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# Dialectical Analysis as a Research Method in the Works of L.S. Vygotsky

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**Abstract**

**Background.** The cultural-historical theory of the development of higher mental functions by L.S. Vygotsky remains relevant and continues to be discussed by specialists from various countries. Its usefulness is largely due to its employment of the dialectical method, the analysis of which is the focus of this article.

**Objectives.** The aim is to reveal the essence of the dialectical method which allowed L.S. Vygotsky to analyse mental development processes. The first task was to define units of analysis as well as to describe their role when applied to a method. The second task was to show two types of analysis: substantive and structural.

**Methods.** The dialectical method of analysis was applied in the process of solving theoretical problems. The current article systematically raises questions about the characteristics of the method, the requirements for units of analysis and their properties. Several difficulties with analysing units were summarized.

**Results.** Dialectical analysis as a method of cognition, as applied by L.S. Vygotsky, was based on an invariant structural representation of the processes of mental development. At the same time, the task of meaningful interpretation of the development of the child's psyche remained. The solution to this problem was based on the search for units of content analysis that simultaneously had two possibilities: to be invariant to any content and to be included into any content. An analysis of the works of L.S. Vygotsky showed that he considered the relations of opposition as such units.

**Conclusions.** The use of dialectical analysis by L.S. Vygotsky was associated with the consideration of the studied material on two levels: structural and substantive, as well as in transitions from one level to another. To make such transitions, L.S. Vygotsky identified opposites in the content that interested him. Opposites had both substantive properties and represented formal invariant units independent

of specific content, which made it possible to carry out transformations at the invariant (structural) level before returning to the substantive level. As soon as the content of the problem under study was transmitted into a structural plan, it was subjected to dialectical transformations, through the sequential implementation of various operations using opposites. These operations corresponded to the elementary dialectical structures, characteristic of both mental transformations and the processes of various entities in development. Content analysis, which included operating with opposites, allowed L.S. Vygotsky to describe the processes of development of complex structural systems of human consciousness.

**Keywords:** cultural-historical psychology, method, dialectical thinking, dialectical method of analysis, opposites

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## Introduction

This article is devoted to the study of dialectical analysis as a special method of cognitive activity, which was successfully used by L.S. Vygotsky to develop a number of psychological theories. V.S. Sobkin points out the dialectical nature of L.S. Vygotsky's approach. Considering Vygotsky's early work, devoted to the analysis of Ecclesiastes, he notes that one of the defining lines of analysis is based on the idea of development: "It is one of the central ideas in Vygotsky's cultural-historical theory. We constantly encounter it in his various works devoted to various psychological issues of both theoretical and applied nature. The significance of development is recorded in the originality of conceptual methodological principles, and in ontological concepts, and in the scientific language of the theory..." (Sobkin, 2022, p. 19). At the same time, V.S. Sobkin emphasizes that "for Vygotsky, the factors that underpin development and determine its essence are dialectical moments associated with contradictions, the struggle of opposites" (ibid., p. 67). When we talk about a method, we mean an instrument of cognition that maintains its integrity and unity, regardless of the characteristics of the object being studied. A similar position, in our opinion, is taken by V.S. Shevyrev. He notes: "The method presupposes a known sequence of actions based on a clearly understood, articulated and controlled ideal plan in a variety of types of cognitive and practical activities in society and culture" (Shevyrev, 2010, p. 551).

In addition to the system of actions, the method of analysis, being a tool for the intellectual activity of the subject, must include units of analy-

sis. They determine the depth of the analysis, acting as its limiters. P. Janet pointed out this function of units of analysis: "...philosophers divide an apple or a lamb into pieces, while people, dividing apples in a basket, stop when one apple remains. This is the rule of the individual — it cannot be divided indefinitely. From the moment the lamb is cut into pieces, and we cannot act like a shepherd towards it, it is no longer a lamb; So, let's stop, let's not go that far. Division has its limit" (Janet, 2010, p. 191).

