DEDUCTIVE CONCLUSIONS IN LEGAL ARGUMENTATION

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Abstract: *There are two meaning of the term "argument" – in the broad sense and in the narrow legal sense. In the first case, it is proof as the establishment of truth, the correspondence between the statement and reality. In the second case. it is evidence that serves to convince a judge and jurors that statements are true. At the same time, argument in the narrow sense can be considered from three sides: a) as a means of persuasion, b) as the basis of persuasion, and c) as a process of proving. Since forensic evidence must meet not only legal, but also logical requirements, this article examines the use of rules of inference by lawyers. Leaving induction, analogy and abduction out of the current study, the authors focus on deduction in legal works. The subtleties of the use of deductive reasoning in the process of proving are considered. The analysis involved the reasoning of lawyers used to defend the accused in the trial, both famous and modern, as well as the construction of reasoning by fiction characters. It is shown that the correct construction of deductive reasoning ensures the effectiveness of argumentation. The examples show the complex use of deductive reasoning in legal argumentation. Lawyers consistently apply syllogisms, smoothly moving from one type to another, combining a categorical syllogism or a purely conditional syllogism with a conditionally categorical or divisive-categorical syllogism. The process of proof does not consist of a single deductive conclusion, but connects various syllogisms into a consistent chain, ensuring the effectiveness of judicial argumentation.*

Keywords: *deduction, syllogism, argumentation, proof, conclusion.*

Resumen: *Hay dos significados del término "argumento": en el sentido amplio y en el sentido legal estricto. En el primer caso, es la prueba como establecimiento de la verdad, la correspondencia entre el enunciado y la realidad. En el segundo caso. es evidencia que sirve para convencer a un juez y miembros del jurado que las declaraciones son verdaderas. Al mismo tiempo, el argumento en sentido estricto se puede considerar desde tres lados: a) como un medio de persuasión, b) como la base de la persuasión, c) como un proceso de prueba. Dejando la inducción, la analogía y la abducción fuera del presente estudio, los autores se centran en la deducción en las obras jurídicas. Dado que la evidencia forense debe cumplir no solo los requisitos legales, sino también los lógicos, este artículo examina el uso de las reglas de inferencia por parte de los abogados. La deducción como uno de los tipos de inferencias mediadas es la forma más común de pensamiento lógico en la práctica legal. Se consideran las sutilezas del uso del razonamiento deductivo en el proceso de demostración. El análisis involucró el razonamiento de los abogados utilizados para defender a los acusados en el juicio, tanto famosos como modernos, así como la construcción de razonamientos por parte de personajes de ficción. Se demuestra que la correcta construcción del razonamiento deductivo asegura la eficacia de la argumentación. Los ejemplos muestran el uso complejo del razonamiento deductivo en la argumentación jurídica. Los abogados aplican silogismos consistentemente, moviéndose suavemente de un tipo a otro, combinando un silogismo categórico o un silogismo puramente condicional con un silogismo categórico condicional o categórico divisivo. El proceso de prueba no consiste en una sola conclusión deductiva, sino que conecta varios silogismos en una cadena consistente, asegurando la efectividad de la argumentación judicial.*

Palabras clave: *deducción, silogismo, argumentación, prueba, conclusión.*

1. Introduction

The theory of forensic evidence aims to establish the truth. The central place in the judicial process is given to logical reasoning. It has shown that evidence in criminal proceedings is the result of human mental operations (Gmyrko et al., 2019). Scientists have concluded that the essence of the approach to criminal procedural evidence is to change the researcher's attention from the object as such to the means and methods of his own thinking (Vapniarchuk et al., 2021). This study of criminal procedural evidence was performed using a methodological approach, the essence of which is to change the attention of the researcher from the object as such to the means and methods of their own thought. A successful choice of linguistic and logical means in judicial argumentation ensures the success of judicial discourse (Pelepeychenko et al., 2021). Therefore, evidence must meet not only legal, but also logical requirements. Legal requirements are the recorded collection of evidence, the reliability of the facts presented. Logical requirements are the consistency of reasoning, compliance with the rules of logical inference and the basic laws of logic (Harmash et al., 2019). Procedural legal evidence is the means and methods of establishing objective truth.

Yu.A. Averina (2006, p. 240–241) argues that the formal theory of evidence traditionally prevails in legal proceedings. An analysis of lawyers' court speeches shows that they almost never challenged the legality of the evidence obtained during the preliminary investigation. The emphasis is on the features of the logic of argumentation, on the psychological qualities of the defendant, on the typical psychology of the criminal, on the study of an unfavorable social environment, and so on.

Currently, the prevailing defence strategy is the procedural deconstruction of evidentiary facts: making a judge to doubt about the admissibility of evidence – protocols of investigative actions due to violations of the criminal procedure committed by the preliminary investigation authorities (Nevel'skaya-Gordeeva and Shestopal, 2015; Nevelska-Hordieieva, 2016). Thus, according to Yu.A. Averina (2006, p. 238), the truth of the information is currently being disputed not from the point of view of their compliance with logical correctness, but from the point of view of formal correctness.

