book – a non-periodical publication in the form of bound sheets of printed material made of paper, parchment or other material, has interesting content and promotes intellectual development. 5. Student (Latin *studens* – «diligently working», «engaged») – a student of higher, and in some countries of secondary school, studies well in the day (full-time), evening, correspondence or distance form, aims to obtain a certain level of education, new friends and life wisdom. 6. Application – an official application of a citizen to state bodies, submitted in a timely manner in printed form without grammatical errors. 7. A criminal is a person who has committed a crime that is dangerous for citizens (relatives, acquaintances or strangers) or society as a whole. 8. A crime is a socially dangerous criminal act (action or omission) committed by the subject of the crime as provided by the Criminal Code. 9. Marriage is a family union of a woman and a man, registered in the body of state registration of acts of civil status and supported by the religious rite of marriage. 10. Testator – a physical or legal person who makes a will, which states that the individual makes a will in case of death. 11. The Law of Ukraine is a normative legal act adopted by the Verkhovna Rada of Ukraine by a majority of 226 votes (for laws concerning amendments to the Constitution – 300 votes) and signed by the President of Ukraine.

*6. Define the type of signs of the concept: basic or derivative; general or individual; generic or specific; simple or complex; positive or negative.*

**Example.** *The State Flag of Ukraine is a modern flag of Ukraine, a flag of two equal horizontal stripes of blue and yellow.*

*Signs: 1) the modern flag of Ukraine – the main, general, generic, simple positive sign; 2) a flag of two equal horizontal stripes of blue and yellow colours – the main, individual, special, complex, positive feature.*

1. Human dignity is a person's self-worth and social significance. 2. The exercise of certain human rights is not subject to any restrictions. 3. Petrenko is a person who does not work and lives in a one-room communal apartment. 4. The main feature of peaceful assemblies is the peaceful nature of their conduct. 5. A demonstration is a mass gathering of citizens to express any public and political sentiments, including those on the issues of protest or disagreement with anything. 6. The street march is carried out with the same purpose as demonstration, meeting, however, differs in smaller dynamics, absence of rally-demonstration attributes. 7. In the narrow (formal) sense, a law is an act that comes from the legislature of the country, is adopted in accordance with the established procedure and has the highest legal force. 8. The law shall enter into force ten days after the date of its official promulgation unless otherwise provided by the normative act itself, but not earlier than the day of its publication in the official printed publication. 9. The right of the president's «veto» does not apply to the reforming constitutional law. 10. Permanent are laws designed for a long time (valid without limitation). 11. Optional essential features of the state include: the presence of the constitution, state symbols, citizenship, currency, participation in international bodies and organisations, and so on.

*7. Define the type of concept by scope (by the number and nature of scope elements).*

**Example.** *The team is non-empty, general (non-real), collective.*

1. State. 2. Agreement «On subscriber service» of April 31, 2019. 3. The function of the state. 4. Primitive-communal system. 5. The tax system of modern Ukraine. 6. The population of a European country. 7. Measure. 8. State apparatus. 9. High law. 10. Union of the Union of the Mediterranean.

*8. Define the type of concept by content.*

**Example.** *Student – specific, positive, irrelevant.*

1. Court. 2. Insanity. 3. The state. 4. Legality. 5. Social justice. 6. Government. 7. Crime. 8. Law. 9. Misinformation. 10. Originality.

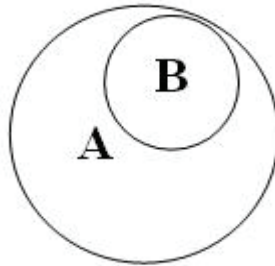
*9. Make a complete logical analysis of the concept.*

**Example.** Yaroslav Mudryi National Law University – non-empty, single (non-collective), specific, positive, irrelevant.

1. Law. 2. The Constitution of Ukraine. 3. Larger half. 4. Incapacity. 5. Truth. 6. The United Nations. 7. Universities of Kharkiv. 8. Grown up children. 9. The Verkhovna Rada of Ukraine. 10. Legal uncertainty.

*10. Define the type of relations between the above concepts. Depict these relations in diagrams.*

**Example.** Student (A). Law student (B). – Subordination relations.

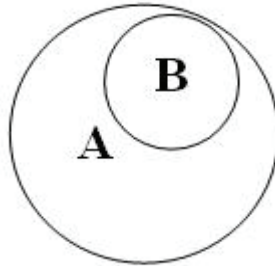


1. Order. Mess. 2. Peaceful assemblies. Meeting. Rally. Demonstration. Street hike. Picketing. 3. Man. Decent man. Dishonest person. Resident of Kharkiv. 4. The rule of law. The rule of civil law. Regulatory rules. Security rules. The rule of criminal law. Offence. 5. Legal actions. Illegal actions. Charitable contributions to the local budget. Improper use of the subvention by a local authority. 6. Scientist. Lawyer. Ukrainian. Attorney. 7. Man. Husband. Father. Grandfather. Son. Grandson. Uncle. Nephew. Godfather. 8. Legitimate. Illegal. Unlawful. Free. 9. Lawyer. Physicist. Entrepreneur. 10. Science «logic». The science of thought forms and thought laws. Formal logic. Informal logic. Traditional logic. Mathematical logic.

*11. Are the given relations between concepts correctly defined? If not, justify the answer and provide the correct definition of the relations. Mark the correct relations using Euler-Venn diagrams.*



**Example.** The rule of law (A). The rule of civil law (B). The relationship of contrast. – Incorrectly defined relations. These concepts are in terms of subordination: the volume of the concept «the rule of civil law» is included in the volume of the concept «law». However, the content of these concepts is different. They are in relation to the kind and type. Diagram denotes this as follows:



1. Diploma of higher education (A). Document (B). Relation of contradiction. 2. Experienced worker (A). Beginner (B). Relation of contrast. 3. Murder (A). Forced deprivation of life (B). Relation of subordination. 4. Witness (A). Lawyer (B). Identity relation. 5. Robbery (A). Brigandage (B). Relation of subordination. 6. Safe activity (A). Dangerous activity (B). Relation of contradiction. 7. Criminal liability (A). Legal liability (B). Identity relation. 8. Aristotle's logic (A). Traditional logic (B). Identity relation. 9. Mitigating circumstance (A). Aggravating circumstance (B). Relation of contradiction. 10. Printed information (A). Audio-visual information (B). Relation of subordination.

**12.** Indicate which of the following concepts are in a compatible relation and which are incompatible.

**Example.** Real civil relations (A). Obligatory civil relations (B). – These are different types of civil legal relations that are in incompatible conceptual relations of subordination: they do not have any common elements of the set, have different content and are equally subject to the common generic concept of «civil legal relations».

1. Friendly relationship (A). Unfriendly relationship (B). 2. Gosprom in Kharkiv (A). The first Soviet skyscraper (B). 3. Contractual theory of

the origin of the state (A). Organic theory of the origin of the state (B).  
4. Tests (A). Test of general educational legal competence (TGELC) (B).  
5. Legal specific scientific methods of the theory of state and law (A).  
Non-legal specific scientific methods of the theory of state and law (B).  
6. Law (A). Administrative law (B). 7. Fraud (A). Possession of another's  
property by deception or abuse of trust (B). 8. Witness (A). Familiar  
person (B). 9. Mitigating circumstance (A). Aggravating circumstance  
(B). 10. Democratic state (A). Modern state (B).

## **Topic 2. Concept. Logical operations with concepts**

### **Practical lesson 3**

#### **Plan**

1. Generalisations and restrictions as logical operations with concepts.
2. Operations with classes (combining, overlapping, formatting an addition to a class).
3. Logical division of concepts. Rules for concept division. Types of division.
4. Classification. Types of classification.
5. The operation of defining concepts. Definition rules and errors, which are possible when defining.
6. Types of direct (explicit) and indirect (implicit) definitions.

#### **Exercises**

1. *Perform operations of generalisation and restriction of the given concepts.*

**Example.** *Logic. Generalisation – science; restrictions – traditional logic.*

1. Court. 2. Crime. 3. Agreement. 4. Code. 5. Minister. 6. Form of state. 7. Function of the state. 8. State power. 9. Duty. 10. Figure.

2. *Check the correctness of the generalisation of the following concepts.*

**Example.** Form of government (A) – form of state (B). The generalisation is incorrect because the form of government is an element, not a kind of form of state (A, B – incompatible definition).

1. Crime – offence.
2. Attorney – lawyer.
3. State – public political power.
4. Form of state – legal construction.
5. Old man – Obsolete man.
6. State body – team of civil servants.
7. Official – civil servant.
8. Year – time.
9. Convention – international legal agreement.
10. Cabinet of Ministers – government.

3. Check if the restrictions are correct.

**Example.** Law (A) – an article of law (B). The restriction is incorrect because the article of the law is an element, not a kind of law (A, B – incompatible concepts).

1. Regional prosecutor – district prosecutor.
2. Lawyer – notary.
3. State – public political power.
4. Form of government – presidential republic.
5. Member of the legal community – student.
6. Accomplice – instigator.
7. Constellation – Star.
8. Robbery – open theft of another’s property.
9. Basic Law of the state – Constitution of Ukraine.
10. Definition – description.

4. Combine classes. Make a symbolic record and draw a diagram.

**Example.** 1. Law (A). Constitutional law (B).  $A \cup B = A$ : the result of addition is the sum (Fig. 1), equal to the class “Law”. 2. Lawyer (A). Deputy of the Verkhovna Rada of Ukraine (B).  $A \cup B = A$ : the result of addition is the sum (Fig. 2), equal to the class “Lawyer or deputy of the Verkhovna Rada of Ukraine”.



Fig. 1 Fig. 2

1. Basic Law of the state (A). Constitution of Ukraine (B).
2. Attorney (A). Doctor of Law (B).
3. Offender (A). Criminal (B).
4. Criminal act

(A). Action (B). Omission ( $\sim B$ ). 5. Codified Law (A). Current law (B). 6. Constitutional law (A). Ordinary law (B). 7. Permanent Law (A). Provisional Law (B). 8. The law of general action (A). Law of special action (B). Law of exceptional action (C). 9. Offender (A). Juvenile (B). 10. Punishment (A). Fine (B). 11. Sentence (A). Acquittal (B). 12. Definition (A). Assertion (B). Form of abstract thinking (C). 13. Logic (A). Deontic logic (B). 14. Lawyer (A). Employee of the concern (B). 15. Legal science (A). Civil law (B).

5. With the classes of the previous exercise perform operations of overlapping classes (multiplication) and (or) formatting an addition to a class (subtraction). Draw diagrams, mark symbols.

**Examples.** 1. Law (A). Constitutional law (B).  $A \cap B = B$ : the result of the overlapping is multiplication (Fig. 3a), equal to the class "Constitutional Law" (B).

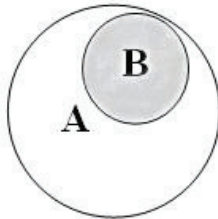


Fig. 3a

The result of subtraction  $A - B$  – laws, except the constitutional one (Fig. 3b).

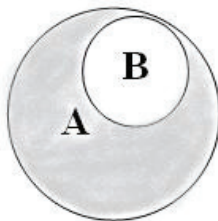


Fig. 3b

2. Lawyer (A). Deputy of the Verkhovna Rada of Ukraine (B).  $A \cap B$ : the result of overlapping – multiplication (Fig. 4), is equal to the class “Lawyer and Deputy of the Verkhovna Rada of Ukraine” (ab).

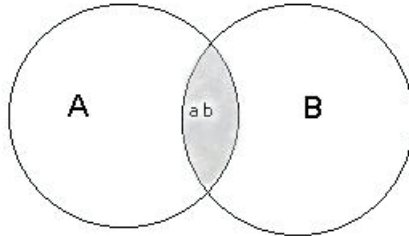


Fig. 4

6. Create additions to the class. Make a symbolic record and draw a diagram.

**Example.** 1. Offender (I). Recidivist (A).  $I - A = \sim A$ : the result of the addition to the class of offender: offenders, except for recidivists (Fig. 5).

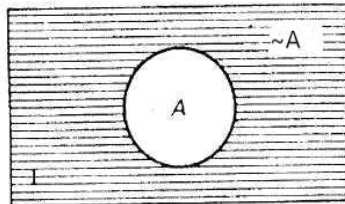


Fig. 5

1. Agreement (A). Unfair contract (B). 2. Functions of the state (A). General social functions (B). 3. State (A). Theocratic state (B). 4. Form of government (A). Republic (B). 5. Form of government (A). Federal State (C).

7. Specify the structural elements of the division of concepts and the type of division.

**Examples.** 1. In terms of scope, there are rules of law of general action, rules of limited action and local ones. “Rules of law” – a divided concept; “Rules of general action”, “Rules of limited action”; “Local rules” – members of the division; “Scope” – the basis of division. Simple division.

2. Externally, lawful behaviour is divided into action and omission. “Legitimate behaviour” – a divided concept; “Action”, “omission” – members of the division; “External expression” – the basis of division. Dichotomous division.

1. By the functions the rules of law are divided into regulatory and protective; by the method of legal regulation, they are divided into binding, prohibitive and authorising; by the method of legal regulation the rules of law are divided into imperative, dispositive, recommendatory and encouraging. 2. The rule of law consists of a hypothesis, disposition and sanction. 3. According to the degree of certainty of the hypothesis, the rules of law are divided into absolutely definite and relatively definite. 4. Constitutional and customary laws are distinguished by legal force, by the degree of order – codified and current laws; by the scope of action – general action, special action, exceptional action, by time of action – permanent and temporary laws. 5. Collective subjects of legal relations include non-governmental organisations and state bodies. 6. Lawful behaviour includes an object, subject, objective and subjective parties. 7. Depending on the degree of social significance, lawful behaviour is divided into necessary, desirable and socially acceptable. 8. On the basis of psychology, there is forced lawful behaviour and voluntary lawful behaviour, which, in turn, are divided into principled and ordinary. 9. In accordance with legal requirements, lawful conduct is divided into fixed and unrecorded. 10. According to the peculiarities of the subject’s attitude to his behaviour, conformist (adaptive), marginal, ordinary and socially active lawful behaviour are distinguished. 11. Centralised and decentralised federations are distinguished according to the methods of exercising power. 12. According to the method of formation the federations are divided into treaty-based, constitutional and constitutional-treaty-based.

8. Divide the following concepts. Specify the type of division.

**Examples.** 1. Federations by the method of formation are divided into treaty-based (A), constitutional (B), constitutional-treaty-based (C). The

*scope of the concept “federation” on the “method of formation” division basis is divided into subcontracting members of the division: A – “treaty-based federations”, B – “constitutional federations”, C – “constitutional treaty-based”. Simple division.*

*2. Federations are divided into centralised (A) and decentralised (~A) according to the methods of exercising power. The scope of the concept “federation” on the “method of exercising power” basis of the division is divided into contradictory members of the division.*

1. The state. 2. Functions of the state. 3. Form of the state. 4. Form of government. 5. Form of state system. 6. State and legal regime. 7. The mechanism of the state. 8. State body. 9. State power in Ukraine. 10. Civil service.

*9. Check if the division is correct. If a division error occurs, name it.*

**Example.** *Types of sovereignty: 1) state, 2) national. When dividing the definition of “sovereignty” the rule of proportionality is violated – this is the error of a narrow division, because of the missed member of the division “people’s sovereignty.”*

1. States on religious grounds are divided into theocratic, clerical, atheistic. 2. According to the type of socio-economic formation the state is divided into slave, feudal, bourgeois. 3. Among the functions of the state there are external, general social and temporary ones. 4. The main theories of the origin of the state are: theological, patriarchal, treaty-based, racial, hydraulic, the theory of prohibition of incest, organic, psychological, the theory of violence. 5. According to the time of action, the functions of the state are divided into permanent, temporary and of the past time. 6. Monarchy may be limited, despotic, theocratic, absolute. 7. Limited monarchy is divided into dualistic, social class-representing, parliamentary, constitutional, theocratic. 8. Federations by the method of formation are divided into treaty-based and constitutional. 9. The functions of the state are divided into main, derivative and internal. 10. The form of the state includes the following elements: the form of government and the form of state-territorial organisation.

*10. Find out the type of concepts: nominal or real, direct (explicit) or indirect (implicit); specify their subtypes. In the classical definitions, specify kind and type differences.*

**Example.** *A crime is a socially dangerous criminal act (action or omission), committed by the subject of the crime as provided by this Code. Real direct classical attributive definition, formula:  $A = \text{Sun}$ ; dfn (Sun) – a socially dangerous criminal act (action or omission) provided by this Code, committed by the subject of the crime; kind (B) – a socially dangerous act, type difference (c) – provided by this Code.*

1. State power is a public-political, volitional relationship between state bodies, subjects of the political system and other participants in public relations. 2. The supreme power is the legal embodiment of the universal obligation of the will of the whole society, it issues laws that have the highest legal force. 3. State sovereignty is the supremacy of state power over any other power within the country and its independence from any other power outside it. 4. The term “logistics” comes from the Greek word “logistika”, which means “thinking, calculation, expediency”. 5. Legal representatives are relatives, adoptive parents, guardians, guardians of the accused or the victim, representatives of institutions and organisations under the care of which the accused or the victim is. 6. The definition of “definiteness” can be understood when there is an unconditional statement, such as: “State your point of view without hesitation, clearly and consistently, invaluablely, so that its truth is perceived without any conditions.” 7. Look at this person: obviously he is a teenager. 8. Quantitative entities as subjects of civil law are called legal entities. 9. Quivis praesumitur bonus donec probetur contrarium – everyone is supposed to be honest until proven otherwise. 10. Close relatives are parents, wife, husband, children, siblings, grandparents, grandchildren.

11. Find the error in the following definitions. Which of the definition rules was violated?

**Example.** *Logic is a science. – Broad definition. The rule of proportionality is violated ( $Dfd = Dfn$ ).*

1. Robbery is an open seizure of another’s property. 2. Theft is a secret seizure of state property. 3. A right is a phenomenon allowing a person to enjoy the right to the protection of the right when her/his right is violated. 4. Hypocrites are insincere people. 5. Confixes are combinations of a prefix with a postfix. 6. Recidivist is a person who has committed a



serious crime. 7. A lawless person is a person without rights. 8. A jealous man is like Othello. 9. Charitable activity is the activity of charitable organisations. 10. Nobody's property is property that has no owner or its owner is unknown.

