U.Ü. FEN-EDEBİYAT FAKÜLTESİ
SOSYAL BİLİMLER DERGİSİ
Yıl: 6, Sayı: 8, 2005/1

ARISTOTLE AND THE PROBLEM OF TIME

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ABSTRACT

In this paper, I aim to explain the nature of time and of the now in Aristotle as much as possible so that I can set forth the problem of what the relation between time and the now is. In his Physics in book IV, Chapter 10, Aristotle illustrates his version of time.[1] At first sight, Aristotle examines that time exists and what it is and in how many senses we speak of the now and what sometime, lately, presently or just, long ago, suddenly and so on mean. In order to disclose the nature of time and the importance of the now in terms of Aristotle, first I am going to try to summarize what Aristotle says about time, and then I will look into the concept of the now since it strikes me that time is centered on it in Aristotle's version of time.

Key Words: *Time, the now, the nature of time.*

ÖZET
Aristoteles ve Zaman Problemi

Bu çalışmada amacım zaman ve şimdi (an) arasındaki ilişki sorununu gözler önüne serebilmek için, elden geldiğince zamanın ve şimdinin (anın) yapısını açığa kavuşturmaktır. Aristoteles zamana ilişkin görüşlerini Fizik adlı yapıtının IV. Kitabının 10. Bölümü'nde sunar. Aristoteles ilk

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1 Aristotle also speaks of time as one of the ten categories in his work *Logic*. For more information see *A new Aristotle Reader* edit by J.L. Ackrill. Princeton: Princeton University Press, 1987, pp. 5-12.

bakışta zamanın varlığını , onun ne olduğunu, kaç anlamda şimdi (an) den söz ettiğimizi, bazen, son zamanlarda, demin ya da henüz, çok önce, ansızın ve benzeri şeylerin ne anlama geldiğini ele alır. Aristoteles açısından zamanın doğasını ve şimdinin (anın) önemini kavramak için, ilkin Aristoteles'in zamana ilişkin söylediklerini özetlemeye çalışacağım; sonra da şimdi (an) kavramını soruşturacağım, çünkü öyle sanıyorum ki, Aristoteles'in zaman görüşü şimdi (an) üstüne kuruludur.

Anahtar Kelimler: *Zaman, şimdi (an), zamanın doğası.*

Introduction

Aristotle is one of the most influential philosophers of the history of philosophy. His areas of interest are varies from logic to metaphysics, natural science, psychology, biology, ethics, politics, art and so on. Like his predecessors, he wanted to figure out what is real. For him, a view of reality should allow not only sense objects but also values to be real. Besides, Aristotle held that a good enough account of reality must resolve the problem of change, which has been with us from the beginning. Despite the fact that change is one of the most clear facts of experience, it seems not to be rational, because if we say that X changes to Y, we appear to be claiming that X is both itself and not itself. From Thales onwards each thinker and philosopher, including Plato who asserted that the real and the knowable can not be changeable, had struggled with this problem. Aristotle's analysis of reality in terms of form and matter made it possible for the first time to come to grip with change. The individual X turns out on analysis to be a complex; it is a substance, a formed matter. During its change into Y some part of X endures unchanged and some part of X alters. What endures is X's matter; what changes is its form. According to Aristotle, natural science is concerned with the changes of natural objects and every change is the fulfillment or the coming to actuality of some potentiality. Whenever an object X that is potentially Y becomes Y, there is change that is the process by which X's potantiality to be B is realized. The types of changes are qualitative, quantitative, locomotive and substantival. Moreover, it seems to be out of the question for Aristotle to conceive a time at which there is no change.[2] Hence the question pursued particularly from Aristotle down is what is time? According to Brennan[3], the Greeks thought that time was essentially a measure of motion, which is a kind of change displayed by the

[2] W.T. Jones. *The Classical Mind.* New York. Harcourt, Brace & World, Inc. 1969. pp.216-228.

