The Correlation between Part and Whole in Altai River Names (South Siberia)

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Abstract

Throughout the ages, many philosophers, psychologists, logicians, etc. have attempted to establish one irrefutable approach to the problem of parts and wholes. Philosophers emphasize the priority of a whole over its parts (holism). Psychologists' basic principle is that the integrated whole is greater than the sum of its parts. As for logic, it deals with the relation of part to whole and the relations of one part to another part within a whole. Without going into minor detail, I will try to present a few general characteristics that enable me to introduce the concept of part-whole into toponomastics. Among them are sequential properties for identity which include splits and mergers. Thus, a series of tributaries can merge into one river, and each tributary bears a part of the main river's name and its own identity, in this way contributing to the identity and integrity of the whole river basin – a fact considered so important in river exploitation. For example, in the Altai region, the Čarġï (river) has the following tributaries: the Čičke-Čarġï, the Muqur-Čarġï, the Tüs-Čarġï, the D'aan-Čarġï, the Ulus-Čarġï, and the Üstigi-Čarġï; the river D'aan-Korgon has the following tributaries: the Antonov-Korgon, the Belogolovcev-Korgon, the Bol'šoj-Korgon, the Gorelyj-Korgon, and the Malyj-Korgon; or the lake Kindiktü-Köl has its splits labelled D'aan-Kindiktü-Köl and Kičü-Kindiktü-Köl. River or lake basins are perceived as an integrity not only on account of interconnected names of tributaries and splits with the main river or lake, but also because of including upper and lower reaches of a river, for example, into the integral system of one and the same split entity by giving the names of the main river (Čarġï-Bažï, Čarġï-Oozï; Qayïŋčï-Bažï, Qayïŋčï-Oozï; Balïqtu-Kool-Bažï, Balïqtu-Kool-Oozï, and others).

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Throughout the ages many philosophers, psychologists, mereologists and linguists have attempted to establish one irrefutable approach to the problem of parts and wholes. Let me dwell on the approach by philosophers to the problem of part and whole in more detail as it has a long standing tradition and is applicable to the topic under discussion. From written sources, we know that since the sixth century B.C. human beings began to ask questions concerning the origin and composition of the world. They strove to determine the component parts of the world regarded as a whole. The first writings on this particular topic can be traced back to the early Greek philosophers, namely the Ionians, the Pythagoreans, the Eleatics, the Pluralists and the Pre-Socratic atomists. Subsequently, the subject was discussed by Plato, especially in *Timaeus*, and Aristotle, especially in *Metaphysics*, *Politics*, and *On the Parts of Animals*. According to Meirav (2003: 3-4), we see in Plato's discussion two distinct conceptions of a whole, one according to which the whole is identical to its parts, and the other according to which it is distinct from them. Plato also makes a distinction between three conceptual levels: 1. the parts, 2. a 'low-grade' whole which is identical to them, and 3. a 'higher-grade' whole which is distinct from them. It is also surprising that Plato gives us a clear answer to the question, 'what is a whole?', linking it only with the conception of low-grade wholes. In Meirav's contention (2003: 5), we have reasons to doubt whether to treat the whole and the parts as the same thing or the same things. If we say that the parts are the whole, we should only mean that the parts compose or constitute the whole,

which may imply that the 'sum' of the parts is identical to the whole, but not that the parts themselves are identical to the whole.

In the fourth century B. C., Aristotle, a student of Plato, claimed that a whole is completely accounted for by

    (1) identifying its parts,
    (2) specifying the properties of these parts, and
    (3) specifying the relations between them.

In Meirav's view (op. cit., pp. 9-10), such an account does not specify the relation between the whole and the parts and this is a major drawback of the Aristotelian approach as it does not allow different relations between the whole and the parts which are possible. The provision of a complete account for a whole involves

    (1) identifying its parts,
    (2) specifying the properties of these parts,
    (3) specifying the relations between them, and
    (4) specifying the relations between the whole and the parts.

The Platonic approach also differs from the Aristotelian one in the way it pays attention to vertical relations in wholes. Different relations between a whole and its parts may be described as different vertical relations within the tiered structure associated with the whole. It follows that if a whole is associated with a three-tiered structure, the lower-grade whole and the higher-grade whole stand in different vertical relations to the parts. The Aristotelian approach tends to take the aspect of a whole as the relations between its parts, which may be described as horizontal relations. This difference can be given a more accurate explanation regarding the relation of composition.