*12. Indicate which techniques similar to the definitions are used in the following texts. Find indirect definitions and specify their type.*

**Example.** *The term is a monument to the concept. This metaphor uses a technique that is similar to the definition, namely comparison.*

1. Anger is like short-term madness. 2. "Hlestakov, a young man of twenty-three, thin, slender; a little silly and, as they say, without a king in his head – one of those people who are called the most empty-headed in the offices. He doesn't think when he speaks and acts. He is unable to concentrate on any thought. His speech is fragmentary, and the words fly out of his mouth quite unexpectedly. The more the performer of this role shows sincerity and simplicity, the more he wins. He is fashionably dressed" (Gogol MV Inspector). 3. "Everyone saw the beautiful, though sun-tanned features of a twenty-five-year-old boy with thick blond curls. His face was as pale as death and stained with blood. His name was Knight Ivanhoe; despite his youth, none of his associates surpassed Ivanhoe in the art of weaponry" (Scott W. Ivanhoe). 4. S – P is a scheme of attributive assertion. 5. "Not jokingly, the good fellow was lively, thick, tall, curly, turned like a cucumber; and had a lot of his own troops, and the money was still buzzing, wherever you throw, there was a king of Turn" (Kotlyarevsky I. Aeneid). 6. Axiom of volume is when two sets are equal if any element contained in the first set is contained in the second, and vice versa. 7. Petro Ivanchenko has been studying at Kharkiv Secondary School No. 1 since the first grade. He proved himself as a diligent, disciplined, hard-working, attentive student. He knows educational material at a good level. He learns to the fullest. He memorises learning material well. He shows figurative, specific thinking. He has a natural aptitude for the Humanities. He is always attentive in class, does homework, helps his friends. He has an excellent general development. He reads a lot. 8. Altruism is the opposite of selfishness. 9. Production of superstructure (for example, construction of the second floor in a one-storey building), extension (for example, construction of a terrace or

connection of a new room to an existing building), reconstruction (for example, re-equipment of a house without changing its size) is connected with the exercise of the powers of the owner of the house. 10. Although a helicopter is an aircraft, it is not an aeroplane.

*Current control work on the material of Section I.*

## SECTION II

### **Topic 3. Statement. General characteristics of the statement.**

#### **Simple statement**

#### **lesson 1**

Plan

1. General characteristics of the statement. Statement, comment and sentence. The logical meaning of the statement. Simple and compound statements. Categorical and non-categorical statements.

2. The structure of a simple statement. Types of simple categorical statements: attributive, relative, and existential. Types of attributive statements by quantity and quality.

3. Definite and indefinite statements; statements with exclusion. The definition of “quantifier,” type of quantifier.

4. Distribution of terms in statements, rules of distribution, and circular diagrams of relations between terms. Logical square.

5. Types of relations between attributive statements with reference to the logical square.

#### *Exercises*

*1. Find sentences that express a statement.*

**Example.** What time is it? – the *interrogative sentence, that does not express a statement.*

1. Obey the law! 2. The judge is fair. 3. The right of private property is inviolable. 4. Not all offences pose a threat to state sovereignty. 5. Stop testifying falsely! 6. Who could hide the evidence? 7. The task of parliament is lawmaking. 8. A citizen has rights guaranteed by the

Constitution. 8. The task is done. 9. Which of the employees does not know his leader? 10. What does parliamentary immunity mean? 11. What is the presumption of innocence? 12. All court sessions shall be recorded. 13. Which of the lawyers does not monitor changes in legislation? 14. All jurors are full citizens of the state. 15. The investigative version has not provided enough arguments. 16. No one may be convicted without conviction. 17. Captain Ivanov was awarded another military rank. 18. What patriot does not love his homeland? 19. The benefit is the main motive of the crime. 20. Enanokiv yannadvaz. 21. Tell the truth! 22. It is freezing. 23. All judges of the Supreme Court of Ukraine are lawyers. 24. Legal precedent is the source of law. 25. No judicial body endures a legislative function. 26. It is getting dark.

*2. Determine the type of simple statements with regard to the nature of the predicate.*

***Example.*** *No field of law exists outside the legal system. – The statement of existence.*

1. The Criminal Code of Ukraine came into force earlier than the Criminal Procedure Code of Ukraine. 2. There were additional benefits at the enterprise. 3. There used to be happy days. 4. There are no witnesses to the event. 6. No man is immortal. 7. Each proton is heavier than an electron. 8. There are no groundless phenomena. 9. I. Kant was born before G. W. F. Hegel. 10. The Constitution of Ukraine has a section that regulates religious relations. 11. Infirmary is the cause of many troubles. 12. Yaroslav Mudryi Str. is located between Pushkinska and Sumska Streets. 13. There is no collective agreement in that organisation. 14. Some countries are expanding economic ties. 15. No minor shall be liable for any damage caused by him. 16. The procedure for entry into force of regulations is established by the legislation of each state. 17. Petrenko's version is not less developed than Ostapenko's version. 18. Dnipro is bigger than Lviv.

*3. Find a quantum word, subject, predicate, and copula in a statement, determine its quantity and quality.*

***Example.*** *All citizens of Ukraine (S) have the right to personal property (P). Quantitative word – “All” common, subject – “citizens of*

*Ukraine”, predicate – “right to personal property”, copula – “have” affirmative. The statement is generally affirmative.*

1. Some countries of the world are not members of the UN. 2. Each sovereign state is a subject of international law. 3. Some branches of law are based on religious dogmas. 4. Some decisions are made unanimously. 5. Every citizen has the right to work. 6. Some crimes are not crimes against property. 7. Citizens exercise their right to vote. 8. Some citizens do not know the law. 9. Not all witnesses report valuable information about the crime. 10. Socrates is not the author of any treatise. 11. No one may be held criminally liable twice for the same crime. 12. A man has the right to life. 13. Some states are not republics. 14. Any rule of law has an internal structure. 15. The marriage contract is concluded in writing.

*4. Establish the type of statement by quantity and quality; determine the distribution of terms in the statement.*

***Example.*** *Some witnesses (S) are not truthful. (P) – partially contradictory judgement. Term S is undivided, term P is divided.*

1. Only a person with higher medical education can be a doctor. 2. Everyone has the right to education. 3. No state has the right to interfere in the internal life of another person. 4. No prosecutor is a notary. 5. Some data are not subject to disclosure. 6. All social norms reflect public needs. 7. No court decision remains unjustified. 8. Some free economic zones are not legal. 9. Articles of the Criminal Code of Ukraine do not tolerate arbitrary interpretations. 10. Some of the lawsuits filed in court were considered. 11. All crimes are defined in the Criminal Code of Ukraine. 12. Smugglers are prosecuted. 13. F. Bacon is the author of “New Organon.” 14. Robbery is a crime. 15. The prosecutor has no right to engage in business activity. 16. Some states are monarchies. 17. Only the court is an integral part of the judicial system. 18. Some states are not unitary. 19. Some substances are not dangerous. 20. None of the judges refused to teach at the Faculty of Law. 21. Some legal practitioners teach. 22. No minister is a judge.

*5. Using the rules of the logical square, construct opposite, contradictory and subordinate statements. Decide if they are true or false.*

**Example.** *All investigative actions in the case are lawful – general affirmative statement (A). – The statement is true.*

*The opposite statement: “No investigative action in the case is lawful” (E) is false.*

*The subordinate statement: “Some investigative actions in the case are lawful” (I) is true.*

*The contradictory statement: “Some investigative actions in the case are not lawful” (O) is false.*

1. No employee of the prosecutor’s office may use his official powers for personal purposes. 2. None of the judges has the right to engage in commercial activities. 3. Citizens have the right to participate in trade unions. 4. Some lawyers are teachers. 5. No building was destroyed. 6. All investigators were present at the working meeting. 7. The state promotes learning of languages of international communication. 8. All associations of citizens are equal before the law. 9. Delegation of court functions is not allowed. 10. No one shall be unlawfully deprived of his property.

**6.** *Using the rules of the logical square, determine whether the statements made by you (opposites, contradictions, subordinates) are true or false.*

**Example.** *Some documents are material evidence. I – the statement is true. The opposite statement: “Some documents are not material evidence.” O is true.*

*The contradictory statement: “No document is material evidence.” E is false.*

*The statement of subordination: “All documents are material evidence.” A is false.*

1. Some crimes are not intentional. 2. Some lawyers work in judicial and investigative bodies. 3. Some employees perform their duties. 4. Some states are not federal. 5. Not all contracts are fulfilled. 6. Some citizens are entitled to a subsidy. 7. Some cases have been referred to court. 8. Several versions have been rejected. 9. Some village council heads perform their duties in good faith.

**7.** *Determine the type of relationship between statements with reference to the rules of the logical square.*

**Example:** a) *“Norms of the Constitution of Ukraine are norms of direct effect”;* b) *“No norm of the Constitution of Ukraine is a norm*

*of direct effect.” The statement a) is affirmative, A; the statement b) is generally contradictory, E. The relationship of opposites is established between them.*

1: a) “Some teachers of legal disciplines in the Free Economic Zone are lawyers,” b) “No teacher of legal disciplines in the Free Economic Zone is a lawyer”;

2: a) “All international trade agreements are mutually beneficial,” b) “No international trade agreement is mutually beneficial”;

3: a) “Some law enforcement officers know the law”, b) “Some law enforcement officers do not know the law”;

4: a) “The state is the institution of the political system”, b) “Some states are not institutions of the political system”;

5: a) “No crime against public security has a statute of limitations”, b) “Some crimes against public security have no statute of limitations”;

6: a) “The judiciary in Ukraine is an independent branch of state power”, b) “The judiciary in Ukraine is not an independent branch of state power”;

7: a) “Some lawyers are judges of the Constitutional Court of Ukraine”; b) “All lawyers are judges of the Constitutional Court of Ukraine”;

8: a) “Some lawyers have practical experience,” b) “All lawyers have practical experience”;

9: a) “Some citizens of Ukraine are not conscripts,” b) “All citizens of Ukraine are conscripts”;

10: a) “All courts in Ukraine perform the functions of protection of the rights and freedoms of citizens,” b) “Some courts in Ukraine do not perform the functions of protection of the rights and freedoms of citizens.”

### **Topic 3. Statement. Compound statement.**

#### **Practical lesson 2**

##### Plan

1. Non-categorical statements. Compound statements and their types. Logical copulas.

2. Formulas of compound statement. Conditions ensuring truth of compound statements and their brief definition with the help of truth tables (matrices).

## Exercises

1. Determine the type of compound statements: connecting, distributive (weak or strict disjunction), conditional, equivalent. Write down their structure. If conditional and equivalent statements are not expressed in an explicit logical form, formulate them using the copulas "If..., then..." and "If, and only if..., then..."

**Example.** If a student is organised in learning (A), it leads to success in professional practice (B). Conditional statement,  $A \rightarrow B$ .

1. Everybody is equal before the law and the court. 2. According to the type of guilt, a crime may be committed either intentionally or through negligence. 3. A wise book left by a man after his death is more useful than a palace or a chapel in a cemetery. 4. If we want to gain respect for the law, we must first create a law worthy of respect. 5. Orthodoxy, Catholicism, and Protestantism are the main trends in Christianity. 6. If the judge is a victim, he may not take part in the proceedings. 7. Ranks are given by people, but people can be deceived (O. Griboyedov). 8. If the detection of crimes has a high percentage, it is the result of the work of the entire investigative department. 9. All environmental crimes are crimes against public safety and public order. 10. An agreement may be either unilateral, bilateral, or multilateral. 11. In case of insufficient clarity and incompleteness of the expert's opinion, the court may order additional examination. 12. Representatives in court may not be persons who are under age or those who are under guardianship or trusteeship. 13. A court sentence may be either accusation or acquittal. 14. The victim may suffer either moral, physical, or property damage. 15. If the court rules on divorce, it shall, if necessary, take measures to protect minor children. 16. Documents that are material evidence remain in the case throughout the storage period or are transferred to interested persons. 17. Everyone has the right to free development of his personality, provided that the rights and freedoms of others are not violated. 18. The President either signs the bill or vetoes it. 19. Only if P. has committed a crime, then he is prosecuted. 20. If the crime was committed with direct intent, the person who committed it was aware of the socially dangerous nature of his act, foresaw its socially dangerous consequences and wished them to occur.

2. Write down the structure of a compound statement and fill in the table of truth.

**Example.** You will successfully complete the (P) session if and only if you attend practical classes (Q) and do not miss lectures ( $\sim R$ ).

$$P \leftrightarrow (Q \wedge \sim R)$$

Table of truth

P	Q	R	$\sim R$	$(Q \wedge \sim R)$	$P \leftrightarrow (Q \wedge \sim R)$
i	i	i	x	x	x
x	i	i	x	x	i
i	x	i	x	x	x
x	x	i	x	x	i
i	i	x	i	i	i
x	i	x	i	i	x
i	x	x	i	x	x
x	x	x	i	x	i

1. State pensions and social benefits are established by law. 2. There is a starry sky above the head and the moral law in the human soul (I. Kant). 3. He was always busy either with a court speech, or with household chores, or pondering, or writing. 4. If the contract is not legal, it must be terminated. 5. The form of the state consists of the form of government, the form of state system, and the form of political regime. 6. If several criminal offences have been committed, the criminal proceedings shall be conducted by a court within the territorial jurisdiction of which the more serious offence was committed. 7. In case of non-appearance of a witness at the court hearing, the court shall issue a ruling on the continuation of the trial or decide on the coercive arrest of the witness. 8. Criminal punishment consists of restriction or deprivation of the convict of certain rights. 9. An individual has the right to secrecy about the state of his health, the fact of seeking medical care, diagnosis, as well as information obtained during his medical examination. 10. If the norms of the law contradict the ratified international agreement, the provisions of the relevant international agreement shall be applied. 11. No person may be subjected to medical, scientific, or other experiments without his or her free consent. 12. The state creates conditions for people's effective employment. 13. If a crime is committed, there is a possibility of its disclosure. 14. If two or more



cases have only one common circumstance, then only this circumstance is the cause (or consequence) of this phenomenon (J.-S. Mill). 15. An armed attack on a car was committed either by a group of persons or by one person.

*3. Make tables of truth for the following compound statements:*

1.  $(\sim p \vee \sim q) \leftarrow r$ ;

2.  $p \leftrightarrow (q \vee r)$ ;

3.  $p \wedge (\sim p \rightarrow q)$ ;

4.  $(\sim p \vee \sim q) \leftarrow r$ ;

5.  $((p \rightarrow q) \vee (\sim p \wedge \sim q)) \rightarrow p$ ;

6.  $(\sim p \nabla \sim q) \rightarrow r$ ;

7.  $(p \vee q) \wedge (q \rightarrow r) \rightarrow (\sim r \rightarrow p)$ ;

8.  $((p \vee q) \rightarrow r) \wedge (q \wedge r) \rightarrow (p \rightarrow (q \vee r))$ ;

9.  $((p \rightarrow q) \wedge (r \rightarrow q)) \rightarrow q$ ;

10.  $(p \rightarrow (q \vee r)) \rightarrow (q \rightarrow p)$ .

*4. Write down the formula for compound statements.*

1. Everyone has the right to freedom of thought, conscience, and religion; this right includes freedom to have or to adopt a religion or belief of his/her choice, and freedom to practice his religion and belief both alone and in association with others and in public or in private. 2. Public calls for genocide, as well as the production of materials with calls for genocide with the purpose of their dissemination is a crime. 3. Citizens of Ukraine have the right to free education in all state educational institutions regardless of their gender, race, nationality, social and property status, type and nature of occupation, worldview, party affiliation, religion, health, place of residence and other circumstances. 4. Family relations are governed by the principles of justice, honesty, and reasonableness, in accordance with the moral principles of society. 5. If the court finds that the contested decision was made with violation of the law, it shall issue a decision obliging the relevant state body to eliminate the violation. 6. Conducting an investigative experiment is allowed provided that it does not endanger the life and health of persons participating in it or others, does not degrade their honour and dignity, does not cause harm. 7. When the probationary period has expired and the employee continues to work, they are considered to have passed the test, and the subsequent termination of the employment contract is allowed only on general grounds.

5. Use the method of truth tables to determine whether the statements are equivalent.

1. If the number is divisible by 6, it is divisible by 2 and 3. It is incorrect that the number, that is divisible by 6, is not divisible by 2 or 3.

2. If you set to work, then bring it to an end. Otherwise, don't get down to business or bring it to an end. 3. He wanted either to deceive me or he himself was mistaken. If he didn't want to deceive me, he himself was mistaken. 4. If some force acts on a moving body, its speed changes. It is not right that some force affects a moving body and its speed does not change. 5. It is not true that Sydorov met Petrov and robbed him. It is not true that Sydorov met Petrov, or it is not true that he robbed him.

6. Is it possible to establish the truth of the statement  $q$ , if: the statement  $p \wedge q$  is false,  $p$  is true; the statement  $p \vee q$  is true,  $p$  is false; the statement  $p \rightarrow q$  is true,  $p$  is false; the statement  $p \leftrightarrow q$  is false,  $p$  is true, the statement  $p \nabla q$  is true,  $p$  is true, the statement  $p \rightarrow q$  is true,  $q$  is false.

7. Assuming that the statement  $p$  is true, find out the truth of the following statements:  $p \wedge (p \vee q)$ ;  $\sim p \rightarrow (\sim p \wedge q)$ ;  $\sim p \vee (\sim p \wedge q)$ ;  $(q \rightarrow p) \rightarrow p$ ;  $p \leftrightarrow \sim p$ .

### **Topic 3. Statement. Modal statements. Basic Principles (Laws) of logic.**

#### **Practical lesson 3**

##### **Plan**

1. Modal Statements. The concept of modality. Types of modalities.
2. Deontic modality and formal analysis of legal norms.
4. The concept of logical principle. The principle of identity.
5. The principle of noncontradiction.
6. The principle of excluded middle.
7. The principle of sufficient reason.
8. Typical logical errors when infringing the logical principles.
9. Logic of questions and answers.

## *Exercises*

*1. Determine the type of statement by modality.*

**Example.** *Deforestation and water pollution can lead to climate change on the planet. – Statement of possibility.*

1. Building a civil society is impossible without the rule of law. 2. The establishment and activity of associations whose actions are aimed at endangering the security of the state are prohibited. 3. It is proved that limited bacteriological warfare is impossible. 4. It is necessary to follow the road safety regulations. 5. After a hot summer day, a thunderstorm is possible. 6. Napoleon died on the island of St. Helena. 7. Energy, transforming from one form to another, does not disappear. 8. There may have been mistakes while calculating. 9. Plants emit oxygen during respiration. 10. It is prohibited to collect information about a person without his/her prior consent, except the cases provided by law. 11. To maintain public order, police officers are obliged to take measures regardless of their subordination. 12. No one can be held in slavery. Slavery and the slave trade are prohibited in all their forms. 13. Unjustified refusal of employment is prohibited.