Units of analysis limit the depth of immersion in the content, and provide no opportunity to go off-topic, maintaining only the context of the analysed material. On this occasion, T. Parsons wrote: "The division of any phenomenon into units that go beyond the context, where this phenomenon is considered as a means or condition of action, automatically leads us to other, irrelevant theoretical schemes" (Parsons, 2002, p. 99). He gave the following example as an explanation: "... the speed of a person falling from a bridge at the moment of contact with water is a physical fact. But if this is a suicide, then the proclamation of this physical fact in no way proves that everything that preceded this was a cause that can be explained in terms of the theory of mechanics" (ibid., p. 76). From the above example, it follows that an inadequate choice of units of analysis leads to a violation of context retention and an erroneous explanation of what is happening. Thus, the characteristics of the analysis method must necessarily contain units of analysis that are appropriate to the context.

The question arises as to how one can maintain context without going beyond the chosen units of analysis. S.L. Rubinstein saw such an opportunity in the search for an adequate unit of analysis, which contains all the elements that form a single content being studied: "In order to understand diverse mental phenomena in their essential internal relationships, one must first of all find that "cell", in which one can reveal the rudiments of all elements of psychology in their unity" (Rubinstein, 1940, p. 142).

L.S. Vygotsky associated the solution to this problem with the use of a special method of analysis, dividing "a complex whole into units" (Vygotsky, 1982b, p. 15). In this case, the unit must have all the properties of the whole (Bespalov, 2014). In other words, according to L.S. Vygotsky, a unit of this kind is capable of maintaining the context of the analysed content by retaining all the basic properties of its whole. He explained: "By unit we mean such a product of analysis, which, unlike the elements, has all the basic properties inherent in the whole, and which is further indecomposable living parts of this unity" (Vygotsky, 1982b, p. 15).

Any method of analysis, if it is a tool for the intellectual activity of a subject, in addition to actions and units of analysis, must be aimed at solving

a certain range of issues. Dialectical analysis as a method in this regard is no exception. It is aimed at analysing development processes.

L.S. Vygotsky, while studying child development, reduced all theories to two main concepts. According to one of them, development was considered as a process in which there is "nothing new — just an increase, unfolding and regrouping of those moments that were already given from the very beginning. According to another concept, development is a continuous process of self-movement, characterized primarily by the continuous emergence and formation of something new that did not exist at previous stages. This point of view captures something essential in development for the dialectical understanding of the process" (Vygotsky, 1984a, p. 248).

The emergence of something new is an essential characteristic of development. However, it does not exhaust the entire content of development, which includes two sides: change and preservation. A similar understanding of development is presented in modern philosophical literature: "Development is a characteristic of qualitative changes in objects, the emergence of new forms of existence, innovations and novelties, and is associated with the transformation of their internal and external connections. Expressing, first of all, processes of change, development presupposes the preservation of the (systemic) quality of developing objects" (Gritsanov, 2001, p. 847).

In psychology, when describing development, such aspects as its form, course, specificity, conditions, sources, driving forces, etc. are highlighted (see, for example, Lubovsky, 2005). In our opinion, these indicators relate to the substantive characteristics of the development process. In each specific case both the developmental process itself and the emergence of new things during its course will be unique in their content. This means that the analysis strategy for each option must be developed anew. It makes little sense to discuss *method* under these conditions, since a method is a system of actions with a single, stable structure that must operate with different content units. Hence, difficulties arise. Firstly, one must understand the conditions under which one can talk about operating with units of analysis, despite their substantive differences. Secondly, it is necessary to determine how to describe the development of various objects to make it accessible to the application of the method as a single structured system of transformations. Thirdly, a way to represent both change and conservation at the same time must be found.

Before discussing the possibility of overcoming the noted difficulties, let us pay attention to a detail in the characteristics of the method of analysis by units. L.S. Vygotsky wrote that psychology must "replace methods of decomposition into elements with methods of analysis that divide into

units. It must find these indecomposable, preserving properties inherent in any given whole, units in which these properties are represented in the opposite form, and with the help of such analysis try to resolve the specific questions that arise" (Vygotsky, 1982b, p. 16).

