

Against 'Time-Slices'

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Imagine that 'space-time'¹ is a piece of Brighton Rock. A very variegated piece of Brighton Rock, naturally, with the words written

1. My use of this word should not perhaps be taken to imply full endorsement of all of Einstein's philosophizing about space and time. A key moral to draw from Einstein's work is that 'time' can in a way be dispensed with, and replaced by descriptions of what is observably simultaneous with what, by descriptions of what obtains when something else obtains. Practicing this 'therapy' consistently will deprive the notion of '[instantaneous] time-slice' of most of its attractiveness immediately, through depriving the notion of the 'absolutist' framework of time upon which it largely depends.

But then there is perhaps something potentially misleading about the expression 'space-time' (rather than just, say, 'space')? One could put it this way: Einstein showed that time involves nothing over and above certain physical events, that time is nothing – or, better, no thing (at all) – but Einstein then needlessly added 'Time' in as a dimension (See also n. 7 & n. 32, below)?

That however would be too negative an appraisal of my relation to Einstein; for the above paragraph tacitly relies on absolutist notions of space and time which Einstein himself would have had no truck with. I do not *have* to have any quarrel, I think, with Einstein, only with some of his confused popularizing successors. Einstein does not tell the kind of 'four-dimensionalist' story I will critique below. Those who I am criticising mostly *separate* time and space (an error) and then *model* time *upon* space (a further error). Einstein instead practices a wholist, relational treatment of space and time. He does not reify space-time. Space and time are, for him, nothing but relations. *Time is nothing over and above relations between events.* Now, if one keeps this point firmly in mind, then the kinds of problem-cases that come in with General Relativity, such as cases of 'time-dilation', lose the mystery about them which draws some to metaphysics (usually via smuggling some absolutism about time back in). 'Time-dilation' is a figure of speech (one which can be cashed out or resolved into what different observers will observe). Processes go slower under conditions of 'time-dilation' – relative to other actually observed processes! Thus time – not a fantasized absolute time, but simply time, under Einstein's *relational* understanding of it – remains, and can (not unreasonably) be (metaphorically) described as 'dilating'.

My target in this paper is largely orthogonal to Einstein – my target is principally certain common conceptions of time which one encounters in academic philosophy and social science, which I think are in practice simply deeply confused. My suspicion is that most of those confusions (e.g. around the very idea of a slice of time which is 'infinitely thin', a time-slice which is *a fortiori* not experientiable by some person or persons) result from thinking that is un-Einsteinian as well as un-Wittgensteinian (and un-Garfinkelian). My arguments in this paper thoroughly undercut, I think, most uses of the term 'time-slice' – and the Einsteinian points rehearsed in this note

on it transforming as one works one's way through it. Each slice one takes from the stick of Rock represents an instant. The words one can read on that slice might conveniently be taken to represent the state of affairs at that instant. Thus time is 'a sequence of 'nows'', and this sequence along with the states of affairs obtaining at each is 'space-time'.

A picture of time along these lines is I think very common among philosophical analysts – e.g. it is the very picture assumed by and popularised in David Lewis's influential doctrine of 'Humean supervenience'. Lewis combines in this picture of the Universe – roughly, as always at any time t having a nature which does not metaphysically necessitate its nature, its state at time $t + 1$ – a (roughly) Scholastic Realist vision of Metaphysics with the inheritance of Early Modern Empiricism. This feature of Lewis's position is helpful, because it makes clear that my target in this paper is not narrow. It is not restricted to Empiricism, nor to Anti-Realism in general, nor (obviously) to Realist Metaphysics; nor indeed, as we shall see below, to the Anglo-American wing of philosophy.

Now, if any given slice from the stick of Rock just imagined has any thickness whatsoever, then the 'instant' in question still has duration. To really understand time as a succession of instants,² as 'a sequence of nows', one will need to take infinitely thin slices.³

count if anything *further* against the tenability of 'time-slice'-talk, talk which tends to presuppose not only the spatialisation of time but an absolute conception of space and time (or of space-time) – see also n. 25, below. (My thinking in this note owes a great deal to conversations with W. Sharrock and A. Ross.)

2. In fact, to understand '*succession*', infinitely thin time-slices won't be good enough, unless we can say how they are *related*. This point it seems escapes the likes of David Lewis, though it is hardly a new point. To quote from William James (*The Principles of Psychology* (New York: Dover, 1950 (1890), Vol. 1, p. 609): "[Thomas] Reid justly remarks that if ten successive elements are to make duration, 'then one must make duration, otherwise duration must be made up of parts that have no duration, which is impossible . . . I conclude, therefore, that there must be duration in every single interval or element of which the whole duration is made up. Nothing, indeed, is more certain than that every elementary part of duration must have duration, as every elementary part of extension must have extension.'" This remark of Reid's roughly anticipates a number of the arguments that Read makes below . . .

