Abstract: This study reveals Aristotle's modeling contribution to the establishment of a recognizable figure of argumentation and demonstration. These two ways of imposing an idea configure similarly: from the premises, relying on principles and with the help of some rules of inference arguments are presented which induce, inevitably or within the truth limits, a conclusion. Aristotle introduces the concept of topos, and a canon of argumentation and a canon demonstration are delineated. For stated figures of argumentation and demonstration, the Aristotelian canons constitute the first opening look.

Keywords: Aristotle, rhetoric, topoi, argumentation, demonstration

I. Premises

In a demonstration, everything is given, whether it’s a hypothetical-deductive system or the axioms would be provided by rational or sensitive intuition. In argumentation, on the contrary, the premises are labile. As arguing, they can grow rich; but on the other hand, they are always poor, the acceding intensity changes.

The demonstrative science necessarily requires, Aristotle shows, axioms, "which are the first premises of demonstration" ("The Second Analytics", II, 10, 76b). All "demonstrative sciences use axioms" ("Metaphysics", 997, 1005 and 1090). Before introducing the term axiom, for the principles of demonstration, with this meaning, Aristotle uses the phrase: common opinions ("I call principles of demonstration the common opinions used as a basis of any demonstrations," "Metaphysics", 996, b25). Logical theory of axiom is formulated in the Second Analytics, I, 2,72a, here

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is a distinction between sentence and axiom, as self-evident principle which "ought to be known by the one who wants to learn".

In "Metaphysics", III, 997 a 5-15, IV, 3, 1005 a 20, XIV, 3, 1090 a 35, a canon of demonstration\(^1\) is stated: if there would be a science to prove the truth of these principles\(^2\) (of any demonstration, namely) one would have to admit, for them a gender as a substrate that would involve both their determination\(^3\) and the axioms used to infer these determinations\(^4\). It is more than possible to have a demonstration for everything; inevitably, the demonstration is based on certain premises, carries an essence and proves some properties. There is one science which deals with so-called axioms of mathematics (mathemasi kaloumenon axiomáton) and also with the substance study. Axioms do not apply to sensitive things. If they cannot be turn into axioms, sensitive things are not provable, but arguable. Aristotle states (in the " Second Analytics") that the materials or elements that form the dialectical arguments and what the reasoning is headed towards: a) the premises, problems and theses, b) the four predicates (the definition, the own, the gender, the accident) with their common places. In "Topics" (I, 10, 104), he shows that dialectical premise is a question that appears probable either to all, or to the majority, or to the wise, and of these, either to all, or to the majority or to the most important, provided that there should not be a paradox. There are four kinds of argumentative, dialectical propositions (premises): a) premises probable to everyone, or to the majority, or to the wise, and of these, either to all, or to the majority or to the most important b) premises that are similar or analogous to those definitely probable, c) premises denying the premises contrary to the probable ones d)

premises agreeing to the recognized teachings of arts (sciences). "For we will take as true, Aristotle states, what the wise admit, but if it is not contrary to the views of many. There are also dialectical premises which resemble the probable premises, as denying all that is contrary to probable opinions, finally, that agrees with the teachings of recognized arts" ("Topics", I, 10, 104).

We can say that the arguments order will be mostly dictated by the desire of releasing new premises, of presenting certain elements and getting certain commitments from the allocutor. The premises verisimilitude should not be considered in an abusive etymological interpretation ("what resembles only the truth"). The verisimilitude, O. Reboul (1991) considers, is not due to the ignorance, incompetence or the auditor’s prejudices, as well as the uncertainty of the argumentation is influenced by its field of application: legal, economic, political, pedagogical, ethical and philosophical issues. Uncertainty, therefore, must not be a priori disqualified. Somehow it is the very condition of possibility and the existence of action and reasoning.

Depending on the situation and on the auditor, the orator puts his rhetorical intelligence at work, both rational and emotional, in order to organize the argumentative strategy in such a way as to convince/persuade the auditor. Besides using in the premises only the opinion verisimilitude and not providing all the rules of the game, the argumentation uses on a large scale the implicit, so that most of its premises are implicit. If the premises are just verisimilar (in fact the argument may integrate demonstrative elements too), submitting arguments is always more or less unpredictable and not formalized.

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II. Principles and rules

The demonstrative knowledge comes from the necessary principles, Aristotle shows in "Analytical second" (I, 6, 74 b). The principles of the demonstration elaboration are the logical laws: of the identity, of no contradiction, of the excluded third person and of the sufficient reasoning. In argumentation, the logical principles are not dissolved, but softened as urgency, transformed into simple rules and integrated among specific rules. They remain at the level of some simple fears; the only real and active anxiety is contradiction.