The question arises as to why L.S. Vygotsky indicated that properties should be represented in units of analysis in the opposite form. The same feature was highlighted by V.P. Zinchenko and S.D. Smirnov. They strongly emphasized that the unit of analysis "must contain the properties of the whole in the form of opposites" (Zinchenko, Smirnov, 1983, p. 88). The position of L.S. Vygotsky can be understood in the context of the dialectics of development, which presupposes the presence of internal contradictions. However, as noted by V.P. Zinchenko and S.D. Smirnov, the use of opposites was rather a compromise for L.S. Vygotsky (ibid.).

We assumed that the establishment of relations of opposition between the properties of units of analysis was necessary for L.S. Vygotsky in order to use dialectical analysis. Its application involves searching for adequate units of analysis. Their adequacy is associated with compliance with several requirements. First, they must admit both invariant, i.e. content-independent, and content-specific description. In other words, units should be selected so that they can be viewed from two positions: both as elements of a formal structure and as specific fragments of the analysed content. If this condition is met, these units allow operation at both the invariant and the meaningful level. Operations performed on units in this case can also be described formally (invariantly) and meaningfully. Such a description should allow transformation into a single structured system (Veraksa et al., 2022a). This system must be able to transform into a more complex structure, while preserving the foundations of the original system.

As follows from the requirements for the proposed units of analysis, they are formulated in such a way that, on their basis, it is possible to describe development in a generalised, invariant form. A generalised representation of developing objects and systems allows the use of dialectical analysis due to the identity of the original units. We should emphasise once again that such a description must be formalised in such a way that makes it independent of the content of the developing entity, and at the same time flexible enough to allow for transfer to various aspects of development. In other words, the description should reflect the structure of development and allow for the possibility of transition from general universal schemes to specific content.

It is necessary to establish a definition of structure. L.S. Vygotsky paid much attention to the concept of structure. In his works, development was

associated primarily with structural changes. Two excerpts from his lectures on paedology support this thesis. In the first, he emphasised the role of structural changes that arise when any separate function is isolated in the system of consciousness: "The isolation of each individual function means a change in the activity of the entire consciousness as a whole... thanks to one singled out function... the entire consciousness as a whole is already acquiring a new structure, a new type of activity" (Vygotsky, 1996, p. 108).

In second excerpt, L.S. Vygotsky understood how structural changes in consciousness are hierarchical: "...following the process of external differentiation, the process of isolating a given function from the whole consciousness, there follows a period of internal differentiation of this function, its maximum development and maximum internal dissection, that is, the emergence of a complex, hierarchically organized structure" (ibid., p. 109). The hierarchical nature of the organization of children's consciousness, in our opinion, allows us to solve the problem of simultaneously maintaining the previous structure in the process of transforming it into a new system.

L.S. Vygotsky's understanding of structure is presented in the following. He explained the meaning of structure in psychology: "Structure is usually a name for such integral formations that are not summed up from individual parts, representing an aggregate, but themselves determine the fate and meaning of each part included in their composition" (Vygotsky, 1982b, p. 256).

If we analyse this understanding of structure in detail, we can see that the "part — whole" relationship lies behind it. This whole is not derived from its parts since the whole itself sets the principle by which the content is combined not into a single whole. Thus, structure is understood as content organised in accordance with the principle, the bearer of which is this whole. That minimal content, which is sufficient to retain the principle, acts as a meaningful unit of analysis. The principle is the rule by which all content is organised.

Further, we can assume that the rule not only organises the content, but also separates the content that corresponds to the principle from the content that does not correspond to it. To illustrate this, let us consider a circle. It is clear that the content of the circle includes the points that are part of the line of the circle. The rule organising the location of points is their equidistance from the centre. The rule allows you to distinguish between points that belong to the circle and points that do not belong to it (Veraksa, Sheridan, 2021; Veraksa, Samuelsson, 2022). The structure can be considered the shape of the arrangement of points in accordance with the rule of equidistance from the centre of the circle. In our case, the

dialectical structure is built on the principle of opposition between the central point and the periphery.