[3] J.G. Brennan. *The Meaning of Philosophy.* New York. Harper & Row Publishers. New York. 1967. p.208.

movement of the sidereal universe. Thus time is a category subordinate to space. To Plato and Plotinus, time was semireal, something that came into being only with the creation of the world. In the realm of the true being, eternity, not time, prevails. Medieval thinkers too were apt to follow the ancients in distinquishing the world of time from God's world in which there is no time but eternity. In contrast, twentieth-century metaphysicians like Bergson and Whitehead advanced the notion, handed on from the preceding century, that time is an inseparable dimension of the nature of things; that is to say, there is nothing outside time. They thought that reality is an on-going creativity, an endless advance into real novelty, as well as perpetual perishing. Earlier, Hegel's historically oriented philosophy had nourished the belief among Continental philosophers that man is essentially a temporal being, that human nature cannot be understood outside of time. From this source ran a stream leading to the current of thought called Existentialism.[4] That's why, in my opinion, in order to figure out the problem of what time is by taking advantage of examining Aristotles' version of time and to shed light on the matter at hand now, it is essential to illustrate and analyze the connection between the problem of change and of time and of the now.

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Now it is time I analysed Aristotle's own discussion of time in the *Physics* in detail. Aristotle starts by proposing an inquiry into the existence or non-existence of time. At the begining, he sets out three arguments for showing that time does not exist. First, he says that time consists of the past and the future, however the former no longer exists and the latter does not yet exist. That is to say, what is composed of nonentities is a nonentity, so time is a nonentity. To quote Aristotle:

> … first does it belong to the class of things that exist or to that of things that do not exist? Then secondly, what is its nature? To start, then: the following considerations would make one suspect that it either does not exist at al lor barely, and in an obscure way. One part of it has been and is not, while the other is going to be and is not yet…[5]

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[4] J.G. Brennan. *The Meaning of Philosophy.* New York. Harper & Row Publishers. New York. 1967. p. 209.

[5] Aristotle. *The Basic Works of Aristotle.* (Translator: Richard Mckeon). New York. The Oxford University Press. 1941. p. 289.

Second, he asserts that if time itself exists, either all or some of its parts must exist; besides if time exists, it will be continuous and divisible (we can divide it as past and future), so all or some of its parts must necessarily exist. But no part of time does exist because its parts are the past and the future, and neither of these exists; therefore time also does not exist. This argument is different from the first one because this one proceeds hypothetically; furthermore, the first argument is based on the composition of parts while second one is based on their division. In a few words, the first one treats time as composite while the second as divisible. With the words of Aristotle:

> … if a divisible thing is to exist, it is necessary that, when it exists, all or some of its parts must exist. But of time some parts have been, while others have to be, and no part of it *is*, though it is divisible.[6]

Third, he claims that the now seems to be a part of time; but it is not a part of time. It is because a part is a measure of the whole of time; therefore the now is not a part of time. It is a property of parts of a whole that the whole is measured by the part. Furthermore, the part is constitutive of the whole, but the now is not a constituent. For that reason, time does not consist of nows as the line is not composed of points.[7]

As we have seen, Aristotle took the now to be an existent and showed that it is not a part of time. For the time being, by using this third argument, he tries to show that not even the now which seems to exist and to divide the past and the future is anything. For it is necessary, if the now exists for it to be the same or one after another which is equal to not being the same. If it is not the same nor one after another, it is clear that it does not exist. So he first proves that there is not one after another; if there is one now after another, the earlier must have ceased to be, but the now cannot have ceased to be; therefore nows are not one after another. He proves the conditional from a former now not being simultaneous with a later. For there cannot be two times at once unless one is longer, the other shorter and one contains the other, as the year is related to the month it contains and the month to the day it contains; for a certain day of the month is said to be present and the month also and so they seem to be simultaneous. But one now cannot be contained by another, nor can one be a part, the other the

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[6] Aristotle. *The Basic Works of Aristotle.* (Translator: Richard Mckeon). New York. The Oxford University Press. 1941. p.289.

[7] Aristotle, ibid. p. 289.

whole; for both are without parts and neither longer than the other. Nor are they quantities but starting points of quantities.