We say that river tributaries compose the basin of a river, thus assuming that the tributaries are parts of the basin. However, composition and parthood are distinct relations. Two or three tributaries (out of ten) may be considered as parts of the basin, but they do not compose it. Composition is an act of combining parts or elements to form a whole, meaning that all of the ten tributaries should be taken together, collectively to form the basin, while parthood is a relation which all of the tributaries taken separately, distributively bear to the basin (whereby each of them bears it individually to the basin). One point should be mentioned in connection with the use of *comprise*: when we say that the river basin comprises the tributaries, we do not say that the basin comprises each of the tributaries. *Comprises* expresses a particular relation which holds between the basin, on the one hand, and the tributaries taken together, on the other.

The notion of ontological dependence, according to which the existence of one entity may depend necessarily on the existence of another, is often discussed in connection with the study of ways in which the parts of a whole may be related to one another. According to Meirav (2003: 14), we may think of comprised entities vs. comprising entities.

Comprised Entities	Comprising Entity
tributaries	river basin
upper reaches of a river	river
lower reaches of a river	river
course of a river	river

I refer to Cruse (2004: 151) who states that the basic notion here is that of the containment of one region or regions. The boundaries of a contained region must be neither identical with, not must they transgress, the boundary of the containing region.

An entity is concrete (including topographic entities) if (a) there is a more or less definite interval of time during which it exists as a continuant, (b) there is a more or less definite region of space which it occupies at any moment of its existence, and (c) there is a more or less definite mass (or weight) which it possesses. It might be thought that concrete wholes must be conceived as collective classes rather than distributive classes, because the relation of a part to a whole is transitive within the scope of a collective class but not as a member characterized so within the scope of the notion of a distributive class.

To sum up, the ancient philosophers adopted various approaches towards the concepts of part and whole: at first they broadly considered parts as constituents of a larger whole, that is to say, the world, and only later did they analyse them as components of both concrete and abstract entities. Being the most innovative in his times, Aristotle may be called a precursor of modern mereology as some of the issues he raised are still valid for contemporary logicians. The significance of ancient philosophical thought should by no means be underestimated since it has, among other things, laid the foundation for a separate branch of science by showing the importance of parts and wholes in our lives.

Although mereology (from Greek *meros* meaning 'part'), as the formal study of *part* and *whole* and the relationship between them, was founded by the Polish logician Stanisław Leśniewski in the 20th century, the topic itself roused interest as early as antiquity. Mereology deals with the relationship of a part to the whole and the relationship of individual parts to each other within a whole. Where the latter theories assume the existence of an entity (i.e., a class) which has certain individuals as members, mereology assumes the existence of an entity (i.e., a mereological sum) which has those individuals as parts. That is both theories assume the existence of a single comprising entity, and they only differ with respect to the formal characteristics of the relations between the comprising entity and the individuals it comprises. Thus mereology carries the implication that the comprising entity belongs to the same ontological category as the comprised entities, an implication which is surely of more than merely terminological significance.

Without going into great detail and discussing the various approaches to the concept of part-whole which are characteristic for each field of knowledge enumerated above, I attempt to present common features necessary for considering the concept within the scope of linguistics in general and place-name studies in particular. First, what prototypical features should be treated as essential to define the category of whole? According to Cruse (1997: 157), physical objects to be treated as wholes should be fully integrated and cohesive with well-differentiated parts. People recognize them as autonomous, grabbing attention (salient) and individual (mountains and rivers, for instance), and at the same time different from less salient and individual parts (foot of a mountain, upper reaches of a river, for instance). The concept of part makes it unavoidable to refer to the whole, the concept of whole; in contrast, does not rely on the initial conceptualization of other entities, we may identify and conceptualize whole as one Gestalt. Second, part in Cruse's contention (1997: 158) is spatially included within its whole. Apart from it, parts share a certain topological stability and spatial continuity both with their wholes and with their sister parts. Third, parts are distinguished by three main characteristics: autonomy, non-arbitrary boundaries and determinate function within the whole. Fourth, the boundaries of parts are motivated. A part is normally delimited from its sister parts by a discontinuity of some sort so that parts of the aggregated whole could be singled out. Thus, a part is a conceptually dependent entity as it presupposes the conceptualization of another entity – the whole. Due to the fact that the whole is highly individual and autonomously conceptualized, it turns out to be more salient compared to its parts, thus becoming a part of reference.