*2. Formulate the statements of deontic modality for the simple statement “A person crosses the street at a red light,” the statements with the modal operators “required” (O), “forbidden” (F), and “allowed” (P). Establish their relationship using the deontic laws (equivalences). Determine their relationship with the alethic and axiological modalities.*

*7. Are the basic laws of logic violated in the above considerations, and if so, which laws are violated?*

**Example.** *The ancient Romans saw a crow croaking to the right and lost the battle; next time the crow croaked to the left, and they won the battle. In the view of these facts, the Romans concluded that the croaking of a crow on the right brings defeat to the army, and the croaking on the left brings victory. The logical law of sufficient reason is violated.*

1. It is morning in the country. It is Sunday. It is cool. The young intelligentsia have started off to the mountains. Middle-aged people have reached for the stalls. The children and their mothers have gone to the puppet theatre morning performances. Herds have moved beyond the

villages into the green dewy fields. Actors, actresses, artists, and other hardworking bohemians have stretched out in their beds and continued to sleep soundly (M. Zhvanetsky).

2. A young lawyer defended in court a gentleman whose dog had bitten a postman. In his speech, the lawyer gave three arguments in defence of the accused: A) The accused does not have a dog. B) The dog of the accused was in a muzzle and therefore could not bite the postman. C) This was the postman's fault because he annoyed the dog.

3. A young, elderly girl with a short hedgehog of dark curly blond hair with a graceful gait of a gymnast and lame came on the stage.

4. This manuscript made on paper was created in Ancient Egypt in the time of the pharaohs.

5. Checking the information on alcohol consumption by minors, the district police officer went around the 602nd district.

6. When Faraday asked Dewey to take him to work in the laboratory, he asked for advice from one of the heads of the Royal Institute: "Tell him to wash laboratory utensils. If he is capable of something, he will probably agree. If he doesn't agree, he is incapable of anything."

7. While studying in Göttingen, Niels Bohr was poorly prepared for the colloquium and gave a very weak report. However, he was not confused and said after the report: "I have listened to so many bad speakers here that I ask you to consider my report today as a revenge on them."

8. The crime was committed by N. (thesis) because he confessed to it and signed all the testimonies.

9. To avoid tragedies, mutual understanding between drivers and pedestrians is required, and knowledge of traffic rules should be one of the components of human intellect.

10. Undoubtedly, the eye is attracted by the non-woven tapestry of an unknown master of the XVIII century. Here he used threads to depict a popular scene from the life of courtiers, and in the centre of the carpet weaved the coat of arms of the ancient princely family.

11. With the change of the company's status, it became a branch of a well-known foreign company – its information policy also changed. However, the company's information activities remain unchanged.

12. Many different battles have taken place on earth, and all of them prove that war is not a necessity and the problems may be settled without war.

13. At the scene of the crime, a man was lying unharmed with a burnt face.

14. Even though our employee graduated from the Technical Institute, she is well-versed in painting.

15. A projectile that pierces absolutely everything can pierce armour that absolutely nothing else can pierce.

16. Do you think that the government's international policy on this issue should be tough? – It must be effective.

17. One of the witnesses stated that at the moment Stepanenko struck Makarenko, who attacked him while standing on the porch of the station, which rises one and a half metres above the ground, he (Stepanenko) was standing on the ground near the porch. The second witness claimed that Makarenko was not standing on the porch at that time, but he stayed on the ground near the station building. The victim was standing between Makarenko and the porch. The first witness testified that Makarenko was standing with his back to the station building at the time of the attack, and another one testified that he was facing the station.

18. In the Gabrovo anecdote, “advertising” is in tune with our time, when it says: “So, this is the latest fabric? Just received it yesterday, straight from the factory! Isn't it fading? Can't be! It has hung in the shop window for more than a month, and nothing happened to it!”

19. During interrogation, Petrenko was asked where he spent the night of September 14. It turned out that he spent the night in a field, in a pile of straw, near the place where Marchenko's body was found. When he was asked if he had heard any noise or screams of help at night, Petrenko answered negatively. During the re-interrogation, Petrenko testified that when he was sleeping in the field, he heard a cry for help from the side where Marchenko's body lay. After that, he saw a tall man fleeing from that place.

20. Theatre, opera, ballet are for the soul. And I want something for the body. And I want a lot of things, especially for the retired people. In the neighbourhood, it is sometimes difficult to find a bench, not to mention the working elevators.

21. The patient was admitted to our department in an unconscious state and immediately read the schedule (from the explanatory note of the doctor).

22. This morning I met a woman who was wearing python fur.

23. Buying dead souls, Chichikov says to Sobakevich: – I wonder, really: it seems that there is a theatrical performance or comedy between us; otherwise, I can't explain to myself... You seem to be quite intelligent and educated. After all, it's simple – fu-fu! What is it worth? Who needs it? – But you buy it, it turns out that you need it. Here Chichikov bit his lip and did not know what to say (M. Gogol).

24. “You'd better read something,” he suggested, “but do you know...” “Zina,” cried Philip Pylypovych anxiously, “clean up vodka, we don't need it anymore.” What are you reading? A picture suddenly flashed through his mind: an uninhabited island, a palm tree, a man in animal skins, and a cap. “We'll need Robinson...” – This... Like... Engels's correspondence with this... Like his – the devil's – with Kautsky. Bormenthal stopped a fork with a piece of white meat halfway, and Pylyp Pylypovych splashed his wine. Sharikov at this time swallowed vodka. Philip Pylypovych put his elbows on the table, looked at Sharikov, and asked: – Let me know what you can say about what you read. Sharikov shrugged. – But I do not agree. – With whom? With Engels or with Kautsky? – With both, – Sharikov answered “(M. Bulgakov).

*8. The requirement of which law of logic is expressed in the following statements?*

1. Sufficient data indicating the corpus delicti is required as a ground for initiating criminal proceedings.

2. The procedure for bringing somebody as a defendant shall provide for the availability of sufficient evidence to give grounds for accusing a person of committing a crime.

3. Each piece of evidence must be assessed in terms of admissibility and reliability, and all the evidence collected together must be sufficient to resolve the criminal case.

4. The sentence of the court must be lawful, reasonable, and fair. A sentence is recognized as lawful, reasonable, and fair if it is adopted by the requirements of the CPC of Ukraine and is based on a correct interpretation of the criminal law. An unjustified sentence is a ground for revoking or changing the sentence.

5. Judicial proceedings shall be conducted only with respect for the person charged and only within the limits of the charges brought under

the indictment, except the cases provided for in this Article (Article 337 of the CPC of Ukraine).

6. Incorrect application of the criminal law is an incorrect interpretation of the law, which contradicts its exact meaning. The application of the law in an amended form is not allowed.

*Current control work on the material of section II.*

### SECTION III

#### Topic 4. Inference. General characteristics of inference.

#### Types of inferences. Immediate inferences

#### Practical lesson 1

##### Plan

1. The concept of “inference”. The structure of inferences. Types of knowledge contained in the inference.

2. Types of inferences by structural difference: deduction, induction, analogy. Demonstrative and non-demonstrative inferences.

3. Immediate inferences: the structure and nature of inference. Types of direct inferences: transformation, inversion, opposition to the predicate.

4. Inferences by the rules of the logical square and by the rules of modal statements.

#### Exercises

1. *Determine the premise, conclusion (if any) and type of inference (deduction, induction, analogy).*

**Example.** *In the city of N, measurements of radiation background were carried out. In total, there are 12 residential districts in the city N. In the first, third and sixth districts, the radiation level corresponded to the norm. It was assumed that the radiation level was normal throughout the city. The premise: “Radiation background measurements were performed in city N. In total, there are 12 residential districts in city N. In the first, third and sixth micro districts the level of radiation corresponded to the norm». Conclusion: “It was assumed that the level of radiation corresponds to the norm throughout the city.” Type of inference – induction.*

1. Methodist: None of the students studying law studies mathematics, but some students studying mathematics study art. In addition, no student studying literature studies mathematics. Thus, some of those who study art do not study law. 2. Biologist: For the characteristics of cats, the categories “Good hunter” and “Bad hunter” are used. A good hunter can catch prey weighing up to half the weight of his own body. All good hunters have a high MF index (MF index is equal to the ratio of muscle mass to fat mass). Most feral cats are good hunters, but some domestic cats are also good hunters. Thus, some cats with high MF are domestic. 3. There can be no individual freedom without the rule of law because there can be no individual freedom without social justice, just as there can be no high quality of life without social justice, and there can be no social justice without the rule of law. 4. A study of students at 123 universities found that those who slept for at least 15 minutes a day were more likely to suffer from insomnia than those who did not. It is also known that industrial seiner workers, who have an irregular sleep, sometimes in the form of a short nap, also suffer from insomnia. 5. Vice-rector: We should always act, but only if we are not confused. Therefore, we should not stop now and wait for instructions. Rector: The fact that we are confused just means that we need to stop. 6. All men love detectives. This follows from the fact that I know that Andriy has read them a lot, Igor also reads them with enthusiasm, my father and brother often buy them in bookstores. Here is a man sitting opposite me, also holding a detective. 7. I. Kepler wrote that “The earth, like man, has an inner warmth, we are convinced by volcanic activity. Rivers correspond to the vessels of a living body on Earth. There are a number of other correspondences. But man is a living being who has a soul. Thus, according to I. Kepler, the Earth also has a soul “(F. Rosenberg” History of Physics “). 8. Suppose we compare two persons: they were both born in the same year, went to the same kindergarten, graduated from the same school, and received the same grades in all subjects, both are unmarried. One of them is known to be a master of sports in football. Is it possible to conclude with sufficient probability that the second one is also a master of sports in football? 9. In the XIX century. Proponents of vulgar materialism L. Buchner and J. Moleschott, drawing an analogy between the liver and the brain, argued that the brain produces thought just as the



liver secretes bile. 10. Manager: Office managers usually use a structured approach to increase staff productivity: they analyse the activities of the office, identify general operations and entrust their implementation to the most qualified professionals (for example, highlight operations for test preparation, editing, design, printing). I invented a more effective method of increasing productivity in the office, which is based on an empirical fact: the productivity of office workers steadily increases if the temperature in the office decreases to 19 C, and with a further decrease in temperature it steadily decreases. Thus, office workers reach maximum productivity at 19 C.

*2. Perform the conversion of the following statement.*

**Example.** *All people are mortal. (SAP) So no human being is immortal. (SE ~ P)*

1. The Constitution is the basic law of the state. Therefore, ....  
2. Democratic countries do not approve of aggressive foreign policy. Therefore, ....  
3. Many countries around the world pursue independent foreign policies. Therefore, ....  
4. In partial assertions, the subject is not divided. Therefore, ....  
5. Civil relations are regulated equally throughout Ukraine. Therefore, ....  
5.1. A person exercises his/her civil rights freely at his/her own discretion. Therefore, ....  
6. Everyone has the right to the protection of his/her interests, which is not contrary to the general principles of civil law. Therefore, ....  
7. No student in this group is a participant in the academic mobility program. Therefore, ....  
8. Some students do not use smartphones.  
9. Some European countries are members of the European Union. Therefore, ....  
10. The main act of civil legislation of Ukraine is the Civil Code of Ukraine. Therefore, ....

*3. Invert the statements (if possible).*

**Example.** *All people are mortal. (S + AP -) So some mortals are human. (P-IS +)*

1. All individuals are equal in their ability to have civil rights and responsibilities. Therefore, ....  
2. Some assertions are not definite. Therefore, ....  
3. The norms enshrined in international customs are obviously not part of the national legislation of Ukraine. Therefore, ....  
4. Some specialists undergo psychometric testing during the competition

for a vacant position. Therefore, .... 5. Decisions of international organisations are clearly not part of the national legislation of Ukraine. Therefore, .... 6. Some of the things stolen by criminals have already been found. Therefore, .... 7. A person has the right to compensation for moral damage caused as a result of violation of his rights. Therefore, .... 8. Some accomplices in the case admitted their guilt. Therefore, .... 9. Parents are the legal representatives of their minor children. Therefore, .... 10. None of the students in this group has a passport. Therefore, ..

*4. Draw a conclusion by contradicting the predicate (if possible).*

**Example.** *All people are mortal. (SAP) So no immortal is human. (~ PES)*

1. All citizens of Ukraine have equal rights before the law. Therefore, .... 2. Some students did not come to take the logic exam. Thus, ... 3. Some property relations are not governed by civil law. Therefore, ... 4.. No man set foot on Mars. Therefore, .... 5. Some assertions are modal. Therefore, .... 6. A power of attorney that does not specify the date of its commission is void. Therefore, .... 7. None of the arguments presented as a statement corresponds to the thesis. Therefore, .... 8. The agreement on prolonging the statute of limitations shall be concluded in writing. Therefore, .... 9. Leaving the claim without consideration does not stop the statute of limitations. Therefore, ...

*5. For the statements given in Exercise 4, draw conclusions based on the logical square.*

**Example.** *“All people are mortal” is true, therefore, “Some people are mortal” is also true, and the statements: “No human is mortal,” “Some human beings are not mortal,” are false.*

*6. Check the following direct inferences for correctness. If there is an error in the conclusion, correct it.*

**Example.** *All people are mortal. (S+AP-) All mortals are human. (P+AS-)*

*The conclusion was obtained by inversion incorrectly, because the inference changed the distribution of terms.*

1. All students take exams. Thus, everyone who takes the exams is a student. 2. Some laws expire. Thus, some objects that expire are not the

law. 3. Students of the first group did not miss any practical classes. Thus, some of those who did not miss the practical classes are not students of the first group. 4. No prosecutor is a defence lawyer. Thus, all prosecutors are defence lawyers. 5. The amount of rent is set by the contract. Therefore, everything that is not established by the contract is not the amount of rent. 6. No lawyer is a prosecutor. Thus, some prosecutors are not lawyers. 7. The contract of life maintenance (care), under which real estate is transferred to the purchaser, is subject to state registration. Thus, all contracts subject to state registration are contracts of life maintenance (care), under which real estate is transferred to the purchaser. 8. Payment for the rental of things is set at the rates of the landlord. Thus, something that is not set at the landlord's rates is not a rental fee. 9. Some of the arguments presented as arguments do not correspond to the thesis. Thus, none of the arguments presented as arguments corresponds to the thesis. 10. All individuals are equal in their ability to enjoy civil rights and responsibilities. Thus, some of those who are equal in their ability to enjoy civil rights and responsibilities are individuals.

## **Topic 4. Deductive inferences**

### **Practical lesson 2**

#### **Plan**

1. The concept of “deductive inference”: structure and nature of the conclusion. The concept of “syllogism”. Simple and compound deductive inferences.

2. Categorical syllogism, its structure.

3. Axiom and general rules of a categorical syllogism.

4. Figures and moduses of a categorical syllogism. Rules of figures. The correct moduses.

5. Categorical syllogism with statements that are distinguished. Conclusions on the related statements.

#### ***Exercises***

*1. Are syllogisms constructed correctly? If not, what general rules and rules of individual figures are violated?*

**Example.** 1. All laws ( $M^+$ ) – are normative legal acts ( $P$ ).

2. Decrees of the President of Ukraine ( $S^+$ ) are not laws ( $M^+$ ).

Thus, decrees of the President of Ukraine ( $S^+$ ) are not normative legal acts ( $P^+$ ).

The syllogism is constructed in violation of the general rule of the categorical syllogism (if the term is not distributed in the premise, it cannot be distributed in the conclusion). The second rule of the first figure of the categorical syllogism is violated (a smaller premise is always an affirmative assertion).

In this example, the term  $P$  “normative legal acts” is not distributed in the premise, but is distributed in the conclusion because in negative statements the term predicate is always distributed.

In this example, the smaller premise is negative.

So, the syllogism is invalid.

1. The bank fee for paying taxes online on the website nnn. com is standard for all types of taxes (2.04%).

Citizen N., who paid the residential real estate tax online on nnn. com, paid a bank commission.

Thus, citizen N., who paid the residential real estate tax online on the website nnn. com, paid 2.04%.

2. No prosecutor is a judge.

N. is a judge.

Therefore, N. is not a prosecutor.

3. Some accentuated individuals strive for absolute order.

Some accentuated individuals belong to the affective-exalted type.

Thus, some affective-exalted people strive for absolute order.

4. All writers are masters of the word.

Some lawyers are writers.

So, some lawyers are masters of the word.

5. Diving is a form of scuba diving in which a diver uses certain technical means to breathe underwater.

Bogdan is not engaged in diving.

So, Bogdan does not swim with the use of certain technical means for breathing underwater.

6. Some philosophers write poetry.

All philosophers like to think abstractly.

Some of those who like to think abstractly write poetry.

7. Each student of group 3 wrote a practice report.

N. is not a student of group 3.

Thus, N. did not write a report on the internship.

8. Untidiness is a sign of the disintegration of personality.

The process of disintegration of the individual is manifested in a self-isolation.

Some cases of self-isolation are associated with sloppiness.

9. Some students do not attend a philosophy student class.

N. is a student.

Thus, N. does not attend a student science class in philosophy.

10. All bachelors for admission to the master's degree in law take a test of general academic-legal competence.

Some bachelors are from Kharkiv.

Thus, some Kharkiv residents take a test of general academic-legal competence to enter a master's degree in law.

11. Surfing is a water sport.

Surfing is the act of sliding on a wave.

So, gliding on the waves is a water sport.

12. Screaming is a way of singing in the style of black metal.

Vasily does not use screaming.

So, Vasyly doesn't sing in the style of black metal.

**2. Draw a conclusion; determine whether the syllogism is valid or not.**

**Example. The traitor is not guided by moral principles.**

N. is not a traitor.

Therefore...

*In this example, the general rule of a categorical syllogism is violated: if both statements in a categorical syllogism are negative assertions, then the syllogism is invalid.*

1. The traitor hides his motives.

N. is not a traitor.

?

2. Some judges are collectors.

All judges are lawyers.

?

3. Some students studying at the Yaroslav Mudryi National University of Law went to Odessa for a debate tournament.

N. is a student at the Yaroslav Mudryi National University of Law.

?

4. Some cars are manufactured by Mercedes-Benz.

Some helicopters are manufactured by Mercedes-Benz.

?

5. Some prosecutors have a red master's degree.

All prosecutors exercise prosecutorial oversight.

?

6. Every dentist has medical education.

Some Kharkiv residents have medical education.

?

7. Every person strives for happiness.

A butterfly is not a human being.

?

8. Every law student learns a foreign language.

N. does not learn a foreign language.

?

9. Dreaming is not harmful.

Dreams do not come true.

?

10. A crime is a criminal offence.

Theft is a criminal offence.

?

11. Workers of the Novogrodovska mine received their salaries on time this month.

Working members of the N. family received their salaries on time this month.

?

12. All romances are musical works.

N. did not write any romances.

?

3. Having a larger premise, formulate a smaller premise and conclusion for the categorical syllogism to become valid.

**Example.** The larger premise: Some citizens refuse to obtain a passport ID because of their religious beliefs.

The smaller premise: All IDs have a high level of protection.

Conclusion: Citizens due to their religious beliefs refuse to get some documents with a high level of protection.

