BOĞAZİÇİ ÜNİVERSİTESİ
DERGİSİ

Beşeri Bilimler — Humanities Vol. 7 — 1979

RICHARD TAYLOR ON SPATIAL-TEMPORAL ANALOGIES

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ABSTRACT

The thesis of Richard Taylor's important 1955 paper, "Spatial and Temporal Analogies and the Concept of Identity," is that apart from dimensionality, there are no disanalogies between space and time. In the present paper, Taylor's treatment of some of the apparent disanalogies between them is criticized, and ways of strengthening his treatment are offered.

Section 1 explains why time has often seemed both more puzzling and less "accomodating" than space, and it outlines Taylor's strategy for showing that it really is not. Section 2 explains the "doctrine of temporal parts," on which Taylor's thesis, and my contributions, depend. In section 3 it is argued that Taylor is in error in giving "multiple location" as the spatial analogue of intermittent existence. It is argued that the true analogue is "discontinuous extension." Section 4 shows how these ideas can lead to a strengthening of Taylor's case for saying that things can "go back and forth in time" in a sense precisely analogous to that in which they can "go back and forth in space."

(1)

Richard Taylor's 1955 article, "Spatial and Temporal Analogies and the Concept of Identity," [1] has provoked a still continuing series of challenges and defenses. [2] Taylor's thesis is that the only point of disanalogy between space and time is that the former has three dimensions and the latter only one. The significance of this thesis, if true, is that time is no more "mysterious" than space — and no more "unaccomodating" to human desires.

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What gives an air of mystery to time is the bewilderment caused by questions which seem to have no analogue in the case of space: Does time "move" — or do things move through time? In either case, at what rate? Why are we able to move through time only in one direction? And why is it that the truism "What has happened, has happened" seems to justify unresisting resignation with regard to the past, while the truism "What will be, will be" does not seem to justify such an attitude toward the future?[3]

Not only does time seem mysterious, it also seems entirely unaccomodating to human desires. Normally we have some control over our positions in space. Within limits, we can go where we please and remain in a place of our choosing. But however much we might wish to remain at age 25, to return to a time fondly remembered, or to speed the arrival of summer vacation, time moves on at its own pace, wholly indifferent to our desires.

Taylor tries to dissipate both the puzzlement and the consternation by demonstrating that the necessities and impossibilities concerning time have exact analogues in the case of space — and that the possibilities with respect to space have exact analogues in the case of time. He argues, for example, that there is a sense in which we **can** move back and forth through time, and that this is precisely analogous to the sense in which we can move back and forth through space! There is also, of course, a sense in which we **cannot** move back and forth through time, but, Taylor argues, there is a precisely analogous sense in which we cannot move back and forth through space! And since the familiar properties of space cause little bafflement or consternation, it is expected that a careful tracing of these analogies will remove our bafflement and consternation over the corresponding properties of time.

(2)

Taylor's arguments presuppose the "doctrine of temporal parts": the doctrine that physical things have temporal, as well as spatial, parts. The 1979 "stage" of Boğaziçi University is a "temporal part" of the entity of which the Temel Bilimler Building is a spatial part. Temporal parts, like spatial parts, may be either point-sized or extended.[4]

As applied to events, happenings, occurrences, the doctrine is uncontroversial. We speak of the early part of a game, the middle of a person's life, the last hour of a concert. If you are present for only fifteen minutes, you do not see the **whole** of a soccer match: you see only a part of it, a temporal part, even though you do see all of the spatial parts of what is then taking place. But as applied to objects, bodies, the doctrine seems artificial. If I examine a pencil, ordinarily we would think that I see all of it/the whole of it (or at least the whole of its surface), even though I do not observe the pencil (or its surface) throughout the rest of its career. In our ordinary way of thinking, objects, unlike events, can be present as a whole at a single moment; although both a chair and a journey **last** for a period of time, the former is present in its entirety at each instant during this period, and therefore only the latter has temporal **parts.**

The temporal parts doctrine is a corollary of ontologies in which objects are conveived of as monotonous events. Supporters of such ontologies argue that our ordinary ways of thinking are superficial and that by assimilating objects to events, nothing is lost and conceptual simplicity is gained.[5] We will not enter into this controversy. For the purposes of the present paper, the temporal parts doctrine will be assumed, but it should be remembered that Taylor's thesis — and my contributions — do depend on this controversial assumption.

(3)

Taylor considers seven apparent disanalogies between space and time. He refers to them as "objections" to his thesis. In each case Taylor tries to show that there actually is no disanalogy. So far as I am aware, no one has criticized Taylor's handling of these seven objections. Those who have challenged his overall thesis have put forward objections that Taylor did not consider. In the present section, I argue that there is an error in Taylor's treatment of the first objection, and I explain how I believe it can be corrected. In section 4, I show how the ideas developed provide the basis for a simple reply to the "fifth" and "seventh" objections as well. I will not address the overall question: apart from dimensionality, is there **any** disanalogy between space and time?

