This paper was presented at the 'First World Congress on Mulla Sadra' (Tehran, May 1999) and published in:

Islam - West Philosophical Dialogue: the papers presented at the World Congress on Mulla Sadra, May, 1999, Tehran. Tehran: Sadra Islamic Philosophy Research Institute, 2004, p.109-120

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# Do the Fundamentals of Rationality in Different Philosophical Traditions Correspond?

### A comparative study of Zeno's paradoxes and teachings of early Kalām

Comparative studies in the field of history of philosophy involve the elucidation of analogies and differences between philosophical traditions, that developed quite independently or, on the contrary, influenced each other. The latter case includes further establishment of sources and ways of interaction of ideas, concepts, conceptions and, the transformations they undergo. Diversity in the approaches to methodology of comparative studies is a result of difference in the understandings regarding the possibility to establish the difference and the analogies between the philosophical doctrines and the means that lead to it. But notwithstanding all the diversity, these approaches have one thing in common: they all answer the question, how to grasp the singularity of philosophical systems and how to express it in the native language of the scholar.

However, not much attention is directed to understanding *what* this difference really happens to be. It is believed that difference between systems or concepts brought into comparison is the difference *in content*. The content of the concept "knowledge", for example, obviously differs in the mediaeval Islamic and European traditions. In order to determine this difference in content, diverse methods of description of instances and contexts of usage, analysis of sources and evolution, defining the place of a concept in the system of categories of a particular tradition and its relation to other concepts are used in comparative studies. Obviously, understanding the problem in such a way, we inevitably finish with a dilemma "language of research – language of system under description". The closer we get to the content proper of the tradition investigated and the more adequate language — in

terms of content — we use to describe it (often it is technically conveyed in refusing to translate terms, usage of transliteration or intentionally ambiguous translations, swelling of commentaries to terms, etc.) the further we are from our "own" (what actually means "Western" or "European") tradition and the more we lose ability to directly interact with it and with its content. Thus we paradoxically destroy the basis of a content comparison of two traditions, for a closer approach towards adequacy of one draws us away from the adequacy in content of the other.

It is no coincidence that I emphatically highlight the stress on the content approach found in comparative studies under consideration. Even if no mention is made about the above conception in methodological elaboration proposed by the authors adhering to this approach, nevertheless, it is implicitly present in them, for only that which is patent requires no further investigation.

However, this very patency seems doubtful to me. From my point of view the *content* side of differences must be distinguished in comparative studies from the *procedural* one. The differences, in other words, are not limited to differences in sense contents, but they include differences in procedures of sense formation.

As to the word "procedure", I use it in accordance with the meaning it usually takes in modern literature. The procedure of sense-formation is independent from sense content and in certain ways stands prior to it. Most of the content differences may be explained by the difference in procedures, while the procedure of sense-formation cannot be reduced to sense content.

Therefore, I believe that the task of comparative research includes firstly, distinguishing between procedural and content aspects of sense analogies or differences of doctrines, systems and concepts studied. Secondly, establishing differences in the procedures of sense-formation or their absence. Thirdly, proposing the best possible explanation for differences in content by means of procedural ones, in case they have been established.

The investigation to proceed is based on the above stated principles.

## I

Let us begin by comparing two statements.

**1.** *Simplicius Comm. on Physics, 1011,19 (ad 239b5)*: Zeno's argument that when anything is in a space equal to itself, it is either in motion or at rest, and that nothing is moved in

> the present moment, and that the moving body is always in a space equal to itself at each present moment, may, I think, be put in a syllogism as follows: The arrow which is moving forward is at every present moment in a space equal to itself, accordingly it is in a space equal to itself in all time; but that which is in a space equal to itself in the present moment is not in motion. Accordingly it is in a state of rest, since it is not moved in the present moment, and that which is not moving is at rest, since everything is either in motion or at rest. So the arrow which is moving forward is at rest while it is moving forward, in every moment of its motion.[1]

**2.** Abū al-Hudhayl al-'Allāf said that motion and rest are something different from being and contiguity. Motion in a body from one location to another occurs when it is at its new location, in the state[2] of its being in it, and it is its transition from the first location and its leaving the first location. The body is at rest in the second location if it stays there two instants of time. Therefore, for motion from one location to another to take place, two locations and two instants of time are required, and for rest — one location and two instants of time [are required].[3]

In the first case, as one will easily guess, the text in question is the famous Zeno's "Arrow" paradox. The second argument belongs to Abū al-Hudhayl al-'Allāf, one of the prominent representatives of early Kalām, the first trend of medieval Islamic philosophy. I would like now to bring the two arguments into confrontation to highlight the principles that underlie them.