Without pretending to an extensive and detailed theoretical discussion and establishing a critical dialogue with both classics of logic and modern popular authors, let us pay attention to the distinction of the notion of proof made at the end of the 19th century (Gambarov 1895, p. 1): proof in the broad sense and proof in the narrow juridical sense. The first concept is evidence as the establishment of truth, i.e. the correspondence between the statement and reality. The second one is the evidence used to convince the judge and jurors of the truth of the statement that one of the parties provided in court. At the same time, evidence in the narrow sense can be considered from three sides: a) as a means of persuasion, b) as the basis of persuasion, and c) as a process of proving.

According to M.S. Strogovich, evidence is the facts on the basis of which the guilt or innocence of a person is established, and statutory sources, from which the court receives information about the facts that are relevant to the case (1968, p. 288).

Yu. P. Borulenkov (2013, p. 2-3) believes that three concepts of evidence are clearly traced:

1) evidence, understood as any fact that leads the court to believe in the existence or non-existence of any circumstance that is the subject of the trial;

2) evidence, considered in two meanings: as material, which helps to draw a conclusion, and as a mental process, by which the sought-for circumstances are put in connection with the known circumstances;

3) it is permissible to consider as evidence only those facts that, in compliance with the rules established by law and in the presence of signs required by law, are presented to the court.

L. M. Nikolenko (2003) argues that the proof is an organic trinity of content, form and procedural way of their presentation and analysis; considering the three components as a whole, the court can identify the presence or absence of circumstances that are important for making the right decision.

A. A. Eisman (1971) focuses on the procedural side of proof, arguing that procedural proof is the unity of two types of activity: logical and procedural. Each of them is the object of independent scientific research. The process of procedural proof from the logical point of view is the construction of logical conclusions, in which from some judgments (initial pieces of evidence) other judgments (proved circumstances) are deduced based on the rules of logic. Duglas Walton (2007) introduces the concept of "commitment": when a participant makes a statement, he becomes committed to that statement. Commitment (acceptance) is not a belief, adherence to a judgment is observed even if the judgment is false. R. S. Belkin introduces the term "use of evidence" (1966, p. 41-42), however, according to Yu. P. Borulenkov, operating with evidence is evidence itself (2006, p. 136).

2. Formation of aims.

In this paper, not the procedural, but the logical side of evidence is considered, the use of the rules of logical inference by lawyers is studied. Leaving induction, analogy and abduction out of the scope of the ongoing research, the object of study is deduction in legal activity. The purpose of this study is to consider the application of deduction in the process of proving.

The paper does not propose a new dimension of legal reasoning, which has not been previously considered. It systematizes and illustrates various schemes of deductive inference, and the variety of analysed cases helps to achieve this goal. For the analysis, the reasoning of lawyers for defence in court, as well as the construction of the reasoning of literary characters, are involved.

3. The use of categorical syllogisms in the speeches of famous lawyers.

In philosophy, there are traditional theories that reveal the nature of truth:

1) correspondent theory – truth as conformity,

2) coherent theory – truth as harmony,

3) pragmatic theory – truth as utility (Ivin, 2005, p. 29).

The origins of these three theories of truth can be seen in Aristotle's works. He divided truth into three areas of argumentation: evidence (strict correspondence), dialectics (coherent interconnectedness of contradictory positions, proving and disproving), and rhetoric (pragmatic persuasiveness) (Aristotle, 1978). For all three theories, deductive reasoning is an important method of finding the truth.

Inference is a form of thinking that allows one to obtain new true knowledge from known true knowledge. Inference includes two types of knowledge: initial knowledge and inference knowledge. The initial knowledge is the knowledge from which, according to the rules of logic, new knowledge is obtained. Deduction is the path of thought from general knowledge to knowledge of the partial or singular (Nevelska-Hordieieva et al., 2021).

Examples of deductive reasoning:

1. Theft is characterized by direct intent.

2. Some acts of the person N. are qualified as theft.

3. Therefore, some actions of the person N. have direct intent.

In this example, we see the course of thought from the general knowledge that every theft is characterized by direct intent, to partial knowledge that some acts of the person N. have direct intent. This example demonstrates the presence of initial knowledge and output knowledge in the conclusion. The source is knowledge, from which, according to the rules of logic, new knowledge is obtained. The structure of the inference consists of premises and a conclusion. The statements from which the conclusion is drawn are called premises (from the Latin praemissae – the previous one). A conclusion is a statement drawn from the founders. Premises are statements containing initial knowledge. A conclusion is a statement containing inferential knowledge. A deductive inference is one in which there is a relation of logical consequence between the bases and the conclusion. The relation of logical consequence exists in those cases when, if statement A is true, it will necessarily be a true statement B. Therefore, between statement A and statement B there is a relation of logical consequence.

Deduction as one of the types of indirect inferences is the most common form of logical thinking in legal practice. For example:

1. Crime is a criminal offense.

2. Fraud is a crime.

3. Therefore, fraud is a criminal offense.

Or

1. A person who has not reached the age of majority may not be a representative in court.

2. Robert is a person who has not reached the age of majority.

3. Therefore, Robert cannot be a representative in court.

These examples are categorical syllogisms that lawyers cannot do without.

Deduction is a valid inference, but to be true, two conditions must be met:

1) premises must be true;

2) the rules of inference must not be violated.

