

ARMSTRONG ON THE SPATIO-TEMPORALITY OF UNIVERSALS¹

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Provocatively, David Armstrong's properties are supposed to be both universals and spatio-temporal. What does this amount to? I consider four of Armstrong's views, in order of ascending plausibility: (1) the exemplification account, on which universals are exemplified by space-times; (2) the location account, on which universals are located at space-times; (3) the first constituent account, on which spatio-temporal relations are elements of what I call the form of time; and, the true view, (4) the second constituent account, on which universals are spatio-temporal only 'derivatively' by being constituents of states of affairs which are so 'primarily'. The first two accounts are rejected because they entail that space-times must be substantial. In making plausible the second constituent account, I distinguish primitive and derivative spatio-temporality. Something is primitively spatio-temporal when it is at a space-time, or stands in spatio-temporal relations. Something is derivatively spatio-temporal when it is a constituent of something primitively spatio-temporal.

I. Introduction

In two of its claims David Armstrong's immanent realism accords with traditional realist conceptions of properties. First, on the view, if the charge of one electron is 'the same' as the charge of another electron, then the charges are really identical [1978a: 111–13; 1975: 146]. And second, since the charge exists only if exemplified, it is as contingent as the things that have it [1978a: 113; 1975: 146].² But in two related ways—one epistemological, the other ontological—his view is comparatively innovative. The epistemic innovation is his view that universals are to be postulated only a posteriori, on the basis of science [1978c: 271–4]. The ontological innovation—that universals are spatio-temporal—follows straightforwardly from his naturalism, the view that all that exists is spatio-temporal [1988: 103]. I will consider here Armstrong's view of the spatio-temporality of universals. There are, I will argue, in fact four accounts in his corpus on this question, which I will discuss in order of ascending plausibility. I maintain that the first two accounts have the unduly constraining consequence of

¹My thanks to Evan Fales, Richard Fumerton, and Franz-Peter Griesmaier for their helpful comments on the issues discussed in this paper.

²It is common to understand immanent realism as requiring the thesis that universals are spatio-temporally located; see O'Leary-Hawthorne and Cover [1998: 205], for example. In part because this is the very thesis to be investigated, I do not include it in the definition of the view.

entailing substantivalism about space-times. The third is a too-timid version of the fourth, which I accept. I conclude by making some independent suggestions about how to develop that account as a comprehensive theory of spatio-temporality.

II. The Exemplification Account of the Spatio-Temporality of Universals

Armstrong's original view—currently under construction [2004]—is that there are two categories of being: the irreducibly qualitative and the irreducibly particular. Irreducibly particular thin particulars exemplify irreducibly qualitative universals of the lowest level. When something³ exemplifies a property or stands in a relation there is the state of affairs, e.g., the thing's exemplifying the property. There are also, in Armstrong's ontology, spatial and temporal positions. Let us refer to the spatial *cum* temporal position of an ordinary particular by an expression of the form ' p_1t_1 '.⁴ Armstrong's first view about the spatio-temporality of universals is that because thin particulars are spatio-temporal locations, universals are spatio-temporal by being exemplified by space-times such as p_1t_1 [1978a: 122–5].⁵ Call this the exemplification account.⁶

The 'unduly constraining' consequence of this account, as I said, is substantivalism about space-times.⁷ Although I do think substantivalism is problematic, I will not try to defend this contention.

Substantivalism is a view about space-times, not space-time [Nerlich 2003: 282]. Space-times are the locations of spatio-temporal entities. Space-time, as I use the expression, includes such locations together with whatever relations are necessary to constitute it—among locations and between contingent located entities and those locations. The views in this neighbourhood should be described in such a way that dialectical room is left for holding, for example, that in addition to spatio-temporal locations there are relations among them that are essential to the make-up of space-time. Put another way, even if the substantivalist is right that locations are the building blocks of space-time, she should allow that it is a further question whether there are spatio-temporal relations that connect locations to each other and to located entities.⁸

³Not necessarily a thin particular: since he accepts second-order universals, Armstrong also thinks there are states of affairs that only involve universals [1978a: 115n.].