This is the question which we put to these texts: do the two ways to consider the motion which we find in them correspond? Can they be placed in one and the same perspective or are they parallel in such a way that there is no common point of departure for them, even on the deepest possible level of our inquiry? The question can also be worded differently: is it possible to formulate Zeno's paradoxes in the

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[1] *Fairbanks A.* (ed. and trans.) The First Philosophers of Greece. London: K. Paul, Trench, Trubner, 1898. I chose this text for its clarity; actually any other dealing with Zeno's "Arrow" would do for the purposes of the present article.

[2] 'State' – *ḥāl*, in this context synonymous to *waqt* 'instant of time'. See below (p.9) about the relation between the two terms.

[3] *Al-Ash'arī*. Maqālāt al-islāmiyyīn wa ikhtilāf al-muṣallīn ("Sayings of the People of Islam and Controversies Among Those Who Pray"). Wiesbaden, 1980, p. 355. This work was written by al-Ash'arī (873/4 – app. 935/6), the founder of the Ash'arite school of late Kalām. It contains the sayings belonging mainly to Mu'tazila, representatives of the early Kalām.

system of ideas that form the reference frame for considering the motion in Kalām? It should be pointed out that the problem whether Zeno's paradoxes would remain paradoxes after such a restatement is of no importance to us. In course of our investigation we seek to establish whether the system of ideas which permits the formulation of the paradox as well as its solution can be restated within the framework of ideas that permit the understanding of motion in Kalām. For only the possibility or impossibility to formulate the foreign principle on the basis of one's own can give us enough evidence to draw conclusions regarding their correspondence.

## II

### 1

Generally speaking, Zeno's paradoxes fall into two groups, being based on sophisms and on paralogisms. In the first case Zeno, from his opponents' point of view, confuses different concepts and consequently arrives at absurd conclusion. In the second case, the confusion of different concepts does not take place and Zeno's argumentation is considered to be faultless, but the presupposition which all the chain of reasoning is based on is said to be impossible. It is important to point out that in both cases Zeno as well as his opponents accept without any further verification a certain number of principles which lend the ultimate and unquestionable support to argumentation. It is on these very principles that the dialog between Zeno and his opponents is based. The latter are certain of the fact that Zeno perverts the correct propositions (in the first case) and uses the correct propositions correctly but lays a wrong assumption at the basis of them (in the second case). This certitude guides them when they try to clarify the confusion of different concepts which constitutes the essence of the perversion in the first case and forbid the assumption which leads to impossible effects in the second case. These unquestionable and universal theses I will call the ultimate fundamentals of rationality: they constitute the limit of the demonstration and define what is considered to be absolutely right or absurd.

Refuting the paradoxes based on sophisms, Aristotle formulates a principle according to which a thing must be spoken about in one and the same respect within one and the same statement. Differentiating between actual and potential states can be considered as the particular case of such univocal usage of words. It plays an important role in matters related to the divisibility of quantities: according to Aristotle

any quantity is potentially divisible *ad infinitum*, while its actual divisibility is always limited.

Differentiating between potential and actual divisibility is also important for resolving paradoxes based on paralogisms, one of which is the above mentioned "Arrow" paradox.

> *Aristotle (Physics, Z 9,239 b 30)*: The third [argument] is that already given above, to the effect that the flying arrow is at rest, which result follows from the assumption that time is composed of moments: if this assumption is not granted, the conclusion will not follow.
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> *Ibid., 239 b 5:* Zeno's reasoning, however, is fallacious, when he says that if everything when it occupies an equal space is at rest, and if that which is in motion is always occupying such a space at any moment, the flying arrow is therefore motionless. This is false, for time is not composed of indivisible instances any more than any other quantity is composed of atoms.[4]

According to Aristotle, time is potentially divisible *ad infinitum*, therefore an atomic instant of temporal quantity is absent. If such a non-lasting instant of time existed, being added to the instants of the same type it, obviously, would not be able to give a temporal duration due to its null value.