In deductive reasoning, there is a relation of logical consequence between the premises and the inference. The thought moves from the general position to its partial application. Deduction has always been an important method in jurisprudence, because specific situations are subsumed under a general proposition.

In the inference, the conclusion containing new knowledge is the most important part. In contrast to the point of view of Descartes, who contrasted deduction with intuition, lawyers use indirect knowledge along with intuitive manifestations. Let us consider the defense strategy of Sergei Andrievsky, the advocate of Mikhail Andreev, who killed his wife. Andrievsky combined in his speech the psychological description of the client with a clear structure of a logical conclusion. Here is what the lawyer says:

> Andreev was struck by the cruelty and callousness of the woman to whom he irrevocably gave both his heart and his life. A furious feeling of incomprehensible untruth raged in him. The strength of life, which breaks everything unusable without a prosecutor and without a trial, has risen in him. Neither Andreev nor his wife were able to get out of this inevitable crisis. I will call Andreev's state of mind 'insanity'. Not that kind of insanity that the formal law speaks of (because we certainly need mental illness), but insanity in the common sense of the word. The man 'went out of his mind', 'was beside himself'... His legs and arms worked without his participation, because the soul was absent... Can't human beings understand this? What deep truth in Andreev's testimony when he says: "The cry of my wife brought me to myself!". So, before this cry, he was in complete insanity... Did Andreev want to do it? No, he did not want to, because the very next day he told his acquaintances: "I think I would give everything in the world for this not to happen" (Andrievskiy, 1916, pp. 52-51).

There is a syllogism in the form known as Barbara in the arguments of the lawyer:

1. Andreev was in a state of insanity.

2. The cry of his wife woke up Andreev.

3. Therefore, his wife's cry brought Andreev out of a state of insanity.

1. M A P

2. S A M

3. Therefore, S A P

The Supreme Court of Ukraine considered the cassation appeal of V.I. Reshetilov, who was convicted of murdering a taxi driver. In the lawyer's speech in court, we can see categorical syllogisms:

1. The shovel that was found during the search could have been the murder weapon.

2. The shovel found during the search belongs to Victor's father-in-law.

3. Therefore, some items belonging to Victor's father-in-law could have been the murder weapon.

This conclusion is built according to the correct DARAPTI modus of the third figure of the categorical syllogism.

The following categorical syllogism is built on the basis of the first figure:

1. Reshetidov was supposed to have access to the murder weapon (and only he had access to the murder weapon).
2. The shovel that belonged to the father-in-law was not available to Reshetilov (because it was locked in the closet and only his father-in-law had the keys).
3. Therefore, the shovel that belonged to Victor's father-in-law is not the murder weapon.

The lawyer uses the categorical syllogism according to the first figure of the AEE modus, although it contradicts the rules of the first figure, is nevertheless capable in this context as a result of the distribution of the term P in a larger basis (only Reshetilov should have had access to the murder weapon):

1. M^+ A P^+
2. S^+ E M^-
3. Therefore, S^+ E P^+In the memoirs of the famous Russian lawyer Anatoly Koni (2000), there is a story about a case where an insurance company, instead of paying the insurance amount to a client (a peasant Fyodor Dmitriev) under an insurance contract, filed a lawsuit against, accusing Dmitriev of deliberately setting fire to his own warehouse in order to receive an insurance premium. The defendant denied his guilt. However, there was no clear evidence in favour of his innocence. The townspeople talked about the good character and honest behaviour of the defendant, suddenly one of the witnesses mentioned a large hedgehog that lived in a shop, was quite tame and walked around the shop and warehouse at night. The fire started at dawn in a shop that was closed for the night, from the corner where matches were stored in large quantities. In the act of inspection of the scene, it was established that in the place where the burnt matches were stored, there was the corpse of a burnt hedgehog. The lawyer drew the attention to this fact. The insurance agent considered it quite acceptable that the fire could have been caused by the ignition of matches, between which a hedgehog crawled, scratching them with his needles. The fire was recognized not as arson, but as spontaneous combustion, since the culprit was not a man, but a hedgehog. The hedgehog is an animal that is difficult to train, and the assumption that the owner specially trained him to set fire to is more than doubtful. The jurors returned a verdict of not guilty.

In his defense speech, Anatoly Koni constructs a categorical syllogism according to the CELARENT mode of figure I:

1. There was no malicious intent in the actions of the hedgehog (hedgehogs cannot be trained).
2. The fire arose as a result of the hedgehog's actions (as a result of the hedgehog walking between matchboxes).
3. Therefore, the fire was not intentional (without malicious intent).

1. M E P
2. S A M
3. Therefore, S E P

Yu. V. Shuiskaya (2008) carried out the reconstruction of Anatoly Koni otherwise, which clearly contradicts the rules of categorical syllogism:

1. The arson was committed by a hedgehog.
2. The hedgehog cannot be held accountable for his actions.
3. Therefore, the arson is not intentional.

1. P A M
2. M E S
3. Therefore, P E S

Here the mode CAMENES of the 4th figure of the categorical syllogism is proposed, but the structure of the inference shows that the terms S and P are reversed in the derivation. If you put them correctly: S – in the first place, and P – in the second, then the output will sound like this:

1. The arson was committed by a hedgehog.
2. The hedgehog cannot be responsible for its action (its action is not intentional).
3. Therefore, intentional action is not the arson. Or: one who cannot be held accountable for his action is unable to set fire to it.

