

Elements of logic, rhetoric and eristic for expert witnesses giving oral opinions at court hearings

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Summary

The aim of this article is to provide expert witnesses, especially psychiatrists, other physicians, as well as psychologists, with basic information on logic, rhetoric and eristic, useful in their professional practice. The reason is that these skills, undoubtedly belonging to the classical education, are not standard elements of teaching professionals in the fields mentioned above. Having the expert knowledge, ability to diagnose, to conduct a therapy and to prognosticate does not indicate the ability to conduct effective arguments. This work is based on Cardijn's method (See – Judge – Act).

It sometimes happens that a well-prepared expert opinion (psychiatric and psychological) is discredited for non-substantive reasons due to some eristic and rhetorical tricks. Having such experiences, some expert witnesses resign from giving opinions.

To help avoid such situations, this work presents the most important definitions of logic, rhetoric and eristic. Examples of propositional calculus, selected models of reasoning, rhetorical figures and eristic tricks can be used in presenting professional expertise. These examples are accompanied by propositions of responses to arguments used by persons willing to discredit expert witnesses' opinions. Furthermore, this work offers a scheme of answering questions and doubts of the parties in court hearings.

Key words: logic, rhetoric, forensic psychiatry

Introduction

Appearing at the court hearing is often extremely stressful, especially for beginner expert witnesses. One may get caught in the crossfire of questions, or be treated in different ways by the parties. In some cases a well-written opinion is not sufficient and is discredited for non-substantive reasons, e.g., using only eristic methods. Logic, rhetoric and eristic are not included in the curriculum for medical doctors. As a consequence, psychiatrists or other expert witnesses attending a court hearing may encounter new

methods and types of argumentation. For these reasons, some experts resign from their function to avoid complications. Questions directed to expert witnesses – spoken or written – may seem phrased in a different language. But it is only a pretense: based on knowledge of logic, rhetoric and eristic, an expert witness can manage even the most difficult situation.

Logic is an academic discipline that deals with correct thinking and reasoning. Its name is derived from a Greek term *logos*, which means thought, reflection, word. Aristotle was its founder. It is now believed that logic deals with the analysis of language and research actions (such as reasoning, defying, classifying) to provide rules that would make both language and actions as effective as possible [1].

Some authors distinguish juridical logic as an auxiliary discipline of jurisprudence that deals with the implementation of logic into the law. In extreme concepts juridical logic means the legal application of the argumentation theory. Juridical logic is taught in the first year of law studies. Its aim is to teach students precise formulation of thoughts and correct argumentation, and also to help them interpret the law. There are many textbooks and practice materials available, some of which are listed in the references [2–5].

Eristic is the art of dispute. It uses plenty of methods described widely in the following part. Its aim is not to get to the truth, but to convince (or conquer) the opponent [6, 7]. Finally, rhetoric is the art of speaking well and correctly, and also reasoning (*ars bene dicendi*) [6, 7].

Logic

There are many systems of logic. For example, inductive logic is used in methods of statistical inference. Many-valued logic is used in mathematical description of probability theory.

Logic is based on so-called propositional calculus, i.e., it describes relations between sentences. Take the following two statements as an example: “patient X has schizophrenia” and “patient X doesn’t have schizophrenia”, these sentences are described by the laws (principles) [8] formulated by Aristotle:

- 1) the law of non-contradiction – two contradictory statements cannot be both true at the same time, for it is impossible that something is and is not at the same time;
- 2) the law of excluded middle – for two contradictory statements only one is true at the same time;
- 3) the law of double negation – the negation of the negation of the statement is true if and only if the sentence is true (“it is not true that X doesn’t have depression” will be true if “X has depression”).

Sometimes premises of our reasoning are implicit. In some cases we can see a contradiction if we replace sentences with their equivalents (logical) basing on medi-

cal knowledge. Take for example sentences proclaimed by the expert witness in the case of person's ability to express their will knowingly or freely: "subject X suffers from moderate dementia" and "subject X doesn't have psychiatric disorders" – at first glance, especially if one doesn't have medical education, both sentences appear to be true. However, with professional knowledge we can notice a contradiction: if X suffers from dementia, he or she has also psychiatric disorders (as dementia is characterized by specific psychiatric disorders). Two contradictory sentences cannot be both true at the same time.