Moltmann (1997: 2) contributes the following to the observations mentioned above: "Integrated wholes are entities that have integrity to a sufficient degree – for example, by having

a certain shape, or by consisting of parts that are connected in space or time and are separated from other entities in those dimensions." Moltmann assumes that the notion of integrated whole is the basis of noun division into mass and count. Besides, according to her, an entity may have different part structures in different situations and in different dimensions. An entity may have a greater degree of integrity compared to the other and the properties of integrity are capable of varying in such a way that one and the same entity becomes whole in one dimension and part in another. For example, in Altai[1] *the Ulus-Čarġï* (part) is the left tributary of the river *Sebi* (whole) and in its turn has its right tributary called *the Üstigi-Čarġï* (part of *the Ulus-Čarġï* basin and *the Ulus-Čarġï* functions as a whole in this case), while *the Üstigi-Čarġï* has the settlement of *Üstigi-Čarġï* on its bank. Parts also vary in their structures even within one and the same whole. Moltmann claims that her approach to the problem is different from the ones accepted in philosophy and in extensional mereology. In extensional mereology the part relation is transitive, closed under sum formation, and extensional. Moreover, in extensional mereology entities are considered to have exactly one part structure.

This short overview may be concluded by a known stance of holism, according to which whole cannot be disconnected and each visible whole may be understood only in the context of another and bigger whole within which the latter is located, which is why the whole is more than the sum of its parts. Moreover, the whole is not linear: it is arranged as a series of dependent elements which undergo dynamic and creative evolution, the result of which is the formation of new and qualitatively different wholes, which in no way are replicas of the sum of their parts.

Without going into minor detail and approaches to the concept of part-whole, I will try to enumerate general characteristic features enabling me to introduce the concept of part-whole into toponomastics. Among them are sequential properties for identity which include splits and mergers. As noted by Talmy (2000: 468), sequential properties for identity are constant – the number of identities involved at any particular time remains at "one". But some properties also address a change in the number of identities extant. Thus, a series of tributaries can merge into one river, and each tributary bears a part of the main river's name and its own identity, in this way contributing to the identity and integrity of the whole river basin – a fact considered so important in the river exploitation. For example, in Altai the *Sebi* (river) has the following tributaries flowing into it from its left: *the Čarġï* (or *Čarġïnïŋ-Suuzï*, the full name in the Altai language), *the Čičke-Čarġï*, *the D'aan-Čarġï*, *the Kičü-Čarġï*, and *the Ulus-Čarġï*. The river *Üstigi-Čarġï*, in its turn, is the right tributary of *the Ulus-Čarġï* and has the settlement of *Üstigi-Čarġï* on its bank. The river *Ulus-Čarġï* has the settlement of *Ulus-Čarġï* on its bank. The river *Kičü-Čarġï* has the settlement of *Kičü-Čarġï* on its bank. The settlement *Čarġï* (*Čarġï-Oozï*, i.e., the mouth of the river *Čarġï*) is situated at the confluence of *the Čarġï* and *the Sebi*, while the source of *the Čarġï* is called *the Čarġï-Bažï*. The river *D'aan-Čarġï* has a spring called in Russian *Bol'šoj-Cherginskij*, meaning in Altai *D'aan-Čarġïnïŋ*. The river *Chariš* has as its left tributaries the *Qorġon* and the *D'aan-Qorġon*. In its turn, *the Qorġon* takes the smaller river *Qorġončïq* as its tributary. Apart from it, the same river *Qorġon* has one more tributary called *Korgonka* in Russian. There are several rivers bearing the name of *the Qorġon* in the territory and they gave names to the mountain (*Qorġon*), settlements (*Qorġon*, *Korgonskaja),* valley (*Korgonskaja*), mountains (*Korgonskije*), plateau (*Korgonskoje*), etc. Some other *Qorġon* rivers may have the following tributaries flowing into them: *the Antonov-Korgon*, *the Belogolovcev-Korgon*, *the Bol'šoj-Korgon*, *the Gorelyj-Korgon*, and *the Malyj-Korgon*. Two rivers called in Russian the *Bol'šaja Gromotukha* and *Malaja Gromotukha* are left tributaries of *the Kök-Suu*. Or the lake *Kindiktü-Köl* has its splits labelled *D'aan-Kindiktü-Köl* and *Kičü-Kindiktü-Köl*. River or lake basins are perceived as integrity not only for the sake of interconnected names of tributaries and splits with the main river or lake, but also including upper and lower reaches of a river, for example, into the integral system of one and the same split entity by giving the names of the main

river to them (*Čarġï-Bažï*, *Čarġï-Oozï*; *Qayïŋči-Bažï*, *Qayïŋči-Oozï*; *Balïqtu-Kool-Bažï*, *Balïqtu-Kool-Oozï*, and others).