The argumentation is so directed by general principles (or rules) whose essential characteristic is to be different from the principles governing the logical reasoning. In most of the argumentations, getting from an argument to a conclusion is based on a general principle, called topos. The topos is therefore the "principle" that makes the argumentation possible. In graphics terms, one may say that a topos is a journey that allows the passing from a premise-point to a conclusion-point. As a general rule, topos is different, on the one hand, from the syllogism and, on the other hand, from the natural rules of deduction, both imposing conditions on logical reasonings. The three main characteristics of the topoï (their generality, their belonging to common sense and their gradualness) make possible their challenge or disproof. The basic characteristic of topos is its gradualness. The Aristotelian tradition speaks of the three argumentative topoï: common places (or universal arguments derived from the past experience, analogy, possible and impossible), particular topoï (specific to each area of science)

and the "rhetorical" enthymemes (arguments by antonymy, a fortiori, arguments causal).

The conducting of any speech, one may read in "Topics", is linked to a set of general principles\(^1\) called topoi (common places). On such topoi (general principles recognized within the community), also rely the reasonings at the speech level. In this perspective (opposite to the vericonditional one), the implication relationship between enunciations is governed not by the truth "in itself" of the verbalized facts, but by the topos or the topos chain guiding their verbalization. The meaning of a sentence is given then by the set of topoi-whose application is authorized by its assertion. Thus, to choose, in a given situation, to state a phrase rather than another is to choose to develop certain topoi over the others. That is to show your inclination for certain topoi. The significance is equivalent, in this circumstances, to choosing, in respect to the facts, some determined argumentative opinions. A new perspective on vocabulary emerges from that. The predicates of the language appear as coherent beams of topoi: of correspondence between qualitative gradations (which can be superimposed - but not necessarily - familiar numerical scales too). In general, a predicate cannot be understood if you are not able to associate it a gradation in a certain area, consistent with other gradations. Therefore, instead of the usual field of observation, the lexical field appears as a topic field. Language as a whole is, at the phrases level, fundamentally scalar. On this scalar basis - not simply binary - argumentative inferences occur. They belong, in speech, more to the verisimilitude than the truth, more to the qualification than the quantification. Hence the interest they present, especially non-standard logic and particularly the non monotonous. Thus it appears as natural O. Ducrot’s use of two notions: the notion of "component rhetoric" to describe the meaning of the statement in case, as opposed to "semantic component" or meaning given to the sentence in the language\(^2\).

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While demonstrating, unchallenged rules are used, which govern the inference action. It is reasoned on impersonal conventions and it is provided evidence considered to impose to anyone, addressing randomly to one or many. On the contrary, when arguing, inference acts will not be dissociated from the interpretation acts. It cannot be distinguished once and for all between the premises and the consequences of argumentation. This phenomenon is explained by the fact that the terms univocity is beyond the control of those who argue for or against a thesis. The current argumentative discourse does not cease to elaborate its own premises while running and explaining, for the interpretation of the terms is never completely achieved between partners: each is therefore forced to take explicitly into account the content of the sentences. The very meaning of the key-terms is at issue. Aristotle captured the extent of the phenomenon. He called "topical" the subsidiary rules that compensate in this case purely logical rules, when the speaker wants to admit a sentence about a generic, specific, personal or accidental characteristic.

In the everyday disputes, the reason adapts to the subject requirements and to the object coordinates. The demonstration of a theorem develops invariably by the same schemes, while the effort of convincing someone about something acquires variable developments, in relation to interlocutors and the topic of the dispute. The development of the argumentation does not fit into precise patterns, although guided by certain recommendations, which facilitates the success. The argumentation theory cannot be a formal science, because it is forced to guide by people and problems. "However, the argumentation, Petre Botezatu shows, does not completely ignore the forms of the logical reasoning, the logical operations and logical structures, as they are enshrined in human reason". These logical elements are present *sponte sua* in every act of thinking, even though

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for the moment they suffer some deviations and deformations, under the pressure of the affective states and of the irresistible impulses¹.

In a formal demonstration, it is started from axioms in order to reach the theorems. The demonstration is essentially operational in nature; it involves the propositions of a deductive system in which a number of the propositions are accepted as true and with the definitions and some rules proves as true any other proposition in the system. In other words, the demonstration emerges as the formal criterion of verifying the statements, meaning that if the premises are true and if the inference is correct, then the conclusion will be true. Within the boundaries of any deductive system, satisfying the formal criterion guarantees the truth of the propositions in question, provided that the axioms should be like this. Therefore, there is an order. But its importance is limited, because the variants are strictly equivalent. It does not really matter the order in which the axioms are presented, the stages succession is less important, provided that each of them should be completed by applying the adopted rules of inference.