Working as a doctor one gains confidence about which of given sentences are true by experiments and inference. If we cannot use any of these methods, a given thesis cannot be proved [9, 10]. This is for example the case when experts are asked: "is it possible that this kind of injury as suffered by the victim does not caused severe dementia?" For we cannot precisely evaluate and then recreate the magnitude and direction of the force that affected victim's brain, for obvious reasons we cannot conduct an experiment, appropriate schemes of inference do not exist. Besides, it is the cognitive functions examination, not the type of injury and the impact force, that proves the severity of dementia.

In drawing conclusions we use hypotheses that are verified by various methods of reasoning [8].

- In deductive reasoning, the direction of reasoning is the same as the direction of entailment (since a patient has a specific type, intensity and number of symptoms occurring for a certain period, he or she has major depressive episode).
- Reductive reasoning consists in seeking conditions for given results (a patient has symptoms of delirium. Therefore, we search for its causes – e.g., general health condition, complications after alcohol withdrawal syndrome).
- Inference is a deductive reasoning which derives conclusions from true statements. In this case we always obtain valid conclusions (e.g., it is certain that trisomy 21 leads to symptoms of Down syndrome).
- Confirmation consists in seeking certain conclusions for uncertain premises using deductive reasoning. It applies to diagnostic hypotheses (e.g., we presume that a patient suffers from autism, therefore, we seek potential symptoms, which could confirm that).
- Explanation – a type of reduction reasoning that seeks premises for a certain statement (e.g., if there are many scars on forearm, a patient could self-harm. He or she could do this because of, e.g., personality disorders, alcohol intoxication, influence of drugs).
- Proof – a type of reduction reasoning that seeks validity for uncertain statements (e.g., once again we evaluate a patient with a brain tumor so far considered to be non-functioning. We suspect that he or she *tempore criminis* could have had disorders of consciousness, perhaps associated with *de novo* epilepsy. We suspect that the tumor is expanding – we conduct scans (NMR, KT) and EEG to prove it).

Question analysis steps

We can use three steps of reasoning to analyze – one after another – syntactic, semantic and logical layer of statement. If the statement is rejected at the first or the second step, we do not move on to the next stage – as we can see below [3].

1. Syntactic analysis – is a question (formulated orally at the court or written) constructed in accordance with correct language use. It is not about grammatical correctness, but about soundness, e.g., “is patient’s health identical?” It does not make sense, because “identical” may be something with something different. In the statement presented above we have only one argument: “patient’s health”. We do not know what to compare with it (before and after a disease, or maybe patient’s health and other persons’ health?).
2. Semantic analysis – is a thesis formulated in such a way that it makes a logical statement, e.g., “is patient’s health identical to the one before the accident?” We have here a sentence technically logically correct, but if we use medical reasoning, we can see that “identity of health”, or generally “identity of patient’s (or living organism’s) condition” is not the accurate wording. Homeostasis assumes that vital signs fit in certain standards. It is even more complicated if we take WHO’s definition of health: it is not possible to measure “welfare” in different spheres and determine whether it is identical before and after an incident.
3. Logical analysis – stating and verifying hypotheses. Coherence of medical knowledge, knowledge of a patient and a given statement determines whether this statement is true. If the question is: “did the traffic accident cause permanent or long-lasting damage to health and for which medical conditions?”, firstly we state a hypothesis that the accident caused some medical conditions, then we verify it. If it is true, we compare conclusions to the table of injuries.

Rhetoric

In the classical approach there are five stages of rhetorical conduct:

- 1) *inventio* – discovery of topic and subject of idea;
- 2) *distributio* – functional arrangement of collected materials;
- 3) *elocutio* – correct, clear, appropriate and ornament pronouncement;
- 4) *memoria* – memorization of speech;
- 5) *pronuntiatio* – proper declamation [6, 11, 12].

As for point 5. – a practical note. After preparing an opinion, especially after presenting questions and objections to expert witnesses, one may ask a fellow psychiatrist of psychologist to play a role of a party or a judge and ask questions concerning this opinion. This way, one can prepare better for being questioned by parties [13]. Sample exercises are to be found on the website devoted to this issue [14].