3. Or alternatively, one can make the stick of Rock 'infinitely long'. It makes no difference. Any finite slice of an 'infinitely long' stick should be regarded, relative to the whole stick, as of zero length. For however many slices one assembles, one is no closer to reaching the end of the stick than one was when one started (and not because the stick has moved!). I prefer to use the image in the text, above, because the image mentioned here in the footnote is less perspicuous; one inclines to think (e.g.) that one can 'read the words' written on a chunk of Rock, forgetting that *from the perspective of*

But if a slice of Brighton Rock is infinitely thin, then one certainly cannot read what is written on it, no matter how powerful one's microscope . . . (For 'infinitely thin' is surely not different in meaning from 'of zero thickness'). Conclusion: what we know as 'space-time' cannot be coherently and yet consequentially represented in this manner. For nothing whatsoever can be learnt about the state of affairs that obtains at a time that has no duration, at a point in time considered completely apart from any before and after. An infinitely thin time-slice, a dimensionless quasi-Dedekindian 'cut' into space-time, does not, *contra* some conventional wisdom, yield any intelligible account or picture of space or matter (or anything), at all.

My target in this paper is any philosophy which, to the contrary, supposes that, as a matter of methodology, or indeed as a matter of metaphysics, one can intelligibly and consequentially picture time (including the present) as essentially involving a continuum of 'dimensionless' time-slices. I believe that among those whose views fall within this target (though in most cases I will only gesture at the reasons for thinking these figures actually to fall within the target-range), are to be found most self-avowed metaphysicians of time (including for example Michael Tooley), most of David Hume's intellectual heirs (including crucially David Lewis, and also, I think, Quine) and leading contemporary 'Anti-Realists' (including crucially Michael Dummett), some 'human scientists' (including for example Anthony Giddens), some popularizers of physics (including some moments in Stephen Hawking), and even some important moments in the texts of major Continental philosophers (in such as – surprisingly – figures as diverse as Bergson and Derrida).

I suggest, then, that the 'popular' notion of infinitely thin time-slices cannot be made sense of. Or to put that point more carefully: that nothing has as yet been coherently proposed for 'infinitely-thin time-slices' to mean.

But is this because of a regrettable limitation on our part? Is it perhaps only because we are 'only' three-dimensional beings,⁴ unable

the whole stick (if the stick of Rock is infinite), that chunk is of literally *negligible* size. (Also, this image is unobtrusive because the idea of an infinitely long object is in any case unobtrusive – see my "Neither languages nor linguistic competences are usefully said to be 'infinitary'" (forthcoming). A myth at the heart of very many philosophical errors, perhaps more in 'the philosophy of time' than anywhere else, is, we might say, the mythological error that finitude and infinitude are *commensurable*.)

4. See notes 7 and 14, below, for some further discussion of the extent to which I can be reasonably described as *assuming* that we are 'as a matter of fact' three-

to see time (and space) ‘as it really is’, stuck as we allegedly are ‘on the inside’ of time? I have already suggested that we can make no sense of this proposal – but I would like now to show why, to the satisfaction, one can even hope, of one’s opponents.

So: Are we ‘stuck within’ the human form of life – are physical science and human science *alike* able to give us only an account of ‘time-as-it-seems-to-us’? It is sometimes said that time could only be fully understood by one not ‘bounded’ by time, not *in* time. That, just as *we* can understand something three-dimensional intruding upon a two-dimensional (planar) world, a phenomenon which would seemingly be incomprehensible to the denizens of that world, so a truly four-dimensional being *could* understand space-time as a whole, as a ‘block’ – roughly, as a stick of Rock. (Such a being could then purportedly understand what we cannot. Such a being could, one might say, see our 3-D world as ‘flat’, and what it moves in – past and future, time – as ‘up’ and ‘down’.) Each instant, each ‘now’, is supposedly an infinitely thin slice of this ‘block’, and can be seen as such by this (imagined supra-human) being.

Let us risk coquetting with this mode of expression somewhat further – for, after all, if it clatters down in nonsense, we will have lost nothing . . . For the mode of expression in question is not one any of us needs in actual life, it is only a mode favoured by certain theorists. Perhaps going along with the ‘thought-experiment’ somewhat further will in a *way* be illuminating. So then: It would seem that if, *per impossibile*, we could master four dimensions, and not ‘just’ three, perhaps we could then have a perspective on the whole stick of Rock, and look at whatever slices of it we wished to, for the details. Just as we actually can have a perspective on (the whole of) a two-dimensional – planar – universe?