But being greater occurs in quantities so that they cannot be simultaneous and it is necessary for the former to have ceased to be if they are one after another. Moreover it is impossible for the now to have ceased to be by means of a division. For, if it has ceased to be, then since what ceases to be does so in time, it must cease to be at itself or at another now. But it cannot cease to be at itself, for then it exists so, if at another, then, since nows are not adjacent to each other, but it has ceased to be in another now, it is clear that it existed in the interval between itself and that in which it ceased to be. But between nows, there is a time, as there is a line between points. So it existed in the time between; but there are infinitely many nows in the time between, given that all time is infinitely divisible and the division is at the nows. So there will be simultaneously the now itself and those in which it exists infinite in number, if it existed in the time between. But nor does the now cease to be in the whole of the time in between, for that to be so, a part of the now will have to cease to exist in each part of the time, but it has no parts. So a now does not cease to be neither at a now nor in the intervening time.

After he showed that it is impossible for the now to be one after another, he next proves by two arguments that it also cannot remain always numerically identical. I am going to look at Urmson's interpretation here so that we can figure it out clearly. According to Urmson, first, if there is no finite divisible thing that has a single limit whether it is undimensionally continuous like a line, or two dimensionally like a surface or three dimensionally like a body; it is clear that the nows which limit a finite time cannot be one and the same. Second, Aristotle shows that now cannot remain forever. For if there is the same now forever, everything will be at the same now, and neither earlier nor later. In this case, the long ago and the recent will be of the same date if things at the same now are at the same date. So if it is necessary for the now, if it exists either to be the same or one after another and if it is neither the same nor one after another, it is clear that the now is not among existents. While drawing this conclusion, Aristotle adds that the discussion of the attributes of time from which he clearly shows that it does not exist is at an end. As a rule, it is vital that time should be continuous if it exists; but the now does not join onto either past or future time, since neither of these is actually existing; it is clear that it could not be continuous.[8]

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[8] J.O. Urmson. *On Aristotle's Physics*. New York. Cornell University Press. 1992. p.107.

As we have seen, Aristotle showed that the existence of time is unclear since the arguments for its non-existence are so persuasive. He next says that one will find both the definition of time and its nature equally unclear if one tries to examine them in the light of tradition as its existence seemed in the discussions which we previously went through. So its definition is unclear also, given that some say that time is the motion and revolution of the whole. Some say that it is the sphere of the heavens itself. Others say that it is change. For Aristotle investigates three opinions about time; he considers them all together after he distinguished them. For time is either change or that which primarily changes or the sphere or change of the whole; for the concept of time does not admit of changelessness or anything involving it. He makes a short reply to that by saying that time is the motion of the heavens but a longer reply to the view that reduces time to being the same thing as change. The reason why they said that the heavens were time was apparently that everything was within the heavens and everything was in time. It is clear that those who said this were in the first place ignorant of the ambiguity of being in something. As we already know, Aristotle made the necessary distinctions in his discussion of place; for being in time is one thing, for being in a place another.[**] Furthermore, they were not expert in logic which is why he called the view simple-minded. To quote Aristotle:

> As to what time is or what is its nature, the traditional accounts give us as little light as the preliminary problems which we have worked through. Some asserts that it is (1) the movement of the whole, others that it is (2) the sphere itself… But as time is most usually supposed to be (3) motion and a kind of change…[9]

Aristotle goes on to say that the parts of time are the past and the future, but the heavenly sphere has different parts; besides time has its being in becoming but the heaven does not. In addition to this, the parts of the sphere are not everywhere but time is everywhere and the older and the newer are in the same sphere but in the same time. However Aristotle considered this view too simple-minded to require discussion. He moves on to other view which said that time was the motion and revolution of the whole; for instance, a day is a time; but it is not the revolution, for a part of the cyclic motion is not a cyclic motion, nor a revolution. From this the conclusion is drawn that time is not the revolution of the whole, even if a certain time is a part of the revolution so that the whole of time is not the revolution. He adds another point to the argument by saying that if there

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[**] For more information, see Aristotle's book *Physics*, Book IV, Chapter 4.

[9] Aristotle, ,ibid. P.290.

were many heavens, the revolution of each of these would be a time so that there would be many times at once which is impossible. It is possible for many motions to be at once but not many times. It is because the same now is everywhere the same.