⁴In accordance with his four-dimensionalism, Armstrong thinks of p_1t_1 as the aggregate of all the spatio-temporal locations of each of the persisting entity's stages [1978a: 118]. To simplify, suppose p_1t_1 is the spatial *cum* temporal position of just one stage.

⁵Armstrong tentatively accepts the principle of order invariance, according to which if a universal is exemplified by something of order n , it is only exemplified by things of order n [1978b: 142]. Since he also accepts second-order universals, he cannot hold that all universals are spatio-temporal by being exemplified by space-times. This is because the entities that exemplify those second-order universals are not held to be thin particulars. This is a limitation on naturalism, but not one I will dwell on.

⁶Compare Aune [1984: 165–6]. Note that Armstrong later rejects this reduction of thin particulars to space-time positions [1997: 109]. His reasons are different from mine: he worries that some particulars might not be spatio-temporal, that diverse particulars might interpenetrate, and that a single particular might be at more than one space-time.

⁷Tweeddale has a similar complaint, although he does not stress the connection to substantivalism [1984: 179–82]. I assume also that substantivalism and relationism are exhaustive and mutually exclusive options. My arguments are directed toward the possibility of combining Armstrong's view with relationism.

⁸Accordingly, in what follows 'space-times' means the same as 'space-time locations'.

Details aside, the relationist holds that locations are no more than aggregates—collections, classes—of located entities. Substantively construed, a location is something more than the aggregate of entities located at it. On the typical substantialist view, locations are so understood that they are wholly other than, and independent of, entities located at them [Earman 1989: 11]. Further, in themselves, substantialist locations are all qualitatively the same [Newton's Scholia I and II in Earman 1989: 20–1]. Dainton [2001: 139] notwithstanding, if locations differ at all, it can only be in virtue of their connection to the things that happen to be located at some but not others. Once universals are held to be exemplified by space-times, one obvious and pressing question concerns the right ontological account of space-times. Armstrong's suggestion that differences of total spatio-temporal position are 'not to be explained at all' [1978a: 119] implies that for him, as for the substantialist, space-times differ brutally [1984: 259]. But elsewhere Armstrong maintains that the spatio-temporality of universals is neutral between substantialist and relational conceptions [1984: 254; 1988: 111–12].

To settle the matter let us see whether Armstrong can accept both the exemplification account and relationism about space-times. If space-times are relational, they must be collections made up of elements of some kind. The key problem is what account Armstrong can give of these elements. There are two main categories in his ontology, as we noticed—thin particulars and universals—which combine through exemplification to make up states of affairs. Accordingly, Armstrong can hold that the elements that make up space-time locations are either thin particulars, states of affairs, or universals.

To see that Armstrong cannot construe space-times as aggregates of thin particulars notice that the point of the account is to reduce thin particulars (at least the actual ones [1978a: 120]) to space-time locations. As Armstrong realizes when he recants the view, if space-times are in turn reduced to thin particulars, the question naturally arises about the status of the latter [1997: 109]. If thin particulars are identical with relational space-times, a nasty regress ensues. Thin particulars of level n are identical with relational space-times of level $n-1$; the elements of the relational space-times of level $n-1$ are each identical with relational space-times of level $n-2$; and so on. Consider the alternative. If the thin particulars that are elements of space-times are not themselves identical with space-times, why not say thin particulars of the first-level are similarly diverse from space-times?

Could space-times be construed as collections of states of affairs instead? Suppose U_1 is exemplified by p_1t_1 , which is the collection of states of affairs S_1, S_2 , etc. If some of those states of affairs involve thin particulars, the regress begins as before. Therefore, the constituents of S_1, S_2 , etc., can only be universals. The essence of the relational account of space-times is an attempt to reduce locations to located entities. Among the states of affairs Armstrong envisages as involving only universals as constituents are such as a conjunctive universal's being complex [1978b: 138]. But since space times are evidently not *exhausted* by that kind of state of affairs (never mind that they are not spatio-temporal at all), space-times cannot be construed as collections of purely qualitative states of affairs on the exemplification

account. And therefore, they cannot be construed as collections of states of affairs at all.