Any big topographic feature as a whole is the first in importance compared to its parts. It is not a mere fact that the existence of each part would not take place if the causal connections between it, the whole and other parts were to be disturbed. Rather, the parts depend ontologically on one another. Each of them requires the others as essential aspects of its own existence. All parts are interrelated causally and spatially. The identity of each part depends on the role it plays as a part of the whole. This implies that the study of big topographic features cannot be done by investigating parts of them and drawing conclusions about the whole, since an adequate understanding of the parts themselves depends on a prior understanding of the whole and the role the parts play in its functioning. Philosophers know that the whole is distinct from the parts, but they do not know in what way it differs from them (Meirav 2003: 7).

Objects stand in a relationship of dependence or independence, like wholes, which are themselves segmented or segmentable. Within them, their parts are not only discrete in content, but they are also relatively independent of each other. Objects and contents may co-exist as momentary entities or they may coexist in duration. As Smith (1996: 3) assumes, "fundamental to this view is a claim that objects, properties, practice, and politics – indeed everything ontological – live in what is called the *middle distance*: an intermediate realm between a proximal though ultimately ineffable connection, reminiscent of the familiar physical bumping and shoving of the world, and a more remote disconnection, a form of unbridgeable separation that lies at the root of abstraction and of the partial (and painful) subject-object divide." To the statement made above it seems appropriate to add the definition of observable, as "whatever lies within the range of the eye and the hand and is amenable to manipulation in the actual duration" (Albertazzi 1998: 2).

The correlation of subject with object, on the one hand, and of one object with another object, on the other, is based, for example, on partial separation between entities. "The way in which we are continuous with the world, the way in which we arise up out of and subside back into and are never wholly separated from it, is much more fundamental" (Smith 1996: 371). Another component is a discreteness that makes objects individual and is assumed to be primitive and absolute. Somehow or other, an individual object is taken to be something of a coherent unity that has been separated out from a background, in the familiar "figure-ground" fashion. The next component consists of the physical boundaries that objects and subjects possess. With distance between them, as well as disconnection and separation, these boundaries are considered to be part of a physical and material integrity, that is to say, part of individuation.

The essential characteristic of objects is also their particularity, as opposed to the generic and universal. Smith (1996: 137) poses the rhetorical question, whether particularity and individuality are an intrinsic part of the structure of the world, to which the subject need merely be attuned, or are the achievements of either the subject or the object. He argues that physics supplies a picture of the world – extensive cosmic particularity but is of no help with respect to individuality. Far from being universal, the physical world itself is a realm of complete and total particularity. Individuality rests on background notions of sameness (across the constitutive spatial and temporal regions) and difference, which is not hard to find; being endemic is not a metaphysical rarity. The structure of this sameness and difference is of the utmost importance. In order to be distinguished from the background, a given object must be viewed as different from that background: qualitative difference, difference in the sense of being differentiable. The well-known division of qualities distinguishes them among (i) primary qualities, like extension, size, position, motion; (ii) secondary qualities, like tastes, sounds, odours, because they are subjectively connected. In order to be distinguished from other objects of the same type, an individual must similarly be viewed as different from them: quantitative difference, difference in the sense of being distinct (Smith 1996: 121).