*IV figure of the categorical syllogism:*

1. Some P are M (I);

2. All M are S (A)

Some S are P (I)

*Modus DIMARIS 4 figures, syllogism is valid.*

1. Any legal law is a legal act.

2. There are art connoisseurs among the collectors.

3. Students' self-government operates on the principles of independence from the influence of political parties.

4. Students' self-government provides protection of the interests of students.

5. All students of Yaroslav Mudryi National Law University have electronic passes.

6. Some students participate in student research groups.

7. No dentist will advise euthanasia.

8. Some textbooks were published by Pravo Publishing House.

9. No fury can give up revenge.

10. Administrative arrest does not apply to minors.

11. Some students in our group did not return the textbooks to the university library.

12. Coercive measures of an educational nature may be applied only to a minor.

4. Prove why the given syllogisms are invalid.

**Example.** Matter obeys the law of energy conservation.

The material had a bright colour.

So, something that has a bright colour obeys the law of conservation of energy.

*The syllogism is invalid. The error refers to the violation of the general rule of categorical syllogism – the error of quadrupling the terms: matter as a scientific philosophical category and material as fabric.*

1. Ethical values of the university community of the Yaroslav Mudryi National Law University are determined by the Law of Ukraine “On Education”.

The Law of Ukraine “On Education” is a normative legal act.

Some regulations define the ethical values of the Yaroslav Mudryi National Law University community.

2. All frauds are intentional acts.

Some murders are intentional acts.

So, some murders are frauds.

3. Conflict of interest is a conflict between the private interests of community members.

In student group 4, there is no conflict between the private interests of group members.

Thus, there is no conflict of interest in student group 4.

4. The audience listened carefully to the lecturer.

The auditorium seats 200 students.

Thus, 200 students listened carefully to the lecturer.

5. The fundamental principles of the Magna Charta Universitatum are the result of a proposal made in 1986 by the University of Bologna to Europe’s leading universities.

The Code of Academic Ethics is based on the fundamental principles of the Grand Charter of Universities.

Thus, the Code of Academic Ethics is the result of a proposal made in 1986 by the University of Bologna to Europe’s leading universities.

6. Some extroverts are sanguine by nature.

Bogdan is sanguine by nature.

So, Bogdan is an extrovert.

7. The party to the conflict has the right to get acquainted with all the materials of the inspection to establish the fact of violation of academic integrity.

No employee of the library has the right to get acquainted with all the materials of the inspection to establish the fact of violation of academic integrity.



Thus, no library employee is a party to the conflict.

8. Prejudice is a characteristic of proud people.

Excessive criticism of an employee is a prejudice.

Thus, excessive criticism of the employee is a characteristic of proud people.

9. All fraudsters try to seize someone else's property.

Some fraudsters seek to obtain property rights.

Thus, some of those who seek property rights are trying to seize someone else's property.

10. Some parrots talk.

All parrots are birds.

Thus, some birds talk.

11. All tickets for low-cost flights are cheap.

Some flights to UIA are cheap.

Thus, some UIA tickets are low-cost tickets.

12. Some Kharkiv residents have visited the European Union twice this year.

Some students in our group have visited the European Union twice this year.

So, some students in our group are from Kharkiv.

*5. Draw a conclusion from the given statement, determine the figure of the syllogism. Determine whether the syllogism is valid.*

**Example.** *Intentional tax evasion is punishable by a fine.*

*N. must pay a fine.*

*Conclusion: N. intentionally evaded taxes.*

*The syllogism is invalid. The conclusion is made on the premise of the second figure of the categorical syllogism. According to the rules of the second figure, one of the premises must be negative, and in this syllogism both premises of the statements are affirmative.*

1. A person who has not paid the state duty cannot insist on a court hearing of his/her claim.

Mykola is a person who did not pay the state duty.

?

2. Violation of traffic rules by a driver, if it does not entail criminal liability, is an administrative offence.

An administrative offence is not a crime.

?

3. All students of the 5th group successfully passed the exams.

Myron has successfully passed the exams.

?

4. Some lawyers deal with real estate issues.

Everyone who deals with real estate is well aware of the housing code.

?

5. All students of our group participating in the theatrical performance will go to Kyiv for theatrical art week.

Students engaged in industrial practice will not go to Kyiv for the week of theatrical art.

?

6. Miracles happen every day.

Some events do not happen every day.

?

7. A fraudster fools others by abusing their trust for selfish purposes.

Some fraudsters use cell phones.

?

8. Some students of group 2 do not write lecture notes.

Ivanka is not a student of group 2.

?

9. A person who has committed fraud shall be held criminally liable.

N. is prosecuted.

?

10. No student in our group can skateboard.

All students of the 5th dormitory can skateboard.

?

11. The Code of Academic Ethics enshrines the basic principles of academic conduct that must be followed by all members of the university community.

Respect for human dignity is a fundamental principle of academic conduct that all members of the university community must adhere to.

?

12. The use of cheat sheets by students is contrary to the Code of Academic Integrity.

Bogdan uses cheat sheets at the exams.

?

6. Try to conclude; if it is impossible to conclude, determine which general rules of categorical syllogism and rules of figures are violated.

Example. P E M

S O M

?

The example shows the general rule of a categorical syllogism is violated: with two negative premises, the conclusion is impossible. Also, according to the rules of the second figure, one of the premises must be negative, not both, and the second figure does not have correct modus of EOO.

M I P P E M M A P P E M P I M M A P P A M

S A M S O M M O S S A M S A M S A M M E S

???????

7. The above examples violate the rules of figures, but syllogisms are still valid. Find out why.

Example. 1. Some scientists write voluminous scientific monographs.

2. Nicholas is not a scientist.

So, Mykola does not write voluminous scientific monographs.

1.  $M I P^+$

2.  $S^+ E M^+$

$S^+ E P^+$

The rules of the figures are formulated when both terms of partial affirmative statements are not distributed. Because, firstly, such cases are the majority and, secondly, in this case, the rules will satisfy all variants of statements. In our example, the partial affirmative statement shows the subordination of the terms M and P. Still, the term P is divided – this is a requirement of a negative statement in the conclusion. According to the general rules of categorical syllogism, the given example is valid.

1. Everyone who has a higher medical education is considered a doctor.

Mykola has no medical education.

Thus, Mykola is not a doctor.

2. Some doctors are surgeons.

Some dentists are surgeons.

Thus, some dentists are doctors.

3. Some lawyers are attorneys.

Mykola is an attorney.

Thus, Mykola is a lawyer.

4. No person has wings.

Some people are not lawyers.

Thus, no lawyer has wings.

5. There are chess players among the people.

Some chess players are prone to depression.

Thus, some of those who are prone to depression are people.

6. All those who have higher legal education are lawyers.

All notaries are lawyers.

All notaries have a higher legal education.

7. Every student who completes a bachelor's degree course receives a bachelor's degree.

N. received a bachelor's degree.

Thus, N. is a student who has completed a bachelor's degree.

8. Some people with higher education are lawyers.

Some lawyers are attorneys.

All attorneys are people with higher education.

9. Constitution is the basic law of the state.

The Law of Ukraine "On Higher Education" is not the Constitution.

Thus, the Law of Ukraine "On Higher Education" is not the basic law of the state.

10. Some regulations are laws.

Some laws are laws that came into force in 2019.

Some laws that came into force in 2019 are regulations.

11. Some people have higher education.

Some Kharkiv residents have higher education.

Some Kharkiv residents are people.

12. Some citizens of Ukraine are retired.

Some people are citizens of Ukraine.

Some people are retired.

*8. Draw a conclusion from the premises, using the properties of relations, determine if the syllogism is valid. Find out the type of relationship in this inference: symmetrical, reflexive, or transitive.*

**Example.** *Arsen graduated from university before Anton, and Anton graduated from university before Orestes.*

*Conclusion: Orestes graduated from university later than Arsen. – Syllogism is valid.*

*This example is an inference with transitive relations. According to the rule of transitivity, the conclusion can also be written as: Arsen graduated from university before Orestes.*

1. Panteleimon Kulish is a contemporary of Mykola Gogol. Mykola Gogol is a contemporary of Taras Shevchenko.

2. Volodymyr Korolenko was born before Ivan Franko. Ivan Franko was born before Lesya Ukrainka.

3. Andriy Shevchenko was recognized as the best football player of Ukraine more times than Anatoliy Tymoschuk, and Anatoliy Tymoschuk was recognized as the best football player of Ukraine more times than Tyson.

4. Semyon is Ostap's colleague, Ostap is Vasily's colleague.

5. The murder that was committed on January 22 has details that are similar to the murder that took place on April 7. The murder that happened on April 7 is similar in details to the murder that happened on April 30.

6. Hoverla is higher than Pop Ivan Chornohirsky (Chorna Hora), and Pop Ivan Chornohirsky is higher than Turkul.

7. Olesya is Anna's friend, and Anna is Olenka's friend.

8. A house with nymphs in Chernihiv is like a house with chimeras in Kharkiv, and a house with chimaeras in Kharkiv is like a house with chimaeras in Kyiv.

9. The Civil Code of Ukraine contains more articles than the Criminal Code of Ukraine, and the Criminal Code of Ukraine contains more articles than the Code of Ukraine on Administrative Offences.

10. In May, the city prosecutor's office provided fewer responses to e-appeals than in September, and in September, the city prosecutor's office provided fewer responses to e-appeals than in October.

11. Igor thinks that the concerts of the "95th quarter" are funnier than the concerts of "Diesel Show", and the concerts of "Diesel Show" are funnier than the concerts of "Mamahohotala".

12. The picture in the first notebook looks like the picture in the second notebook, and the picture in the second notebook was analogous to the picture found in the purse of the murdered N.

## **Topic 4. Deductive inferences**

### **Practical lesson 3**

#### **Plan**

1. Purely conditional syllogism.
2. Conditional categorical syllogism, its rules and modes.
3. Equivalent-categorical syllogism, its rules and modes.
4. Dividing-categorical syllogism, its rules and modes.
5. Lematic syllogisms.
6. Enthymeme. Means of restoring complete inferences on the basis of enthymeme.
7. Polysyllogism: structure and types. Abbreviated and complex abbreviated syllogisms (sorites and epichereme).

#### ***Exercises***

*1. Read the text and construct a simple conditional syllogism. Write down its structure as a diagram.*

***Example.*** *Text: "Denmark has started building a fence right on the border with Germany. According to the plan, 70 kilometres of fence will prevent the entry of migrating wild boars, which can be carriers of African swine fever. This infection has already been found in the carcasses of dead boars in Belgium."*

*A simple conditional syllogism: If African swine fever is found in the carcasses of dead boars in Belgium, it means that wild boars from Belgium are carriers of this infection. If wild boars in Belgium are carriers of*

*African swine fever, they should not be allowed to enter Denmark. If it is impossible to allow wild boars from Belgium to enter Denmark, it is necessary to build a fence right on the border. So, if African swine fever is found in the carcasses of dead boars in Belgium, it is necessary to build a fence right on the border with Germany.*

*The structure of this simple conditional syllogism is:*

- 1. If a, then b.*
- 2. If b, then c.*
- 3. If c, then d.*

*Therefore, if a, then d.*

1. Only those drivers who have a taxi light on the roof of the car are allowed to provide taxi transport services in the Belgian capital. If Uber taxis do not have light signals on the roof of the car, then Uber service has not been issued a licence to provide taxi transport services in the Belgian capital. If Uber was not licensed to provide taxi services in the Belgian capital, then in Brussels, a commercial court ruled that it was illegal for Uber to work in the Belgian capital, reports *La Libre Belgique* on January 3, 2020.

2. Each country has its own traditions, customs, and, most importantly, laws, ignorance of which by the guests of these countries can cause them trouble. Every state has its own customs, traditions, and norms, according to which actions that are considered quite acceptable in one country are criminally punishable in the other, i. e. the citizens of one country may not perceive their actions as a crime, for them it may be normal behaviour, and for the citizens of some other country it may be criminally punishable. In one of the Arab countries, two Ukrainian citizens, a boy, and a girl were detained by police and sentenced to six months in prison for kissing in a public place. An ordinary kiss gives a real term.

3. On December 30, 2018, Polish President Andrzej Duda signed a law to combat African swine fever, which involves the construction of a fence on the border with Belarus and Ukraine to prevent the migration of wild boars. Experts believe that African swine fever in Poland was caused by infected wild boars that came from these countries. According to the Polish Minister of Agriculture Krzysztof Jurgiel, the construction will cost Warsaw 30 million euros.

4. People can easily fall victim to drug traffickers, who, using the trust of our citizens, ask them to transport parcels containing illegal substances. For example, a young girl went to the groom in Vietnam and, at his request, transported a parcel, the contents of which she knew nothing about. And it contained three kilograms of drugs! She is now facing criminal charges and faces the death penalty under Vietnamese law. Her fiancé, of course, was not found. He was an ordinary drug dealer.

5. The European Court of Justice in Luxembourg has recognized the rightness of the French shoe house Christian Louboutin in a dispute over the exclusive right to use a red sole in high-heeled shoes. The court decision states that the sign, which includes the red colour of the sole, does not ban the registration of the shape of the shoe. Thus, the court recognized that the combination of colour applied to the sole of shoes could be a trademark in the EU. The process of red exclusivity in Christian Louboutin shoes has been going on since 2012. Designer Christian Louboutin has filed a lawsuit against Dutch Van Haren. This brand sold cheaper shoes with red soles. The court of first instance upheld the position of the French fashion house, and Van Haren had to suspend sales of these models of shoes. The Dutch company filed an appeal, which eventually reached the highest court in the EU. Following the verdict of the European Court of Justice, the case will be returned to The Hague. Christian Louboutin expects the Dutch court to protect the rights of the brand.

6. British naturalist photographer David Slater left the camera unattended, which was immediately used by a 6-year-old macaque. In the process of studying an unusual object, she repeatedly pressed the trigger and made a series of famous “monkey selfies”. Animal rights activists have filed a lawsuit in federal court, arguing that it was the monkey, not the photographer, that owned the copyright of the images. Animal rights activists are demanding that all royalties for the use of photographs be given to the macaque nicknamed Naruto, as well as her relatives in the reserve of the Indonesian island of Sulawesi.

7. Benjamin Schreiber was found guilty of first-degree murder in 1997 and sentenced to life imprisonment without parole. In April 2018, the man convicted of murder was taken from an Iowa state prison to a hospital, where his heart was restarted five times. The man now claims



that because he survived his clinical death, he has in fact served his life sentence and should therefore be released immediately. The man insisted that because he had died in hospital for a moment, his life sentence had expired. The district court rejected Schreiber's request, calling his claims "unconvincing and unfounded." According to the judge, Schreiber's sentence will remain in force until a medical expert announces that he is dead.

8. A curious lawsuit between a farmer and his neighbour took place in Dax (France) in November 2019. The man complained about the ducks of his neighbour farmer Dominic Dauti. According to the plaintiff, the birds are croaking very loudly, which exceeds the permissible noise level. In addition, due to grunting, he can not sleep with the windows open. For his suffering, the plaintiff asked for compensation in the amount of 3.5 thousand euros.

9. After visiting the house in Israel, the couple sent a message to the landlord with several positive emojis, including a bottle of champagne. The landlord regarded this as consent to the lease. If the landlord saw this as an agreement to rent, he expected the couple to rent his apartment. If the couple rents his apartment, the landlord will receive rent.

10. The prosecutor asks to reverse the decision of the appellate court and to appoint a new trial in the court of appeal. He claims that in view of all the information available in the criminal proceedings about the identity of the convict, the chosen by the court measure of punishment is mild. He says that the appellate court in leaving the prosecutor's appeal, in which he did not agree with the sentence imposed on the convict, without satisfaction and contrary to the requirements of Art. 419 of the CPC of Ukraine did not properly check all its arguments and did not give reasonable answers to them.

*2. Read the text of a simple conditional syllogism. Formulate the omitted premise and conclusion, build a scheme of a simple conditional syllogism.*

**Example.** *If Petrenko came out of the porch at seven o'clock in the morning (A), he should have seen the driver of the red Renault (B). If Petrenko could recognize the driver of the red Renault (C), his testimony would be important for the investigation (D).*

1. *If Petrenko came out of the porch at seven-twenty in the morning, he should have seen the driver of the red Renault.*

2. *If Petrenko saw the driver of a red Renault, he could recognize him (missed premise).*

3. *If Petrenko can recognize the driver of the red Renault, his testimony will be important for the investigation.*

*So, if Petrenko came to the office at eight forty minutes, he could recognize the criminal.*

$(A \rightarrow B), (B \rightarrow C), (C \rightarrow D).$

$(A \rightarrow D)$

1. In California, police detained a man who was eating a sandwich on a railroad platform. He was charged with violation of the state law prohibiting eating on the platform and arrested.

2. Ignoring (avoidance) is a defensive mechanism of the psyche, which consists of the unconscious control of data about the source of unpleasant influences. Information that is troubling and may lead to conflict is not accepted. The conflict arises when the manifestation of motives contradicts the basic guidelines of the individual.

3. The murdered lawyer's face was surprisingly calm, with no signs of surprise or horror, indicating that he did not predict misfortune and probably knew the killer. If the latter must be sought among the clients, relatives, or acquaintances of the deceased, then the killer is an insidious person.

4. If an employee constantly distracts employees with questions, he causes discomfort. If a person's behavior causes discomfort to employees, they show a negative attitude towards him. If an employee constantly distracts employees with questions, then a conflict among employees arises.

5. Psychologist: if you are an insecure person, then you have low self-esteem. A person with low self-esteem shows uncertainty, and if an individual has constant doubts about his actions, he is unable to achieve the goal.

6. When experts try to find out the source of the virus, they determine how the virus was transmitted. When experts identify how the virus was transmitted, they declare appropriate quarantine. When a viral epidemic occurs, quarantine is imposed.

7. A case of bird flu was recorded at Khutir agricultural factory in the Vinnytsia region on January 18, 2020 by the State Service for Food Safety and Consumer Protection in the Vinnytsia region. In the Nemyriv district of the Vinnytsia region, almost 109,000 birds were killed at two factories due to bird flu. On January 24, 2020, the disinfection of the premises where the birds were kept was completed. As a result, the EU has suspended chicken imports from Ukraine.

8. When the 81-year-old woman had a stroke, she was unable to move on her own. If she was lying down, she would need medical care. When she needed help, she started pounding on the pipes. When a woman knocked on the pipes, her neighbour heard it. The woman called 102 and said that her neighbour (an old woman) needed help. Upon arrival at the scene patrol officers helped take the elderly woman to the ambulance, which took her to the hospital.

9. If the courts have not recognized the act of committing a crime against an elderly person as an aggravating circumstance imposing the punishment, the prosecutor shall apply to the court of appeal. If the prosecutor considers that the decision of the appellate court does not meet the requirements of Art. 419 of the CPC of Ukraine, in the cassation appeal the prosecutor asks to reverse the decision of the appellate court concerning the convict and to appoint new hearing in a court of appellate instance.