Finally, the friend of the exemplification account may try construing space-times as collections of universals. Suppose *U* is exemplified by the collection made up of *U*₁, *U*₂, etc. For many universals it just does not make sense to think of them as being exemplified by a collection of other universals: collections of universals do not have negative charge, for example. But perhaps a universal's being exemplified by a collection of other universals is simply its belonging to that collection. If so, however, this would involve the move toward a bundle theory of particulars, rather than the irreducibly particular account Armstrong originally wanted [1978a: 89–101]. Because it is unduly constraining, I conclude therefore that the exemplification account must be rejected.

III. The Location Account

Elsewhere, Armstrong proposes the not-obviously equivalent view that universals are spatio-temporal by being 'located wherever'⁹ the particulars having the property are located' [1988: 110].¹⁰ Suppose that spatio-temporal location is left as a primitive connection in this variant of his ontology.¹¹ The problem with the location account, as with the exemplification account, is that it involves a commitment to substantival space-times.

The discussion at this point will be facilitated by concentrating on either spatial or temporal relationships, since each has the feature to be noticed. Temporal relationships, to choose one kind, exhibit order. *A*'s preceding *B* differs from *B*'s preceding *A*. This order must be represented in the ontology of temporality. Since Armstrong's universals are capable of recurrence, it is possible on his view for a universal *U* to precede itself. It is possible, moreover, for the following sequence to occur (with the obvious abbreviations): *U*_p*R*, *R*_p*S*, *S*_p*U* [Cummins 1965: 42]. In light of the supposed recurrence of universals, this is ambiguous between three possible orders. First, *U* happens, then *R*, then *S*, and then *U* again to end the series. Or, first *S* happens, then *U*, then *R*, then *S* again to end the series. Or, first *R* happens, then *S*, then *U*, then *R* again to end the series. An adequate theory of temporal relations that accepts recurrent universals must distinguish these possibilities.

To handle this difficulty Armstrong might, *à la* Roderick Chisholm [1970: 16], distinguish universals from their occurrences. Universals, on this conception, are one thing; their occurrences are another. If a universal has several occurrences, then something can be true of one that is not true of

⁹The context implies that this is the spatio-temporal 'wherever'.

¹⁰Armstrong has also changed his mind on this account [1997: 138], although in a nuanced way. Maybe even if universals 'cannot be located', he claims, still the 'truths of location in space and time' could be provided by a world of particulars with universal properties [ibid.]. Somehow, that universals lack location and yet that universals are not apart from space-time are supposed to be different vocabularies to describe a single reality [ibid.: 137].

¹¹The location and exemplification accounts would be equivalent if to be located at a space-time just is to be exemplified by it. Dainton [2001: 140] explores such a version of substantivalism about space. Thanks to Evan Fales for bringing this possibility to my attention.

another [ibid].¹² Since universals may be said on this picture to have many occurrences, the temporal possibilities could be distinguished from each other as follows. Perhaps the true order is that the first occurrence of U precedes R, which precedes S, which precedes the next occurrence of U. The problem with this account is that it gives up one of the essential theses of immanent realism, namely, that when two things have the same property there is but one property involved. If universals are to have genuinely many occurrences, these occurrences must really be numerically diverse from each other. And if one occurrence of the universal is not really identical with the other occurrences, then the properties involved are not really universals.