But the same problem presents itself. For actually there is no such thing as us seeing a two-dimensional universe *at all*. The world of truly two-dimensional beings – *being infinitely thin* – cannot be ‘read’, either. It is, I venture, entirely hidden from us.⁵

dimensional beings, in a three-dimensional world. (I return later in the paper to the peculiar view of ‘perdurantist’ metaphysicians, who believe human beings to be four-dimensional objects (with three-dimensional temporal parts).)

5. My critique here of the popular science-fictional ‘Flatland’ scenario is perhaps of particular moment, in that contemporary Anglo-American metaphysicians are very fond of such scenarios. See for instance the opening of Josh Parsons’s “Must a four-dimensionalist believe in temporal parts?”, *The Monist* 83:3 (2000), 399–418; and P.

This is (again) the reverse of the conventional wisdom: Rather than having a privileged perspective on existence in two dimensions, we have *no* perspective on it at all. The third dimension *as it exists for two-dimensional beings* – the dimension, if you like, that their universe subsists in, that they *live* – is thus similarly ‘hidden’ from us. We can look at a plane from a good elevation on it, gain a privileged perspective on it compared to someone with a view from a lower elevation; but if we are interested in what happens to those living as it were *in* the plane, rather than on (top of) it, then elevation above it confers not privilege but radical otherness, and complete lack of understanding.⁶

van Inwagen’s “Four-dimensional objects”, *Nous* 24 (1990), 245–255. (For amplification, see my discussion of the allied mis-moves made by Jackson, Lewis, Sider *et al.* below.)

My position here seems to leave me open to the charge, however, of Relativism. I appear to be saying that there is something – a potentially lived world – alien to us, even incomprehensible to us ... a world which makes sense and yet is entirely inaccessible to us. *We* cannot, I seem to be saying, make sense of the sense it makes. Am I then committed to ‘us’ being ‘epistemically bounded’ from ‘them’; am I committed thereby to much the same *kind* of mistake as I find in, for instance, ‘Humean supervenience’, and in those pro-time-slice views which (e.g.) afflict discussions of ‘personal identity’, where one ‘time-slice’ of a person need not comprehend and is in principle cut off from the next? (One might compare also the unfortunate way in which mainstream Economics reduces people to time-slices.)

A full answer to these important charges is a task for another occasion. For now, I would point to the crucial points made in n.7, below; and to my paper “On approaching schizophrenia through Wittgenstein” (*Philosophical Psychology* 14:4 (2001), 449–475), where I attempt to argue, in a closely analogous context, that actually such cases tend to involve *only* the illusion of another ‘alien’ lived world; and to my *Kuhn* (jointly written with Wes Sharrock (Oxford: Polity, 2002)), which explicates further how the charge of ‘Relativism’ is misplaced in instances such as this one. (My thinking in this note owes much to ongoing dialogue with Nadine Cipa.)

6. This, incidentally, signals the danger of metaphors of ‘overview’ etc., when applied to philosophical/ theoretical ‘understanding’ of what happens ‘in the stream of life’, even when that understanding is, e.g., allegedly ‘Wittgensteinian’. The metaphors of ‘view from above’, ‘clear view’ etc. shields...from our view that such ‘views’ intrinsically run the risk of failing to make contact at all with what they purport to be views of. A ‘Wittgensteinian’ who fails to take account of this proviso, as for example Peter Hacker or Paul Johnston, is in the end always liable to be just another philosophical theorist (For argument to these conclusions, see my “The first shall be last and the last shall be first ...”: a new reading of *On Certainty* 501”, forthcoming in *Essays on On Certainty* (eds. Brenner and Moyal-Sharrock)). This is why genuine Wittgensteinianism must be *thoroughgoingly* therapeutic, always seeking either to dissolve itself back into the ordinary, or to expose its own potentially theoretical and nonsensical status. (I return to this point at the close of this paper, in suggesting that the ‘therapy’ involved in reducing the sense of ‘boggle’ at time (the boggle which which I think motivates, misguidedly, theories of time) needs must be more than merely verbal, merely philosophical, even if that philosophy be a ‘Wittgensteinian’ one.)

By parity of reasoning, the thought that four-dimensional beings⁷ could perceive our universe from the outside in complete clarity is the complete reverse of the truth. Which is that they could not see our universe *at all*.⁸ And thus that there is no such thing as them perceiving or understanding the dimension in which we subsist, the so-called ‘fourth dimension’,⁹ *as it exists for three-dimensional beings*. Namely, time.