So far Aristotle has set forth two theories about time. He now illustrates the third one by saying that time is some form of motion or change. This is clearly a different theory from that which says time is the revolution of the whole. According to Urmson, Aristotle shows that change and time are not the same; for that reason he said that all change and motion is only in that which changes or where the changing thing itself happens to be itself.[10] I think that this is the significance shown by the other additional premise which says that time is equally everywhere and present in all things. Therefore if change is not equally everywhere but only there the moving thing is, nor present in all things but only in that which changes; it is clear that time is not change. Moreover change is quicker and slower but time is not quicker and slower; therefore time is not change. That time is not quicker and slower is clear from experience. It is because we speak of much and little time but not quicker and slower.[11]

Having shown that time is not change, he next shows that it is not without change. Since time is not without change and since one can not conceive of time without change; Aristotle goes on by saying that time is imperceptible to us without change, therefore the existence of time involves change and without it time cannot even be thought. That time cannot be perceived without change, Aristotle proves by saying that when we are mentally unchanging or do not notice ourselves changing mentally, we think that no time has passed because one cannot be aware of time without awareness of change. Aristotle also asserts that when a certain time seems to have passed, simultaneously a certain change seems to have taken place. After he concluded that time is neither change nor without change and having embarked on a search for its essence, he first establishes that we are simultaneously aware of change and time. He says that even if it is dark so that we neither undergo bodily change nor perceive other things changing; but there is some change in the soul if the soul is thinking of something.[12] As a result, not only is one aware of time when aware of change but also aware of change when aware of time. So if we take the two points together, time is related to change since he proved that it is not change.

After showing that time accompanies change, Aristotle next investigates how it is related to change. According to Ariotti, time, Aristotle

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[10] Urmson, ibid., p. 114.
[11] Aristotle, ibid., pp. 289-290.
[12] Aristotle, ibid., p. 291.

thought, is indeed real, but time does not have an independent existence, that is, time does not exist without change. For time is perceived only when there is change or motion. However, the change or the movement is in the things while time is unique and universal. Besides, while change is generally not uniform, time is because change is always faster or slower, whereas time is not. Clearly then it is not movement. And yet, time and movement, for Aristotle, are mutually defining.[13] Aristotle demonstrates that since change is continuous, it contains before and after. Change is continuous because the magnitude undergoing the change is continuous if the quantity of change is continuous, like the magnitude, it is clear that the quantity of time is also continuous.[14] Finally Aristotle comes to define time by saying that time is the number of change since it can be numbered in respect of before and after. In other words, time is a number, but Aristotle thought, a special kind of number. For while numbers are formed from the discrete, irreducible unit, there is no minimum for time. It must be that time is a number in the sense that it is the numerable aspect of of motion.

For Taylor, time is inseparably connected with movement or change. We only perceive that time has elapsed when we perceive that change has occurred. But time is not the same as change. For change is of different and incommensurate kinds, change of place, change of colour, etc.; but to take up time is common to all these forms of process. And time is not the same as motion. For there are different rates of speed, but the very fact that we can compare these different velocities implies that there are not different velocities of time. Time then is that in terms of which we measure motion, the number of motion in respect of before and after, i.e. it is that by which we estimate the duration of processes. Thus, for instance, when we speak of two minutes, two days, two months as required for a certain process to be completed, we are counting something. This something is time.[15]

For the the time being, It is time to investigate the now in terms of Aristotle, because in my opinion, he starts casting doubt on the existence of the now on which time depends. In his book *Physics* in Chapter 11, Aristotle looks into the now. Having said that time is associated with change in coming to be and ceasing to be and again that it is different because changes are different from each other while all simultaneous times are the same, Aristotle says that the explanation of this is that the now is identical with the substrate. Now is a measure of time by which time is measured as successive just as number is measured by the unit. Then the difference and identity of

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[13] P.E. Ariotti., "The Concept of Time in Western Antiquity", *The Study of Time II* edit. By J.T. Fraser, N. Lawrance, New York: Springer-Verlag, 1975, p.75.