Table 1 includes sample tropes and rhetorical figures. They should not be taken personally. It is better to treat them as ornaments of speech and simply evaluate the

substantive value. Identifying them during a court hearing may help an expert witness in formulating answers.

Table 1. Selected tropes and rhetorical figures [7, 11, 15]

Rhetorical strategy	Description	Example (bold type)
Tropes		
Metonymy	Replacement of a word by another word associated in meaning with the first one	Illness – suffering
Emphasis	Emotive statement with general or specific meaning	– Should he go to youth detention center? – But he’s just a child.
Irony	Highlighting of semantic contrast	Indeed, he is a good expert witness – so insensitive.
Hyperbole	Exaggeration of reality	I’ve seen such injustice a thousand times.
Rhetorical figures		
Synonymia	Using two or more synonyms to emphasize the essence	Expert witnesses’ opinion is incomplete, unreliable, unfair and nonsensical.
Disjunction	Separation of sentences or their parts by the same predicate	My client lost his family, lost his job, lost his home, lost his health.
Antithesis	Juxtaposition of opposing ideas or pictures	Before the illness – idyllic life, now – hopeless life. Then – prosperity, now – poverty.
Dubitatio	Expressing doubt and hesitation of the subject, directing a series of questions to the audience.	What would I do if the court took my children? Where would I find joy? Who would have mercy on me?

In medical science we usually begin with collecting data by observing patient’s condition, and then we draw conclusions concerning causes, diagnosis, development, prognosis, the most effective treatment methods. It is very often done instinctively, unwittingly, without deliberate reference to language structure or laws of logic. It is important to use medical terminology, evidence-based medicine [9, 10]. It is easy when we speak with persons who use similar vocabulary and have the same goals (diagnostics, treatment, determination whether a description of a patient is consistent with reality).

The situation is more complicated if you are an expert witness. Lawyers are educated in a different way than doctors – it is truism, but it is important to note that lawyers perceive and interpret facts differently. Furthermore, usually goals of attorneys are not convergent with those of expert witnesses.

The role of an expert witness is to help a court in establishing the actual state of a given situation. In some cases they could act as educators, when parties ask questions related to medical knowledge unfamiliar to them. Care should be taken not to

overdo explanatory fervor that could turn a hearing into a lecture. For it is possible that a party would intend to use trick no. 7, described below in Table 3, as a distractor.

Some experts attempt to make sense of a question. It is not, though, their duty – we do not know the intention of a party. It is better to point out that a question is faulty, a thesis is wrongly stated. If a party wants to rephrase it, they will do it. Sometimes a party seems to present an alternative opinion. Expert witness's duty is to give an opinion, to respond to potential earlier opinions – not to comment on parties' views. In some cases, if a party suggests a specific method of examination, an expert should point out that this method does not apply to a given case, which is shown in Table 2.

Table 2. **The analysis of the essential value of the research method proposed by one of the parties to be used in psychologist-psychiatrist's opinions**

QUESTION: Does, and to what extent, the death of the victim caused psychophysical change of the plaintiff, according to the Holmes and Rahe scale?

SHORT ANSWER: This scale is not the right psychometric tool in this case and it is not consistent with Polish conditions.

LONG ANSWER: According to the authors of the scale, there is a significant relation between stress intensity and human health. Experiencing events with the total number between 155 and 199 points gives 37% chance of going down with a serious illness within next two years. If the number is within 200 and 299 points, the risk increases to 51%. At 300 points and higher the risk reaches up to 79%. This scale was created in 1967 and it is made of 43 potentially stressful events in life. It contains both positive and negative situations, e.g., "holidays", "Christmas", on the other hand – "death of a spouse". But more and more researchers see its limitations (Billings and Moos, 1982; Radmacher and Sheridan, 1989; Redfield and Stone, 1979). This scale does not consider the **cognitive assessment of a stressor**, i.e., its interpretation (assessment of whether a given situation is beneficial and positive or negative, and also assessment of person's ability to deal with this stressor) and **stress-resistance resources** (social support, material, physical, intrapersonal resources – e.g., high self-assessment, self-esteem – information and education resources, sense of coherence – a permanent feeling that life makes sense). Both factors are crucial for experiencing stress.