**Opposites as units of invariant dialectical structure of developing content**

We started the description of dialectical analysis as a method of cognition, which was used by L.S. Vygotsky, with the search for an invariant structure of development. To solve this problem, it was necessary to find units that had two simultaneous possibilities: to be invariant to any content and to be a part of any content. It made sense to consider the relations of opposition as such units, supported by the fact that, as noted above, L.S. Vygotsky had identified opposites as units of analysis. Furthermore, preschoolers show sensitivity to opposite relations, which indicates the fundamental nature of opposite relations for understanding human mental development (Veraksa, 1981; 1987; Colliver, Veraksa, 2021; Veraksa, Basseches, 2022; Veraksa et al., 2022b; Veraksa et al., 2023a).

If we consider opposites as units of analysis, it is easy to see that they have the following properties:

- There are always two opposites.
- Opposites posit each other, i.e. the presence of one of them presupposes the existence of the other.
- Opposites are mutually exclusive.

We find examples of such relations between opposites in Hegel's work "The Science of Logic". He described them as follows: "If we take the most trivial examples: up and down, right and left, father and son, etc. ad infinitum, then they all contain opposites in one. Top *is* what *is not* bottom; the definition of a top is simply not to be a bottom; there is a top only insofar as there is a bottom, and vice versa; in one definition lies its opposite. The father is the other of the son, and the son is the other of the father, and each is given only as this other of the other; and at the same time, one definition exists only in relation to another; their being is a single presence" (Hegel, 1971, p. 67).

Analysis of this excerpt shows that Hegel's reasoning presents such an understanding of opposites, according to which their properties correspond to the properties of the opposites given in our description. Indeed, it is shown that opposites exist in pairs: "up and down," "right and left," "father and son," etc. Further, Hegel illustrates the positing of one as the opposite of another with the help of the following expressions: "the father is the other of the son," "the son is the other of the father." These phrases convey the idea that the definition of "father" contains its opposite, "son," and the

definition of "son," as its opposite, contains the definition of "father." In addition, Hegel shows the property of exclusion of one opposite by another. He explains this property as follows: "the definition of top consists only in not being bottom." This statement, in our opinion, precisely means that opposites do not complement each other, but rather exclude each other.

Thus, given the correspondence of our hypothesis with Hegel's understanding of opposites, there remains one further step. It consists in abstracting from the substantive side of the opposites in the examples given, i.e. to answer the question: is it possible to consider opposites as invariant units in relation to any content? We are inclined to give an affirmative answer, since, in our opinion, opposing fragments can be found in any content. So, we have every reason to consider opposites as invariant units of the developing whole.

If we accept this interpretation, it becomes clear why L.S. Vygotsky introduced into the characteristics of units of analysis the requirement to consider their properties as opposites. In this case, several problems are solved simultaneously: 1) the question of finding a basis for constructing an invariant dialectical structure of the analysed content is resolved; 2) the direction of its content fragmentation is determined; 3) a meaningfully hierarchical scheme for understanding the process of mental development is drawn up. In other words, a system of steps that allows full understanding of the method being used has been established.

It is necessary to consider that which is behind the process of translating meaningful fragments into opposites. As it progresses, various aspects of the content are examined, they are contrasted with each other and designated as opposites. In this way, the transformation of specific content occurs not only into invariant units, but also into a form independent of the content as a whole. Why is this transformation taking place? The point is not to transform for the sake of transformation. This means that such a transformation is carried out for the sake of something that is not yet understood, not manifested. With such transformation, the material being studied would lose its uniqueness. It would become structurally identical to any other material. There can only be one explanation for the expediency of such a step. Apparently, some transformations can also be made with this abstract material. Perhaps some other operations can be applied to these abstract (invariant) opposites other than opposing them to each other. These abstract opposites may still be in some other relationships. The conclusion therefore is as follows: at the structural level there must be a variety of transformations that differ from one another, allowing different results to be obtained. These transformations must be identified.