It is easily noticeable that the ultimate fundamentals of rationality are represented here by the principle of the *tertium non datur* and the thesis that the addition of two zero values does not give any value.[5] The difference between these principles and the propositions of Zeno's paradoxes disputed by Aristotle and his followers, is obvious. Every existent, considered under the same respect, is either one or many, and this principle of the excluded middle is unquestionably valid for Aristotle as well as for Zeno, who frequently repeats it in his reasoning (it is impossible to give all the relevant citations because it would take too much space); the main concern here is the univocal usage of the terms "oneness" and "plurality" regarding "one and the same" being. Similarly, an arrow is either at rest or in motion during each instant of time. And precisely because this thesis is unquestionably valid,

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4 Trans. by *R. P. Hardie* and *R. K. Gaye*.

5 I remember, of course, that "null value" or "zero" concept is not adequate to its representation in the thought of ancient Greeks, however, the context of its usage here does not contradict their theories in the aspect under consideration.

the instant of time during which it can be said to be at rest, does not exist, consequently, the time is not divisible. This thesis perfectly agrees with the saying that the addition of two null values does not give any value.

Speaking about the principles of *tertium non datur* and that the addition of two null values does not give any value, I do not claim to have isolated all the theses that can be regarded as ultimate fundamentals of rationality in ancient Greek thought. I would only like to highlight that the theses under consideration, no doubts, belong to them. It can not go unnoticed that the formulation of Zeno paradoxes is possible only if these theses are considered absolutely valid. The fact that these paradoxes can be solved does not, in any way, contradict my conclusions, because their solution demonstrates only the inconsistency of Zeno, who deviates at one step or another from the correct usage of the above mentioned theses, meanwhile the theses themselves are not doubted as a result of the solution of the paradoxes but, on the contrary, are explained and defined more precisely due to it.

**2**

The problems Mutakallimūn faced, are similar to those that drew attention of Zeno and his opponents: how one and the same thing can be both one and many, the atomic theory of matter, time, and space, the description of motion (temporal changing of the space characteristics of an object). Mutakallimūn were only well aware of possible solutions of such problems brought forward in pre- and post-Socratic periods of ancient philosophical thought. For example, we come across the following mention of Aristotelian thesis:

> Some philosophizing[6] scholars say that atom is divisible and this divisibility actually has its limit, but potentially the limit of divisibility does not exist.[7]

Moreover, being given together with diverse opinions of Mutakallimūn, this point of view does not partake of their controversy at all, it looks as if it were mentioned by an industrious archivist just to complete his list. Now the obvious want

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[6] I.e. *falāsifa*, Islamic Peripatetic philosophers. Ibn Sīnā, for example, in his "Instructions and Admonitions" expresses the same idea and rejects the opinion about reality of atoms (see *Ibn Sīnā*. Al-Ishārāt wa al-tanbīhāt (ed. S.Dunya), Part II 'On Substantiality of Bodies'. Cairo, Dar al-ma'arif, 1957).

[7] *Al-Ash'arī*. Ibid., p.318.

of ready solutions coupled with their easy accessibility makes one look for an explanation for the fact that no usage was made of them. For differentiating of actual and potential was one of the important decisions proposed by ancient Greeks to provide the validity of effects in reasoning based on the theses that were defined as ultimate fundamentals of rationality. Therefore this differentiating is not only closely related to the content of logical and ontological doctrines of any philosophical school, but is highly important for a more fundamental necessity to preserve the principles of rationality in a given culture. The fact that Mutakallimūn pay attention to this thesis but do not show much concern with it, poses a problem of its significance for preserving those basic principles of rationality that underlie their thought.

We remember that Zeno proceeds from the assumption that the addition of null values does not give any value. Showing his agreement with this assumption and, moreover, proceeding from it, Aristotle rejects the proposition that time is composed of atomic instances. Time according to him is a continual quantity, which is potentially divisible *ad infinitum* but does not contain any actual non-dimensional atom of time.

Let us compare the logic according to which these concepts are formed with the idea of time proposed by the Mutakallimūn. We are taking into consideration only an early, Mu'tazila stage of the development of Kalām.