The conclusion (both in the first and second interpretations) does not seem obvious now due to the fact that there is a contradiction in the premises: the first premise is formulated as a categorical judgment: "The arson was committed by a hedgehog". But arson can only be intentional, otherwise it is spontaneous combustion. The second premise states that a hedgehog cannot carry out intentional actions, therefore, it could not set fire. The reconstruction of the lawyer's reasoning made by Yu. V. Shuiskaya (2008), can only be corrected with another type of deductive reasoning, namely the modus tollens of a conditionally categorical syllogism.

1. If someone claims that the hedgehog set fire, then the animal did it intentionally (an arson always implies malicious intent).
2. It is not true that hedgehogs can commit intentional actions.
3. Therefore, the hedgehog did not commit arson.

1. $A \rightarrow B$
2. not B
3. Therefore, not A.

4. The use of purely conditional, conditionally categorical and disjunctive-categorical syllogisms in the defensive speeches of lawyers.

A purely conditional syllogism is a deductive inference, premises and conclusion of which are conditional statements. The structure of such a syllogism is:

a → b	If the sniffer dog takes the trail, we will find a criminal.
b → c	If we find a criminal, we can get a reward.
a → c	Therefore, If the sniffer dog takes the trail, we can get a reward.

The conclusion in a purely conditional syllogism is based on the rule: the consequence is the consequence of the major premise.

A purely conditional syllogism can be constructed as a fairly long chain of conditional syllogisms. The structure of such a purely conditional syllogism is:

1. a → в, в → c, c → d, d → e, e → k
2. Therefore, a → k

The previous example can be reworked and brought to the specified scheme:

1. If a sniffer dog picks up the trail, we will follow the trail.
2. If we follow the trail, we will catch up with a criminal.
3. If we catch up with a criminal, we will catch him.
4. If we catch a criminal, we will take him to the police.
5. If we take a criminal to the police, we will get the promised reward.
6. If we receive the promised reward, we will stop taking a bus, and we will able to order a taxi.
7. Therefore, if a sniffer dog takes the trail, we will able to order a taxi.

Plans, forecasts, dreams and fantasies are made according to the structure of a purely conditional syllogism. A purely conditional syllogism is often used by practicing lawyers. An example taken from the defense speech of a lawyer (in addition to Reshetilov's cassation complaint, which was considered above). The lawyer builds a purely conditional syllogism according to the following scheme:

1. If a, then b.
2. If b, then c.
3. If c, then d.
4. If d, then f.
5. Therefore, if a, then f.

1. If the lawyer A. Lymar, who is still listed in the case as Reshetilov's defender in accordance with Article 47 of the Code of Criminal Procedure of Ukraine (2013), has not file his objections to the prosecutor's cassation and has not applied to the Supreme Court of Ukraine with a cassation appeal to cancel of the unlawful

conviction of Reshetilov, handed down by the court of the Kirovograd region, knowing for certain that his client is innocent and considers himself innocent of the charge brought against him in the murder of taxi driver Kharchenko, lawyer A. Lymar improperly performs the duties of a defender.

2. If a lawyer does not properly perform the duties of a defense counsel, he should be replaced.
3. If the lawyer was not replaced, then the court of 1st instance grossly violated the procedural order for inviting and appointing a defense counsel, provided for in Articles 46-47 of the Criminal Procedure Code of Ukraine.
4. If the court of 1st instance grossly violated the procedural procedure for inviting and appointing a defense counsel provided for in Articles 46-47 of the Criminal Procedure Code of Ukraine, then this constitutes a serious violation of the right to defense provided for by subparagraph "c" of paragraph 3 of Article 6 of the Convention on the Protection of Rights and fundamental human freedoms in 1950. So, if until now the lawyer A. Lymar, who is still listed in the case as the defender of Reshetilov in accordance with Article 47 of the Code of Criminal Procedure of Ukraine, has not filed his objections to the prosecutor's cassation and has not appealed to the Supreme Court of Ukraine with a cassation complaint about reversal of the unlawful conviction of Reshetilov, this constitutes a serious violation of the right to a defense, provided for in subparagraph "c" of paragraph 3 of Article 6 of the Convention for the Protection of Human Rights and Fundamental Freedoms of 1950.

Another purely conditional syllogism:

1. If at the time of the murder, V. Reshetilov was at home, this can be confirmed by his relatives: daughter Alla, wife, housekeeper Svetlana.
2. If witnesses confirm it in court, Reshetilov has an alibi.
3. If Reshetilov has an alibi, this could also be confirmed by a printout of the azimuth / dislocation of the subscriber from his mobile phone number.
4. Therefore, if Reshetilov was at home at the time of the murder, this could be confirmed by a printout of the azimuth / dislocation of the subscriber from the mobile number of his phone.