So: there cannot be anything second-best about the ‘position’ yielded by our own embeddness in time. (I.e. ‘Anti-Realism’ starts to look no more genuinely attractive or necessary an option hereabouts than ‘Realism’.) Why then does it seem to some as though there is something second-best about our epistemic relation to time, and as though there are real difficulties in our coming to understand what time is?

7. A note is needed here on the use of the term ‘dimension’. It can of course be harmless to think of time as a ‘dimension’. For it can be measured: so why not plotted? Time *can* be a dimension, harmlessly (provided one doesn’t lose sight of Einsteinian considerations, where relevant, to modulate any effort to think of time as an intrinsically independent dimension). But ‘time-slice’, as the term is typically employed, is another matter, for reasons explained in the body of this paper. And if treating time as a dimension means trying to answer the question of ‘*what time (really) is*’, then it is harmful, I am suggesting, whether or not the term ‘time-slice’ is employed.

One must not lose sight of the *prima facie* peculiarity of our treating the universe as having more than three dimensions (On this, see also n.1, above). Of course, one can add extra dimensions – as many as one wishes – in one’s physics. That’s arguably just helping one to get the maths (of the physics) right. The use of the word ‘dimension’ is quite different in such mathematical manipulations than it is in actual descriptions of the universe. Thinking of any dimension beyond three as actually ‘part’ of the universe is odd – and that goes for time, too. Thus there is something fishy to begin with in thinking of four-dimensional beings (as contemporary metaphysicians of time such as van Inwagen and Parsons sometimes like to do – see n. 5, above) – except insofar as this is just a poetic way of describing *ourselves*, beings whom we can usefully describe as inextricably and saturatedly subsisting in / being in ‘the fourth dimension’. I.e. Beings who live (etc.). I.e. *Beings*.

No more is being in time perspicuously presented if it is represented as a *limitation* – e.g. a cognitive limitation – *at all*. We are limited only in a roughly ‘Pickwickian’ sense by being in time. (Similarly, ‘the limits of language’ are, roughly, ‘Pickwickian’ – *contra* Relativists, Post-Modernists (including many in Sociology), some French Feminists, Chomsky, Fodor, McGinn, Nagel, some moments in Rorty, Derrida and Lacan, some mystics, etc. For detailed argument toward this conclusion, see the essays in Part I of my and Cray’s *The New Wittgenstein* (London: Routledge, 2000), and my discussion of ‘limits’ in “What does ‘signify’ signify?”, *Philosophical Psychology* 14;4 (2001), 499–514.)

8. They (e.g. God on certain standard philosophical conceptions of God, as eternal in the sense of ‘outside Time’) could not read what was written on any ‘slices’ of it. We could just as well say that we are ‘enabled’ as ‘limited’ by being in time – see also n.7, above.

Go back to the initial ‘scenario’: the picture of time as ‘a sequence of nows’. It was this which was largely to blame, so far as the mythological errors hereabouts are specific to ‘time’,¹⁰ and – providing also that one does not allow oneself to treat the concept of ‘infinity’ confusedly – it is *this* picture and the fantastic Brighton Rock analogy which is supposed to encompass it which must be abandoned, as not amounting to anything that means anything at all. For in order for the initial scenario actually to be a picture of time, the ‘nows’ will have to follow each other . . . ‘infinitely fast’. But that is another way of saying that all our ‘scenario’ presents us with, if it is to be coherent and comprehensible, is *time*, as, I would suggest [see also below], we actually already know it. I.e.: *Continuous*, ‘flowing’, not ‘a sequence’ of (static/snapshot) ‘nows’.¹¹

A further remark on ‘now’: Part of the mythological mistake made hereabouts both by more or less Empiricist *and* by more or less Bergsonian-cinematic renditions of ‘time’ may be this: a failure to recall that ‘now’ is a paradigmatically indexical expression: when specified somewhat more closely, it can mean today, this year, the modern age, this instant (i.e. right away); etc etc. ‘Now’ isn’t any kind of temporal unit whatsoever¹² – and hence time can’t be a sequence of those ‘units’. Thus my suggestion is that philosophers especially tend to crudely assume the intelligibility of an objective ‘atomisation’ of time into units, failing to realize the ‘irremediably’ indexical nature of (ascriptions of) time; and that even some apparently-better Continental approaches, such as Bergson’s, *risk implicitly contradicting or obfuscating the very phenomenon* (e.g. ‘*la dureté*’)

9. For warning notes, see n.1, n. 7 and n. 8, above.

10. On this point, if on few others, I am in accord with Michael Dummett in his “Is time a continuum of instants?” (*Philosophy* 75 (2000), 497–515, pp. 508–9. For my disagreements with Dummett’s ‘Anti-Realism’ about time, which is to my way of thinking no advance whatsoever beyond ‘Realism’ about time, see my “Is ‘What is time?’ a good question to ask?”, in *Philosophy* 77 (2002), pp. 193–209.