As al-Ash'arī informs us, Mutakallimūn

> used to say: time is that what separates actions. This is the border between one action and the other. During each [instant of] time an action arises.[8]

It follows from al-Ash'arī's statement that most of Mutakallimūn supported this view. According to this definition, time appears to be the function of two events. The key statement here is that time is "the border between one action and the other".

If we want to understand it fully, we must take into consideration that "between" in Islamic thought does not imply a border which separates one thing from the other, in which case that which is between A and B would belong neither A or B. As a matter of fact "between" here turns out to be something which conjoins. But it conjoins the two not in the way they are contiguous in some point or along any border (this is the way to conjoin two things typical for the above mentioned border),[9] but in

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[8] *Al-Ash'arī*. Ibid., p.443.

[9] I purposely speak about the concept of the border in this context, for in case "between" is understood differently, "the border" is understood differently either. For example,

such a way that they *overlap* in a given *area*. Therefore that which is found "between" A and B constitutes the area of their *partial overlapping*. Time is "that what separates actions", say Mutakallimūn. A literal translation of this sentence reads as follows: time is "the difference between actions" (*al-farq bayna al-a'māl*). An instant of time defined as overlapping of one event with the other, separates by this very fact two events, simply because the overlapping area of two events A and B, does not cover A and B completely, but leaves non-overlapping areas, that turn out to be separated one from the other by virtue of their overlapping.

We note that certain juxtaposition of two events ("actions", in Mutakallimūn's own wording) produces the "time". The most precise term to determine this juxtaposition is, perhaps, "overlapping". In this overlapping (which always remains partial) of two senses, none of which implies time, arises a new sense — that of "time".

If the "instant of time" as a sense arises in the juxtaposition of two events, it also means the opposite: any instant of time comprises two juxtaposed events.

The possibility to contemplate an atomic instant of time in this way was used by the Mutakallimūn in an interesting speculation, which solves one of the most important questions of the cosmography: how can the Earth hold in the center of the universe. The Mutakallimūn regarded that

> the Supreme God creates at each instant of time some body beneath the Earth, then at the next instant destroys it and in the state (*ḥāl*) of its annihilation creates a new body. The Earth stands on this very body. This body can not fall down in the state of its creation and does not need a place to be fixed on, since a thing can not be at motion or at rest in the state of its coming into being.[10]

The purely logical nature of this theory is evident. The Earth at each present instant stays on some body. Each instant of time includes two events: destruction of such body (created at the previous instant of time) and its creation anew. It is clear though not stipulated expressly, that there is no duration "within"

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according to Simplicius who comments on Aristotle's "Physics", the border is located "on the margin of a body" (Commentary to 'Physics', Δ 3.210b 22), but does not happen to be special and *separate* entity, the same way as "present" never turns out to be separate from "before" and "after" but is their common border, while in Islamic thinking "the border" is understood both as belonging to the things being separated and as a separate entity.

[10] *Al-Ash'arī*. Ibid., p.326.

such an instant of time. It is emphasized, firstly, by the term "state" (*ḥāl*): the state is instantaneous, it manifests the thing in its invariability, and the instant of time (*waqt*) proves to be the conjunction of a pair of such states, in this case – the state of destruction of the body and the state of creating it anew. And secondly, this is also proved by the fact that the following thesis is referred to by the Mutakallimūn as obvious: the thing can not be at motion or at rest in the state of its coming into being: one can absolutely deny the possibility of the body to move "in the state of its coming into being" only if this very "state" has no duration, otherwise the absolute denial of this possibility of movement would seem absurd.

Thus, each instant of time is a juxtaposition of two non-lasting "states" or "events". In this case the first of them is represented by destruction, the second by creation. As the body that the Earth stands upon and with reference to which its motion and rest can be determined at each instant of time, comes into being during each instant of time, and in the state of coming into being it is neither at motion nor at rest, so it comes out that during no instant of time the Earth can be either in motion or at rest. If the Earth is denied both "motion" (*ḥaraka*) and "rest" (*sukūn*), then its "staying upon" (*wuqūf*) is neither motion nor rest.

**3**

Note the obvious conflict of this theory with the law of the excluded middle. However, this is a kind of conflict that does not take the form of direct negation. The case is more complicated.