Conditional-categorical syllogism is a deductive inference in which the major premise is a conditional judgment, and the minor premise and conclusion are categorical judgments. It is known that the conditional statement consists of two simple ones: the antecedent and the consequent. This inference has two true modes: affirmative (modus ponens) and negative (modus tollens). The affirmative mode of the conditional-categorical syllogism is constructed from the assertion in the minor premise to the assertion of the consequence in the conclusion:

1. $a \rightarrow b, a$

2. Therefore, b

1. If there is an arrears of alimony, which in total exceeds the amount of payments for 6 months, the law of Ukraine establishes the possibility of imposing new restrictions on non-payers of alimony on: leaving Ukraine; using of weapons; hunting; giving permission for the child to travel abroad.
2. Citizen B. has arrears of alimony, which exceeds the amount of payments for 6 months.
3. Therefore, the law provides for the possibility of imposing restrictions on citizen B. as a non-payer of alimony in respect of: leaving Ukraine; using of weapons; hunting; giving permission for the child to travel abroad.

A popular type of argument is disjunctive argument, i.e. construction of a disjunctive-categorical syllogism. Disjunctive argument is circumstantial. Consider an excerpt from the above-mentioned speech by lawyer S.A. Andrievsky in defense of M. Andreev:

What was here? Jealousy? (A) Anger? Irritability? (B) No, all this is not good. Acute jealousy was already subdued, as Andreev could talk businesslike with his opponent (not A). Anger and zeal again do not fit with the case, because Andreev was kind and hardy to the last opportunity (not B). There were horror and despair (C) before Andreev's sudden cruelty and heartlessness of the woman to whom he had irrevocably given both heart and life. There was a sense of incomprehensible untruth in him (Andrievsky, 1916, p.37).

The structure of the divisive-categorical syllogism modus tollendo ponens:

1. A V B V C
2. not A Λ not B
3. Therefore, C.

Another type of circumstantial argument is apagogical. We also find it in Andrievsky's speech:

> I don't see a single case in her life where she loved anyone but herself. And as unfortunate as it seemed to General Pistohlkors, it must be said that she did not love him either. The general certifies the deceased from the best side: "truthful, honest, smart, modest". Is this so? "True"? She lied to him that she was married. "Honest"? Back in 1903, living in contentment, she took from Pistohlkors, God knows what for, 50 thousand rubles. "Clever"? In a practical sense, yes, she was not a blunder. But in terms of development, it was terribly empty and pettily conceited. Finally, "modest" ... The general can now judge this modesty from the stories of engineer Fantalov (Andrievsky, 1916. p. 38).

1. (A Λ B Λ C Λ D) V F
2. not A Λ not B Λ not C Λ not D
3. Therefore, F.

The logical scheme of the above apagogical argument is as follows: Zinaida Levina was extremely selfish and did not love anyone but herself. General Pistohlkors argued the opposite: Zinaida is truthful, honest, smart, modest. However, she is untruthful (she lied), dishonest (she took money under fictitious pretexts), stupid (she is empty and petty), immodest (there is evidence of a witness). Therefore, since it is impossible to prove that the deceased was "truthful, honest, smart, modest", then, according to the third basic law of logic – the law of the excluded middle, the judgment about the negative features of Zinaida, about her extreme selfishness, will be correct.

1. Either Zinaida is truthful, honest, smart, and modest (according to General Pistohlkors), or Zinaida is extremely selfish (according to Andrievsky).
2. During the court session, it turned out that Zinaida is untrue, dishonest, stupid, immodest.
3. Therefore, Zinaida is extremely selfish.

1. (A Λ B Λ C Λ D) V F
2. not A Λ not B Λ not C Λ not D
3. Therefore, F.

When Andrievsky defended the Kelesh brothers, he gave a much larger number of possible alternatives in a disjunctive argument by conducting a disjunctive judgment. Here is an excerpt from his speech:

> At 12 a.m. signs of a fire were found inside the pantry. The question is, how could it happen? Who and how could get there? The lock, the key to which was kept by the controller, turned out to be locked and intact (A). The applied seal held the door with its sticky composition and therefore was not removed (B). There were no other passages to the pantry and no one was laid (C). Bobrov, the landlord, suggests that it was possible to get there through the window, and get to the window on the fourth floor by stairs or climb up a drainpipe (D). But let us reason within the limits of what is possible and let us not believe in fairy tales. No one saw the ladder attached, and in order to climb up the drainpipe to the fourth floor, you need to be a monkey or an acrobat and get used to it from childhood, but the Kelesh brothers are 40-year-old people and do not differ in body flexibility. Finally, after all, the window on the fourth floor is locked from the inside: if it had been left open during the winter cold, then the controller Nekrasov, locking the pantry, would have noticed this, and all the windows would have had time to freeze (E). Moreover, the vents are not made in the lower showcase of the window, but higher, it is difficult for the Kelesh brothers to bend over it – it would be necessary to break the window, but all the windows were found intact during the fire. So, if we don't believe in a fairy tale, if we don't believe that one of the Kelesh brothers could fly through a crack like a mosquito or get into the pantry through a chimney like a witch, then it will be necessary to admit that from the moment Nekrasov locked the pantry,

> and until the time when six hours later a fire was discovered in it, and the pantry was still locked, no one entered it and could not enter. Hence one possible conclusion is that the elusive, inaccessible to the eye cause of the fire, microscopic, but, unfortunately, real, was already lurking in the pantry at the moment when they finished working and Nekrasov was locking the door (F) (Andrievsky, 1916, p. 79).