What is more, **people differ a lot when it comes to reactions to the same stressor**. Adaptive and accommodative reactions also depend on personal factors, e.g., ways of dealing with stress (focused on problems or focused on emotions), sense of control and influence on surrounding environment. This scale is not consistent with Polish conditions – it includes points that are not congruent with experiences of average subjects (e.g., over 10,000 \$ mortgage loan).

If a party uses medical terminology incorrectly, an expert should say it, as in the example below:

QUESTION: What is more severe – psychoorganic syndrome or demential psychoorganic syndrome?

ANSWER: These two categories are not separable and it is not possible to differentiate them – the set "demential psychoorganic syndrome" is the subset of the set "psychoorganic syndrome".

In some cases an expert witness may encounter a question: "has the expert seen it?" If he or she recalls a particular document, they obviously should give an affirmative answer, or show which part of the opinion includes medical data and how it was used to formulate conclusions. If the expert witness does not recall it or the opinion is very

broad, they may ask: “what is the question concerning this document?” Consequently, we get back to the point. We ask for an opportunity to look through the mentioned document. It may happen that a party quotes selectively a fragment of it. However, if the party brought new evidence, a new document, perhaps we should change our conclusions, as in the example: expert witnesses analyze the outcomes of a road accident that involved head injury and concussion. As they are not familiar with earlier documentation (a patient during a medical interview denied any illnesses occurring before the accident), they assume that all recognized symptoms, which could result from the accident, are accident’s direct outcomes. But as new documentation emerged, revealing that the patient before the accident had been treated for arterial hypertension and cerebral circulation failure, the thesis must be verified.

Another table presents a juxtaposition of selected Schopenhauer’s eristic methods, problems to encounter by expert witnesses, and also suggested solutions [15]. More examples are published on the website dedicated to this issue [14].

Table 3. The description of selected eristic methods by Schopenhauer for solving sample jurisprudence problems [description according to 14, problems by WK]

Number of a trick	Description	Sample problem	Solution
1	Generalize adversary’s statement, give it the broadest possible meaning, but narrow down your own statement.	The bequeather suffered from major depressive episode – the party asks whether every depression results in inability to make a will.	Explain that the matter here is a specific severe condition of the patient, not any depression.
2	Use homonyms – refer to expert’s statement in another statement, using identical (or almost identical) word, then disprove the last one.	The expert witness wrote that my client has dissociative personality, but as I have checked on the Internet the term dissociative disorder and it includes trance and possession – which of them has my client?	Point out that these are two totally different kinds of disorders and, apart from similar names, they have little in common with each other.
3	Treat a relative statement as generalization, or interpret it differently.	RELATIVE STATEMENT (in experts’ opinion) If a patient suffers from mild mental retardation, he or she can be considered insane in specific circumstances, e.g., in the state of pathological alcohol intoxication. GENERALIZATION BY THE PARTY (in questions to experts) The patient was insane in every imputed crime situation at different times.	Explain the meaning of quantifiers used by the expert witness. Quote the written opinion, if necessary.