[14] Urmson, ibid., p.119.

[15] A.E. Taylor., *Aristotle*, New York: Dover Publications, 1956, p.65.

time is derived from the difference and identity of the nows. After he had said the now as substrate was the same, but its essence was different; he adds that the now measures time qua before and after. In addition to this, we come to know change, before and after via the now within it. For it is because the moving object comes to first one and one another part of the substrate that we recognize both the motion and the before and after, both in change and in time. So time can be recognized through the now. Having said how the now is related to time, that it is so related as is the moving object to motion, and that the now is more familiar than time, Aristotle now displays their coexistence again by using an analogy with the coexistence of the moving object and motion. That is to say, it is impossible for the time to be without the now and vice versa. Furthermore, for Aristotle, the now creates the time.[16]

Again Aristotle demonstrates the continuity of time and its division at the now from its connection with the moving object and motion. However the now does not only make time continuous in accordance with its connection with the moving object, but it also divides time distinguishing the before and after of change. For that is how time is divided. It resembles not only the moving object in producing continuity and division but also the point in a certain fashion. For the point makes the length continuous; in a similar way the now both makes continuous time and divides it. So time is the number of the now but not through the same now being taken twice, like the point that is taken twice, but as it is first one and then another, one as beginning, the other as end.[17] What Aristotle said is that the now is a limit in the same way as points which are the extremes of a single line. Since the now is as such the limit of time, and since time is nothing other than what is numbered in change, in relation to the before and after, which are the nows, he takes notice that when the now is taken as what is numbered in change, then it becomes the limit of change and is thus contingently a limit. But when it is treated as the limit of time, this is not so contingently; for as such it belongs to time. And since the now is a number everywhere, and a number everywhere is a number that numbers for the ten that counts ten horses also counts ten men, so the now is simultaneously everywhere and not in the change alone, of which it is a limit, not as a now but as a movement.[18] Aristotle goes on to say that time is continuous because it is the number of the continuous. For this is the essence of time, to be the number of change; for the being of time extends together with the continuity of the numbered change, and so must itself be continuous. For understanding Aristotle' s

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16 Aristotle, ibid., pp.291-292.
17 Ibid., p.293.
18 Ibid., p.294.

version of the now to ahigh level, I am going to look at John Protevi's comments on it. Protevi formulates the issues about the now like this:

The now provides for the functions of dividing and connecting time; the now has characteristics of both identity and difference; the now provides for time as the counting of change. According to Protevi, the nature of the now contains five major steps. First, the definition of time as counting of change provokes questions about the identity and difference of the now. Second, the analogy of the now and the moving point explains time as number. Third, the moving now is essential to time and divisibility of time. Forth, the moving now can account for the continuity and division of time. Fifth, the now is disanalogous to the fixed point.

According to Protevi, the question of the identity and difference of time and the now arises when Aristotle discesses the counting that is time. The identity of the now is established via the *ho pote en* or *ho pote on* construction. The identity of the now attested to in the *ho pote on* is countered by the fact its being is different. The difference of the now is attributed to the defining of time as prior and posterior. For Protevi, it is possible to account for the identity and difference of the now through the number paradigm, the principles of counting although Aristotle will soon have recourse to the line paradigm. A moment of identity is needed for counting, for there must be a unit to be counted. A moment of difference is likewise necessary for counting is the counting off of different nows as different.[19]

Now it is time we looked at Aristotle's proposed solution to the problem of the identity and difference of the now. Protevi asserts that if change is ecstatic, then change is the crossing of a border marking off one state from the other. Time appears with the marking off, by the now, of two borders and a middle. The prior now marks a phase of the change different from the phase marked off by the posterior now and there arises a space between the phases of the change. For Aristotle, change requires a teleological taming of the exterior. The exterior of the first phase must be bound to the interior of the second; this binding is the work of the material subject in locomotion and form in generation. The differentiation that is change alteration in general, is never enough to disorganize the identity-preserving character of the material subject or of form so that alteration is also identification, as the first phase becomes the second phase of the same change. Indeed this identification is the very basis for ordering phases as first and second so that retrospectively privation might be teleologically

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[19] John Protevi. *Time and Exteriority, Aristotle, Heidegger and Derrida.* London&Toronto. Bucknel University Press. 1994. p.72.

subordinated to form. So the prior now, if we follow this analogy to its limit becomes the privation of the posterior now into which it changes.