10. If the signal “Fire” arrives, firefighters leave in 60 seconds. If firefighters go on the call, they cannot stay in traffic jams. If firefighters cannot wait in traffic jams, then fire engines move along the oncoming lane. When firefighters arrive on the scene, the first thing to check is if there are any people inside the building. The priority, of course, is human life, it is the most valuable aspect.

3. *Determine the modus of conditional-categorical syllogism, compose a formula and check whether it is valid.*

**Example.** *Criminal proceedings are not initiated in the case ( $\sim B$ ) when there are no signs of a crime ( $\sim A$ ). There are no signs of a crime ( $\sim A$ ). Therefore, no criminal case has been instituted ( $\sim B$ ).*

$$\frac{(\sim A \rightarrow \sim B), \sim A}{\sim B}$$

*The statement modus of the conditional-categorical syllogism is modus ponens. The syllogism is valid.*

1. If a specific act contains a set of features enshrined in the criminal law, in the presence of which the committed socially dangerous act is acknowledged as a crime, the court establishes the form of the crime. The court did not establish the corpus delicti. Thus, in a specific act, there are no features enshrined in the criminal law, in the presence of which the committed socially dangerous act is considered a crime.

2. N.'s defence counsel's arguments that the convict did not intend to kill the victim are groundless, as they are refuted by the convict's testimony.

3. The court did not prove the selfish motive of the attack on the victim, so the Judicial Board for Criminal Cases of the Supreme Court of Ukraine reclassified the actions of both convicts from Part 3 of Art. 142 to Part 2 of Art. 140 of the Criminal Code of Ukraine as a secret theft of individual property of N.

4. If the amount of the damage (Part 2 of Article 11 of the Criminal Code of Ukraine) is clearly reflected in the definition of objective features of a crime, the application of the criminal law on insignificance is excluded. It is incorrect that the significance of the damage was found in the determination of objective signs, in this case, therefore, the appliance of the criminal law rule on insignificance is not excluded.

5. If the prosecution during the criminal proceedings provided evidence that did not confirm that the criminal offence of taking someone else's property by deception was committed by these persons, the court could not convict them. During the criminal proceedings, the prosecution provided evidence that the criminal offence of taking someone else's property by deception was committed by these persons. Thus, the court considered it imposing the sentence.

6. If the opposition speaks about the facts of abuse of power in the Tender Chamber, they must support their words with quite convincing arguments. The audience did not hear persuasive arguments. Therefore, it does not make sense to consider that the facts of abuse of power in the Tender Chamber were established.

7. If the architect projects a house, he/she prepares a package of documentation that determines the appearance and internal structure of the

house, taking into account the basic building structures and engineering systems.

8. If the accused pleads guilty during the trial, the court admits the circumstances that ease the punishment of the accused. The accused pleaded guilty during the trial. The court, therefore, found that there were mitigating circumstances for the defendant's punishment.

9. If the panel of judges considers that the punishment imposed on the convict is fair, fit, and sufficient to correct him and prevent him from committing new crimes, it corresponds to the general principles of sentencing defined in Art. 65 of the Criminal Code of Ukraine, there are no grounds to consider the sentence imposed on the convict as unfair due to its severity, as stated in the convict's cassation appeal.

*4. Having a conditional premise, construct a conditional categorical syllogism according to the affirmative and negative moduses.*

**Example.** *A person has the right not to answer a question ( $\square A$ ) if it concerns medical secrecy (B).*

*1) the affirmative modus. If the question concerns medical confidentiality (B), the person has the right not to answer the question (A). The question posed by the investigator concerns medical confidentiality (B). Therefore, the witness has the right not to answer the question (A).*

$$\frac{B \rightarrow \sim A, B}{\sim A}$$

*2) the negative modus. If the question concerns medical confidentiality (B), the person has the right not to answer the question ( $\sim A$ ). It is incorrect that a witness has the right not to answer questions ( $\sim\sim A$ ). Therefore, the question asked by the investigator does not relate to medical confidentiality ( $\sim B$ )*

$$\frac{B \rightarrow \sim A, \sim\sim A}{\sim B} \qquad \frac{B \rightarrow \sim A, A}{\sim B}$$

1. If the vehicle is found to be physically destroyed, compensation is paid in the amount corresponding to the value of the vehicle before the accident.

2. In accordance with Part 1 of Article 1200 of the Civil Code of Ukraine, in the case of the victim's death, incapacitated persons who were dependent on him have the right to compensation.

3. The first part of Article 116 of the Rules of Procedure of the Verkhovna Rada on Amendments to the Bill stipulates those proposals and amendments to the draft law being prepared for the second reading may be made only to the text of the draft law accepted by the Verkhovna Rada.

4. If the defendant has an underage child, the court has the right to recognize this as a circumstance that mitigates the punishment of the defendant.

5. If a citizen is law-abiding, he/she pays state taxes in full.

6. If there are no injuries in the accident (no one is harmed), drivers have the right to make a report about the road accident, the so-called European protocol.

7. If the damage has not been repaid and there is obligatory writing, this obligatory writing shall be evaluated in court as a circumstance recognized by the parties.

8. If an outbreak of bird flu was recorded at a turkey farm in eastern Poland, 40,000 turkeys were killed to eliminate the source of the infection.

9. In the cassation appeal, the defender asks to change the verdict of the Court of Appeal on PERSON\_1, because he/she believes that the Court of Appeal did not fully take into account the following circumstance: PERSON\_1 has a dependent mother – a disabled person of group 2.

10. So long as the criteria for determining the amount of compensation for moral (intangible) damage provided in Part 3 of Art. 23 of the Civil Code of Ukraine are not clearly defined, the courts designate the amount of compensation differently.

*5. Draw a conclusion from the premise of equivalent-categorical syllogism in all possible ways. Formalize inferences.*

**Example.** *Provided the act is a crime (A), it is an act provided by criminal law (B).*

*Citizen N. committed a crime (A).*

*Citizen N. committed an act under criminal law (B).*

*Affirmative modus: ( ((A ↔ B). A) ⊢ B). This is one way to get a conclusion.*

1. Provided the version is confirmed it does become a judicial version.
2. Provided fingerprints are left by the same person, their patterns will

match. 3. Provided he knows English he will be able to translate this text. 4. The interpretation of a norm of law has the status of an official one only in the case when it is provided by the Constitutional Court. 5. If the lock is encoded with a retina scanner, it can only be opened by one person with that retina. 6. If the information is presented in the form of a sequence of characters (code combinations), it is encoded information. 7. Provided a person is a physically sane one who has committed a crime at the age from which, in accordance with the Criminal Code of Ukraine, criminal liability may arise, he/she is the subject of the crime. 8. As long as there is an uncontrolled spontaneous process of burning with the death of people and destruction of property, it is a fire. 9. If we get a way to build a system of knowledge, a set of techniques and operations of theoretical and practical development of reality, we get a method. 10. An individual only becomes a person when he/she is involved in social relations, in communication with other people.

*6. Conclude from the premise of one of the moduses of divisive-categorical syllogism.*

***Example.*** *The murder could have occurred either out of selfish motives (A), or out of negligence (B), or out of hooligan motives (C), or on the grounds of hostility (D).*

*It is not true that N. was killed for selfish motives ( $\sim A$ ), it is not true that N. was killed for hooligan motives ( $\sim C$ ), but it is not correct that N. was killed on the grounds of hostility ( $\sim D$ ).*

*Thus, N. was killed by negligence (B).*

*Modus of negative-affirmative divisive-categorical syllogism:*

$A \vee B \vee C \vee D, \sim A \wedge \sim C \wedge \sim D.$

B.

1. An organizer is a person who organized the commitment of a crime (crimes) or directed its (their) preparation or commitment, or formed an organized group or criminal organization, or managed it or provided funding or organized concealment of criminal activity of an organized group or criminal organization. The organizer of the series of thefts, Lyutko, supervised their preparation.

2. The death occurred either as a result of an accident, or through suicide, or by murder, or under natural circumstances.

3. Evidence can be personal, written, and material.

4. Evidence may be any factual data based on which the court establishes the presence or absence of circumstances justifying the claims and objections of the parties in the manner prescribed by law.

5. When applying the method of protection of the right provided for in paragraph 9 of Part 2 of Art. 16 of the Civil Code of Ukraine, the errors were mainly in extending it to cases for which the law does not provide for compensation for non-pecuniary damage (lease, investment, loan, credit, bank deposit), or refusal to apply compensation for non-pecuniary damage provided by law, for example, caused by the adoption of a legal act.

6. The state shall reimburse the infliction of moral damage caused by illegal decisions, actions, or omissions of state authority, local self-government, or their officials or officials in the exercise of their powers.

7. You can win a debate tournament either by accident, or because of your skill, or because the tournament was played by weak opponents.

8. Judicial power is exercised through the administration of justice in the form of civil, commercial, administrative, criminal, as well as constitutional proceedings (paragraph 2 of Article 1 of the Law of Ukraine “On the Judiciary of Ukraine”).

*7. Find out the type of dilemma, draw a conclusion, build a diagram of the dilemma.*

**Example.** *If N. was aware of the consequences of his actions (A), then he is an insidious person (B); if everything happened by accident (C), then he has the spirits of a player (D). However, either N. was aware of the consequences of his actions (A), or everything happened by accident (C). Conclusion: therefore, N is an insidious person (B) or he has the spirits of a player (D). This is a complex constructive dilemma:*

$$\frac{(a \rightarrow b) \wedge (c \rightarrow d), a \vee c}{b \vee d}$$

1. According to Art. 42 of the Law of Ukraine “On print media (press) in Ukraine” and Art. 48 of the Law of Ukraine “On Television and Radio Broadcasting” the media may not be obliged to compensate



for non-pecuniary damage for the dissemination of information that is not true if they were contained in official communications, or the media may not be obliged to compensate for non-pecuniary damage for the dissemination of inaccurate information, if it is a literal reproduction of materials published by another media regarding it, or the media can not be obliged to compensate for non-pecuniary damage for the dissemination of information, which is not true if it was contained in the official speeches of an official.

2. The amount of non-pecuniary damage during the illegal stay of a citizen under investigation under Art. 13 of the Law of Ukraine “On the procedure for compensation for damage caused to a citizen by illegal actions of bodies conducting operational and investigative activities, pretrial investigation, prosecutor’s office, and the court” must be not less than one minimum monthly wage or the amount of non-pecuniary damage during an illegal stay on trial under Art. 13 of the Law of Ukraine “On the procedure for compensation for damage caused to a citizen by illegal actions of bodies conducting operational and investigative activities, pretrial investigation, prosecutor’s office, and the court” must be not less than one minimum monthly wage.

3. The school principal thinks that if I sign the parents’ appeal of N.’s hooliganism, his parents will be fined for their son’s improper upbringing, and if I block N.’s parents’ appeal of N.’s hooligan behaviour, N. will continue to disrupt lessons and insult students of the class. You must either sign the parents’ appeal or block it.

4. To the claims for compensation for non-pecuniary damage caused by the dissemination of information that does not correspond to reality and tarnish the honour, dignity, or business reputation of the citizen N., according to paragraph 2 of Part 2 of Art. 258 of the CCU, the statute of limitations is one year.

5. If somebody is a poet “from God”, then his/her talent is defined as a genius, if somebody is a poet due to selfishness, then his/her talent has a demonic nature. Poets are either from God or from selfishness.

6. If N. went to Kyiv by train, he would be in town tomorrow morning; if N. went to Kyiv by car, he would be in the capital tonight; if N. went to Kyiv by minibus, he would be in Kyiv at night. N. either went by train or by car or by minibus.

7. When compensating for non-pecuniary damage caused to a person by illegal actions of employees of the executive service, the provisions of the general legislation on non-pecuniary damage are to be applied, namely Art. 1167, 1173 of the Civil Code of Ukraine. Resolution of the Judicial Chamber for Civil Cases of the Supreme Court of September 11, 2013, in case №6-48ts13. Or as the compensation of the moral damage caused to the person by illegal inaction of employees of executive service, provisions of the general legislation on moral damage are to be applied, namely Art. 1167, art. 1173 of the Civil Code of Ukraine. Resolution of the Judicial Chamber for Civil Cases of the Supreme Court of September 11, 2013, in case №6-48cs13.

8. In some medieval European countries, if a convict had a privileged position, the executioner broke his sword over his head, and if he was not legally exempt from corporal punishment, he was punished with whips. The convict is either legally exempt from corporal punishment or not legally exempt from corporal punishment.

9. If an individual has suffered physical pain and suffering because of injury or other damage to health, that person is entitled to compensation for non-pecuniary damage; if an individual has suffered emotionally as a result of wrongful conduct towards himself, members of the family, or close relatives, that person is entitled to compensation for non-pecuniary damage; if an individual has suffered mental damage as a result of the destruction or damage to their property, that person is entitled to compensation for non-pecuniary damage; if an individual has suffered the humiliation of honour and dignity, as well as business reputation, this person is entitled to compensation for non-pecuniary damage.

10. Evidence should not have the value of evidence if it is obtained as a result of actions that are not provided by law or in the manner that contradicts the law (according to Article 19 of the Constitution of Ukraine “public authorities and local governments, their officials are obliged to act only on the basis, within the powers and in the manner prescribed by the Constitution and laws of Ukraine “); or the factual data should not be considered the evidence if they were obtained in the course of procedural actions that require the prior permission of the court, without such permission or in violation of its essential

conditions; or factual data should not be taken into consideration if they are obtained in the form of testimony or explanations from a person who has not been informed of his right to refuse to testify and not to answer questions, in particular without explaining the witness's right to refuse to testify against themselves, family members and close relatives, or by misleading the interrogated about the nature and extent of the latter (for example, interrogating a suspect as a witness or failing to explain to them or the victim the right to refuse to testify); or factual data should not be accepted as the evidence if they were obtained in violation of the procedural form of the investigative action (for example, conducting a search without witnesses, etc.).

*8. Rebuild the enthymem to the full syllogism (restore the missing part of the syllogism), check the correctness of the conclusion.*

**Example.** *Example. The judge must be independent of public pressure. N. – judge.*

*The conclusion is omitted – N. must be independent of public pressure.*

*And the figure of the categorical syllogism, the BARBARA modus. The syllogism is valid.*

1. Student N. does not study logic, because N. is not a law student.
2. If the factual data as evidence is obtained by an authorized subject, the court shall take it into account in deciding the case. Evidence obtained as evidence was obtained by an authorized entity.
3. A modern passenger aircraft has either propeller or turboprop or jet engines. This passenger plane has a jet engine.
4. If a student has not passed all state exams, he/she does not receive a bachelor's degree. The student has passed all state exams.
5. An-225 "Dream" is an aeroplane. Thus, the An-225 "Dream" has wings.
6. Fraud is possible only with direct intent. Therefore, N. was not recognized by the court as a fraud.
7. All students take exams. N. takes exams.
8. The properties of evidence are its integral features, such as belonging, admissibility, reliability of evidence, sufficiency. In N.'s case, the evidence was credible.

9. Admissibility of evidence means its legal suitability for use in criminal proceedings as arguments in evidence. The evidence in the N. case is admissible.

10. Compensation for damage to property and health of a person in connection with a traffic accident are the most common cases when the issue of regret for moral (non-pecuniary) damage is settled. Some of Judge N.'s cases assigned for today involve compensation for damage to property and health concerning a traffic accident.

*9. From the given premise construct a polysylogism. Formalize its structure. Determine the type. Give abbreviated and complex forms (sorit and epicherem).*

**Example.** *All lawyers have higher legal education.*

*All prosecutors are lawyers.*

*All prosecutors have higher legal education.*

*N. – prosecutor.*

*N. has a law degree.*

*Progressive polysylogism.*

*A is B*

*C is A*

*C is B*

*D is C*

*D is B*

*Progressive sorit.*

*All lawyers have higher legal education.*

*All prosecutors are lawyers.*

*N. is a prosecutor.*

*N. has a law degree.*

1. All laws are standard legal acts.
2. All teachers of legal subjects have legal education.
3. No lawyer should break the law.
4. Some standard legal acts are constitutional laws.
5. Crime is a socially dangerous act.

## Topic 4. Non-deductive inferences

### Practical lesson 4

#### Plan

1. General characteristics and types of non-deductive (probable) inferences.
2. Structure and types of inductive inferences.
3. Inductive methods of establishing causal relationships.
4. Statistical generalizations.
5. Traduction: general characteristics, structure and types of inferences by analogy. Conditions that increase the degree of probability of conclusions by analogy.

#### Exercises

1. *What types of induction are used in the examples? Build a scheme of reasoning.*

**Example.** *After checking the test, the teacher came to the conclusion that all students of the 1st stream have mastered the material of the content block № 3. The conclusion about the presence of the sign “students of the 1st stream” in the class “mastered the material of the content block № 3” is made because of the presence of this sign in each element of this class. Complete induction. Scheme:*

$S_1 - P$

$S_2 - P$

$S_n - P$

...