To do this, it is necessary to keep in mind the existing duality regarding the transformation of opposites. There must be a distinction between processes that occur objectively, i.e. in the reality around us, and the processes that we carry out in the subjective plane, i.e. transforming images or concepts.

**Elementary dialectical structures**

The main goal of the current article is to reveal the essence of dialectical analysis, which L.S. Vygotsky used as a special epistemological method.

As it has already been said, the units of analysis, and in our case, opposites, must allow various transformations. This means that, in addition to the relations of positing and exclusion, opposites can possess other relations associated with their transformation. Such relationships can be described using various rules. These relationships were identified and the rules formulate. The rules themselves can be understood from two points of view: substantive, i.e. seeing structures that take shape during the processes occurring in reality under the influence of objective factors; and structural, i.e. from a procedural position, interpreting them as the result of operations performed by the subject at his own discretion on opposites. In any case, behind each rule there is a relationship between opposites and a transformation or operation corresponding to these relationships.

It was necessary to consider that the rules had to be formulated in relation to opposites as invariant units of developing content. In this case, the rules become universal. They appear simultaneously substantially, as elementary dialectical structures, and structurally, as dialectical operations being performed. We conducted several studies (Veraksa 1990; Veraksa et al., 2023b), which made it possible to detect various options for such transformations performed on opposites.

We gave each elementary dialectical structure its own name. In fact, we have created a language with which you can make an invariant description, i.e. abstracted from content, connections between opposites. The universality of language makes it an important tool for the structural analysis of developing content.

Language makes it possible to interpret the relationships into which opposites have entered on an abstract level, and at the same time to understand which operations, like objective transformations, can be performed on the mental plane.

Returning to the characteristics of the dialectical analysis used by L.S. Vygotsky, we note that its use is due to the movement of thought in two planes simultaneously: structural and substantive. In addition, it should be noted that L.S. Vygotsky was not developing a specific language to describe

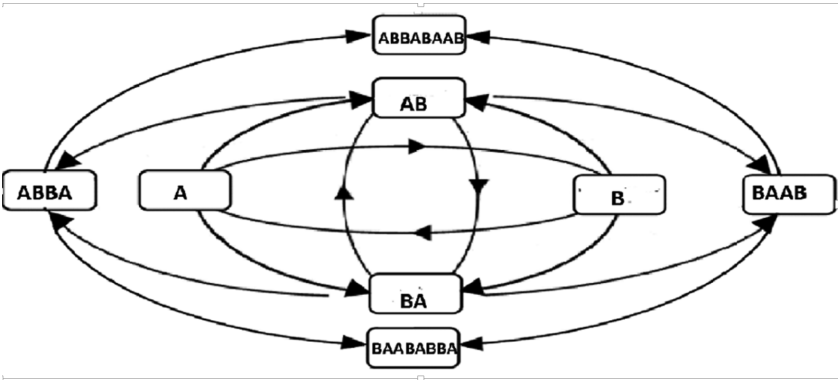
elementary dialectical structures. Nevertheless, it is possible to find some fragments in which his thoughts are clearly presented in structural or substantive terms.

A description of elementary dialectical structures is presented in a number of our publications (see, for example, Veraksa 2021, 2006; Veraksa, Basseches, 2022). The following elementary dialectical structures were identified: transformation, transition, reversal, unification, mediation, change of alternative, closure, identification, etc.

As the analysis of the elementary dialectical structures themselves has shown, since they also represent some content, in addition to the fact that they form the terminology of a dialectical language with their inherent meanings, there are also structural relationships between the terms that can be described using the same language. For example, it turns out that the transformation of mediation is unification, and the transformation of seriation is reversal. This means that mediation and unification are opposites, just like seriation and reversal. This allows the elementary dialectical structures of seriation and reversal to form a dialectical cycle. The dialectical cyclic structure thus obtained has structural properties such that not only the initial and final links of the cycle are opposite, but so are its intermediate links. These properties of the dialectical cyclic structure are projected onto the structure of cycles described meaningfully. In other words, in substantive dialectical structures, opposites are defined not only by substantive, but also by dialectical structural relations.