It is not the same if one takes into account the adhesion of spirits, when switching from a formal point of view to a psychological argumentative one. In demonstration, the order will be important when, instead of considering the axioms as arbitrary, a concern occurs for their obvious or acceptable character; when selecting stages, the intelligibility of a certain demonstrative order will be sought more or less.

However, in an argumentation, the order cannot be indifferent: adhesion depends really on the audience. Or as the argumentation develop his situation changes even through this argumentation and that regardless of the arguments reception². That's precisely because the changes of the audience are simultaneously emotional and contingent, the adopted order is that important.

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III. Natural inference/formal inference

The inference (lat. inferre - "to lead, to introduce") is the operation of changing (derivation or integration) of an enunciation-knowledge into another enunciation-knowledge\(^1\). The inference can be "immediate" when from the first enunciation (premise) results directly the second (conclusion). Is "mediated" (reasoning), when the conclusion follows from the first enunciation, at least through a third one. It is "necessary", when the conclusion necessarily follows. It is "probable" (preferred), when the conclusion does not come necessarily from the premises. Syllogism is an argument with two premises: the major premise (which contains the major term) and the minor premise (which contains the minor term). From these two judgments a third judgment is deducted - the conclusion of the syllogism\(^2\). The conclusion derives necessarily from the premises. The necessary nature of the derivation in syllogism is formally based on the axiom of the syllogism. The conclusion of a syllogism is certainly true only if the syllogism should accomplish two conditions: material and formal. The material condition is the condition of starting from true premises. The formal condition is of structuring in a correct form. The correctness of the forms of syllogism is the result of founding in and through the general laws of the syllogism, which is, at this form of thought, the expression of the requirements of the logical principles. The general laws of the syllogism are: laws of the terms (has 3 terms; the medium term is distributed in at least one of the premises, none of the terms would not be distributed in conclusion, if it was distributed in the premises); laws on judgments (2 affirmative premises give an affirmative conclusion, a premise is always affirmative, one of the premises is always a universal judgment; if a premise is negative, the conclusion will be a negative judgment too, if a premise is particular, the conclusion will be a particular judgment too).

If in formal there are syllogisms, in informal there are argumentative inferences\(^3\). There are three criteria for the inferences that will satisfy a

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fortiori only the argumentative inferences: calculability, suppressibility and delimitation. Considering the arguments as a particular type of inference, is making the assumption that the interpretative process makes room for calculation. This calculation is based on the enunciation or on the proposition or propositions it expresses, on the selection of a context of interpretation in order to obtain an implication or contextual implications.

These contextual implications, in what argumentations are concerned, can have basically two statuses: either of the default conclusion or of the anticipatory hypothesis. But in this case, two situations must be distinguished, depending on the argumentative nature of the hypothesis content.

The suppressibility is an inherent characteristic of the contextual inferences: in a particular context, an inference is legitimate; in another context, it is no longer legitimate and must be suppressed. Delimitation is the characteristic by which from a contextual inference is reached very quickly through a contextual implication an interpretation consistent with the principle of relevance.

The main instrument of passing from premises to conclusions is inference. Some researchers argue that the process of transforming knowledge should be the reasoning (P. Botezatu considers that all the time we syllog-ize), for others reasonings are, when they are stated, as many arguments, an argumentation consisting of a relationship between one or more arguments and a conclusion. In argumentation, the inferential connection is never binding. Its effectiveness is a matter of degrees. It is more or less powerful and it can always be enhanced by additional

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arguments\textsuperscript{1}. Demonstration, based on syllogism, on the contrary, is valid or non-valid. If valid, then there will be nothing more to add\textsuperscript{2}.

**IV. Arguments**

The argument is an element of knowing (one piece of knowledge) that serves as a premise for the foundation or rejection of another item of knowing (knowledge). To the extent that it is "intended to serve a certain conclusion", has an argumentative orientation. The argumentative value of an enunciation (that is, that argument must be interpreted as an argument to a conclusion) is determined by its argumentative orientation. Two aspects should be emphasized, on the one hand, the oriented character of the enunciation content with argument value (oriented to a particular conclusion) and, on the other hand, the gradual character of this orientation. In other words, if we argue for or against a thesis (conclusions), we will do it relatively and not absolutely. One may argue that the arguments are logical operations used in whatever field of knowledge - induction, deduction, definition, etc. A somewhat similar perspective A. C. Baird\textsuperscript{3} (1950) follows, stating that arguments are inferences and the species of arguments - species of inference: of generalization, of analogy, of causality, of deduction etc., each with a series of subspecies. The argument has two qualities besides the thesis argued by the speaker: prove and confirm. The first quality determines the objective certainty indicated by intellective amplitude. The second quality determines the subjective certainty indicated by the perlocutionary force.