The law of the excluded middle in its classical form "A is either B or non-B" allows two readings that might be called "imperative" and "negative". The first means that "A *must* be either B or non-B", the second, that "A *can not be* both B and non-B at the same time". These two wordings seem to be equivalent; indeed, if the body may be predicated a motion, then only by virtue of this it *should be* either in motion or at rest (imperative reading) and *can not be* in motion and at rest at the same time (negative reading). However, the texts of classical Islamic tradition indicate that these two wordings were viewed as fundamentally different. In the case under consideration the law of the excluded middle is broken in its first "imperative" wording (if "rest" is regarded as "non-motion", what, according to the texts, corresponds to the intentions of Mutakallimūn). More cases when the law is broken in this very wording could be pointed out. In the mean time, the law of the excluded

middle in its "negative" wording was well-known in the Islamic philosophy at least since Kalām and, to the best of my knowledge, was strictly observed.[11] The discussion of this question may offer a topic for a separate article; hereby I would like to fix the attention upon the fact of distinguishing the two wordings of the law, which are at all not equivalent from the point of view of Islamic thought. I believe that this distinguishing finally goes back to the same ultimate fundamentals of rationality of semantic nature discussed in this article, but I can now just bring forward this proposition leaving its elaboration and demonstration till better occasion.

We have seen that instant of time, according to Mutakallimūn, includes two events. Does it mean that it "consists of" two events? If we regard these two events as separated from one another, i.e. as *separate*, the atom of time will "consist of" two joint, added to one another events, that naturally enough can also be separated and hence the atom of time will not be indivisible. At the same time it is clear that no *coincidence* of two events is meant here, because they involve one and the same body; at least it is not such a coincidence that makes one thing identical to the other. This dilemma takes us back to the concept of the border. How can two events be separated in the way that they at the same time stay inseparable from each other? How can an instant "consist of" something that is not adjoined to one another like cubes of a toy-constructor? Apparently this is achieved by means of such a juxtaposition which was called *overlapping* of two events.

Describing the theory that we are interested in, al-Ash'arī writes in another place:

> He (God) at each instant of time creates under it (the Earth) a body, which He destroys after its existence, then with its non-existence,[12] He creates another body, on which He places the Earth and so forth *ad infinitum*. The matter is that, as they think, if the body

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[11] Cf., e.g., *al-Ash'arī*, ibid., p.323-324.

[12] 'With its non-existence': *ma'a 'adami-hi*. In the parallel text (p.327) the same is described as *fī ḥāl* 'in the state'. Thus 'with' refers to the combination of two "events" at the same instant of time. 'Destruction' (*ifnā'*) here is understood as a certain independent event described as 'cessation of abiding' (*qaṭ' al-baqā'*, ref. the corresponding paragraphs, e.g., in al-Baghdādī's "Uṣūl al-Dīn"), i.e. as "something occurring" (it is not a simple non-existence, '*adam*, which according to Islamic thinkers is "always present" and no special effort is needed to reach it) and combined with another event.

> exists [for two instants of time],[13] it should be either in motion or at rest, but the moving body can move only in relation to something, and the resting body can be at rest only on something.[14]

This abstract renders almost the same meaning as the above one. Hereby, however, it is demonstrated in what way the states of "non-existence" and "creation" are related to each other (let us note again the steadiness of this very order). The second occurs "together" (*ma'a*) with the first. This "together" fixes the juxtaposition of the two events, in which appears the sense of "time". This very overlapping "together" should be correlated with the "border between one action and the other" which serves as a definition of time for the Mutakallimūn and which, as we have already mentioned, refers to two different events not as *separate*, but as staying in conjunction and at the same time set apart owing to this very fact of their overlapping.

Now we can spot the remarkable contrast of these speculations with the Peripatetic ideas of time. When Ibn Sīnā says that time

> is that thanks to what there is such 'before' together with which its 'after' never occurs,[15]

he introduces the Aristotelian comprehension of the border as dividing and excluding overlapping, what is expressed by the interdiction on "combination" of two subsequent events. But it is characteristic of Mutakallimūn to assert that two subsequent events are joined, i.e. overlap, and it is exactly this overlapping (prohibited by the Greek tradition) that proves to be the instant of time.