11. If the advocate of time-slices concedes this, then we may in turn concede to them that the time-slice picture can be harmless, and ‘kosher’, if it is always understood to be an (unexciting) idealisation, or metaphor. My paper is called “Against time-slices”, but I am, of course, only against something intended as a controversial thesis, not against a harmless mode of expression lacking (e.g.) metaphysical consequence. (See also n. 31, below.)

12. Wittgenstein is extremely clear on this, in the *Blue and Brown Books* (Oxford: Blackwell, 1969): “The function of the word “now” is entirely different from that of a specification of time . . . // One has been tempted to say that “now” is the name of an instant of time, and this, of course, would be like saying that “here” is the name of a place . . .” (pp. 108–9).

which they wish to present us with. Take for example the following passage from Bergson's *Creative Evolution*:¹³

"We take snapshots, as it were, of the passing reality, and, as these are characteristic of the reality, we have only to string them on a becoming, abstract, uniform and invisible, situated at the back of the apparatus of knowledge, in order to imitate what there is that is characteristic in this becoming itself. Perception, intellection, language so proceed in general. Whether we would think becoming, or express it, or even perceive it, we hardly do anything else than set going a kind of cinematograph inside us. We may therefore sum up what we have been saying in the conclusion that *the mechanism of our ordinary knowledge is of a cinematographical kind.*"

Bergson deserves credit for trying really hard here; his philosophy certainly appears to offer more hope for avoiding the misunderstanding of time than do most Anglo-American efforts. But my point is this: However fast you run your cinematograph (unless it be 'infinitely fast'), you are not going to arrive at a *durée*. What is really needed, I am suggesting, is not quite even '*durée*', but once again, simply ... *time*. It is just time, in its manifold manifestations, that needs to be recovered for our attention, if anything does. (And, of course, in most of these manifestations it is potentially misleading to speak in a reificatory manner of 'time' being 'manifested'; doing so is already dangerously abstract, compared to (say) simply inhabiting, or noting – or at most attempting to disentangle analytic confusions about – the way in which (say) factory-workers organise their day (or deal with the way it is organised 'for them').)

In short, there cannot be any such thing as – and does not *need* to be – an explanation as if from an 'external' (let alone 'eternal') point of view of what 'time' is, for three-dimensional beings.¹⁴ But nor are we condemned to a second-best, 'merely internal' explanation either (The idea of, for example, a sociological – social scientific/theoretic – account as providing an (perhaps 'as objective as is possible for us') picture of what time-is-like-for-us, absent a certain kind of (previously) hoped-for account of the absolute nature of time,

13. Transl. by A. Mitchell; London: MacMillan, 1911, p. 321.

14. A note is perhaps called for on the 'assumption' that we are 'three-dimensional beings'. For the following reason: this is very much a peculiar theorist's way of putting the matter, one which can *misleadingly* suggest (1) that we can make good sense of what it would be for us to subsist in less or more dimensions, and/or (2) that we self-consciously live (*de dicto*, as it were) as 'three-dimensional beings'. (See also n. 7, above.) I mean here to license neither suggestion.

preserves the (incoherent) *ideal* of a perspective on time as if from outside.¹⁵ To think of our form of life as a limitation, as a fall-back given the unavailability of a ‘view from nowhere’, is still to think in a manner constrained (!) by the categories of traditional philosophy. A Relativist is just a poor man’s Metaphysical Realist.). We understood time perfectly well to begin with; we ‘inhabit’ it, and what better understanding of something inhabitable could one wish to have than that got by inhabitation?¹⁶

No role has been provided for what an alleged explanation of time’s nature would be. A picture of time – a would-be intelligible/explanatory exercise in ‘imagination’ – as a sequential stack of infinitely thin slices of Brighton space-time rock helps in understanding time further not one jot (and in fact: not at all).

Consider by contrast a place in some lives where explicit talk of time-slices *is* useful and perspicuous: Geology. Geologists speak of the ‘time-slices’ indexed by rock strata, by the thickness or thinness of particular layers of rock, passages of time. Here, in fact, we see a very vivid sense of the word ‘time-slice’ – we *see it vividly*, due to the apparentness of the visual/spatial metaphor that geologists are employing. There is no danger *here* of metaphor being projected onto reality.

