

DAVID THE INVINCIBLE'S STUDY ON LOGIC

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The works of David the Invincible (Anhakht) contain analyses not only of the traditional problems of philosophy - problems of ontology, gnoseology, logic, ethics, esthetics, but also questions concerning cosmogony, mathematics, medicine, biology, grammar, psychology, musicology and so on. However, among all the problems, the questions of logic occupy, by their significance, a peculiar place in the works of David the Invincible. We mean that not only do we find the Armenian philosopher's interpretation of Aristotle's "Prior Analytics" and "Categories" and of Porphyry's "Introduction"¹ extremely interesting, but also while considering philosophical questions he treats them first of all as a logician, puts forth his understanding of logical methods and ways, by means of which he analyses the object of his research. That refers, in the first place, to David the Invincible's "Definitions of Philosophy". And so one may state with certainty that the main content of the Armenian philosopher's theoretical heritage is his logical conception, his study on logic.

Unfortunately, not all of the Armenian thinker's works have come down to us, neither are the ones that have come down to us unimpaired. That circumstance, of course, makes it impossible to obtain a full idea about the scientific interests and conceptions of David the Invincible. However, those which are available indisputably testify to the breadth of his interests and depth of his consideration of problems dealt with, to the fact that the science of logic intensively developed in the Armenian reality during the 5th and 6th centuries.

The high level of analysis of problems of logic, the statement of questions and their creative solutions by David the Invincible testify to the fact that he had his logician predecessors in Armenia, that the science of logic had its traditions in the Armenian reality still long before the appearance of David's works. To that fact testify also the extremely rich and the so supple composition of concepts. The categorical apparatus of the science of logic in David's writings expressed in ancient Armenian with ease and grace. David's works signify an important stage in the development of the Armenian logical-philosophical terminology.

Treating the subject of logic David the Invincible agrees neither with the opinion of the Stoics, who maintain that logic is a part of philosophy, nor with the opinion of the Aristotelians, who maintain that logic is a tool of philosophy. Following the Platonists David the Invincible founds a thesis that logic is both a tool and a part of philosophy. At

¹ Դավիթ Անյաղթ, Վերլուծութիւն («Ներածութեանն» Պորփիրի /համահավաք քննական բնագիրը, թարգմանությունը գրաբարից ուսերեն, առաջաբանն ու ծանոթագրությունները Ս. Ս. Արեւշատյանի): Երևան, 1976:

the same time he indicates in what respect logic serves as part of philosophy and in what as its tool. When logic serves to prove the existence of real objects, then it is a part of philosophy, and when it acts as rules of thought, then it serves philosophy as a tool².

In essence, Aristotle's attitude as to the main thing in logic, i.e., demonstration, is fully supported by the Armenian logician³. Although David the Invincible closely links logic with philosophy, consequently it mainly bears a gnoseological nature, none the least the Armenian thinker never doubts that the forms of thought, operations of the mind are studied by means of a special science, by logic. Regarding the task of the latter, the investigation of division, definition, demonstration and analysis, David scrutinizes the question in respect of the sequence of those logical means. In doing so, one feels his tendencies to explain the place and role of logical categories in knowledge with respective analogues in the everyday working activity of people, tendencies towards a materialistic interpretation of logical categories⁴.

On the other hand, scrutinizing the sequence of the investigation of logical categories, David the Invincible states that investigation must be realized from the simple into the complicated⁵.

David the Invincible has an idea about the nature of such a relation between the general theory and the particular, thus, speaking in today's language, the former is the metatheory of the latter. Such, first of all, is philosophy with regard to other sciences and in particular to logic⁶.

In the works of David the Invincible logic comes into play also as a theory of argumentation. One of the characteristic peculiarities of all the works of the Armenian thinker is revealed in the statement of his views in the form of argumentation, and while arguing he displays some or some other features of argumentation. He examines, in particular, the rule of the refutation of the opponent's thesis (the method of opposition and the method of equality in disputation), the nature of the antithesis of the thesis to be proved, and also of all the possible arguments in favour of the antithesis, the conditions in which they resort to an authoritative opinion and so on.

A number of problems referring to the logical theory of concepts is examined in the works of David the Invincible, such as types of concepts, specificity of such concepts which are investigated by philosophy, interconnection and inter-conditionality of the categories *genus*, *species*, *difference*, *proper sign*, *accidental sign*.