$\{S_1, S_2, \dots, S_n\} = K$

$K - P$

1. Radiation background measurements were performed in city N. In total there are 12 residential districts in the city N. In the first, third and sixth districts, the radiation level was normal. It was assumed that the radiation level was normal throughout the city. 2. The Nosenkivs, consisting of six people, live in apartment 10: they are the head of the family V. Nosenkiv, his wife O. Nosenko, their children Andriy and Mykhailo, grandparents S. Nosenko and E. Nosenko. Andriy graduated

from the Faculty of Economics and Law at Yaroslav Mudryi National Law University and works in a bank. Mykhailo serves in the Armed Forces, i. e., all 10 residents living in the apartment are adults. 3. It is known that J. S. Bach has 18 musical talents in five generations of his ancestors. Many talented people were in the family of Charles Darwin. Thus, a person's abilities are determined by how talented his ancestors were. 4. In horses, monkeys, wolves and many other animals, only the lower jaw moves when eating. Thus, in all animals, only the lower jaw moves when eating. 5. All men love detectives. This follows from the fact that I know that Andriy has read them a lot, Igor also reads them with enthusiasm, my father and brother often buy them in bookstores. Here is a man sitting opposite me, also holding a detective. 6. Italy is a republic, Portugal is a republic, France is a republic, Finland is a republic. Italy, Portugal, France, and Finland are Western European countries. All Western European countries are republics. 7. Criminal liability for premeditated murder, rape, intentional infliction of grievous or moderate bodily harm begins at the age of 14. These crimes are particularly serious crimes against the person. Thus, for all particularly serious crimes against a person, criminal liability begins at the age of 14. 8. During the release of hostages who were taken by terrorists, one of the criminals was killed in a fight, two were wounded, the others surrendered. None of the hostages were injured. Thus, all the hostages were released, the terrorists were neutralized. 9. 10 receipts were received for examination. After examining each of them, the investigator concluded that they were all fake. 11. N. wrote a test on the first semantic block badly. P., R., and S. also wrote this test poorly. N., P., R., S. study in group №03-19-03. The dean of the faculty came to the conclusion that all students in this group study poorly. 12. In the case of the murder of citizen M. the following facts were established: the accused K. was interested in M.'s murder and sought ways and means to do so. He attempted to kill M. twice. On the day of the murder, the accused K. went to the forest to follow M.: he went there to hunt. M.'s body was found in the same forest. The comb of the accused K. was found near the corpse. Blood stains matching the blood group of the accused K. were found on the clothes of the deceased M., and blood stains were found on K.'s clothes, which coincided with the blood of the murdered person. During the search of the accused K.'s

house, a pistol with traces of a recent shot was found. Examining the bullet taken from the corpse and the bullet obtained from an experimental shot from the said pistol, the expert concluded definitely that the bullet taken from the corpse was fired from the pistol found during a search of K.'s place. On a nickel-plated buckle belt removed from the corpse of M., a dried bloody fingerprint was found, which, as established by the examination, was left by the index finger of K.'s right hand. Based on these facts, the court concluded that the murder of M. was committed by the accused K. 13. A lot of grain was stolen from the farm "A". During the preliminary investigation, the following facts were established: two bags of grain were found at a distance of 500 meters from the stream. An inconspicuous path led from this place to the forest protection strip, on which wheat grains were found. Several trees with withered leaves were found in the forest protection strip where the trail led. Examination of the trees showed that they had no roots, cut down and stuck in the dug earth. Pits were found under the trees, and more than two tons of grain in the pits. A shovel was found near the pit. An inspection of the bags found near the stream revealed that one of them had patches with the letters "KSF" and "KNG" written in a coloured pencil on the inside. A resident of the village of M., interrogated as a witness, testified that he had repeatedly seen K.'s current guard walking to the forest protection strip with a hacksaw and a shovel. The same witness, inspecting a shovel, found a protection strip in the forest and identified it as belonging to the current guard K. During the search of K. a hacksaw was found under the haystack. When the investigator asked K. to show the saw before the search, K. replied that he did not have a saw. The letters "KSF" written on the bag correspond to the initials of K. Semyon Fedorovich and the letters "KNG" correspond to the initials of his wife – K. Nadezhda Gavrilovna. The graphic examination concluded that the letters "KSF" were made by Semyon Fedorovich K., and the letters "KNG" were made by his wife, Nadezhda Gavrilovna K. The agronomic examination established that the grain found in the bags and pits was similar in its characteristics to the grain found in the barrels on the Zorya farm. Based on the list of facts taken from the relationship, it is concluded that the theft of grain from the collective farm "Zorya" was committed by the guardian of the current K.

2. Analyse the reasoning: find the premise and conclusion in the inference of each party, indicate the type of inference.

**Example.** Information on the commission of such crime as hooliganism shows that 95 out of 100 cases of hooliganism are committed under the influence of alcohol. Thus, the frequency of hooliganism associated with alcohol intoxication is defined as  $95/100$ , i. e., equal to 95%. The premise contains statistical information: “95 out of 100 cases of hooliganism are committed under the influence of alcohol». Conclusion: “The frequency of hooliganism associated with alcohol intoxication is defined as  $95/100$ , i. e., equal to 95%.” Type of inference: induction, statistical generalisation, where the total number of components of the study group (sample cases)  $m = 100$ ; the number of cases in which the researcher is interested is the sign  $n = 95$ ; the frequency of this feature  $f$  is  $(p) = n/m = 0.95$ .

1. U. S. Supreme Court in *Dothard v. Rawlinson* [DOTHARD v. RAWLINSON, 433 U. S. Pat. 321 (1977)] when discussing whether the administrative provision that sets weight and height criteria for women who apply for employment as correctional counsellors in tight institutions violates the principle of equality, and therefore is unconstitutional, used the following arguments: “Although women aged 14 and over make up 52.75% of the Alabama population and 36.89% of the total workforce, they hold only 12.9% of correctional counsel positions. Considering the effect of minimum requirements for height and weight on the difference in the percentage of employment depending on the gender, the district court found that 33.29% of women in the United States in the age group of 18 to 79 and only 1.28% of men lose the opportunity to get a position, while the requirement for a weight of 54 kilograms excludes 22.29% of women and 2.35% of men in the same age group. When height and weight requirements are combined, they exclude 41.13% of women and less than 1% of the male population. Based on this, the district court found that Rawlinson had submitted to him a case of blatant unlawful discrimination on the grounds of gender. “

2. In the case of *Skinner v. Railway Labour Executives' Association* [109 S. Ct. 1402, 103 L. Ed. 2d 639 (1989)] the court makes the following argument for the legitimacy of state interference in the rights of employees of railway companies: “As a result of alcohol and drug abuse, between 1975 and 1983, officials were responsible for 45



serious accidents, which resulted in 34 deaths, 66 serious injuries and material damage of more than \$ 28 million. In addition, 19 workers were killed. “

3. The case of Sally Clark (see: [http://news.bbc.co.uk/2/hi/uk\\_news/england/2698425.stm](http://news.bbc.co.uk/2/hi/uk_news/england/2698425.stm)).

On November 9, 1999, Sally Clark, a 35-year-old lawyer, was convicted of killing two of her children. Christopher, her eldest son, had died at the age of three months three years earlier. The cause of death was recognized as “Sudden Infant Death Syndrome” or “SIDS”. Sally Clark’s second son, Harry, died at the age of two months a year later. His death seemed suspicious to a British Home Office pathologist who performed the autopsy. After reviewing the circumstances of the death of the first child, the pathologist concluded that her death was also suspicious. Sally Clark was arrested a few weeks later and eventually convicted by the Chester City Court.

Prosecution experts examined all available medical evidence, including autopsy reports, and concluded that both murders had been committed intentionally by shaking or strangulation.

During the trial of Sally Clark in the Court of First Instance (1999), Professor Roy Meadow wrote a preface to a study report entitled “Sudden Unforeseen Infant Death” (“Sudden Unexpected Deaths in Infancy»). In compiling this report, the research team used the data on the deaths of 400 children over 3 years of age, the purpose of the study was to determine the risk factors and circumstances associated with sudden infant deaths, and to determine the factors that increase the likelihood of such death in the family. Researchers looked at factors such as the mother’s age, bad habits (smoking), and whether or not someone in the family receives a monthly salary. In court, Roy Meadow explained that the research showed that the probability of a child dying in Sally Clark’s family is 1 in 8543. To determine the probability of death of two children, the professor squared the probability and said that it is 1 in 73 million, i. e., such a coincidence occurs every 100 years ([http://www.ted.com/talks/lang/ru/peter\\_donnelly\\_shows\\_how\\_stats\\_fool\\_juries.html](http://www.ted.com/talks/lang/ru/peter_donnelly_shows_how_stats_fool_juries.html)).

A few weeks after the trial of Sally Clark, a scientific article was published in the Medical Journal which argued that the death of a child from SIDS was not an accidental event and that the likelihood of

“recurrence” of SIDS in the same family could occur in England every 18 months, rather than once every 100 years, according to the prosecution expert. Defence experts argued that the evidence was not convincing and that the causes of both the first and second deaths remained unclear. The prosecution stated that the probability of the second option was 1 in 73 million. The court asked, “What is the probability that the children died of natural death?”, But it would be more appropriate to ask the question: “Which is more likely: natural death or premeditated murder?” and compare it with the probability of natural death.

The defence expert presented the results of his own research in court. He said that 1/3 of all “re-deaths” of babies in the family are due to a rare, unknown cause, 1/3 are the result of child abuse and 1/3 are the consequences of “sudden infant death syndrome”, i. e. the probability of innocence of Sally Clark was 2 to 3, not 1 to 73 million. Another witness, defence expert Philip David, told the court that using the method of calculating the probability used by the prosecution (by simple squaring) one could calculate the probability of a parent killing two of their children was 1 in 2152224291.

3. *Find the premise, formulate a conclusion, if necessary, write down the structure of reasoning, determine by which logical methods the conclusion is obtained.*

**Example.** *Explaining the structure of implicit assertion, the teacher gave three examples with different meanings:*

1. “If it rains, the road is wet”; 2. “If the word is at the beginning of the sentence, it is written with a capital letter”; 3. “If during the reconsideration the law is adopted in the same wording by at least two thirds of the constitutional number of the Verkhovna Rada of Ukraine, the President is obliged to sign it within 10 days from the date of re-adoption.” In the analysis of these examples, attention was paid to the same conjunction “if..., then...”, which gives reason to write all three assertions with the same formula. The premises: 1. “If it rains, the road is wet”; 2. “If the word is at the beginning of the sentence, it is written with a capital letter”; 3. “If during the reconsideration the law is adopted in the same wording by at least two thirds of the constitutional number of the Verkhovna Rada of Ukraine, the President is obliged to sign it within

10 days from the date of re-adoption.” The conclusion: Since all these assertions are similar in the presence of the conjunction “if«, then... “, it gives reason to write all three assertions using the same formula.

*ABC – a*

*ADE – a*

*AFG – a*

*A is the cause of a*

*The conclusion in the reasoning was obtained by the method of uniform similarity.*

1. Comparing N.’s illness certificate and other medical certificates contained in the pension file, the investigator pointed out that although these documents were listed as issued by different institutions and at different times, they were done in the same handwriting. The general features of the handwriting coincided, especially the coincidences were evident in the spelling of the letters “m”, “b”, “v”, “i” and the numbers “5”, “3”, “9”. There were also two statements written by N. in the pension case. The investigator concluded that the documents in the pension case had been forged by N.

2. The gas, which is placed in a hermetically sealed vessel, heats. This increases the gas pressure. Thus, the reason for the increase in gas pressure is an increase in temperature. 3. Patrol police officers chased the stolen car. The thieves drove into the woods and left the car there. Two, A. and B., were detained. In the course of the investigative experiment, it was established that neither A. nor B. could drive the car. So, they had an accomplice who was a qualified driver. 4. The dose of a substance of a certain chemical composition was weighed. The total weight of the dose was found to be slightly greater than the weight of the constituents of the substance suggested by the formula. Excess weight indicated the presence of impurities. Thus, the chemical element lithium was discovered.

5. Every time I eat certain food, I always get a certain disease, and as soon as I give up this food, my illness ends. 6. The garden where Williamsia pears were grown bloomed profusely but did not bear fruit, although the climatic conditions were favourable. The question arose: why? According to observations, only those Williamsia trees bore fruit that grew near the pears of Favoritka variety that grew there by chance. The conclusion was drawn that there is a correlation between fertility of

Williamsia trees and the Favoritka trees growing nearby. 7. At one of the telecommunications companies, there were three similar cases of theft (valuables were taken out of insurance bags without damaging them): August 4, December 20 and 25. The investigation established that in all three cases mail was transported from one communication enterprise to another by driver S. Different persons sent and received mail in all three cases: on August 4 – P. and R, on December 20 – M. and N, on December 25 – V. and G. On this basis, the investigator put forward the version that the theft was committed by S. 8. The theft was committed in a grocery store. The investigator had an assumption that the products were sold in the store as “A-quality” goods, and after their realisation the quality of the goods indicated in the invoices was changed from the first to the second sort. After comparing all the copies of the invoices written under the copier, the investigator decided that they were similar in everything (the texts of all columns and signatures coincided) and differed only in one aspect – the second “stick” sign of grade “II” did not match, it was concluded that that the “sticks” of the grade “II” were not written simultaneously with all the details of the invoices, i. e. added later. 9. The expert fired several shots from a TTIK-10375 pistol at different distances, from different positions, at different objects. The bullets each time received many different deformations and traces, comparing which the trace A was revealed that occurred on all bullets. After firing from another pistol of the same system at the same objects, at the same distance and in the same position, the expert found that there was no trace A on the bullets fired from this pistol. On this basis, the expert concluded that the existing trace A is related to the features of the barrel of the pistol TTIK-10375. 10. During depriving a person of his things, the criminals broke into the house, breaking the window glass. At the scene of the burglary, fingerprints were found on the shards of broken window glass and furnishings scattered by criminals. The next day, M. and N. were detained on suspicion of theft. They confessed to the crime and stated that no one but them had taken part in the crime. The forensic examination established that the fingerprints on the furnishings were indeed left by detainees, but the fingerprints on the glass fragments did not belong to any of them.

This led to the conclusion that one more person was involved in the theft. According to the investigation, it turned out to be L.

4. *Prove that the above considerations are probable inferences.*

*Example. If it rains, the road is wet. As the road is wet, it is raining. The conclusion does not follow from this, because the example presents an incorrect form of the affirmative modus of the conditional-categorical syllogism. We have a logical connection in the reverse order: from the conclusion “It’s raining” in conjunction with the conditional premise follows the second premise. We have one of the types of probable inferences, namely – reductive.*

1. All students study. Petrenko is studying. Petrenko is a student. 2. If one of the premises of a categorical syllogism is a partial assertion, then the conclusion of this syllogism will be partial. The conclusion of this syllogism is a partial assertion, therefore, one of the premises is also a partial assertion. 3. The word “lawyer” is subject to declination, the word “light” is subject to declination, the word “library” is subject to declination. It is possible that all nouns are subject to declination. 4. If the term is not distributed in the premise, it will not be distributed in the conclusion. The term is distributed in the premise, so it is distributed in the conclusion. 5. Lawyers studied logic, and since Petrenko is not a lawyer, he did not study logic. 6. It is known that a very cold object in a warm room gets covered with dewdrops. If we see that a person who has entered the house immediately has his glasses sweaty, then we can say that it is cold outside. 7. A person who thinks clearly, speaks clearly. The touchstone of clear thinking is the ability to pass on the knowledge to someone else, to someone who is perhaps far from the subject under discussion. If a person has such a skill and his language is clear and convincing, it can be considered a confirmation that his thinking is also clear. 8. If there must be something first, then there must be something second. If something second must exist, then something first must exist.

5. *Find the premise and conclusion in the above considerations, determine the type of inference and the nature of the conclusion. If there is no conclusion, then formulate it.*

**Example.** *I. Kepler wrote that “The earth, like a man, has an inner warmth, we are convinced of it by volcanic activity. Rivers comply with the vessels of a living body on the Earth. There are a number of other correspondences. But man is a living being who has a soul. Thus,*

according to I. Kepler; the Earth also has a soul “(Rosenberg F.” *History of Physics* “). The premise of the inference: “The earth, like a man, has the inner warmth, we are convinced of it by volcanic activity. Rivers correspond to the vessels of a living body on the Earth. There are a number of other correspondences. But a man is a living being who has a soul”. The conclusion:” The earth also has a soul”.

*The scheme corresponds to the structure of the analogy of properties:*  
*Object A has the properties a, b, c, e, p.*

*Subject B has the properties a, b, c, e.*

*Probably, object B also has the properties of p.*

*The original is the planet Earth. The model is a person. Similarity: the presence of internal heat, blood vessels and other structural elements. The analogy is not strict (inaccurate), because the difference between human nature (living organisms) and the Earth is not taken into account. The conclusion is probable.*

1. You are the sun and the other kings are the stars. If you come down, none of them will appear. (Words of the poet Abu al-Atahiya about Caliph Musa al-Hadi). 2. To claim, as some do, that it is not the eyes themselves that see anything, but only the soul looking through them as through an open door is to ignore that if the eyes are a door, then after the removal of the eyes, things must be more visible as it happens after removing the door. (Epicurus). 3. To live is like being on a bicycle: if you stop pedalling, you will start to sway and soon fall. (Talleyrand). 4. The sources of growth and humanity of the person lie only in the person. They are in no way created by society. The latter can only help or hinder the growth of human humanity, just as a gardener can help or hinder the growth of a rose bush, but he cannot make an oak bush grow instead of a rose bush (O. Maslow). 5. Suppose we compare two people: both were born in the same year, went to the same kindergarten, finished the same school, and in all subjects received the same grades and are not married. One of them is known to be a master of sports in football. Is it possible to conclude with sufficient probability that the second one is also a master of sports in football? 6. On December 21, two men caught up with citizen K. on the street A. and suddenly stabbed him in the back. When K. fell, criminals rummaged in his pockets. On the same evening, on Street D., unknown individuals stabbed L. in the back and stole his

money. On the night of December 23, a citizen M. was robbed. Criminals stabbed him in the back and stole valuables. All the attacks were carried out in the same district, the nature of the actions in all cases was similar: the criminals attacked from behind, stabbed the victim in the back and robbed. 7. When we addressed the issue of quality, it became clear that Chrysler Corporation was facing serious problems. Even if the quality of the cars improves immediately, it takes time for the public to realise it. This is similar to the situation with a girl of bad behaviour who corrected herself and took the right path. In the first year or two, no one will believe her (Lee Iacocca). 8. A war for the country is similar to physical exercises for a man (F. Bacon). 9. Happiness resembles the work of the clock: the simpler the mechanism is, the less it breaks down. The most inaccurate is the winding up clock, especially if it has a minute hand; well, and if it shows the days, weeks and months of the year, then there is no end to the problems (M. Shamfor). 10. In XIX century proponents of vulgar materialism L. Buchner and J. Moleschott, drawing an analogy between the liver and the brain, argued that the brain secretes thought just as the liver secretes bile.

*6. Construct non-deductive reasoning, which has the following conclusions.*

**Example.** *The whole batch of oranges that arrived at the supermarket are 1st grade oranges. Let's draw a conclusion of incomplete induction by selection: "A batch (500 boxes) of oranges arrived at the supermarket. After examining 2–3 oranges from each box, the head of the department concluded that the whole batch was 1st grade oranges".*

1. All living multicellular organisms are mortal. 2. All crimes are committed by those who benefit from it. 3. All graduates of the bachelor's degree of Yaroslav Mudriy National Law University pass the TZNPK successfully. 4. All law students study logic. 5. All citizens of Ukraine have equal rights. 6. No question of the conference was left unanswered. 7. If the metal is heated, it expands. 8. If a body has mass, it undergoes gravitational action. 9. All the planets of the solar system revolve around the sun. 10. Smoking is one of the most dangerous habits for health.

## Topic 5. Proof and Refutation. Hypothesis

### Practical lesson 5.

#### Plan

1. General characteristics of the proof. The structure of the proof.
2. Types of proof: direct and indirect. Varieties of indirect proof: from the opposite (apagogic) and divisive (the method of exclusion).
3. Rules of proof and possible logical errors in proof.
4. Concept of refutation. Methods of refutation.
5. Hypothesis as a form of cognition. Hypothesis definition. Types of hypotheses.
6. Hypothesis construction and stages of its development. Criteria for selection of hypotheses.
7. Hypothetical-deductive method.
8. Logical means of confirming hypotheses. Refutation of hypotheses.
9. Hypotheses in legal cognition.