By "contrast" I do not mean a direct contradiction. I use this word for the reason that it reveals the sense of correlation where one element sets off the other without destroying it. Two things in contrast may coexist without coming into direct confrontation just because they follow, so to say, parallel courses, and do not come in touch with each other.

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[13] Conjecture. All the manuscripts, the editor says, read لا حالى. It seems to be a distorted dual or plural of *ḥāl*, which is synonymous to *waqt* 'instant of time'.

[14] *Al-Ash'arī*. Ibid., p.571.

[15] *Ibn Sīnā*. 'Uyūn al-Ḥikma (ed. A.Badawi). Cairo, 1954, p.26.

The ideas of the Mutakallimūn regarding the motion are not limited to the text we began our analysis with. We also detect other evidences. Thus al-Naẓẓām believed that

> if a body moves from one location to another, then the motion arises in the first, and this motion is its intentions (*i'timādāt*) that imply its being in the second, while its coming into being in the second [location] is the motion of the body in the second [location],

and another famous Mutakallim, Bishr al-Mu'tamir, said that

> the motion arises neither in the first location, nor in the second, however, due to it the body moves from one location to another.[16]

However, irrespective to different standpoints of the Mutakallimūn about the essence of motion and rest (besides the quoted there are others as well) they have one typical feature in common: the senses of "motion" and "rest" may be determined only in juxtaposition of *two* instants of time and the state of the body in *two* locations accordingly. The "state" of the body taken in a single instant of time can not be related either to "motion" or to "rest", or, to be precise, it may turn out to be both of them.

This evidently does not correspond to what Zeno assumes as unquestionable premise for constructing the sense of "motion".

For him a body is either in motion or at rest during each instant of time including atomic one. Since it is absolutely true from the logical point of view, Aristotle interdicts indivisibility of time. But for the Mutakallimūn[17] the body is neither in motion nor at rest in an atom of time; it may be both in motion and at rest. And even not like this. The state of the body during an instant of time proves to be the same both for the "rest" and for the "motion". "Motion" and "rest" as senses form in a different way – the sense itself turns out to be different.

Zeno's paradox can not be formulated in the reference frame of basic concepts about the *formation* of the sense of motion shared by the Mutakallimūn. The point is not that it can not be formulated as a paradox; it can not be formulated even as a solved paradox, since all the senses participating in its formation can not be generated in case we accept the principles shared by Mutakallimūn.

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[16] *Al-Ash'arī*. Ibid., p.353-355.

[17] As well as for posterior Islamic tradition represented by Sufism, that has apprehended and developed the atomistic theory of time.

Thus in Mutakallimūn's speculations the law of excluded middle (in its "imperative" reading; see above, page 9) does not manifest its fundamental power and does not make them formulate thesis on non-atomic nature of time, as we saw it do with Zeno and his opponents. For the Greeks the thesis about non-atomic nature of time is subordinate to what is unanimously regarded as unquestionable foundation of rationality. For the Mutakallimūn, on the contrary, the motion, as a sense, is only possible in the juxtaposition of two "instants", and they never give it up. The juxtaposition of two "instants", two "states" does not turn out to be a content theory which is built up on some basis and may be discussed, but on the contrary it is the basis itself upon which the sense of "motion" is built up. It is this idea of the juxtaposition of two "instants" (two "states") that takes in Kalām the place which is taken by the thesis of excluded middle in the speculations of Zeno and his opponents. Even when the Mutakallimūn say that "the body is either in motion or at rest", they do not mean "during any instant of time"; meanwhile this very supplement is fundamental for the Greek tradition (for Zeno and his opponents), where the body during each instant of time might be predicated either motion or its contrary, and if the body exists, one of these two statements is indispensably true. Just because of indisputability of such sense-formation procedure Aristotle regards the supposition that the time is a sum of non-lasting instants, as paralogism.

Why is the proposition that every body is either in motion or at rest during *each instant of time* so essential for Zeno and his opponents? Can we suppose that a body does not move in either of two instants of time considered separately, but does move in two instants of time considered jointly? In other words, could we reproduce the theory of motion created by the Mutakallimūn taking as basis the fundamental theses of Zeno and his opponents?