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4, 9	The party that seeks credit for their arguments makes an effort at different moments to give statements supposedly unrelated to the subject of the dispute. When they get approval, they prove their thesis.	The lawyer asks the expert witness about many things, not necessarily directly related to the case. Then he or she quotes expert's affirmative answers and concludes that the expert was wrong.	Give brief and pertinent answers, stick to the subject of the opinion.
7	Ask long-windedly about various issues, then quickly present your own arguments.	(example not required)	Remain vigilant and react when the party suddenly announces some statements as if they were proven.
8	Anger, harass, persecute the opponent, be insolent.	There are plenty of methods, e.g.: questioning expert's qualifications (age, experience, specialization, academic degree), raising one's voice, demanding a note in the case protocol about allegedly inappropriate behavior or phrase used by the expert witness.	Remain calm and address the judge, if he or she fails to warn the party on time.
10	When the opponent responds negatively to questions, while the affirmative answer is desirable – prepare and correlate two sentences in a way that the opponent – confirming one of them – proves your right.	Do organic personality disorder and characteropathy mean the same? Which term is more appropriate in my client's case: characteropathy or psychopathy?	The precision of wording: "the most appropriate statement – the patient has organic personality disorder". The expert witness is not limited to the terminology used by the party.
12	When there are several names for the same thing – choose a name that fits better into your argumentation. If the opponent speaks – unpleasant wording; if the attorney speaks – confidence-building wording.	Calling expert's opinion "a hypothesis" and understating its meaning. "You impute to my client that he is a chronic alcoholic, whereas he is a respected worker".	Give names consistent with medical terminology, if needed – explain the meaning, give definitions.
13	Give two solutions to choose from, but present them in such a way that the opponent will approve only one of them.	Does "often" mean "few" or "many"? Is the prognosis good or bad?	Use precise wording based on medical knowledge. One may also point that there are more than two answers (e.g., prognosis: good, bad, uncertain).

table continued on the next page

16	Indicate that opponent's argumentations stand in contradiction to schools or believes previously respected by him or her.	The expert witness is a doctor, he should care about people, about patients, yet he did hurt my client so much with his opinion. You haven't even seen him, doctor (opinion based on the case file). Could you look at him now, at this trial?	The attorney tries to prove that the opinion is harmful to his client, while doctors should not hurt patients. In answer to that, you should simply say that the doctor has made the opinion according to the court's instruction, and he only serves the truth.
18	When the opponent uses argumentation by which he or she may win – change the subject of conversation, create a diversion.	Changing subject, asking another irrelevant question when the expert is speaking.	Finish the disquisition: "Your Honor, I would like to finish my statement".
23	Make the opponent formulate exaggerated statements – by questioning this exaggeration you create the illusion of successful disproving of the original dispute's subject.	The subject of the case is whether the patient was appropriately treated. If the party successfully persuades the expert witness to make a statement that "doctors never make mistakes in treatment", such statement can be easily contested.	Refer only to the subject of the court case. Note that we focus on a particular event (exception: a so-called abstract opinion).
25	Use one example to disprove the general thesis.	The party claims that the bequeather was not able to express his last will, because he requested transfer of the payment for the property to the account of the relative. The example was given that in 2007 the Prime Minister of the Republic of Poland declared that he did not have his own bank account and he used his mother account, although he fulfilled such a responsible office.	Too definite statements should be avoided if there is no absolute certainty about them.
26	Retorsio argumenti – use the argument of the opponent against them.	The party claims that long-term administration of salicylates may have caused mental disorders of the bequeather (stupor, hyperactivity, hallucinations). The expert witness answers that it is the fact of long-term administration of the medication that proves there was no side effects. Otherwise, the physician would discontinue this treatment and note that in documentations.	Think your arguments trough, avoid questions about things that are "possible". This kind of discussion branches off into philosophical, ontological dispute, while in the opinion we focus not on possible things but certain or plausible.

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27	If a certain way of argumentation causes opponent's irritation – repeat it to anger the adversary.	Firstly, the party asks several questions on various subjects, e.g., the way of conducting examinations, diagnosis, prognosis, conclusions of the opinion. If some of these issues cause anger, uncertainty, confusion of the expert witness, the party explores it further.	Calmness is an important attribute of expert witnesses. You should work at it persistently and not associate with views presented in the case.
30	Invoke someone's authority.	The expert witness's opinion is contrary to the standpoint of Prof. X on this matter stated in the book Y.	Explain that the task of an expert witness is not to review a book, besides, Prof. X did not give an opinion in this case, so the expert has nothing to comment on.

Table 4. contains chosen Latin phrases, which describe chosen argumentative faults.

Table 4. Selected Latin phrases with descriptions

ignoratio elenchi – unawareness of the thesis to be proved, fallacy that consist in proving something else than the thing that is to be proven, e.g., a patient with alcohol dependence defends themselves that they still drink less than all of their acquaintances – the expert witness explains that he or she has not examined patient's acquaintances or his or her views on symptoms of addiction. The subject here is the assessment whether the symptoms observed in the patient allow to diagnose alcohol dependence.

ignotum per ignotum – a fallacy that consists in explaining the unknown term by another unknown term, e.g., when the party asks, what disorders of consciousness are, the expert witness says that it is a kind of disturbance of sensorium.