Unlike the demonstration theory, which understands only concrete evidence, that is in accordance with the generally accepted rules, and samples not meeting these conditions, in the theory of argumentation things are much lighter and more complicated\textsuperscript{4}. An argument may be more

effective than another, more revealing or less revealing\textsuperscript{1}. An effective argument in a certain situation may become obsolete or even ridiculous at some point. Sometimes, the very attempt of arguing results in the weakening of confidence in the proposed thesis. A fact noted even in antiquity is the influence exerted by the order in which arguments are presented. In a certain context, an argument is more efficient, less in another or even harmful to the cause in question. It follows that the validity of arguments is always relative, and applying the argumentative rules, just as likely to be themselves argued. No argument is really constraining, no counter-argument is really without appeal.

The demonstration is normally unique\textsuperscript{2}. If several demonstrations are proposed, which is sometimes the case, with them there are advanced as justifying variants, using historical reasons\textsuperscript{3}. Argumentation involves, generally, a plurality of arguments. On the contrary, an argument would occur very rarely strong enough to involve conviction. Since the language register used in argumentation is the natural one impregnated with the implicit, leaving a consistent part to the explicit too, within it implicit or explicit arguments may occur\textsuperscript{4}.

V. Conclusions

The conclusions of argumentation remain basically controversial and express primarily not enunciations on the world, but agreement between the collocutors. The pact, agreement, consensus, consent are forms of argumentative conclusion. The auditor, who is not forced to accept it, is as

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\textit{Argumentation,} 12(1), 95-113.


responsible as the speaker with respect to the conclusion. If the starting points and the result of an argumentation are not clearly defined, distinctively enunciated and strictly circumscribed, the intermediate links are even more undetermined. In a rigorous demonstration, not only should be indicated the links essential to the demonstration development, but it should be presented all the links, inferences and connections. In an argumentation, there is no absolute limit in the useful accumulation of arguments and it is allowed to not enunciate all the premises essential to reasoning.

The formal logic is not an adequate instrument for analyzing the judgments accomplished in the natural language (rather than in a formalized language), compared with an audience (rather than in the abstract), based on assumptions shared by this (and not by axioms which requires no prior approval of the audience). However, the inapplicability of the formal logic in oral argumentation does not mean that it escapes totally to logic, and even less to rationality. The argumentation involves cognitive operations and a completed organization, achieved in the natural language in social contexts. It has its own "logic". Through global vision, logical investigation would prevail in the vast field of the argumentation.

Formalizing is not the mere substratum of thinking, and thinking is not thinking only because and to the extent in which it can be formalized. "Beyond formalization there is always an informal and intuitive logic, which is implied by our actual understanding of formalization", H. W. Johnstone Jr. (1989) wrote¹, an authority in the matter. The formal system has advantages that no non-formalized languages afford, but it is impossible to represent in the formal system all the virtualities that can be mentioned in the non-formalized language”. Formal logic is concerned only with deductive arguments, those in which the information contained in the premises is sufficient to determine necessarily the conclusion. In reality, this is the logical goal that is rarely achieved in practice. If the ideal realm is abandoned for complying with the imperatives of formal logic, of formal

sciences (logic and mathematics), it will be reached the logical horizon of psychological and moral judgments, aesthetic and political, legal and sociological, pedagogical and praxiologic (inductive and probabilistic) etc. Judgments of this kind, so common and important to our lives, do not fit the rigid schemes of formal logic. In their case, there is no contradiction if the premises are accepted and the conclusion is rejected. However, the argumentations in these areas can be sufficiently convincing as to consider the matter as closed. In the reasonings called demonstrations the conclusion follows necessarily from the premises. There are reasonings called argumentations. Their specificity is that within them conclusions do not necessarily arise from the premises. In formal logic is generally considered that argumentations are failed demonstrations, that in them the belief is largely based on extra-logical factors, and that, therefore they are excluded, eo ipso, in logic. An exception is made only with inductive argumentation, taking into account its essential role in elaborating theories of empirical sciences.

References