Taylor states the first of the apparent disanalogies this way:

> An object cannot be in two places at once, though it can occupy two or more times at only one place. An object occupies two or more times in only one place by remaining awhile where it is, or by being removed from its place and later returned, or by being annihilated and subsequently recreated at the same spot. But it seems plain that no object can be at two places at one time...[6]

In reply, Taylor writes:

> This statement seems to express a simple and obvious difference between space and time, but it does not. For it should be noted that an object is ordinarily said to be in one place at two times, only if it also occupies all the time in between, whether at that place or another. But with a similar proviso, an object can likewise be in two places at one time, namely, by occupying the space between them as well.[5] A ball, for instance, occupies two places at once, if the places be chosen as those of opposite sides; but in so doing, it also occupies all the places between. It is tempting to say that only **part** of the ball is in either place; but then, it is a different **temporal** part of an object which, at the same place, is in either of two times.[7]

I believe that this part of Taylor's reply is unobjectionable, providing, of course, there is no objection to the doctrine of temporal parts. The same analogy had been drawn earlier by Nelson Goodman.[8] The error, as I see it, comes when Taylor undertakes to provide a spatial analogue to cases in which an object occupies the same place at different times without occupying **any** place at intermediate times. Taylor writes:

> Finally, we might want to say that an object can be in the same place at two times without filling the time in between — which would, of course, simply amount to its being annihilated and then recreated at the same place. And it seems that we might be entitled in some situations to regard it as the **same** [one] object at two times, or at least that there is no overwhelming reason for thinking that two wholly distinct though similar objects are involved... But the analogy to this is exceedingly simple, viz., any object simultaneously at two places and nowhere between, such as, a billiard ball which is at once at both sides of a table. Here most people would want to insist that we have two wholly distinct balls, however similar to each other, simply on the ground that they stand in quite different spatial relations to other things. But in the former case, too, the object stands in quite different temporal relations to other things at the two times involved, so there is no significant difference in the two examples. It is perhaps arbitrary whether we say that there is an identity or diversity of things in either example, but it would be utterly capricious to insist that there is an identity in the one case but a diversity in the other, for the two situations are analogous. I would myself, however, say that the things are diverse in both cases.[9]

As Taylor notes, it is by no means obvious that recreation of a previously annihilated object is even a logical possibility. I have argued elsewhere[10] that there **are** cases of intermittent existence, but it is not necessary to address that issue here. What I want to argue is that whether intermittent existence is possible or not, Taylor has failed to find its true spatial analogue. After explaining the deficiencies of Taylor's analogy, I will provide one of my own.

The analogue Taylor proposes is what I will call 'multiple location': the occupation, by the whole of an object, of different places at the same time. Taylor's billiard ball is wholly at one end of the table and, simultaneously, wholly at the other. This description may appear to be self contradictory. For would it not be inconsistent, simply as a matter of definitions, to say that a billiard ball is at the north end of a table while at the same time saying that the **whole** of it is at the south end? It will be worthwhile, though not essential to our purpose, to see that it need not be.

If we asked for a paraphrase of the sentence 'the whole of the ball is at the south end', we would not be surprised to receive either of the following. (1) There is no part of the ball which is somewhere other than the south end. (2) There is no part of the ball which is not at the south end. Ordinarily we would not notice any difference in meaning. But with respect to the possibility of multiple location, there is a difference. The ball's being at the north end is incompatible, simply by virtue of the meanings of words, with there being no part of the ball somewhere other than the south end. But it is not thus incompatible with there being no part which is not at the south end. All that would be required is that there be no part of the ball at the north end which is not **also** at the south end! And this latter cannot be ruled out on a purely semantical basis. When speaking of his multiply located billiard ball, Taylor should be understood as intending the second of our two readings.

In order to make this point as clear as possible, I will repeat it in different words. Suppose I say that a certain part of the ball, call it 'p', is at the extreme north end of the billiard table. You will then be able to conclude, obviously enough, that p is **somewhere other** than the south end. But does it follow that p is **not at the south end**? The answer is: not simply as a matter of the meanings of 'north', 'south' and 'somewhere other than'. For if p could be in two places at once, then it could be at the south end of the table even while being **also** at the extreme north end. In short, 'at the north end' does entail, simply as a matter of definitions, 'somewhere other than the south end'. But 'somewhere other than the south end' does not thus entail 'not at the south end'.