The use of so-called Ockham's razor – the rule that (most simply) comes down to "do not multiply entities without necessity" (formulated already by Aristotle) is of great importance in providing opinions. There are two statements in Ockham's work that outline the above-mentioned general rule: (1) "multiplicity is not to be assumed without necessity", (2) "it is vain to do with more what can be done with fewer". The philosopher thus introduced the principle of economics in the methodology of inquiry, which is used in constructing theoretical explanations [16]. The role of expert witnesses is to provide such explanations when formulating the conclusions of the opinion. The following example illustrates how this method can be used in an expert witnesses' work.

In the case of a written opinion and at the time of giving the opinion at the hearing, therefore, it is not necessary to prove with the use of numerous arguments or many assertions, one method is sufficient. Otherwise you can get lost in the flood of unnecessary questions, hypotheses and discussions. On the other hand, when discussing the expertise of different expert groups, if their opinions are convergent, there is no point in having one expert team evaluate the methodology of the other. Just as

there is much evidence of the Pythagorean theorem, many ways can lead to reach the right conclusions in the opinions. When the opinions of the teams are divergent, it is enough to point out the most important, decisive differences that have contributed to different inferences.

Finally, several notes on behaving during expert witnesses' confrontations. There is a temptation to expostulate, oppress opponents, expose their lack of knowledge, preparation and qualifications. It appears that a better method (and surely more useful for the court) is to analyze the cause of different opinions.

For example: a court case concerning miscarriage as a consequence of mobbing in the workplace. According to an expert gynecologist, stress at work caused miscarriage. In contrast, expert psychologist and psychiatrist explain that miscarriage is not connected with stress at work. They state that it had happened when the patient was working, fulfilling her professional and social roles. But she started psychiatric treatment only after half a year from miscarriage, as she had been made redundant (therefore, that second stressor was the decisive factor for the development of mental disorders). Her diagnose was: adjustment disorders, depressive reaction. During experts' confrontation the cause of differences between gynecologist's and psychologist-psychiatrist's opinion is identified: the first expert recognized mobbing as the possible direct cause of miscarriage not displaying any other symptoms, while other experts identified stress as a cause of specific psychopathological symptoms and assumed that only a strong stressor that caused clinically relevant mental disorders could lead also to miscarriage. Whether the first argumentation or the second one is correct is a matter that should be looked at by the court.

One final remark: this outline cannot replace practice. For the future reference, it is worth to note ways of argumentation, rhetorical figures, eristic methods encountered during court hearings, in order to learn the best way of argumentation and to avoid vain disputes. One may also use elaborations dedicated to this problem [7, 11, 17].

Conclusions

Logic, rhetoric and eristic are not included in the curriculum for medical doctors and psychologists at the pre – and postgraduate level. However, they are a part of the education system of lawyers, therefore during court hearings expert psychiatrists are often surprised by methods and types of argumentation. In some cases a well written opinion is insufficient and is discredited for non-substantive reasons, e.g., only by eristic methods. The choice of methods for translation from clinical data to juridical logic language may also be a huge challenge for expert witnesses. Therefore, it should be noticed that basic information on logic and rhetoric is useful for expert psychiatrists.

Enhancing the level of opinions should be ensured by:

- 1) training, courses;
- 2) the introduction of certificates;

- 3) introduction of the principle that only properly trained people can be “experts from the list”.

The present work describes elements of logic with its application in typical jurisprudence cases with elements of methodology of empirical science and semiotics. The part concerning rhetoric describes chosen types of argumentation and figures of speech to help experts tell the difference between the core of the problem and the tactic of its presentation. The purpose of this article is to help expert witnesses choose the method of explaining controversial issues regardless of methods of questioning and argumentation of parties. One may use here the mode of action based on examples from the following practice: analyzing speech directed to the expert – eliminating non-substantive content – constructing logical sentences – evaluating correctness of statements on the basis of logic and medical knowledge – formulating answers.

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