This question appears to be important also for the following reason. An objection could be raised that the above mentioned contrast of fundamentals of rationality in Greek and Islamic traditions does not really exist: it is understanding of motion which differs, and if in the ancient tradition the body is either in motion or at rest during *each* instant of time, then in the Islamic tradition during *any two* instants of time. We note some differences in doctrines, an opponent could say, but we also note that the law of excluded middle persists in both cases. This objection could have been fair and the case could have been limited to difference in content of the doctrines that would differ from each other conceptually being built up on the same base of sense

formation, if the "two instants of time" of the Islamic thinkers were a unity indivisible to such an extent that one could never ask what happens to the body in a single instant of time and how the two instants of time arise. In other words, if "any two" instants of time discussed by the Mutakallimūn would play in the sense formation the same role as "any instant of time" of the Greek tradition. But it is not true. For the Mutakallimūn the body fixed in the space and occupying, according to Zeno and his opponents, a "space equal to itself" at any of the two instants of time, neither moving, nor resting at any of the instants taken separately, is still in motion or at rest during the *both* instants. That is why I affirm that such a standpoint can not be formulated on the basis of the fundamentals of rationality of the antiquity, thus being impossible from its point of view. So, the problem of formulating the theses on motion assumed in both traditions is posed and solved here as mutual. Indeed, it would not be sufficient to show the impossibility of formulating the theses of one tradition in terms of the other without showing the opposite and thus demonstrating this impossibility as reciprocal. Otherwise, the matter would look as if one tradition were "wider" than the other and represented a common case in relation to the latter.

If the Western tradition proceeding from the fundamentals of rationality peculiar to it, can not formulate the propositions on time and motion acceptable to the Mutakallimūn, for the Mutakallimūn and the later tradition represented by Sufism, on the contrary, the sense-formation procedure, which ignores the law of the excluded middle in its "imperative" reading,[18] proves to be fundamental.

I would like to point out that the procedure just examined is rather stable and relevant not only in case of determination of the senses of "motion", "rest" or "time". It also underlies the determination of the concept of "space", which, according to Mutakallimūn, arises in the juxtaposition of two atoms of substance devoid of space dimensions, what may remind us the juxtaposition of two timeless events producing an atom of time. Thus the juxtaposition of two atoms devoid of any dimensions produces a mono-dimensional structure, the juxtaposition of two mono-dimensional produces duo-dimensional and the juxtaposition of two duo-dimensional

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[18] As well as impossibility to get something from nothing. However, this emerging of a new sense in a juxtaposition of the two initial ones neither of which possesses it, is not an addition, but has a different nature (see also next paragraph). Thus Islamic classical thinking does not *directly* contradict the principles that underlie Western rationality, although it neither complies with them.

produces a three-dimensional structure.[19] The main point of this procedure may be expressed as follows: a new sense (whether it is “motion”, “rest”, “time instant” or “space dimension”) is produced in the juxtaposition of two elements none of which possesses this sense by itself.[20] However, this juxtaposition is not a mere summing up, therefore such procedure does not contradict directly the notion of impossibility to get anything by adding nothing.

## III

Having pointed out the difference of the sense-formation procedures in the both discussed cases, we can understand now why the contents differ (the contents of the concepts of “motion” and of theses connected to its discussion), and in what way they differ. The sense-formation procedures are formulated as ultimate fundamentals of rationality or, to be precise, the formulation of the later depends on sense-formation procedures assumed in this or that tradition. The ultimate fundamentals of rationality determine *a priori* what can be and what can be not, what is absolutely true and what is undoubtedly absurd, what always takes place and what never happens. These ultimate fundamentals of rationality depend on the admitted sense-formation procedures. I highlight this dependence because it seems to have been ignored ever before. As for the sense-formation procedures, they are not the same in different cultures. Even if we all speak of one and the same Universe, the difference of our utterances is not only and not just difference in content, but first and foremost in procedures of sense formation. We do not just say different things, our utterances are generated in different ways. The very difference of utterance generation in different cultures is to become the subject of our attention, if we really wish to understand them.

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[19] *Al-Ash‘arī*. Ibid., p.316-318.

[20] Of course I do not mean that the application field of this procedure is restricted to the formation of these senses. It is undoubtedly wider. However, the senses of “motion”, “rest”, “time”, and “space” obviously form an interrelated integrity; and it is not only justified but also necessary to consider them together.