The structure of the disjunctive-categorical syllogism modus tollendo ponens is:

1. AV B V C V D V E V F.
2. not A Λ not B Λ not C Λ not D Λ not E.
3. Therefore, F.

The lawyer Alexander Passover in his speeches relied mainly on deductive reasoning. That is why the newspapers called him "cold syllogism", "strict logos". Consider a well-known case from his practice: the lawyer defended the Taganrog merchant of the first guild, Mark Valyano, who was accused of smuggling. The treasury had lost more than 800 thousand rubles of unpaid customs duty. Valiano was threatened with confiscation of property. The case was heard in the Kharkiv Court of Justice. Passover built his defence solely on a rational justification for the impossibility of applying a legal norm to his client:

> Did Valiano bring in unpaid goods on Turkish feluccas (a type of flat-bottomed boats)? Yes, Mr. prosecutor brilliantly proved this, and I, the defence attorney, am not going to refute these actions of the defendant. But whether these acts constitute the crime of smuggling, that is the question, gentlemen of the judge and gentlemen of the jury!" (Soboleva, 2001, p. 112).

Passover cited the text of the clarification of the Judicial Department of the Senate, which listed the types of maritime smuggling, namely: boats, rafts, longboats, yachts, boats, rescue boats, life belts, shipwrecks, empty rum barrels. However, in the given exhaustive explanation of the Senate, there was not a word about Turkish feluccas.

At the same time, the clarifications of the Senate were exhaustive and were not subject to any interpretation – this was exactly what Passover insisted on. Therefore, since the defendant Mark Valiano had transported his goods on Turkish feluccas, and not on boats or ships, there were no signs of the crime of maritime smuggling in his actions.

Passover insisted on the canon of law escptessio untius, exlusio deterius ("the inclusion of one excludes the other"): everything that is not mentioned in the law lists is excluded (Soboleva, 2001, p. 114). The prosecutor could cite another canon as an argument, namely: jusdem generis ("of the same genus or class"), the words included in the generalizing formula after enumeration ("etc.", "others") should be interpreted as referring to the same kind of objects or properties as those indicated in the enumeration, but did not find rational arguments (Soboleva, 2001, p. 113). The Senate's clarification was obviously not needed in

order to explain the specific concepts of the generic – "watercraft", but in order to include such concepts as "empty rum barrels", "shipwrecked remains", "life belts" not to narrow the scope of the concept of "watercraft", but, on the contrary, to expand its scope by adding other, possibly non-specific concepts. However, the prosecutor abandoned the modus logos of evidence and switched to modus ethos and modus pathos. "Vallano is a smuggler!" the prosecutor shouted. "If he were not one, he could not pay his lawyer a million rubles for defence!", thereby accusing the lawyer of the unethical nature of such fees. Passover used modus logos exclusively and won.

Passover uses the structure of the disjunctive-categorical syllogism modus tollendo ponens: sea smuggling can be carried out on boats (a), rafts (b), longboats (c), yachts (d), boats (e), lifeboats (f), life belts (g), shipwreck (h), empty barrels (k).

1. Smuggling is carried out: AV B V C V D V E V F V G V H V K.
2. not A Λ not B Λ not C Λ not D Λ not E Λ not F Λ not G Λ not H Λ not K.
3. Therefore, Vagliano's actions are not smuggling.

And then this consideration turns into a complex constructive dilemma: if the goods for which customs have not been paid are transported on the watercraft indicated in the comments of the Senate, then such actions are qualified as smuggling; if goods for which customs has not been paid are transported on watercraft not indicated in the comments of the Senate, then such actions cannot be considered as smuggling. The goods were transported either on the watercraft indicated in the comments of the Senate, or on Turkish feluccas, which are absent in the comments. Consequently, the actions either can be qualified as smuggling, or cannot be qualified as smuggling, that is, the lawyer builds a complex constructive dilemma:

1. (a → b) Λ (c→ d)
2. a V c
3. Therefore, b V d

A conditionally disjunctive syllogism contains a conditional judgment in the major premise, and a disjunctive judgment in the minor one. A conditionally disjunctive syllogism is called a lemma (from Latin lemma – assumption). Depending on the number of alternatives in a disjunctive proposition, lemmas are divided into dilemmas – two alternatives, trilemmas – three alternatives, polylemmas - four or more alternatives. Dilemmas, in turn, are divided into simple constructive, complex constructive, simple destructive and complex destructive ones.

A simple constructive dilemma has the structure:

1. (a → в) Λ (c→ в)
2. a V c
3. Therefore, b
1. If it rains, I take an umbrella, and if it snows, I take an umbrella.
2. The weather forecast says that it will rain or snow.
3, Therefore, I will take an umbrella.

This reasoning is a simple constructive dilemma: in a conditional reason, the same conclusion follows from two reasons.

Here, in a conditional major premise, different consequences follow from one premise:

1. If a person is sick, then he has a fever, and if a person is sick, then he loses his appetite.
2. The patient does not have a fever and he did not lose his appetite.
3. Therefore, the patient is not sick.

The following reasoning is an example of *a complex constructive dilemma*:

1. If falsification of the final vote is revealed, then a second voting takes place, or if falsification of the final vote is not detected, then the voting results will be immediately made public.
2. Falsification of the final vote will either be detected or not detected.
3. Therefore, either a second vote will take place, or the results of the vote will be made public immediately.