According to David the Invincible's viewpoint, the division of concepts into genera and species has a relative character, the one and the same concept may appear in

² Դավիթ Անյաղթ, Երկասիրութիւնք փիլիսոփայականք/ համահավաք քննական բնագրերը եւ առաջաբանը Ս. Ս. Արեւշատյանի), Երևան, 1980, էջ 313; Давид Анахт, Сочинения /перевод с древнеармянского, вступительная статья и примечания С.С Аревшатяна. Москва, 1975, с. 209.

³ «Մեկնութիւն «Ստորոգութեանցն» Արիստոտելի», ի լոյս է եւած Յ. Մանանդեան, Ս.-Պետերբուրգ, 1911, էջ 17:

⁴ Դավիթ Անյաղթ, 1980, էջ 45:

⁵ Ibid, p. 114.

⁶ Ibid, p. 73: 116, Մ. Մաշտոցի անվ. Մատենադարան, ձեռագիր N 1747, ր.74 ր:

some relations as a species, in others as a genus. Such a connection, according to his interpretation, conditions their joint study⁷.

The problem of property takes up much space in the works of David the Invincible. However, the most interesting thing in the theory of concept, in our opinion, is David the Invincible's study on definition, and also division. Not accidentally did the Armenian philosopher entitle his chief work otherwise than "Definitions and Divisions of Philosophy...".

Setting himself the aim of analyzing the nature, the essence of philosophy, David the Invincible resorts to an all-sided examination of the definition and division of the concept of *philosophy*. And to accomplish the projected task the Armenian thinker makes the very logical means of definition and division an object of investigation.

David the Invincible subjects the analysis of the following problem referring to definition: what is definition; the distinction of definition from means resembling definition; genesis of definition, structure of definition; perfect and imperfect definitions; number of definitions of philosophy; validity of a given number of definitions of philosophy; sequence of definitions of philosophy; whom those definitions are established by.

The indicated problems are not of the same order. The first five of them refer to definition itself as logical operation and hence it has an all-logical nature. The remaining four questions refer to the definition of a definite phenomenon, namely philosophy. However, in order to solve the second task, David the Invincible undertook to create his own system of definitions, on the basis of trying to understand anew all that had been created by the science of logic.

While examining the problem of definition David does not avoid possible objections which he calls "very strong and hard to solve"⁸. To them belongs the *self-reflectiveness* of definition both as a logical operation in general and also as a definition of categories. From David's interpretation of a given problem it ensues that while defining, in essence, we have to do with a set, which contains itself as an element of that set. He also remarks that a logical situation with definition is by far not a unique case in the theoretical-cognitive difficulties of knowledge. As an analogous example he points out mathematics⁹. David the Invincible sees the solution of a problem in the formulation of the logical rule that not everything said regarding the conjunction of two objects (or the object and its property) may be confirmed about each of those objects¹⁰.

David the Invincible made up his mind to work out formal rules, which might make it possible to distinguish correct definitions from incorrect ones. Relevant here is the rule that in definitions words and the defined are in reverse dependence. When the quantity of words in a definition is increased, the defined are decreased, and vice versa, when

⁷ Դավիթ Անյաղթ, 1980, էջ 186:

⁸ Ibid, p. 137.

⁹ Ibid, p. 44.

¹⁰ Ibid, p. 76.

the quantity of words is decreased, the defined are increased¹¹. By that rule, David the Invincible, in essence, spreads the property of the reverse dependence between the extent and content of concept on definition, or in other words, tries to understand anew the nature of the structure of definition through the view of the interrelation of extent and content of the defined and defining concepts. And that also means that he indicates the connection between the structures of concept and definition, which enriches our knowledge in relation to both the former and the latter.

The examination by David the Invincible of the rule forbidding negative definitions creates the possibility not only to ascertain the relative action of that rule but also to precisely outline the boundaries of its application¹². That is possible to formulate as follows: if all the species of a given genus except one are defined, then it is possible to give it a negative definition pointing out that it does not possess the properties of the other species of the given genus.

David considers the reversibility of a defining concept in relation to a defined concept an important condition of perfect definition¹³. That is the rule which, later in the history of logics was called the rule of proportionality.