Another way to make sense of temporal order is to appeal to times. The sequences may then be distinguished as follows (with the obvious order between t_1 through t_4): (1) U at t_1 , R at t_2 , S at t_3 , and U again at t_4 ; (2) S at t_1 , U at t_2 , R at t_3 , and S again at t_4 ; (3) R at t_1 , S at t_2 , U at t_3 , and R again at t_4 . But if times are relationally construed, then t_1 , for example, is no more than an aggregate of located entities. Each of these located universals may be located at some other time, since on Armstrong's conception they are repeatable. It is therefore possible that the t_1 collection is made up of all the same members as the t_4 collection, say. Assuming sameness of membership yields sameness of collection, there would be no way to distinguish t_1 and t_4 . And so Armstrong would be in no better position to explain the temporal order of recurrent entities. To guarantee the diversity of the times, they must be treated as primitively diverse, as Armstrong himself came to realize [1997: 109]. In other words, the times (or space-times) must be construed, as before, substantively.

IV. The Constituent Accounts

Even where Armstrong holds most universals are spatio-temporal by being located at space-times, he hedges his bets concerning certain special universals:

Where¹³ are external spatiotemporal relations located? Here, it seems to me, we could cheerfully concede, if we wanted to, that they are *not* located, yet not place them 'outside space and time'. For it is part of the essence of space and time that they involve such spatiotemporal relations, whether these be conceived as relations between *things*, or between particular places and times. So, if they help to *constitute* space-time, then it is no objection to their spatiotemporality that they are not *located* in space-time.

[1988: 111 – 12]

¹²Chisholm's distinction concerns states of affairs rather than universals. Also, this is somewhat misleading as an interpretation of Chisholm: On his view, 'the first occurrence of X' is no more a designating expression than 'the average baseball fan'. The former expression is contextually defined by sentences that correspond to situations in which X has relations to unique entities. Pursuing Chisholm's proposal more strictly would avoid the problem I mention, though it would raise different ones.

¹³Again, I take this to be the spatio-temporal 'where'.

Armstrong allows—or, ‘could’ allow, as he puts it—that spatio-temporal relations are not spatio-temporally located, that is, that they violate the letter of naturalism. Yet, he thinks this is not much of a concession, since such universals, rather than being ‘outside space and time’ are ‘constituents’ of it. Call this the first constituent account.

In saying that certain relations make up the ‘essence’ of space-time, Armstrong seems to have in mind the following distinction. There is the form of space-time, its structure. This form may be relational, or it may be substantial; it may be closed, it may be open; it may be necessary, or it may be contingent; it may be discoverable a priori, it may be discoverable only a posteriori. In addition to this form, there is the content of time—those things that have locations in the structure. If the form of space-time involves precedence relations, for example, among its content would be preceding entities. Armstrong’s point then is that something may fail to be spatio-temporal because it is not part of the content of space-time, but it may yet not be altogether non-spatio-temporal because it is part of the form of space-time.

The thought naturally suggests itself that if some universals may be non-spatio-temporal in a way that is no significant threat to the thesis of naturalism, perhaps all universals may be understood to be strictly speaking non-spatio-temporal, but without threatening naturalism. This is one plausible reading of what Armstrong has in mind in yet another treatment of the problem:

To talk of locating universals in space-time [is] a crude way of speaking. Space-time is not a box into which universals are put. Universals are constituents of states of affairs. Space-time is a conjunction of states of affairs. In that sense universals are ‘in’ space-time. But they are in it as helping to constitute it.

[1989: 99; also 1997: 138]

Armstrong’s discussion of this view is brief, and he admits that it requires further thought. Consider this some of the further thought.¹⁴

In addition to the universals that make up the form of space-time there are the states of affairs that make up the content of space-time. These states of affairs stand in spatio-temporal relations to each other. The content of space-time, on Armstrong’s proposal, is a conjunction of such spatio-temporal states of affairs—this thing’s being F and that thing’s being G, and so forth. Universals on this the second constituent account are constituents of the entities that are the content of space-time. Universals are not themselves the content of time, yet, as with the first constituent account, they are not non-spatio-temporal by being ‘outside’ space-time. Rather they are non-spatio-temporal by being ‘within’ the entities that are the proper content of space-time [Leftow 2002: 21–2; Smith 2002: 127].