In this case, the method works, since only the identification of the dialectical invariant structure allows us to see the systemic properties in a meaningful way. Some examples of meaningful cyclic structures are described in the following. It should be taken into account that cyclic structures can be spatial and temporal and even be transformed into one another. Let us consider several cycles: the daily cycle (day — evening — night — morning), the family cycle (mother — son — father — daughter), the geographical cycle (North — East — South — West). As follows from the structure of these cycles, their initial and final states are opposite to each other: "day and night", "mother and father", "North and South"; but the intermediate states of these cycles are also opposite: morning — evening, son — daughter, East — West.

All this provides the basis for combining all elementary dialectical structures into a single structure. A possible mathematical version of such a combination was suggested by S.A. Zadadayev (Veraksa, Zadadayev, 2012). A simplified image of the mathematical model of the dialectical structure by S.A. Zadadayev on the example of the third level structure is shown in Figure.




**Figure**

**A simplified image of the mathematical model of the dialectical structure by S.A. Zadadayev. (The arrows denote dialectical transformations of opposites. Mathematically, they are understood as morphisms that determine the co-product at the corresponding level.)**

In this model, a complex structure was built from elementary dialectical structures that described the development process as a movement from one level to another. The presented structure is abstract. Its units (opposites) are expressed by the symbols A and B, the content of which is not presented. However, it conveys those patterns that characterize the dialectical structure of content as an integral system. This model reproduces the stable framework that is preserved when analysing various developing contents.

We consider dialectical analysis as a special epistemological tool. It is aimed at identifying the dialectical structure of developing objects. The method also makes it possible to describe this structure meaningfully and present it in the form of a dialectical system of concepts. The dialectical structure is revealed and not ascribed. L.S. Vygotsky used dialectical analysis in his scientific work. To prove this, it is necessary to show that he moved in both the structural and substantive plane, as well as in transitions from one to the other.

We distinguish between the process of applying dialectical analysis and dialectical thinking. The difference lies in the fact that dialectical analysis is aimed at identifying a generalised, invariant dialectical structure in the analysed content, and dialectical thinking is the process of solving a dialectical problem.

The generalised dialectical structure is built hierarchically from elementary dialectical structures and is expressed in a system of concepts that are in dialectical relationships. The dialectical structure is described by the terms we have introduced. The search for elementary dialectical structures and the construction of a general dialectical structure may include the solution of dialectical problems. Moreover, the movement of dialectical thinking can correspond to the structure of the content.

However, there are differences between constructing a dialectical structure and dialectical thinking. The dialectical structure of an object or situation is revealed. To do this, possible options for constructing elementary dialectical structures and their subsequent organisation into a more complex dialectical structure, reflecting the process of development of the object under study, are tested. The description of the structure of objects and phenomena in the dialectical system of concepts differs from the solution of dialectical problems. These are two opposing search strategies. The grounds for similarity are caused, first, by the fact that both the formation of a dialectical structure using dialectical analysis and dialectical thinking require the subject's ability to identify the relations of opposition (Veraksa et al., 2013).

Moreover, elementary dialectical structures correspond to dialectical transformations. Structures reflect transformations that occur objectively, and dialectical operations characterise transformations that occur in the mental plane. Moreover, the names of structures and actions are the same due to their similarity. Nevertheless, fundamental differences remain. It is one thing when transformations occur objectively, another when the subject, solving a problem, makes mental transformations. In fact, dialectical thinking acts as one of the tools of dialectical analysis. In one case, the subject thinks about how to record what appears in front of him, and in the other, he performs and transforms the content of his consciousness himself.