Describing the types of definition (as to genus and distinctive sign, as to subject and aim, as to both, et al), David the Invincible starts from the idea that the cognitive meaning of every type of definition and their applicability depends on the concrete tasks of definition, on the sphere of its application, on the character of the object the concept about which is defined.

Highly interesting are those considerations which David the Invincible expresses about the question regarding the interrelation between the name of an object and the definition of the concept about the object, about the genesis of definition, about the bases on which definition is built, about requirements regarding the plenitude of definition, about the interrelation between definition and means replacing definition, about the cognitive significance of definition, and so on.

David the Invincible analyses six definitions of philosophy. However, his contribution to the history of scientific thought consists not in the fact that he suggested new definitions (or a definition) of philosophy, but in the fact that (a) relying on the definitions of philosophy given by Pythagoras, Plato and Aristotle, he creates a system of definitions of philosophy demonstrating that not any one definition, taken separately, could display the essence of philosophy; (b) he reached the idea of definition through contrariety. According to David the Invincible the singular and the particular “anti-define each other”¹⁴, he characterizes the particular as the undefined singular, and the singular as the definite particular. In another connection the Armenian thinker observes that species and genus, mutually correlate, and when defining the genus it is necessary to

¹¹ Ibid, pp. 46-47.

¹² Ibid, p. 182.

¹³ Ibid, p. 50.

¹⁴ Մատենադարան, ձեռագիր N 1716, Թ. 116բ:

define also the species, for the study on genus and species is the same thing. Summing up his system of definitions of philosophy, David the Invincible emphasizes that on the whole the beginning and the end are linked. For the Armenian thinker the question is not only about the requirements of interconnection of concepts in the system of definitions, but also that interconnection is the unity of contraries; (c) David the Invincible proceeded, in particular, from the position that in order to know an object it is necessary to study it from all sides, in its connections and interlacings with other objects, and that implies the necessity of different definitions for the one and the same object; (d) he also stated that different definitions for the one and the same object may have different cognitive significance, and consequently, when creating a system of definitions, they must be classified beginning with the more important moving towards the less important, which acts as a peculiar manifestation of the principle of subordination; (e) while creating his system of definitions of philosophy, he constantly had recourse to argumentation and enriched the art of argumentation; (f) David considered definition in close connection with division; (g) David explained the origin of the indicated categories by the working activity of people, their real relations, considering the former (categories) as mental reflection of the latter; (h) he thought over, in his own way, all the main things which had been created by logical thought in the domain of investigated categories enriching the studies on logic, on definition and division of concept.

From his teaching on statement, those fragments of David the Invincible's theoretical heritage have come down to us which refer to the theory of inference. In spite of the fragmentariness of Armenian thinker's considerations reaching us, it is still possible to conclude David's creative approach regarding the logical theory of statement. A number of his ideas preserved their freshness even for our times. Pertaining to those ideas is the problem of the interrelation between the logical and its linguistic expression. As a particular manifestation of the given problem, David the Invincible analyses the definite article and shows that it plays one role in grammar and another in logic. With the help of the latter David the Invincible distinguishes statements according to their quantity. According to his interpretation statements without the definite article are tantamount to particular while with the definite article they are tantamount to general statements.

From the viewpoint of development of ideas in the history of logic, the interpretation of some logical connectives by David the Invincible is not devoid of interest. First, some of his expressions leave no doubt that the Armenian logician accurately realizes the role of the logical connective *conjunction* in the process of judgement, argumentation. More important, in some cases of his interpretation of common linguistic expressions the conjunction (in Armenian “և” “in English “and”, in Russian “и”) does not always fulfil its standard function. So, in one case David joins two simple statements by means of “and”, the first expressing authentic knowledge, the

second unauthentic¹⁵. That means also that the indicated statements are at different levels in cognitive thought, and from that viewpoint the commutativeness regarding their relation in the structure of a compound statement is uncertain. Since commutativeness is one of the characteristic peculiarities of conjunctive statement, then it may be supposed that the case of the connective “and”, examined by David the Invincible, is not a usual content of conjunction.