#### *Exercises*

*1. Identify the thesis and arguments. Check if the arguments are valid.*

**Example.** *If all laws of Ukraine are adopted by the Verkhovna Rada of Ukraine, then the Civil Code of Ukraine is valid, as it is the Law of Ukraine adopted by the Verkhovna Rada of Ukraine. The structure of the proof includes the thesis, arguments and form (demonstration): thesis – an assertion the truth of which must be proved. In our example, the thesis is the statement that “the current Civil Code of Ukraine was adopted by the Verkhovna Rada of Ukraine”. Arguments (grounds) are true assertions by which the thesis is proved. In this example, the following arguments serve as the assertion: 1. All laws of Ukraine are adopted by the Verkhovna Rada of Ukraine. 2. The current Civil Code of Ukraine – the Law of Ukraine. Thus, the thesis is proved by two arguments (basic assertions). The form of proof (demonstration) is a way of establishing a connection between a thesis and arguments. In our example, the connection of arguments with the thesis is carried out using a deductive form of reasoning:*

*All laws of Ukraine are adopted by the Verkhovna Rada of Ukraine.*

*The current Civil Code of Ukraine is the Law of Ukraine.*



*The current Civil Code of Ukraine was adopted by the Verkhovna Rada of Ukraine.*

1. Each judge has received higher legal education. Citizen Ivanov received higher legal education. Ivanov is a judge. 2. Drug trafficking is a socially dangerous act because it is a crime, and any crime is a socially dangerous act. 3. In a categorical syllogism, the middle term must be distributed in at least one of the premises, as we know, terms are distributed when they are the subjects of general statements or predicates of negative ones. Thus, in a syllogism, the middle term should at least be taken either as a subject of general or a predicate of a negative statement.

*2. Choose arguments for the given theses. Demonstrate their connection with the theses using a deductive form of justification.*

**Example.** Thesis: “I have the right to property”. Arguments for deduction in the form of deduction will be the following provisions: 1. All citizens of Ukraine (M) have the right to property (P) 2. I (S) am a citizen of Ukraine (M). In this case, the truth of this thesis is derived from the first figure of a simple categorical syllogism. Its scheme is:

$M - R$

$S - M$

$S - P$

1. Citizen Sidorenko has the right to practice law. 2. University employees are entitled to be paid annual leave. 3. Citizen Petrenko has the right to receive a salary. 4. Ukraine is a unitary state. 5. Pylypenko studies the criminal law of Ukraine. 6. Sidorenko is being prosecuted. 7. The history of the state and law of Ukraine is taught in higher education institutions of Ukraine. 8. Traditional logic distinguishes four basic laws. 9. The suspect Petrenko committed an intentional crime.

*3. Choose arguments from the given theses. Demonstrate their connection with the thesis using the inductive form of justification.*

**Example.** Thesis: “Autumn 2019 in Kharkiv was rainy”. As arguments for the inductive conclusion, we give the following provisions: 1. September, October, November are autumn months. 2. September in Kharkiv was rainy and gloomy. 3. It constantly rained in October. 4. November was also gloomy and rainy. Therefore, we can draw the

*conclusion by the method of complete induction according to the scheme: (a 1, a 2, a 3) → T.*

1. Uncontrolled use of gadgets by students is the reason for their poor results. 2. Most abducted children die within the first 24 hours. 3. Many students of higher education institutions in Kharkiv are foreigners. 4. A simple categorical syllogism has seven general rules. 5. Violation of the rules of storage of firearms leads to death. 6. Most murders of one spouse are related to the intent of the other. 7. The increase in crime in the region is usually due to the seasonal influx of employees. 8. Many Ukrainian athletes are among the Olympic medallists. 9. Most murders of children are committed by people close to them. 10. A gunshot chest wound is dangerous for one's life.

*4. Prove the truth of the thesis in an apogogic way ("proof from the opposite").*

**Example.** *Thesis: "Students of our university take part in sports competitions." 1. Let's mark the thesis "Students of our university take part in sports competitions" – T. 2. We put forward the antithesis: "It is not correct that students of our university take part in sports competitions," and we will mark – (not-T). 3. We recognise the probability of the truth of the antithesis and derive from it the logical consequences: a) students of our university did not win in sports competitions; b) students of our university do not take part in sports competitions at the international level; c) the administration of our university did not welcome students who were winners of sports competitions. 4. We compare the deduced consequences with the provisions, the truth of which is established, and we come to the conclusion that the consequences are erroneous. 5. From the erroneousness of the consequences on the premise of the negative modus of the conditional-categorical syllogism, we deduce the error of their premise – the antithesis (non-T). 6. On the basis of the law of the excluded middle the statement about the fallacy of the antithesis means indirect recognition of the truth of the thesis itself. Thus, the truth of the statement: "Students of our university participate in sports competitions" is proved.*

1. Many Ukrainian scientists are engaged in creative activities. 2. A simple categorical syllogism consists of three terms: larger, smaller

and medium. 3. Listeners like most of Ponomarev's songs. 4. Building a democratic state governed by the rule of law is the goal for all Ukrainians. 5. The third figure of the categorical syllogism has no weak moduses.

*5. Prove the truth of the following statements by the separation method.*

**Example.** "An employment contract was signed with teacher Smirnova for five years". 1. Identify the members of the disjunction (A, B, C, D, F), i. e., consider all possible options: (A) "An employment agreement (contract) has been concluded with the teacher Smirnova for one year". (B) "An employment contract has been concluded with the teacher Smirnova for two years". (C) "An employment contract has been concluded with the teacher Smirnova for three years". (D) "An employment contract for four years has been concluded with the teacher Smirnova". (F) "An employment contract has been concluded with the teacher Smirnova for five years". 2. With the help of arguments, we substantiate the error of all members of the disjunction ( $\langle A \vee B \vee C \vee D \vee F \rangle$ ), except one. "It is known that they have not concluded an employment contract with the teacher Smirnova for one, two, three or four years". 3. On the basis of the premise of the error of the members of the disjunction ( $A \vee B \vee C \vee D$ ), a conclusion is made about the truth of F: Therefore, "An employment contract (contract) for five years has been concluded with the teacher Smirnova." Let's construct a logical scheme: ( $\sim A \wedge \sim B \wedge \sim C \wedge \sim D$ ). The conclusion is correct if all alternative theses are wrong. The reasoning is conducted according to the negative-affirmative modus of the separative-categorical syllogism.

1. The vast majority of modern youth use applications with Android operating systems. 2. Students of this group got "B" at the exam in logic. 3. The buyer has the right to return the thing to the seller within 14 days. 4. Citizen M. was declared insane by the court. 5. Petrenko's actions regarding Fedorenko's murder revealed his direct intent.

*6. Determine the method (direct or indirect) of proof in the given statements.*

**Example.** "The car overturned due to slamming on the brakes. The reasons for the car overturning can be speeding on corners, sudden

*slamming on the brakes, incorrect location of the load. The examination established that neither speeding on corners nor incorrect placement of cargo took place. So, this car overturned due to slamming on the brakes". This reasoning is subject to the scheme of the separation method of proof. The truth of the conclusion (thesis) is proved by consistently proving the fallacy of all members of the assertion, except one. The conclusion is correct if all alternative theses are wrong.*

1. Accusing F. I. Melnitsky of squandering government money, F. N. Plevako resorted to this kind of justification: "Proving that the world is governed by divine power, Cicero says:" If you cut a huge number of letters from a tree and then throw them in piles on the floor, the letters would fall in a mess and would not express anything. But if you came and saw them arranged in such an order that they would constitute a whole speech, an exemplary work of oratory, you would never assume a chance here, but would look for the Creator of this speech and you will be firmly convinced of his/her existence. Use this idea in this case.

If you see that Melnitsky's separate, deviating from the general order actions on November 3 form such a coherent system of actions, assuming that the disappearance of money is a crime; if you see that coincidences are part of the whole plan, then involuntarily on whom these coincidences depend, the mind tells you to see the culprit of the plan!...» (Plevako F. N. Selected speeches. P. 191).

2. The logical rule, according to which in the first figure of a simple categorical syllogism the smaller premise must be affirmative, is justified by the fact that in the first figure the middle term takes the place of the subject in the larger premise and of the predicate in the smaller basis. We need to prove that a smaller premise must be affirmative. Let's assume that the smaller premise is negative. In this case, the conclusion must be negative. But in negative assertions the predicate is always distributed. The term, distributed in the conclusion, cannot be distributed in the thesis. This means that a larger term must be distributed in a larger premise, where it functions as a predicate. Then a larger premise must be necessarily negative, because predicates are distributed only in negative statements. Thus, assuming that the smaller premise is negative, we necessarily conclude that the larger premise is negative. And it is known that from two negative premises it is impossible to draw a conclusion. This means

that our assumption is wrong: a smaller premise cannot be negative, it must be affirmative.

3. Students may get either “A”, or “B”, or “C”, or “D”, or “Fx”, or “F” at the exams. No student in our group got “A”, “C”, “D”, “Fx” or “F” at the exam in logic. So, everyone passed the exam and got “B”.

4. Austria has a democratic form of government, Romania has a democratic form of government, Latvia has a democratic form of government, Poland has a democratic form of government... Apparently, most EU countries have a democratic form of government.

5. In the second figure of the categorical syllogism, one of the syllables must be negative. Suppose that both premises in it are affirmative. Then the middle term will not be distributed in any of them as a predicate of an affirmative assertion, which contradicts the second rule of concept. Therefore, for this rule to be observed, it is necessary for one of the premises to be a negative assertion.

6. In his speech in the case of Bulakh, accused of causing disorder of Mazurina’s mental abilities for selfish purposes, F. N. Plevako analyzes in detail the psychological state of Mazurina. “And if the madman sometimes returns to consciousness for a moment, or, finally, from private transitions from pain to instant enlightenment, in the rapidly coinciding moments of the latter, does he know that it is transient? What a hell of a torment he must feel! Remember Shakespeare’s scene of the father’s shadow with his son, Hamlet? For a short time, he returns from the world of nothingness to the world of living hopes and feelings. He hurries to enjoy the contemplation of his beloved son and tell him all that burdens his soul... But here a rooster starts to sing, morning dawn breeze announces the onset of sunrise, and the shadow hurries back to the terrible world of nothingness and mortal darkness. Isn’t it the same with crazy people? To speak in human language again, to live with human feelings and to know that now, now again you have to return to the abyss, worse than death, a step back from the realm of mind and spirit to the realm of foolish and beastly animals. (Plevako F. N. Selected speeches. P. 134, 135).

7. Colombia is a republic, Cuba is a republic, Mexico is a republic, Chile is a republic... Probably, most Latin American countries are republics.

8. G. W. F. Hegel is an objective idealist, because he recognizes the primary supernatural spiritual principle like all objective idealists do.

9. Artificial intelligence stimulates cognitive processes. Artificial intelligence is a technically complex software. Thus, some technically complex software stimulates cognitive processes.

11. All laws are normative legal acts. The Criminal Procedure Code of Ukraine is a normative legal act, as it is the law.

*7. Determine which method of refutation (direct or indirect) is used in the statements.*

**Example.** *You believe that all supermarkets of the Kvitka retail chain work with profit. But it is known that the Kvitka-1 supermarket caused losses to our trade network, the Kvitka-2 supermarket was closed for repairs, and a large fire broke out in the Kvitka-3 supermarket. Therefore, we cannot agree with the fact that all supermarkets of the Kvitka retail chain work with profit. In this reasoning, the refutation of the thesis “All supermarkets of the Kvitka retail chain work with profit” is carried out in a direct way by the method of “reduction to the absurd”.*

1. “Some philosophers tell me: “God is eternal, infinite, omnipotent: so he could prevent evil and prevent it from penetrating into his wonderful creation”. My friends, be careful: if he could, but did not do it, then you declare him evil, make him our persecutor, an executor, but not our god... His power is great, but who told us that it is infinite? After all, his creations show us the opposite, and the only means left to us to justify it is to recognize that his power was not enough to triumph over physical and moral evil. Indeed, I prefer to worship a limited god than evil”. (Voltaire. Philosophical works. P. 482).

2. If the Martian fields were covered with ordinary vegetation, they would not be as smooth as deserts, but would have a rugged surface. According to many observations, the Martian seas are as smooth as the deserts. Therefore, they are not covered with ordinary vegetation.

**8. Construct a direct and indirect refutation of the thesis.**

**Example.** *We refute the thesis: “Ukraine is a monarchy” in direct and indirect ways.*

*1. Rebuttal is a direct method of “reduction to the absurd.”*

*Suppose this statement is true. We derive from it the logical consequences: 1) in Ukraine, the highest state power actually or formally belongs to one person (monarch) and, as a rule, is inherited by a representative of the ruling dynasty; 2) in Ukraine, the monarch represents the highest state power by his own right, and not by delegation from the people; 3) in Ukraine, the monarch is not subject to any other subjects of power;*

*4) The monarch in Ukraine does not bear specific political and legal responsibility for the results of his rule.*

*Let's check the validity of the assumptions: 1) in Ukraine, the election of the highest bodies of the state is carried out by the people, i. e. there is a representative nature of state power; 2) The Verkhovna Rada of Ukraine is the only body of legislative power in Ukraine; 3) there is the variability of senior officials and government agencies as a result of elections; 4) the term of office of senior officials of the state and state bodies is limited; 5) in Ukraine the rule of law is exercised through the laws issued by the Verkhovna Rada of Ukraine; 6) in Ukraine, senior officials of the state are responsible for improper performance of their duties before the people and the Verkhovna Rada of Ukraine. Because the logical consequences contradict the facts and the facts are indisputable, the consequences are considered erroneous. From the erroneousness of the consequences (on the basis of the negative modus of the conditional-categorical syllogism) follows the fallacy of the premise.*

*2. We refute the same thesis "Ukraine is the monarchy" in an indirect way (by proving the antithesis). We put forward an alternative thesis: "Ukraine is a parliamentary-presidential republic". Let us prove its logical capacity: 1) the government is accountable to the head of the state and to the parliament; 2) the President of Ukraine nominates the candidate for the post of the Prime Minister of Ukraine on the proposal of a coalition of a deputy faction or a deputy faction that has a majority of the constitutional number of the Verkhovna Rada; 3) the replacement of the president takes place through general direct elections. Thus, Ukraine is a parliamentary-presidential republic. From the truth of the antithesis follows the fallacy of the thesis.*

*1. The state does not interfere in the private life of citizens. 2. Artificial intelligence is used in the administration of justice. 3. All students of*

group 1 received “diplomas with honours”. 4. A person can be sincere or honest or truthful. Petrenko is characterised by sincerity. So he is not honest or truthful. 5. Dolphins live in water because they are mammals. 7. Logic studies the three basic laws of thinking – identity, consistency and sufficient reasoning. 8. No US president is a representative of the democratic party. 9. Armed conflict is the best way to resolve political disputes. 10. All that shines is gold.

*9. Establish the invalid nature of arguments.*

**Example.** *Don't give me a “two” in logic, this will be my third “two”, I will be expelled from the university. The arguments are not a sufficient premise for confirming the thesis here (violation of the law of sufficient grounds).*

1. If crimes are the result of a person's aggressive tendencies, then they are inevitable, because a person is aggressive by nature. 2. Penguins fly because penguins are birds, and all birds fly. 3. The theory of state and law is studied at legal higher education institutions because the theory of state and law is studied at all universities of Ukraine, the Yaroslav Mudryi National Law University is a Ukrainian higher education institution. 4. “Better to be mysterious than blue”. 5. Your friend can be considered a person protected from infections. He graduated from medical school, and everyone who graduated from medical school is protected from infections. 6. The feeling of love is associated with a change in the chemical composition of the blood in the body. 7. I am a gossip because no one loves me. Nobody loves me because I'm a gossip. 8. “He who is not with us is against us”. 9. – And why are you sitting here all alone? – Alice asked... – Because there is no one here with me! Humpty Dumpty exclaimed in response. (Carol L. “Alice in Wonderland” p. 29).

*10. Establish the invalid nature of the demonstration.*

**Example.** *If a person has an unstable nervous system, he is prone to drug use. From the fact that drugs were found in Petrenko's apartment, it follows that he has an unstable nervous system. Here the thesis will be the assertion: “Petrenko has an unstable nervous system”. However, it does not logically follow from the arguments. The proof is constructed incorrectly, because the rule of conditional-categorical syllogism is*



violated: “the truth of the consequence does not prove the truth of the premise “. The error in the demonstration is “imaginary”.

1. About twenty farms in our district are engaged in gardening. This fact convincingly shows that most farms in our area have chosen gardening. 2. Sydorenko loves to cook pasta, so it is safe to say that he has Italian roots because most Italians love to cook pasta. 4. Obviously, Petrenko cannot love painting. I think that all people are divided into those who have a “mathematical mind” and those who are keen on “humanities”. Petrenko is known to have graduated from the Polytechnic Institute. 5. Galushka and Tereshok work at the post office, they cope well with their responsibilities as postal operators, and are fond of table tennis. Tereshok paints well. Of course, Galushka is also engaged in drawing. 7. There is nothing absolutely useful in the world, so you can not say, for example, that a healthy diet is always good for everyone. 9. Because “some doctors are wrong,” they say “all doctors are wrong.”

*II. Analyse the given texts and find out whether they contain hypotheses or only conjectures.*

1. Why did brain augmentation stop 100,000 years ago, even though intelligence is so great and of obvious value to man? Why did the brain continue to grow bigger and probably better? Biologist Ernst Meyer (Harvard University) suggested an answer to this question. He thinks that before the Neanderthal stage of evolution, intelligence developed at an astonishing rate because the smartest men became the leaders of their groups and had several wives. The more wives one had, the more children he had. As a result, subsequent generations received a disproportionately large share of the genes of the most developed individuals. E. Mayer believes that this accelerated process of growth of intelligence stopped about 100 thousand years ago, when the number of hunting and gathering groups grew so much that fatherhood ceased to be the privilege of the most intelligent individuals. In other words, their genetic heritage – especially developed intelligence – was not the main, but only a small part of the total genetic heritage of the whole group, and therefore was not crucial.

Anthropologist Loring Brace (University of Michigan) prefers another explanation. According to him, the human culture of Neanderthal times reached the stage when almost all members of the

group, perceiving the collective experience and skills, received an approximately equal chance of survival. If language was already well developed at the time (an assumption disputed by some experts) and if intelligence reached such a level that the least able member of the group could learn everything necessary for survival, exceptional intelligence ceased to be an evolutionary advantage. Individuals, of course, showed special ingenuity, but their ideas were communicated to others, and the whole group benefited from innovations. Thus, according to the theory of L. Brace, the natural intelligence of a man as a whole stabilised, although people continued to accumulate new knowledge about the world around them “(Constable George. *The Emergence of Man: The Neanderthals*. P. 52).

2. T. R. Malthus suggested that the population would increase exponentially: 1, 2, 4, 8, 16, 32..., and the doubling of the population would occur every 25 years. In the same periods of time the means of subsistence would grow only in arithmetic progression: 1, 2, 3, 4, 5, 6...