**Dialectical analysis in the works of L.S. Vygotsky**

Before discussing the application of dialectical analysis by L.S. Vygotsky, it is necessary to describe the sequence of steps that are associated with the implementation of the method under discussion: 1) content analysis in order to highlight opposites in the analysed content; 2) identification of basic opposites; 3) construction of a space of possibilities; 4) selection of an elementary dialectical structure, the implementation of which will ensure development; 5) construction of a dialectical structure of developing content as a single whole; 6) a meaningful description of the developing dialectical system. L.S. Vygotsky sought to identify opposites

in almost any content. In his work "Psychology of Art", for example, he contrasted, i.e. identified opposite positions characteristic of aesthetics: "psychological" and "non-psychological" (Vygotsky, 1987). L.S. Vygotsky identified the main opposites, which corresponds to the requirements of dialectical analysis.

To confirm this, we consider the following two statements by L.S. Vygotsky. First: "But now the immediate and sole purpose of our reasoning is to contrast two fundamental points of view on the process of mental development of a child" (Vygotsky, 1983a, p. 9). Second: "Two assumptions arise which we must immediately reject without consideration: one — as clearly untenable and rejected by science long ago, the other — as being generally outside the boundaries of science" (ibid., p. 28). Questions arise as to why L.S. Vygotsky wrote these arguments. In what sense were they carried out: structurally or substantively? We are inclined to answer that both statements refer to the invariant structural plan.

Formulating these provisions, L.S. Vygotsky did not focus on the meaningful content. However, since each statement implied two meaningful fragments that had already been interpreted earlier and contrasted with each other as opposites, it is clear that L.S. Vygotsky operated on them structurally. This was required by the method used by L.S. Vygotsky. Moving from one plane to another, L.S. Vygotsky ended the discussion of this issue in structural terms: "We can, without further discussion, part with both assumptions, one of which removes the problem that interests us, simply denying the presence of cultural development of mental functions, the other dissolves culture itself and its development in the history of the human spirit" (there same, p. 29).

It may seem that this fragment presents not only a structural plan, but also a substantive plan. However, we do not think so. Since L.S. Vygotsky did not specifically develop the language of elementary dialectical structures; the content characteristics of the quoted statement largely performed a significative function, denoting structural components. Since the identified opposites in the dialectical analysis turned out to be untenable from the point of view of their further use in constructing a psychological theory of development, L.S. Vygotsky was forced to turn to the construction and analysis of the space of possibilities. In his statement, the need for such a construction was expressed as follows: "We are again faced with the same question: what is the development of higher mental functions without changing the biological type?" (ibid., p. 29). We believe that this question indicates the need to analyse the space of available possibilities (in the context of the question posed) in order to search for an option associated with

an elementary dialectical structure, the implementation of which would ensure progress in the analysis of the problem.

On this path, L.S. Vygotsky came to the following substantive conclusion: "... the development of higher mental functions is one of the most important aspects of the cultural development of behaviour. The idea that the second branch of cultural development outlined by us, namely the mastery of external means of cultural behaviour and thinking or the development of language, counting, writing, drawing, etc., hardly needs any special evidence, also finds complete and indisputable confirmation in the data of ethnic psychology" (ibid., p. 29).

Behind this description of further progress in the field of analysis of the problem of mental development, an elementary dialectical structure, which we call "mediation" can be found. In fact, this structure was named in the excerpt by L.S. Vygotsky. In its essence, it is expressed in the fact that the development of the psyche is associated with the mastery of external means of cultural behaviour.

L.S. Vygotsky, conducting dialectical analysis, identified various elementary dialectical structures. They are presented in Table 1. These structures are necessary when constructing a generalized content structure that reflects mental development in childhood.

When developing a psychological problem, L.S. Vygotsky used dialectical analysis, completing it with a hierarchically substantive dialectical system, presented with the help of corresponding concepts. For example, when developing the problem of game development, he used the following terminology to describe it: visible field, imaginary field, field of meaning, imaginary situation, role, plot, affect, rule. In this system, opposites appear: visible field — imaginary field, role — plot, semantic field — imaginary situation, affect — rule. They constitute the generalised, meaningful, and dialectical structure of the game.

**Practical use**

The practical significance of the results obtained in the study consists, firstly, in justifying the use of elementary dialectical structures, which open up opportunities for constructing complex structures and explaining their functioning. The transition from structural to substantive characteristics makes it possible to build a complex substantive system that describes a specific development option. Secondly, the detailed steps that are taken during dialectical analysis will allow researchers and practicing psychologists to independently apply the algorithm to analyse the content of developing psychological structures.