A complex constructive dilemma has the structure:

1. (a → b) Λ (c→ d)
2. a V c
3. Therefore, b V d

The disjunctive premise affirms the premises for conditional propositions, and the conclusion affirms the consequences.

Consider *a complex destructive dilemma*:

1. If the defendant acted of his own free will, then he is a dishonest person, but if the defendant was forced to do so, then he is a toy in the hands of other people.
2. It is not true that he is a dishonest person or it is not true that he is a toy in the hands of other people.
3 So, it is not true that the defendant acted according to his will, or it is not true that he was forced to do so.

Dilemmas are effectively used in court speeches by both the prosecution and the defence. The well-known Russian lawyer P. Sergeich wrote in his book "The Art of Speech in Court": "Do not miss the opportunity to present a strong argument in the form of reasoning: one of two (a dilemma). This is perhaps the best form of reasoning in front of the judges. Cicero says: a true dilemma should never be neglected" (Sergeich, 2016, p. 38). And then P. Sergeich gives an example confirming the correctness of his words:

The defendant, a thief by trade, cries pitifully; this is clearly a mock cry. If the accuser said: this is feigned crying, he made a mistake. If he says: it is possible that she is crying sincerely, it is possible that she is pretending; decide for yourself; but neither one nor the other matters for deciding the question of guilt. The jury, being directly impressed, will not hesitate to say: imaginary (Sergeich, 2016, p. 40).

Rules of conditionally divisive syllogism:

1. Lemma reasoning is built from the statement of the major premise to the statement of the minor premise and from the negation of the minor premise to the negation of the major premise.
2. In a disjunctive judgment, all disjuncts must be listed.
3. The disjunctive judgment must be a strong disjunction.

It should be noted that the axiological component of the reasoning turns out to be essential for the lemma, because any event has its advantages and disadvantages. A senior official reflects:

1. If I block the proposed contract for the construction of a chemical processing plant, then *The Times* and *The Daily Telegraph* will scream about my "political cowardice", and if I give him the go-ahead, then *The Daily Mirror* and *The Sun* will proclaim me "the killer of unborn children".
2. You must either block the contract or sign it.
3. Therefore, the newspapers will characterize me as either a "political coward" or a "killer of unborn children".

The above example of an official's reasoning can be reformulated from a negative form to a positive one. The character of the work by D. Lynn and E. Jay "Yes, Mr. Minister: from the diary of a member of the Cabinet of Ministers, the highly honoured James Hecker, Member of Parliament" (1989) chooses whether to sign a contract to build a plant that will pollute the environment with methodioxin, which negatively affects the health of pregnant women, or to reject the construction of the plant.

He focuses only on the negative consequences. However, another dilemma with positive consequences can be constructed:

1. If the official gives the go-ahead to this contract, then *The Times* and *The Daily Telegraph* will write about the "political foresight" of the decision made, or if the minister blocks the contract, then *The Daily Mirror* and *The Sun* will declare him a fighter for the healthy nation.
2. The official either signs the contract or does not sign it.
3. Therefore, the official will be praised either for political foresight or for concern for the health of the population.

The following dilemmas are constructed similarly, based on opposite value orientations:

One day a woman came to Socrates. She complained that her son intended to engage in political activities. She forbade him to even think about it, because if he were to engage in political activities, he would either have to lie or tell the truth.

1. If he lies, the gods will hate him; if he tells the truth, people will hate him.
2. He will either have to lie or tell the truth.
3. Therefore, either the gods or the people will hate him.

Socrates answered the woman: you are wrong. Your son must be politically active and he will either have to lie or tell the truth.

1. If he lies, then he will become the favourite of people, if he tells the truth, then he will be the favourite of the gods.
2. He will either have to lie or tell the truth.
3. Therefore, he will be the favourite of either people or gods.

It should be noted that the question of values has a significant impact on the construction of lemmas both in journal articles and in judicial speeches.

5. The use of deductive reasoning in Arthur Conan Doyle's fiction.

Arthur Conan Doyle's popular character, Sherlock Holmes, has often resorted to the deductive method in his professional career. As Sherlock noted: the ability to isolate the essential from a huge number of facts and discard the random ones is of paramount importance. In modern scientific literature, a discussion is intensifying about the logical method of the hero Arthur Conan Doyle: deduction or abduction (Abrams, 2014). Leaving this discussion outside the scope of our study, let us consider the traditional view of the deductive method of Sherlock Holmes.

In Arthur Conan Doyle's short story "The Five Orange Pips", the protagonist says, "Well, to come to an end of the matter, Mr. Holmes, and not to abuse your patience, there came a night when he (the protagonist's uncle) made one of those drunken sallies from which he never came back. We found him, when we went to search for him, face downwards in a little green-scummed pool, which lay at the foot of the garden. There was no sign of any violence, and the water was but two feet deep, so that the jury, having regard to his known eccentricity, brought in a verdict of suicide" (Conan Doyle, 2009, p. 172). According to Yu.V. Shuyskaya (2008) the jury reasoned as follows:

1. My uncle was a strange man.
2. Strange people can commit suicide without any motive.
3. Therefore, my uncle committed suicide.