3. Excavations on different continents did not leave any doubt – lizards died from a geological point of view immediately. But why did death suddenly attack these animals, among which there were powerful predators and peaceful herbivores and floating and flying species? Gradually, partial explanations disappeared and a strict conclusion emerged that there was a kind of global catastrophe. As always, in difficult scientific cases, representatives of other fields of knowledge helped “narrow” specialists. They used the available methods and devices to “question” the remains of lizards about the fate that befell them. The “story” turned out to be difficult.

The catastrophe included climate change, cooling, darkening of the atmosphere by some emissions, cessation of photosynthesis, intensification of geological processes with shifts of lithosphere plates and volcanic eruptions.

4. T. R. Malthus described the following situation: “Imagine a piece of land that feeds one person. He works 200 days a year and receives, say, 10 tons of wheat from his plot, which he needs. Then the second person comes (maybe his grownup son) and invests another 200 man-days in the same plot. Will the grain harvest double to 20 tons? According to T. R. Malthus there is little hope. It will be good, if it grows to 15 or 17

tons. If the third person comes, they will get even less in return for the new 200 man-days. Someone will have to leave” (Anikin A. V. Youth of Science. P. 248).

5. When excavating the tombs of ancient Egypt, diseased teeth without traces of filling the cavities with gold or anything else that would resemble modern fillings are often found. Even the pharaohs had no traces of carious teeth fillings. It turned out that diseased teeth were not treated in ancient Egypt. The Egyptians explained the problems of teeth by the presence of a “worm that grows in a tooth.”

*12. Determine the composition of hypotheses (the premise of the hypothesis, its form and assumptions).*

1. The results of judicial statistics show that the vast majority of serious crimes occur either in the state of intoxication or by persons who frequently abuse alcohol. Summarising these statistics, we can assume that alcoholism is, in some cases, the cause or necessary companion of crime.

2. Investigating the case of burglary, the investigator removed the part of the door with traces of burglary as a future piece of evidence. He proceeded from the fact that the tool used during burglary in any case leaves the characteristic marks on the door panel when it is pushed and, probably, in this case, these individual features of the burglary tool should also have the specific traces.

3. It is known from case law that a person who has been found to have an instrument of a crime may be involved in the commission of a crime. If during the investigation of the case a weapon of crime is found in the citizen of L., this will be the basis for putting forward the version that L. is involved in the commission of the crime.

4. On March 28, the body of an unknown man killed by a strong axe blow to the skull was found in the forest line near the city C. After some time in the same forest at a distance of 800m from the place where the corpse of an unknown person was found, the second corpse of a young man was found, killed in the same way: the axe was driven into the skull with a strong blow. Based on the similarity of the method of committing the crime, a version emerged that both murders were committed by the same criminal, who knew rather well the outskirts of the city C.

*13. Identify possible ways to confirm or refute the hypothesis.*

1. Two young men took part in the attack on student K. Both wore light-coloured sports jackets, jeans and sneakers. One of them, threatening K. with a knife, demanded the money and the mobile phone. The second demonstratively held a gas pistol, pointing it in the direction of K. After receiving what he wanted and threatening K. not to turn to the police, the criminals disappeared. K. immediately turned to the nearest police station. After a while, two young men in sneakers, dressed in light sports jackets and jeans were detained in the nearby area. It has been suggested that they attacked student K.

2. A survey on representative sample was conducted on the eve of the elections to the legislature, which showed that 30% of respondents were going to vote for Party X, 36% were going to vote for Party N, and 14% were going to vote for Party D. 13% of respondents were undecided, and the rest would vote for other parties. Based on the results of this survey, it is assumed that the party N will win the legislative elections.

3. Some people believe that UFOs are sent to us by different extra-terrestrial civilizations, so their designs are so different. These are both manned spacecrafts and automatic research space probes. They may not always be material. The aliens may have learned to send expeditions of holographic images, not the ships. Doesn't that explain their sudden appearance and disappearance?

*14. Determine whether all possible versions are considered in the following examples.*

1. The executive director of a company that sells modern medical equipment received several letters demanding payment of one million hryvnias in exchange for maintaining his wife's health. Otherwise, the anonymous author threatened, the director's wife could go to hospital. The last letter was about the deadline and where to put the money. All letters were sent from different post offices in the city, but they all had one thing in common: the text of the letters was composed of letters cut from newspapers.

This circumstance, as well as the fact that the eldest son of the director, who did not work anywhere, lost a lot of money in the cards before the threatening letters began to arrive, and was hostile to his stepmother and

on this basis repeatedly quarrelled with his father became the basis for the assumption that he was the author of these letters.

2. A shop burned down in the city N. The investigation established that the fire was caused by arson. In addition, it became known that a to the store. No traces of “burnt” shoes were found. However, residents of neighbouring houses testified that the night before the fire, which occurred early in the morning, they heard the noise of a departing car. A version was put forward that the arson of the store was organised by its employee in order to sell “burnt” shoes.

3. In the city of K. there was a robbery of a jewellery store. Armed criminals tied up a security guard, broke down the door, drilled a lock on a safe and stole jewellery. Police officers suggested that M., who had recently returned from prison after serving a sentence for a similar crime, had taken part in the robbery. The assumption was based on the fact that the method of jewellery robbery was the same in both cases.

4. Petrenko was detained in a pawnshop while trying to hand over a diamond ring that had been stolen from a store a week earlier. Petrenko claimed to have bought the ring from a citizen named Pavlo, who wore glasses. Police officers put forward the version that Pavlo was involved in the theft and took measures to search for him.

5. The prosecutor’s office received a statement that P. had killed his wife. The investigation established that P. had divorced her and remarried. Children from his first wife (two girls) lived with him. The second wife treated them well, and they loved her very much. They shunned their mother because she was always drunk and scandalised. P.’s first wife lived in the same house next door. When the room, which was locked, was opened, no traces of the murder were found. Everything was in perfect order. Neighbours claimed that P. had killed his first wife and demanded an investigation. On this basis, a version has been put forward that P. killed his first wife. P. did not admit this.

6. The owner of the cottage and his friend heard a scream in the next room. N., who was visiting his house, called for help. They went on to help to apprehend a possible criminal. The door to her room was locked. They broke it and entered. N. was lying on the sofa with her throat cut. The window to the garden was open. The owner and his friend rushed to

the garden to chase the criminal, but no one was caught because there was a forest around and the criminal could hide in it.

7. A letter was found in the victim's pocket, in which she was asked to come to a certain place. Under the letter was the signature of B., who lived two kilometres from the scene. The knife that remained at the scene, according to witnesses, belonged to B. There were no fingerprints on the knife. The criminal could act in gloves. It has been suggested that the killer is B.

*15. Determine whether the rebuttal of the version is achieved in the examples.*

1. Villagers appealed to the police department to identify who was taking away Pylypenko's pension. Pylypenko was very poor, although she cultivated a small garden and received a pension. She explained her poverty to her neighbours by saying that every month on the day of receiving her pension, the devil came to her and took all the money. An ambush was made in Pylypenko's house. After the arrival of the postman and receiving a pension, the door opened and the devil came out with horns and a tail. He was captured. It turned out that this was her neighbour who had dug an underground passage from his house and visited Pylypenko every month.

2. A forensic expert could judge the subject matter of the injury by its nature. But after the operation it was impossible to do. The object of the study was the victim's clothes. The edges of the damage on the shirt did not coincide with the blade of the knife, but with a piece of glass found at the scene.

3. During the break on the construction site, two young workers began to fight. Suddenly, one of them put the opponent down. He suddenly cried out, and when he got up, those around him saw that he had a T-shirt on his back in blood. The injured was taken to hospital, where he was urgently operated on. His opponent was found with a folding knife during the detention. There was a version that the injury was caused by it.

Complete the test on the material of section III.

## 5. Credits and Final Examination

### Description of Academic Discipline

Course	Area of knowledge, specialisation, education level	Characteristics (Structure) of the academic course
<p>The number of credits ECTS: 3</p> <p>Units: 3</p> <p>Total hours: 90</p> <p>Weekly hours:</p> <p>Lectures – 4</p> <p>Individual work – 2,5</p>	<p><i>Area of Knowledge:</i></p> <p>08 «Law»;</p> <p>29 «International relationships»</p> <p>Specialisation:</p> <p>081 «Law»;</p> <p>29 «International Law»</p> <p>Education level – the first (bachelors)</p>	<p>Obligatory:</p> <p>Lectures: 22 hours.</p> <p>Practical lessons:</p> <p>26 hours.</p> <p>Individual work: 42 hours</p> <p>Type of teacher's control: test, exam</p>

#### 5.2. Forms of individual work:

- preparation for practical classes;
- the self-study of additional literature and additional issues;

- work with information resources;
- preparation for the test or exam according to the list of questions developed by the department.

### **5.3. Types of training sessions:**

- lectures;
- practical lessons.

### **5.4. Types of control of students' knowledge:**

- test;
- exam.

### **5.5. Type of control: test**

Control of knowledge within the discipline is carried out, taking into account the score-rating system. The distribution of score points between the forms of organisation of the educational process and the types of control measures are presented to students at the beginning of the semester.

The results of the current control are accumulated and are the basis for the student to receive score points. If a student scores less than 60 points in the discipline during the semester as a result of current control, he does not pass the test.

### **Scheme of the final assessment of student's knowledge**

The final grade for the discipline is fixed in the record book in accordance with the following scheme:

<b>The Grade according to the ECTS</b>	<b>Definition</b>	<b>The Grade according to the national scheme</b>	<b>The grade according to the 100-grade scale which is used in the University</b>
	Pass – proper performance of tasks in accordance with the developed assessment criteria	Pass	60–100



	Fail – improper performance of tasks in accordance with the developed assessment criteria	Fail	1–59
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## 5.6. Type of control: exam

### *Organisation of teacher’s control*

Assessment of students’ knowledge is based on the results of current control (CC). The general object of assessment is the level of students’ knowledge of the relevant parts of the discipline material.

The objects of CC knowledge of students in logic are attendance and how active they are at the lectures, practical classes (attending the appropriate forms of the educational process, activity and level of knowledge in discussing issues), how well they cope with control tasks and other forms of work.

The evaluation of CC results is carried out by the teacher at the end of the study of each section. The evaluation criteria are:

a) the level of knowledge and active participation in discussing issues of practical classes, attending relevant forms of the educational process, self-studies of individual topics or issues, other forms of work (from 0–10 points);

b) assessment of test work, which is carried out in the form of testing, or in some other form of the teacher’s choice, from 0–10 points. The list of tests or other tasks, the order and time of their preparation, assessment criteria are determined by the department and students are informed about them at the beginning of the semester.

The final score on the results of the CC is announced during the last practical lesson.

The total number of CC score points is 40.

The results of the CC of students’ knowledge are the basis for determining the overall success of the student and are taken into account when setting scores for the final control of knowledge (FCK).

In case of non-fulfilment of CC tasks due to objective reasons, students have the right, with the permission of the dean (teacher), to do them before the last practical lesson. The time and procedure is determined by the teacher.

### **Organisation of final control**

The final assessment of the level of knowledge of students in logic is carried out on the basis of the results of CC and final control of knowledge (FCK) on a 100-point scale.

Tasks submitted to the FCK are rated from 0 to 60 points. FCK in logic is conducted in the form of an exam. A specific list of questions and tasks that cover the entire content of the discipline, the criteria for assessing examination answers, the procedure and time of their preparation are determined by the department and students are informed about them at the beginning of the academic year.

The examination paper includes three questions.

The summary results of the CC and FCK are fixed in the examination record.

The final grade is also fixed in the student's record book in accordance with the scale below:

<b>The Grade according to the ECTS</b>	<b>Definition</b>	<b>The Grade according to the national scheme</b>	<b>The grade according to the 100-grade scale which is used in the University</b>
<b>A</b>	<b>Excellent</b> – excellent performance, only with minor number of errors	<b>5</b>	<b>90–100</b>
<b>B</b>	<b>Very good</b> – above average level with several errors	<b>4</b>	<b>80–89</b>
<b>C</b>	<b>Well</b> – generally correct with a certain amount of minor errors		<b>75–79</b>

<b>D</b>	<b>Satisfactory</b> - not bad, but with a significant number of shortcomings	<b>3</b>	<b>70–74</b>
<b>E</b>	<b>Enough</b> – satisfies the minimum criteria		<b>60–69</b>
<b>FX</b>	<b>Unsatisfactory</b> – additional work is required before trying again	<b>2</b>	<b>20–59</b>
<b>F</b>	<b>Unsatisfactory</b> – serious further work is required, one must do the course again		<b>1–19</b>

## ===== 6. Control questions to prepare for the test and exam

1. The subject of logic as a science. The value of logic for jurisprudence and legal practice.

0. The concept of thinking. Abstract and concrete thinking, their general characteristics.

0. Historical stages of development of the science of logic.

0. Thinking and language. Semiotics.

0. General characteristics of the concept as a form of concept. Concept and word.

0. Logical structure of the concept. The law of the inverse relations between the content and scope of concept.

0. Types of features that make up the content of the concept.

0. Types of concept by scope (extensional characteristics of concept).

0. Types of concepts by content (intensive characteristics of concepts).

0. The relations of compatibility between concepts.

0. The relations of incompatibility between concepts.

0. Generalisation and limitation of concepts.

0. Operations with classes (mergers, intersections, etc.).

0. Rules of division of concepts.

0. Types of division of definitions.

0. Classification. Types of classification.

0. The operation of defining concepts.

0. Definition rules and errors.

0. Types of direct (explicit) definitions.

0. Types of indirect (implicit) definitions.

0. Techniques similar to the definition of concepts.

0. Statements and sentences. General classification of statements.

0. Types of categorical statements on quantity and quality.

0. Distribution of terms in simple attributive statements.

0. The relations between categorical statements. Logical square.

0. Relative and existential statements.

0. Connective statements.

0. Dividing (disjunctive) statements.

- 0. Implicit and equivalent statements.
- 0. The concept of the modality of statements. Types of modalities.
- 0. Deontic modality.
- 0. The logic of questions and answers: general characteristics.
- 0. The principle of identity.
- 0. The principle of noncontradiction.
- 0. The principle of the excluded middle.
- 0. The principle of sufficient reason.
- 0. Inference as a form of thinking: general characteristics.
- 0. Immediate inferences: transformation.
- 0. Immediate inferences: inversion.
- 0. Immediate inferences: opposition of the predicate.
- 0. Categorical syllogism: concept and general structure.
- 0. Axiom and general rules of a categorical syllogism.
- 0. Figures and moduses of FCK: general characteristics.
- 0. Figure I of categorical syllogism: rules and modus.
- 0. Figure II of categorical syllogism: rules and modus.
- 0. Figure III of categorical syllogism: rules and modus.
- 0. Figure IV of categorical syllogism: rules and modus.
- 0. Simple conditional syllogism.
- 0. Conditional-categorical syllogism: structure and modus.
- 0. Equivalent-categorical syllogism.
- 0. Dividing-categorical syllogism: structure and modus.
- 0. Conditional-separating syllogism.
- 0. Abbreviated syllogisms (enthymemes).
- 0. The definition of induction.
- 0. Complete induction.
- 0. Incomplete induction: structure and types.
- 0. Methods of scientific induction (canons of Bacon – Mill).
- 0. Analogy: general characteristics and types.
- 0. Structure and types of proof.
- 0. Rules and errors in proof and refutation.
- 0. Refutation.
- 0. The concept of hypothesis. Structure and types of hypotheses.

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## 7. LIST OF RESOURCES

Aristotle's Logic // Stanford Encyclopedia of Philosophy: URL: <https://plato.stanford.edu/entries/aristotle-logic/>

Concepts // Stanford Encyclopedia of Philosophy: URL: <https://plato.stanford.edu/entries/concepts/#NatAboCon>

DeLancey C. A Concise Introduction to Logic: URL: <http://solr.bccampus.ca:8001/bcc/file/17082e35-cf6d-43e1-a5be-7235b2cf8da0/1/A-Concise-Introduction-to-Logic-1490623862.pdf>

Irving M. Introduction to Logic: URL: <http://www.uop.edu.pk/ocontents/Book-IntroductiontoLogic.pdf>

Jaap H. Elementary logic for lawyers: URL: <http://www.jaaphage.nl/pdf/ElementaryLogicForLawyers.pdf>

Patrick J. Concise Introduction To Logic. Eleventh Edition: URL: <http://home.iitk.ac.in/~avrs/PH142/Books/Patrick2012.pdf>

Smith P. An Introduction to Formal Logic: URL: [https://eclass.uoa.gr/modules/document/file.php/PHS334/Peter Smith-An Introduction to Formal Logic-Cambridge University Press %282003%29.pdf](https://eclass.uoa.gr/modules/document/file.php/PHS334/Peter%20Smith-An%20Introduction%20to%20Formal%20Logic-Cambridge%20University%20Press%202003%29.pdf)

Suppes P. Introduction to Logic: URL: [http://web.mit.edu/gleitz/www/Introduction%20to%20Logic%20-%20P.%20Suppes%20\(1957\)%20WW.pdf](http://web.mit.edu/gleitz/www/Introduction%20to%20Logic%20-%20P.%20Suppes%20(1957)%20WW.pdf)

Vaidiya A., Andrew E. Logic and Critical Reasoning: URL: <https://www.sjsu.edu/people/anand.vaidya/courses/c4/s2/Logic-and-Critical-Reasoning-Book.pdf>

McInerny D. Q. Being logical: a guide to good thinking: URL: [https://diverdi.colostate.edu/all\\_courses/critical%20and%20creative%20thinking/being%20logical%20-%20Inerny.pdf](https://diverdi.colostate.edu/all_courses/critical%20and%20creative%20thinking/being%20logical%20-%20Inerny.pdf)

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*Навчальне видання*

# **ЛОГІКА**

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для студентів  
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галузі знань 08 «Право»  
спеціальності 081 «Право»,  
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*(Англійською мовою)*

Видається в авторській редакції

Відповідальний за випуск *О. Г. Данильян*

Технічний редактор *А. Т. Гринченко*



Підписано до друку 03.06.2022.  
Формат 60×84/16. Папір офсетний. Гарнітура Times.  
Ум. друк. арк. 6,2. Обл.-вид. арк. 5. Наклад 50 прим.  
Вид. № 3009

Видавництво «Право» Національної академії правових наук України  
та Національного юридичного університету імені Ярослава Мудрого,  
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Свідоцтво про внесення суб'єкта видавничої справи  
до Державного реєстру видавців, виготовлювачів і розповсюджувачів  
видавничої продукції – серія ДК № 4219 від 01.12.2011

Виготовлено у друкарні ТОВ «ПРОМАРТ»,  
вул. Весніна, 12, Харків, 61023, Україна  
Тел. (057) 717-25-44

Свідоцтво про внесення суб'єкта видавничої справи  
до державного реєстру видавців, виготовлювачів і розповсюджувачів  
видавничої продукції – серія ДК № 5748 від 06.11.2017

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