**Table**
**Examples of identifying elementary dialectical structures by L.S. Vygotsky**

| No | Fragments of text from the works of L.S. Vygotsky | Elements of dialectical structures |
|---|---|---|
| 1 | "According to the law, the forces driving the development of a child at a particular age inevitably lead to the denial and destruction of the very basis of development of the entire age, with internal necessity determining the annulment of the social situation of development..." (1984b, p. 260). | Seriation |
| 2 | "The researcher does not always have to follow the same path... often the opposite path is more fruitful" (1982a, p. 294). | Conversion |
| 3 | "...the question is not to add any essential moment to the traditional description of the emotional process, but solely to change the sequence of these moments, to establish the true relationship between them, to put forward as the source and cause that which was previously considered its consequence and result" (1984b, p. 105). | Seriation + Conversion |
| 4 | "If the previous task in the study of dynamics determined the path of direct movement from the child's social existence to the new structure of his consciousness, now the following task arises: to determine the path of reverse movement from the changed structure of the child's consciousness to the restructuring of his being" (1984b, p. 259). | Seriation + Conversion |
| 5 | "Thus, we formulate — in an albeit negative form — the main methodological points that determine the plan and direction of our entire research. The same points in their positive form must find expression in the research itself" (1983a, p. 23). | Transformation |
| 6 | "... the concept of life in biology has been brought to great clarity, science has mastered it... but it has not coped with the concept of death... it is understood as not life... But death is a fact that also has its own positive meaning, it is a special kind of being..." (1982a, pp. 335–336). | Transformation |
| 7 | "Actual research shows that the negative content of development during critical periods is only the opposite, or shadow, side of positive personality changes..." (1984b, p. 253). | Transformation |
| 8 | "...let us say from the very beginning: the James-Lange theory must be recognized as a fallacy rather than the truth in the doctrine of the passions. With this we expressed in advance the main idea, the main thesis of the entire present chapter of our research" (1984b, p. 98). | Transformation |
| 9 | "...the paradoxical organic process that transforms illness into superhealth, weakness into strength, poisoning into immunity, is called overcompensation" (1983b, p. 34). | Transformation |

## Conclusions

Dialectical analysis as an epistemological method used by L.S. Vygotsky has a number of properties. It involves identifying units of content, which are opposites. Opposites can be considered on two levels: structural and substantive. Dialectical analysis is aimed at studying developing content systems. Units are selected in such a way as to simultaneously act as dialectical fragments of content and invariants of the dialectical structure.

Units are the material for operating both at the structural and substantive levels. Operations on units can be described either substantively or structurally. Within the framework of dialectical analysis, elementary dialectical structures and operations on these structures are distinguished. The difference between structures and operations is that structures convey those transformations of fragments of content that occur independently of the subject and appear in the form of substantial relations between opposites. They are also described either invariantly (structurally) or meaningfully (substantively).

Dialectical operations are transformations over units of content that are carried out by the subject. The content is represented with the help of mental images or concepts. Dialectical operations and structures are described with a special language. This language is based on terms, the meaning of which is determined by the peculiarities of transformations of opposites as invariant units of developing content. In this case, the meanings of dialectical operations and elementary dialectical structures coincide, which makes it possible to analyse processes and structures substantively and structurally.

The application of dialectical analysis involves carrying out several sequential steps. The key is to search for meaningful fragments that are opposed to each other. Then, the possibilities for developing an invariant structure are identified. For this purpose, various elementary dialectical structures are tested and then one invariant structure of the phenomenon under study can be determined. Next, the universal structure is transformed into a meaningful or substantive one, and methods and strategies for the development of the corresponding mental function are determined. Depending on the nature of the research and objectives facing the analyst, the sequence of steps may vary.

Dialectical analysis allowed L.S. Vygotsky to describe various meaningful dialectical systems that were the result of solving several psychological problems related to understanding child development.

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