The idea that the property attributed to the totality of objects (object and property) is not always possible to attribute to the object (to the property) each taken separately, and vice versa, the property attributed to objects taken separately, is not always possible to attribute to the totality of those very objects, is in essence used by David the Invincible to elucidate the question about conjunctive statement and also to solve the procedure of obtaining conjunctive statement from simple ones or from the decomposition of conjunctive statement into simple ones.

Neither did the Armenian logician leave out of his field of vision the examination of the cognitive role of connectives expressing varieties of disjunctions, negations as well¹⁶.

David the Invincible regards the essence and tasks of inference in close link with cognition and its forms. The correct understanding of its nature, according to the Armenian scholar, serves as a means to refute skepticism and agnosticism. He reveals the meaning of syllogism both for knowledge of the surrounding reality and for self-knowledge¹⁷.

David notes five types of inference - demonstrative, logical (=dialectical, in the ancient Greek sense), rhetorical, sophistical, poetical (=mythical)¹⁸. The basis of that classification is the relation of statements in the structure of inference to truth. He investigates the nature of syllogism, its premises and terms.

The analysis of the Aristotelian syllogism, realized by David the Invincible in the 5th-6th centuries, is not only interesting as it is from the viewpoint of David the Invincible's logical conception in the aspect of those new logical ideas which we notice in the Armenian logician., but also as an answer to some yet unsolved questions in the history of formal logic. We mean in particular the so-called “truthful form of the Aristotelian syllogism”. Jan Eukasiewicz distinguishes the latter from the traditional syllogism, for Aristotelian syllogism has the form of implication, and as such it is a proposition. And a proposition must be either true or false. While traditional syllogism represents a number of statements, which are linked with conclusion by means of the

¹⁵ Մատենադարան, ձեռագիր N 1716, թ.101 բ:

¹⁶ «Մեկնութիւն «Ստորոգութեանցն» Արիստոտելի», էջ 112; Մատենադ., ձեռ. N 8 132, թ. 213 բ:

¹⁷ Դավիթ Անյաղթ, 1980, էջ 305:

¹⁸ Դավիթ Անյաղթ, Մեկնութիւն ի «Վերլուծական» Արիստոտելի /համահավաք քննական բնագիրը, թարգմանությունը գրաբարից ռուսերեն, առաջաբանն ու ծանոթագրությունները Ս. Ս. Արևշատյան, Երևան, 1967, էջ 40:

word “consequently”. According to that interpretation, traditional syllogism is not a proposition in form¹⁹.

It should specially be noted that Jan Łukasevich has in view the contemporary texts of the “Analytics”. However, it is known that those texts as well as the other writings of Aristotle have undergone different changes and additions²⁰. The texts which are the subject of David’s interpretation are doubtlessly much nearer to the Aristotelian original ones.

The Armenian thinker stresses, first of all, that the Aristotelian definition of syllogism spreads over all kinds of syllogisms, and that Aristotle gave the definition of syllogism in general. The examples produced by David as illustrations of Aristotle’s understanding of syllogism do not correspond to Jan Łukasiewicz’s interpretation of Aristotelian syllogism. From Jan Łukasiewicz’s viewpoint they must be characterized as traditional syllogisms. As for Jan Łukasevich’s supposition that Aristotelian syllogism was, until Alexander, always expressed in the form of implication and the transformation of Aristotelian syllogisms from the form of implication into the form of inference is probably conditioned by the influence of the Stoics; there is no ground to extend it also over David the Invincible. First, David the Invincible’s view regarding that question, by the statement of David himself, differs from that of Alexander’s. Maintaining the thesis that Aristotle defined every syllogism, syllogism in general David the Invincible especially notes that the interpreter of the “Analytics” Alexander wrongly interpreted the Aristotelian understanding of syllogism²¹. Second, David expresses his negative attitude still sharper towards the conceptions of the Stoics in general and towards the interpretations of syllogism by the Stoics in particular. He mercilessly criticizes the “Stoics” clumsy construction of syllogisms²². Finally, and this circumstance should necessarily be underlined with all clarity, David the Invincible’s analysis of the Aristotelian definition of syllogism is textual: he moves from word to word commenting on every one of them separately and all the consequences resulting from the given word and its position in the definition. By such an approach and by the indicated attitude towards Alexander and the Stoics, David the Invincible could not deviate, to any extent, from the form of the Aristotelian syllogism either. Hence there is all the required ground to regard the forms of syllogism in David the Invincible’s interpretation most adequate to the “true form of the Aristotelian syllogism”.