What is strikingly different from the mythic example – featuring a different (imaginary) kind of rock – that we have been considering in this paper earlier is that *these* ‘chunks’, these ‘slices’ of time – of geological time – have, of course, *duration*.

The master-myth hereabouts, the founding error to the attractive pictures we have deconstructed, is the perhaps-inevitable but almost-inevitably-*dangerous* attempt to represent time ... in spatial terms (e.g. as a ‘dimension’).¹⁷ In the case of geology, no harm is done by

15. For detail on the logic of this argument, see again the essays in Part I of my (2000).

16. If one wants to look more carefully at this inhabitation, one would again do best not to theorize and abstractly philosophize, but rather to look at some of Wittgenstein’s remarks (and at what they in turn direct one toward), and at the best of the ethnomethodological (quasi-Wittgensteinian sociological) renditions of indexicality / of our temporally-saturated practices / of the ways in which we *do* time. For example, see Harvey Sacks’s *Lectures on Conversation* (edited by Gail Jefferson; Oxford: Blackwell, 1992), and Alfred Schutz’s *The Phenomenology of the Social World* (Chicago: Northwestern, 1967). (See also n. 7, n. 12 and n. 14, above.)

17. Wittgenstein dissects the wish – the urge – to spatialize time masterfully on pp. 26–7 of the *Blue and Brown Books*. Cf. also the rather brisker dissection (or dismissal) of same to be found at *Tractatus* 6.3611.

this practice, for the metaphor is obvious and perspicuous; but in the contexts where philosophers invoke ‘time-slices’, it is usually a very different matter. As long as we seek to explain time, to get ‘back behind’ the time that we *inhabit*, using terms drawn from our understanding of *space*, time will be crudely reified – and yet, ironically, will remain frustratingly out of reach, unperspicuously-presented, even so. We must learn not to seek to get beyond or behind our ordinary temporally-saturated discursive practices (e.g. our use of expressions such as “Are you ready to go yet?”, “They both arrived at the door at the same time”, “So many years, and yet he has hardly aged at all”, and “You will need an atomic clock for that purpose”), or else ‘the problem of time’ will forever seem to demand analogies with which to help solve it: analogies which will always fail just at the point when we try to take them at all seriously . . .

We might then hazard that the efforts of analysts to say what time really is (metaphysics of time), and/or how time is really experienced (some phenomenology, theoreticist psychology or sociology of time), must fail, insofar as they fail to take as their data and resource actual understandings-in-action of time. Of *time*, not of mythic ‘instants’.

That is, what we need is not theorisation of time on the basis of unanalysed ‘intuitions’ or ‘assumptions’ about it, nor even people’s lay or professional reflections upon time, but just: time, as it is observably and accountably lived – by scientists, philosophers and laypeople alike.¹⁸ Compare the ethnomethodologist Harold Garfinkel’s remark in “The rational properties of scientific and common sense activities”,¹⁹ where, building on Schutz’s work, he writes of how, “In his everyday

18. As laid out, for example, in Schutz’s “Making Music Together”, in *Collected Papers II* (The Hague: Martin Nijhoff, 1971 (1964)), provided one reads charitably Schutz’s residually Bergsonian mode of expression. Like Schutz, I am not in the business of making more or less metaphysical assertions (e.g. “Moments must have duration!”), but rather of querying whether, in ordinary usage and practice, moments *need* ever be conceptualised as of zero ‘length’. Compare e.g. p. 170f. of “Making music together”.

19. Pp. 273–4 of *Studies in Ethnomethodology* (Cambridge: Polity, 1984 (1967)). The ignorance of most philosophers, even most Wittgensteinians, concerning Garfinkelian ‘ethnomethodological’ sociology (i.e. sociology concerning above all the methods of peoples in making sense of their (social) world(s)), is a handicap in coming to see the practical and organisational character of time clearly. For Garfinkel and his Ethnomethodological (and ethnographical) colleagues really bring the reality of the diversity of actual human practices to one’s (philosophical) attention *without* philosophically confusing the issues – arguably, they can thereby ensure better than any Philosopher can *that our diet of examples becomes or remains thoroughly varied and rich.*

activities [each] person reifies the stream of experience into ‘time slices’.” Is Garfinkel here committed to dubious views about the slicing of time, or committed at least to dubious views on the commitments of ordinary persons to time-slices? No, as a fuller perusal of his text (which would take us too long in the present context) reveals to any attentive reader. For, in brief, the difference between standard theoretic approaches to time such as those which I have criticised and the ethnomethodological approach is that the latter:

- (0) treats slices of time neither as objectively determinable nor as infinitely thin, but *as having duration*, of either a ‘vague’ or ‘precise’ amount, depending on the person, context, etc.,
- (1) treats such reification as is done by persons as continually undone in practice,
- (2) thus does not ironize or reify the person’s experience of or enactment of time, and
- (3) does not, when done right, understand decent sociology of time (e.g. these very ethnomethodological remarks, etc.) as theoretical or even assertoric in nature, but as practical; i.e. as reorienting (reminding), and as methodological recommendations.