1. P A M
2. M A S
3. Therefore, P A S

However, the fourth figure of a categorical syllogism cannot have a generally affirmative conclusion. A conclusion according to the BRAMANTIP mode can only be a particular affirmative judgment, but since the terms are again incorrectly (P was put in the first place, and S was put in the second one) the judgment cannot be formulated as a particular one. The proposed structure is completely wrong.

We bring the conclusion to the form S I R: Some of those who committed suicide include the uncle of the protagonist.

At the same time, the use of the maxim of law "what is the subject, so are his actions" gives a very clear structure of the categorical syllogism of the BARBARA mode of figure I:

1. Strange people do strange things.

2. Uncle was a strange person.

3. Therefore, the uncle committed a strange act (strange suicide).

1. M A P

2. S A M

3. Therefore, S A P

There is also a reasoning by Sherlock Holmes, built on a disjunctive-categorical syllogism: "Having received a warning, a person had to either openly renounce his previous views (A) or leave the country (B). If he did not pay attention to the warning, death invariably befell him, usually strange and unforeseen (C)" (Conan Doyle, 2009, p. 169).

1. A V B V C

2. not A Λ not B

3. Therefore, C.

1. A person who receives a warning either openly renounces his former views (A), or leaves the country (B), or does not pay attention to the warning (C).

2. The person who received the warning did not say that he renounced his former views (~ A) and did not leave the country (~ B),

3. Therefore, an unforeseen death will befall him (C).

Consider how Sherlock approaches the investigation in Arthur Conan Doyle's "The Red-Headed League". The gist of the story is that a man named Jabez Wilson asks Sherlock Holmes for help. Mr. Wilson said he owned a small pawnshop where he worked with a young worker, Vincent Spaulding. The latter was hired for 50% of the salary. Vincent Spaulding, after reading in the newspaper the announcement that "The Red-Headed League" offers easy and high-paying jobs to red-haired people, offers his master to seek happiness. Jabez Wilson successfully passed the interview and got a job. For several weeks he came to work, where he rewrote the British Encyclopaedia and received a good salary for it. However, one day when he returned to his workplace, as usual, Wilson learned that the League had broken up.

Sherlock Holmes quickly guessed that the story with The Red-Headed League was for the sole purpose of removing the host from home for a few hours each day. What is the use of his absence? The protagonist of Arthur Conan Doyle's story constructs a purely conditional syllogism:

1. a → в

2. в → с

3. Therefore, a → с

1. If an employee is hired for half pay, he is interested in something other than money.

2. If the employee is not interested in money, you need to look for what his interest.

3. Therefore, if an employee is hired for half the pay, you need to look for what his interest is.

And the search for Vincent Spaulding's motive follows the modus tollendo ponens of the categorical syllogism:

1. A V B V C

2. not A Λ not B
3. Therefore, C.

Sherlock Holmes has a fact and he needs to find a reason for it. He outlines the possible reasons, analyses them and selects the most plausible. First, you can assume a love affair (A), but there is no woman in the house (not A). Second, the employee may be interested in the house values (B), but they are absent (no B). Third, Vincent Spaulding is interested in something close to the office (C). Therefore, he was interested in something outside the house (C). But what? Close to the office are city and suburban banks. It is easy to assume that during the absence of the owner an underground passage was made to another building.

1. The employee may be interested in the woman living in the house, the valuables in the house, or the convenient location of the office.
2. There were no women or valuables in the house.
3. Therefore, the worker was attracted by the convenient location of the office.

The same scheme is used in Arthur Conan Doyle's story "The Adventure of the Beryl Coronet". Banker Alexander Holder turned to Sherlock Holmes for help because a family jewel, the beryl coronet, had disappeared from his home. Holder believed that the beryl coronet was stolen by his son Arthur, because on the night when the jewel disappeared, he saw the coronet in his son's hands. Sherlock Holmes clarified the range of possible suspects: in the house at that time were the owner, his son Arthur, the niece of the owner Mary, and the maid. Sherlock Holmes reveals to the banker the course of his thoughts:

It is an old maxim of mine that when you have excluded the impossible, whatever remains, however improbable, must be the truth. Now, I knew that it was not you who had brought it down, so there only remained your niece and the maids. But if it were the maids, why should your son allow himself to be accused in their place? There could be no possible reason. As he loved his cousin, however, there was an excellent explanation why he should retain her secret – the more so as the secret was a disgraceful one. When I remembered that you had seen her at that window, and how she had fainted on seeing the coronet again, my conjecture became a certainty (Conan Doyle, 2009, p. 455).

Considerations are carried out according to the deductive scheme: modus tollendo ponens of the disjunctive-categorical syllogism.

Conclusions

Judicial evidence must meet not only legal, but also logical requirements: the logically correct construction of reasoning is the basis for finding the truth. The correct construction of deductive reasoning ensures the effectiveness of argumentation. The examples given clearly show the complex use of deductive reasoning in legal argumentation, the diversity of analyzed cases systematizes and illustrates various schemes of deductive inference. Lawyers

consistently apply syllogisms, smoothly moving from one type to another. The process of proof does not consist of a single deductive conclusion, but connects various syllogisms into a consistent chain, ensuring the effectiveness of judicial argumentation.

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