No doubt there is an adequate extra-semantical basis for rejecting the possibility of multiple location. My point was simply that the basis **is** extra-semantical.[11] But what is of importance for us is that multiple location, whether possible or not, is not the spatial analogue of intermittent existence.

Consider Taylor's multiply located billiard ball. There is a spatial gap (containing no spatial parts of the billiard ball) between the two places occupied by the ball. So far, there is an analogy with the case of intermittent existence, where there is a temporal gap (containing no temporal parts of the intermittently existing object) between earlier and later times at which the object exists. The point of **disanalogy** is this. Each spatial part of the doubly located billiard ball exists on both sides of the spatial gap (just as the ball itself does), but some of the temporal parts of an intermittently existing object will exist on only one side of the temporal gap.[12] In a case of multiple location, every spatial part of the object would itself be multiply located. But a temporal part of an intermittently existing object need not itself exist intermittently.

Now that we see why multiple location is not the analogue of intermittent existence, it is not hard to see what is. I will call it 'discontinuous extension.' We will say that an object is "discontinuously extended" if its spatial parts are separated and yet it (not just its parts) exists.[13] Very often, no doubt, when one starts with an object and then scatters its parts, the object itself can no longer be said to exist. If I tear a slice of bread into small pieces, and throw them out for the birds, probably we would consider that the ***slice*** of bread (as opposed to the **bread**) has ceased to exist. But if the stem and bowl of a pipe are separated for cleaning, perhaps we would consider that the pipe (not just the stem and bowl) continues to exist throughout the temporary separation of its parts. Brian Smart is even willing to say that a watch would continue to exist while its parts were sent for repairs to five different towns.[14]

There is no need for us to take a stand on whether an object can exist while its parts are separated. The point of interest to us is that discontinuous extension, whether possible or not, is the spatial analogue of intermittent existence. In the case of an intermittently existing object, there is a temporal gap (containing no temporal part of the object) between earlier and later times at which the object exists, and no temporal part of the object exists (in its entirety) on both sides of the gap. In the case of a discontinuously extended object, there is a spatial gap (containing no spatial part of the object) between places at which the object exists, and no spatial part of the object exists (in its entirety) on both sides of the gap. In the first case,

there is a discontinuity in the temporal extension of the object; in the second, in its spatial extension. In neither case is this discontinuity possessed by all of the object's **parts.**

I want finally to indicate how our case of the pipe can provide an example with which to meet the "fifth"[15] and "seventh"[16] objections, an example which is, perhaps, more satisfactory than the ones given by Taylor. Since the two objections are closely related, I will deal only with the seventh, but what is said will be applicable to the fifth as well. The following three paragraphs give a slightly simplified account of the ingenious strategy by which Taylor proposes to deal with the seventh objection.

It is commonly thought to be a point of disanalogy between space and time that a thing can go back and forth in space, but not in time. In fact there is no disanalogy. In the sense in which things cannot "go back in time", neither can they "go back in space." And in the sense in which things can go back in space, they can also go back in time.

The sense in which 'A thing cannot go back in time' is true is the sense in which it means merely 'A thing cannot, at a time **after** t, be at a time earlier than t'. In a precisely analogous sense, a thing cannot "go back in space" either. This is the sense in which 'A thing cannot go back in space' means merely 'A thing cannot, at a place to the **north** of x, be at a place to the **south** of x'.

But, of course, there is a sense in which things **can** go back in space. This is the sense in which an object can satisfy a description such as the following:

1. Object o is at place x_1 at time t_1.
2. O is not at t_1 at any place between x_1 and x_2.
3. For each time between t_1 and t_2, o is then somewhere.
4. O is at x_1 at t_2.

A thing can "go back in time," in the analogous sense, if it can satisfy the temporal analogue of this description, namely:

1. Object o is at time t_1 at place x_1.
2. O is not at t_1 at any place between x_1 and x_2.
3. For each place between x_1 and x_2, o is there sometime.
4. O is at t_1 at x_2.

It is obvious how the first description can be satisfied, not so obvious in the case of the second. Taylor offers two examples, both involving "widespread aerial disturbances," but they seem not to satisfy clause 2. Since I am not sure exactly how the cases are meant to be understood, I will not present them. Instead, drawing on our discussion in section 3, I will offer a case which is free of the extraneous complications which are to be expected in cases involving such items as whistle blasts and rolls of thunder.