While criticizing the Stoics’ conceptions of the nature of syllogism, David the Invincible expresses a number of ideas which certainly represents interest to understand the development of ideas in the history of formal logic. The Armenian logician analyses the inference of the relations of equality and of inequality. David perceives the deficiencies in the Stoics’ conceptions in the fact that they take the minor

¹⁹ Łukasiewicz J., *Aristotle’s Syllogistic from the Standpoint of Modern Formal Logic*. Oxford 1951, § 1, p. 2.

²⁰ Аристотель, Соч. в 4-х томах /т. 2/ с. 15-18.

²¹ Դավիթ Անյաղթ, 1980, էջ 321:

²² Նույն տեղում, էջ 326-327:

premise twice and drop out the major one. In David the Invincible's opinion, the indicated inferences can assume a correct form if the corresponding rule of inference, in the form of a general premise, is introduced into their structure - (things that are equal to one and the same thing, are also equal to one another; the one which is greater than the major, will be significantly greater than the minor). Thus, David imparts a more strict form to the Stoics' inferences. However, David does not suggest any similar demand for the Aristotelian syllogism, he does not consider that the axiom of syllogism in the form of a general premise should appear in it. It is possible to suppose that the difference in David's approach to Aristotle and to the Stoics is conditioned by his fine understanding of the specific peculiarities of Aristotle's logical system, on the one hand, and the Stoics', on the other, from the viewpoint of the formalization of their logical systems. David's assumption of the possibility of replacement in the expression of the universal quantifier by equivalents in meaning by other expressions while analyzing the Stagirite's conceptions²³ is an evidence to his weaker demand from the viewpoint of formalization concerning Aristotelian syllogistic than his demand suggested while analyzing the Stoics' logical constructions.

David the Invincible has also a number of interesting and fruitful ideas which include; the problem of sequence (if Aristotle's conclusion of syllogism contains new knowledge in comparison with premises, so in distinction from that, according to David's interpretation, the Stoics have identity of conclusion and premises in some syllogisms); conditions of validity of inference; cognitive meaning of concrete varieties of inference; question about perfect and imperfect syllogisms; direct inferences (in that connection David's attempt to distinguish a concrete-object peculiarity from an abstract one in predication is of particular interest, for the purpose of differentiation, in some cases, between a valid reversibility of statement and an invalid one); conversion of syllogism, and so on²⁴.

In his writings David the Invincible investigates also the problem of demonstration, its types, and following Aristotle, he prefers deductive demonstration, placing it, because of its cognitive significance and certainty of inferential knowledge, higher than inductive demonstration, and also analogy.

The Aristotelian laws of thought are not subjected to special analysis by David the Invincible. However, the whole context of his investigations shows what an important significance does he impart to the demands originating from the laws of identity, of contradiction and of the excluded middle? For all that the demands of the laws of identity in David's interpretations, in essence, are directed against the relativism of Cratylus; he combines the logical content of the laws of contradiction and of the excluded middle with the gnoseological tasks of the discovery of truth.

Some of David the Invincible's works bear such an important significance both for the history of logic and for that of philosophy that, being a scrupulous textual analysis of

²³ «Մեկնութիւն «Ստորոգութեանցն» Արիստոտելի», էջ 73:

²⁴ Ibid, pp. 44-45, 71.

a number of the sections of Aristotle's works, they give us the possibility to restore the real picture of the Stagirite's studies and their place in the development of the ideas of logic and philosophy²⁵.

On the whole, David the Invincible's study on the subject of logic, on the forms of thought, is one of the important pages of the ancient period of the history of logic, and the world history of logical studies would have suffered without due regard for all that has come down to us from the Armenian thinker's theoretical heritage.

²⁵ Conybeare F. C., *Anecdota Oxoniensia. A Collation with the Ancient Armenian Versions of the Greek Text of Aristotle's Categories, De Interpretatione, De Mundo, De Virtutibus et Vitiis and Porphyry's Introduction*. Oxford: Clarendon Press, Classical Series, I, 6, 1892, p. XXXVII.