Protevi goes on to say that it is through using such an analogy that Aristotle attemps to reconcile the number and line paradigms. First, here, Aristotle establishes the analogy as the now follows the body in locomotion; so time follows motion. Second, the prior and posterior are invoked: the prior and posterior are known in time as counted nows. Third, the identity and difference of the now are addressed. For Protevi, in the first move of this third step, the now is identical to that which it is when it is being the now. Here identity is assigned the now due to its following the body in locomotion which maintains an identity underneath its changing positions.

In the second step, its being is different which is identified with the prior and posterior as counted nows. The analogy implies that as the same body travels, but different phases are counted off one as prior and the other as posterior; so there is a travelling now identical beneath its changes.

In the third major step, Aristotle establishes the essential reciprocity of the now and time. If there were no time, there would be no now and vice versa.

The fourth step is the way the moving now can account for the continuty and division of time. Then time is also made continues by the now and divided at it. Here the time as line scheme is explicit, made possible by the analogy with the material identity and formal difference of locomotion. The moving now accounts for the unity of time, just as the moving body accounts for the unity of the locomotion. On the other hand, the moving now accounts for the divisibility of time, just as the moving body provides for the prior and posterior in motion.[20]

Finally, in the fifth step, according to Protevi, Aristotle identifies some disanalogies of the now and a fixed point. The fixed point can be one in number, but two in form, as the beginning of one segment and the end of another. However, this requires a stop and nows do not stop. Here, there is correspondence with the point; for the point also both connects and terminates the length. It is the beginning of one and the and of another. But when you take it in this way, using the one point as two, a pause is necessary if the same point is to be both the beginning and the end. On the other hand, the now since the body carried is moving, is always different.[21]

In the final analysis, as we have seen, the now binds time together. Before saying this, Aristotle had said that time is continuous through the now and divided at the now. The parts of time, the past and the future, are

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[20] Ibid., p.73.
[21] Ibid., p.74.

joined together at the now, which becomes a common boundary belonging to both. I think for that reason, the now holds time together. But when it is taken and conceived as the limit of the past and the beginning of the future, the now divides it. So Aristotle calls the now the limit of one time and the beginning of the other. In addition to this, Aristotle goes on to say that the now could not exist if time did not exist. In fact the now is essentially the end of the past and the beginning of the future. Aristotle also held that the now persists. So the being of the now is surely sufficient to secure the being of time.

In a few words, time is referred by Aristotle to our consciousness of a succession in our thoughts and a sense of difference between the events of our experience. It is not observed when we are conscious of no change and it is described as a numeration of movement as to its priority and posteriority. Furthermore, time is necessarily eternal since without it, the conception of before and after would be impossible. However since time is eternal, movement is necessarily so as well.

REFERENCES

J.L. Ackrill. Princeton (ed.) *A new Aristotle Reader*: Princeton University Press, 1987.

W.T. Jones. *The Classical Mind.* New York. Harcourt, Brace & World, Inc. 1969.

J.G. Brennan. *The Meaning of Philosophy*. New York. Harper & Row Publishers. New York. 1967.

J.G. Brennan. *The Meaning of Philosophy*. New York. Harper & Row Publishers. New York. 1967. 209.

Aristotle. *The Basic Works of Aristotle.* (Translator: Richard Mckeon). New York. The Oxford University Press. 1941.

J.O. Urmson. *On Aristotle's Physics*. New York. Cornell University Press. 1992.

P.E. Ariotti., "The Concept of Time in Western Antiquity", *The Study of Time II* edit. By J.T. Fraser, N. Lawrance, New York: Springer-Verlag, 1975.

A.E. Taylor., *Aristotle*, New York: Dover Publications, 1956.

John Protevi. *Time and Exteriority, Aristotle, Heidegger and Derrida.* London &Toronto. Bucknel University Press. 1994.