Let the object in question be a pipe. Suppose that at t_1 the bowl and stem are a meter apart, the bowl at place x_1 and the stem at place x_2. And suppose that the stem and bowl are later reunited, so that for every place between x_1 and x_2 there is

some time at which the pipe occupies that place. Remember that the pipe (though not, of course, the whole of the pipe) can be said to occupy any place that is occupied by one of its spatial parts - in the same sense in which it is said to occupy a certain place at a certain time even though only one of its **temporal** parts is at that place. As the reader should verify, all four clauses are satisfied [17], and so we have a case in which a thing "goes back in time" in a sense precisely analogous to that in which things can and do "go back in space." [18]

NOTES

1 Reprinted in J. J. C. Smart, ed., **Problems of Space and Time** (New York : the Macmillan Company, 1964).

2 Cf. G. Schlesinger, "The Similarities between Space and Time," **Mind**, 84 (1975); B. Mayo, "Space and Time Re-assimilated," **Mind**, 85 (1976); G. Schlesinger, "Space and Time Once More," **Mind**, 87 (1978).

3 For a discussion of this qustion, see Michael Dummett, "Bringing About the Past," **Philosophical Review**, 73 (1964).

4 For exposition and criticism of the temporal parts doctrine, see Roderick Chisholm, "Problems of Identity," in Milton Munitz, ed., **Identity and Individuation** (New York : New York University Press, 1971), pp. 11-17.

5 Cf. C. D. Broad, **Scientific Thought**, (London : Routledge & Kegan Paul Ltd., 1923), p. 55; W. V. Quine, "Identity, Ostension, and Hypostasis," in **From a Logical Point of View**, 2nd edition, (Cambridge : Harvard University Press, 1961), pp. 65-8. For an opposing view, see P. F. Strawson, "Bodies," in **Individuals**, (London : Lowe and Brydone, 1959). For a recent survey of the issue, see A. Quinton, "Objects and Events," **Mind**, 88 (1979).

6 Taylor, op. cit., p. 383.

7 Ibid.

8 **The Structure of Appearance**, (Cambridge : Harvard University Press, 1951), p. 301.

9 Taylor, op. cit., pp. 384-85.

10 "Cohabitation, Stuff and Intermittent Existence," **Mind**, forthcoming.

11 As noted by my colleague Arda Denkel, it would seem that the **temporal analogue** of multiple location (the identity of which will soon be evident) **can** be excluded simply on the basis of definitions. It would be interesting to explore the significance of this apparent disanalogy.

12 I say 'some' rather than 'all', because an **extended** temporal part may well be found on both sides. If, for example, an object exists throughout the 1970's, with the exception of March, 1975, then the "1975 part" of the object straddles the gap. If we were considering momentary parts only, then 'all' would be warranted.

13 In a context such as ours, it would be more fitting, though cumbersome, to call this state of affairs 'discontinuous **spatial** extension.' Indeed, it will turn out that intermittent existence could as well be called 'discontinuous **temporal** extension.'

14 "The Ship of Theseus, the Parthenon and Disassembled Objects," **Analysis**, 34. 1 (Oct., 1973), pp. 25-6.

15 Taylor, op. cit., pp. 389-90.

16 Ibid., pp. 392-95.

17 Actually, clauses 1, 3 and 4 are satisfied only if the pipe can be said to exist while its stem and bowl are separated. Taylor's cases, too, assume the possibility of discontinuous extension.

18 I am indebted to my colleague Arda Denkel for showing me the need for two revisions of an earlier draft of this paper.

RICHARD TAYLOR VE UZAY-ZAMAN BENZEŞİMLERİ

ÖZET

Richard Taylor'un 1955 te yayınlanan "Özdeşlik Kavramı ve Uzay-Zaman Benzeşimleri" başlıklı önemli makalesinin savı, boyutsallık dışında, uzay ve zaman arasında benzeşimsizlik bulunmadığıdır. Okuduğunuz yazıda, Taylor'un benzeşimsizlik görünümü veren bazı durumları ele alış biçimi eleştirilerek bunu sağlamlaştıracak yollar önerilmektedir.

Birinci bölüm, zamanın uzaydan neden daha karmaşık ve güçlük yaratma eğilimli olduğunu açıklayıp, Taylor'un durumun gerçekte böyle olmadığını gösterme yolunda izlediği strateji'nin ana hatlarını vermektedir. İkinci bölüm, Taylor'un savı ve benim katkılarımın üzerine dayandırıldığı 'zaman bölümleri doktrini'ni açıklamaktadır. Üçüncü bölümde, birden çok yerde bulunma durumunun, zaman içinde varoluşta kesintiler olması durumuna uzay açısından koşut durum olarak verilmesinin yanlışlığı savunulmakta, ve Taylor'dan ayrılarak, gerçek uzaysal benzeşimi 'kesintili uzam'ın sağladığı ileri sürülmektedir. Dördüncü bölümde ise, bu görüşlerin, Taylor'un uzayda ileri ve geri gitmenin tam koşut anlamda 'zamanda ileri gitme'ye karşılık olduğu önerisini güçlendirmeye ne yönde katkıları olabileceği gösterilmektedir.