Thus three kinds of spatio-temporality may be distinguished. Something may be formally spatio-temporal by being an element of the form of

¹⁴In the following I consider mainly temporal rather than spatio-temporal features. This is in part because I do not accept the framework of inseparable spatial *cum* temporal relations.

space-time. Among the formally spatio-temporal are (perhaps only) spatio-temporal relations. Something may be primitively spatio-temporal by being among the content of space-time. Again, what something must be like in order to be in the content of space-time depends on what the form of space-time is like. If precedence is something constitutive of space-time then the primitively spatio-temporal will include that which precedes. The second constituent account may be taken as a view on which only states of affairs stand in spatio-temporal relations. There is indeed some substantiation for this. For one thing to precede another, for example, is for the one to happen before the other. To happen is to exemplify a property or stand in a relation. Therefore, it is eminently plausible that not universals but states of affairs would be primitively spatio-temporal.

Finally, there is the derivatively spatio-temporal. Something is derivatively spatio-temporal just in case it is not primitively spatio-temporal, and it is a constituent of something that is primitively spatio-temporal.¹⁵ The paradigmatic members of this group are universals. If states of affairs are acceptable at all, one must also accept the possibility that states of affairs enter into relationships their constituents do not enter into. One such 'non-divisible' relation¹⁶ is spatio-temporal connection: states of affairs enter into it but their qualitative constituents do not. Still, although universals on this conception are not spatio-temporal primitively, since they are not 'outside' space-time, it would be misleading to describe them as altogether non-spatio-temporal. Therefore, the designation 'derivatively spatio-temporal' is entirely appropriate.

I conclude by noting and parrying an objection to this account. In the quotation above Armstrong suggests, in my terminology, that the content of space-time is exhausted by states of affairs. This means, again in my terminology, that only states of affairs are primitively spatio-temporal. It follows from this that universals are not primitively spatio-temporal; but it also follows from this that if there are irreducibly particular entities, they also are not primitively spatio-temporal [Smith 1998: 153–4]. In Armstrong's original scheme, for example, thin particulars also would appear to be non-spatio-temporal. If some other kind of irreducibly non-qualitative entity is accepted—perhaps the substances of Jaegwon Kim's states-of-affairs-like events [1993: 8]—it too would have to be construed as derivatively spatio-temporal if spatio-temporal at all.

This seemingly unattractive consequence may be handled by recognizing that particulars are also only derivatively spatio-temporal [Leftow 2002: 21]. They are spatio-temporal, in other words, just in virtue of being constituents of states of affairs that are primitively spatio-temporal. Intuitively, it is not the apple that is before this or that, but the apple's being ripe that is before something or other. And this is indeed an attractive feature of the view, since it allows for a uniform account of primitive spatio-temporality. On this view only one kind of entity is fundamentally spatio-temporal. All else, including

¹⁵Suppose a state of affairs A is a constituent of a primitively spatio-temporal state of affairs B. The first clause allows that A may also be primitively spatio-temporal.

¹⁶A relation R is divisible if it follows from x having R to y that the constituents of x have R to y.

particulars, are spatio-temporal in virtue of being connected to that kind of entity.

Furthermore, the apparently primitive spatio-temporal features of particulars may be understood in terms of their derivatively spatio-temporal character. I will consider just two of these features: coming into existence and having a property at a time. A particular *P* comes into existence at t_1 iff (1) *P* is a constituent of a state of affairs that is at t_1 and (2) there is no state of affairs of which *P* is a constituent that is at any time before t_1 . Analogously, something's exemplification of a property *F* at a time t_1 is understood to be a derivative phenomenon, not a fundamental one, as on some theories of temporality [van Inwagen 1990: 250]. Accordingly, a particular *P* is *F* at t_1 iff *P* is a constituent of a state of affairs involving *P*'s exemplifying *F*, and the state of affairs is at t_1 .

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