This type of analysis may have a direct appeal to toponomastics. It is not only the treatment of topographic features (rivers, mountains, lakes, ravines, valleys, and so forth) as integral entities with their own physical boundaries (individuality) bearing special, common, and sometimes proper, names for their designation (for rivers, lakes, canals, hills – *banks*; for mountains – *sides*, *snowlines* or *tree-lines*; for gorges, cliffs, rivers – *brinks*, *sides*; for roads, cliffs, water, deserts, cities, – *edges*; for seas, lakes – *shores*; for coasts, shores – *lines* or *edges*; and so forth) but also the emphasis on the type of individuality (*pond* vs. *pool* and *puddle*; *stream* vs. *torrent* and *brook*, and so forth) together with the statement that for an individual, to be taken as a unity, any internal variation in constitution must be ignored so that the whole could be considered as one and the same. And here one may ask when can a boundary become an entity? As was stated by Jackendoff (1991: 32), a basic condition of boundaries is that it has one dimension fewer than what it bounds: a line can be limited by a point, a region by a line, and a volume by a surface. If one considers the words *bank*, *side*, *brink*, *edge*, and so forth, one may notice that they have little in common as far as the expansion of the boundary is concerned. Besides they are not even synonyms. What they do have in common is an abstract notion of linear dimensionality they are used to express.

Language differentiation seems to consist of attaching different labels to salient features singled out in one and the same type of object (*high mountain*, *low mountain*; *long river*, *short river*; *green valley*, *yellow valley*, and so forth), or in differentiating some relationship that exists between the subject and the object (*left bank of the river*, *right bank of the river*).

The usual criterion for object recognition is naming. The name provided is, for most objects, at the basic level of categorization.[2] At this level objects within a common category tend to share common features, and objects from contrasting categories tend not to share them at all. In particular, objects at the basic level tend to have a common shape, so that an averaged shape prototype could be recognisable. On the basis of attributes proposed by subjects who were asked to describe objects at the basic level, it was suggested that it is an object's part structure that is particularly diagnostic of its basic-level identity. At the subordinate level non-part attributes tended to emerge. Work on visual object recognition, then, makes the fundamental points that (a) an object's structure – the layout of edges, vertices, surfaces and parts in space – is strongly diagnostic of its identity at the level most commonly used in naming, (b) access to structural information, particularly about shape, underlies the process of visual object identification (Klatzky & Lederman 1993: 191).

As known from geomorphology, the area drained by a river and its channels is called catchment, catchment area, catchment basin, drainage area, drainage basin, river basin, water basin or watershed. The term watershed is also used to mean a boundary between catchments, which is also called a water divide or a continental divide. A drainage basin includes both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels and is separated from adjacent basins by a drainage divide. The description given exactly corresponds to all the definitions of an integrity and confirms the river basin status as a whole comprised of different parts. All parts of the whole (the river basin) have characteristics of their own; for instance, a river, the water of which is usually confined to a channel, is made up of a stream bed between banks. A river in its turn may be treated as consisting of parts: channel, stream bed, banks, source of a river (upriver), downriver, mouth (lower end of a river, its base level). And finally, tributaries that bear a number of common names: confluent, affluent, etc. A tributary is defined as a stream or river which flows into a main stream or (parent) river and which does not flow directly into a sea. As seen from the description above, the river basin, river, tributaries may be considered in one situation as wholes, possessing all attributes of a whole, and in another situation as parts or portions, revealing all characteristics of a part or portion. Both lexemes denoting all entities of a river basin and mental concepts storing knowledge about

categories into which all these entities may be grouped clearly show relationship on a variety of bases. For instance, the correlation between the following lexical items may be attributed to the evident case of hyponymy: creek, brook, rivulet, rill, etc. (creek is a kind of river, for instance). Land, stream, channel, river, tributary, etc. as lexemes are in the relationship of meronymy (stream is a part of river basin, for instance). Taxonomy also concerns concepts and categories with their basic and specific levels.

Notes

1. The Altai Republic is a constituent part of the Russian Federal Republic [area 92,722 sq. km; pop. 202,900 (the total number of Altai people in the republic in 2002 was 67,900, among them Altai-kiži made up 62,192, Qumandï-kiži – 931, Telengit – 2,368, Teleut – 32, Tuba-kiži – 1,533 and Čalqan-kiži – 830 people; the Russian population totalled 116,500 and the Kazakh population – 12,100)]. It is situated in the south of West Siberia bordering on Mongolia and the Chinese People's Republic to the south-east, the Kazakh Republic to the south-west, adjoining the Kemerovo region and Khakasija to the north, the Altai region to the north-west and Tyva to the east. The Altai language belongs to the Turkic group of languages.

2. As Lakoff and Johnson claim (1980: 122), the properties of an entity form a structural Gestalt with dimensions that emerge naturally from our experience. For human beings categorization is a means to comprehend the environment with all its attributes and values. Many scholars define a category in terms of set theory as it may be characterized by a set of inherent properties of the entities in the category.

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