What Garfinkel, like Wittgenstein, points us toward is the almost inevitable tendency (due to the pressure of surface grammar, and secondarily of the scientific impulse – see the whole of the “The rational properties . . .” essay of Garfinkel’s) to reify time . . . and of how, in our actual lives, though often not in the content of Theory, this is worked through, or essentially temporary, or ‘unimportant’ (because essentially practical), etc. This understanding of time, this recovery of time as it is already understood and lived by people, is not a second-best; it is what there is to say (in a way: nothing) about time. Alternatively put, it is (the truth about) time; unvarnished, unsliced, undiced.

If we compare Bergson with Garfinkel, the differences are pretty stark. The former focusses our attention on a ‘cinematic image’, which ‘seems’ continuous but is ‘really’ discrete. This naturally evokes the questions: ‘Is time really continuous or not? Of what units is it constructed?’ Bergson then has us ponder whether our experience – “the mechanism of our ordinary knowledge” – reflects the real nature of time [Metaphysical Realism], or only our own ‘limitations’ [Anti-Realism]. Bergson implicitly (and unwisely) opens a space for *the very forms of theoreticistic inquiry into the nature of time which he seemingly hoped to enable us to overcome.*

Garfinkel's point of departure is quite different.²⁰ There is no longer the question of whether a Realist or an Anti-Realist rendition of time is to be preferred; rather, there is the relentless and near-endless (but relatively 'mundane') question of how time is sliced and unsliced in diverse *actual* human practices.

Let us look now, and in a little more detail, at the place in philosophy today where notions of 'time-slice' are most ubiquitous and detailed. Not, that is, at time-slices as surreptitiously, perhaps even against his better judgement, entering into someone's philosophy (as in the case of Bergson), nor at a more successful, non-theoreticist version of lived durationful time-slices (as in Garfinkel), but at a sliver of the huge 'literature' which explicitly debates the ontology of time, space, objects and persons, with a concept of 'time-slice' at the very heart of the debate. Some readers of *Philosophical Investigations* might be surprised to learn that such ontological and metaphysical enterprises are still popular. But their popularity – including with major philosophers of our time such as Quine, Kripke, Lewis, Armstrong, Jackson, Mellor, van Inwagen and Parfit – is indeed such that a paper "Against time-slices" is arguably sorely needed.

For our purposes – to bring out how the diagnosis of problematic and widespread urges concerning the nature of time that I have so far made is directly relevant to central debates in contemporary

20. Garfinkel's point of departure is due in significant part to Schutz, perhaps Husserl's greatest student – and of course Husserl was one of Bergson's greatest critics (Schutz himself being perhaps another). Thus it should not overly surprise us that Garfinkel shows a marked superiority to Bergson (though it is worth reiterating that Bergson at least *aims* – unlike the contemporary Anglo-American metaphysical philosophers whose work is a major target of mine in this paper – to avoid theoreticist revision of or replacement of our everyday lived conception of time). (In a fuller presentation, we should explicitly deal (at least briefly) also with the major contributions of Heidegger and Merleau-Ponty, whose criticisms of the likes of Bergson and (at least implicitly) of Empiricism would serve very well at times to undercut just the fantasies of time which in this paper I am challenging. But it is perhaps Wittgenstein and Garfinkel who have above all overcome the vestigial tendency to theorize about time, which rarely disappears completely in more 'classical' Phenomenology, even in the profound examinations (of time) undertaken by Husserl and Heidegger. (There is no space either, here, to discuss the complex case of Derrida, whose challenges to Husserl especially – for example, on 'presence' – are often well-taken, but who is in the end committed to recuperating some extremely dubious theorizing about time. He has I think to keep such theorizing *in place* in order to appear to be saying anything, in order to have something to (endlessly) 'deconstruct'.))

metaphysics – it will be enough I think to focus primarily upon some remarks by one of the leading participants in such debates, Frank Jackson:

“The dispute between three-dimensionalism and four-dimensionalism . . . concerns persistence, and correlatively, what change comes to. Three-dimensionalism holds that an object exists at a time by being wholly present at that time, and accordingly, that it persists if it is wholly present at more than one time. For short, it persists by *enduring*. Four-dimensionalism holds that an object exists at a time by having a temporal part at that time, and it persists if it has distinct temporal parts at more than one time. For short, it persists by *perduring*.”²¹

‘Three-dimensionalism’ may sound relatively sane. But lurking within the view of the ‘three-dimensionalist’ is a tacit risk of commitment to time-slices: For an object persists by enduring through a ‘stage’ of time made up of infinitely many ‘slices’.²²

Now, Jackson’s three-dimensionalist *may* have a harmless ‘view’. (It depends on what gets *done* with the picture sketched here). But my reasons for doubting that this is at all likely are as follows: Imagine someone defending ‘three-dimensionalism’ by arguing that, since the three-dimensionalist believes that each object is located ‘in whole’ at each of the times at which it exists, it therefore follows that there is no part, no slice, of such an object corresponding to those times, only the whole. Thus there would be no temporal slices of persisting objects, according to the three-dimensionalist. Does this mean the

21. “Metaphysics by possible cases”, in *Mind, Method and Conditionals* (London: Routledge, 1998; p. 138). Jackson’s discussion clearly assumes ‘the Dimensionality Thesis’, as Parsons calls it in his (*op. cit.*): that is, Jackson assumes that there is no harm in thinking of time – in one’s prose and not just in one’s equations – as a dimension. See my arguments above, including in n.1 and n.7, for some serious worries about this.

22. As should be evident from my discussion of infinity, above, the situation of the ‘Slice Theorist’ (and such is one not-inappropriate (and, in ‘the literature’, popular) term for ‘three-dimensionalists’, *if* those three-dimensionalists are explicitly or tacitly committed to the possible existence of time-slices) is in fact even more desperate than surface appearances here indicate: for the ‘Slice Theorist’ seemingly has no way of moving coherently from slices to stages. I.e. the cardinality of every stage, however long or short, is the same. But then what sense can be made of an object enduring for only the infinitely short (i.e. zero) duration of a time-slice? To answer that the time-slices should be understood as in reality infinitesimal – that is, of infinitely small but genuinely non-zero duration – is I suspect just to make a useless and question-begging shuffle.

three-dimensionalist is invulnerable to my central charges in this paper?

The key problem with three-dimensionalism is this: The three-dimensionalist speaks as though the debate with the four-dimensionalist *makes sense*. Thus he speaks for instance of objects being “wholly present” at particular times. This seems to tacitly commit him at the *least* to substantive and philosophically-consequential time-slice-talk making *sense*. And that is what I am disputing in this paper.

In the view of the ‘four-dimensionalist’, we see a stark example of what happens when metaphysically-minded philosophers worry about (in this case) whether what the three-dimensionalist says is enough to ‘account’ for the endurance of objects, or for change: the four-dimensionalist spatialises time in an astonishingly direct fashion, by claiming that part of what an object *is* is ‘its temporal part’.²³

These two alternatives that Jackson offers us reflect precisely the mis-moves I have already dissected above. The ‘three-dimensionalist’ may seem the preferable alternative – but only to one who already allows that the ‘four-dimensionalist’ has something to say. I have tried to suggest that what the ‘four-dimensionalist’ has to say is radically incoherent, that we can make nothing of it. And this leaves ‘three-dimensionalism’ equally badly off.

It is worth noting that such ‘ontological’ debate as that which Jackson is here presenting is particularly popular in the philosophy of personal identity. For instance, there is long-running debate about

23. For those unable to credit that I am being fair to the philosophers in question, the following additional quotation may help: “Persistence through time is much like extension through space. A road has spatial parts in the subregions of the region of space it occupies; likewise, an object that exists in time has temporal parts in the various subregions of the total region it occupies.” T. Sider, *Philosophical Review* 106 : 2 (1997), 197–231, p. 197.

It is worth adding that in the debates which I am discussing here, as already hinted, the term ‘time-slice’ is sometimes used by one side of the debate, and rejected by the other. This does not limit the impact of the polemical thrust of my paper, however; for, as should be evident from my discussion of the quotation from Jackson, the kinds of mythological models, analogies and errors that I am endeavouring to diagnose – clustering chiefly around the linked themes of the spatialisation (or ‘dimensionalisation’) of time, the projection of the concept of infinity into the physical universe, and the failure to distinguish between indexical and non-indexical terms – are in most cases practiced in common by all parties to these debates. So my attack is not narrowly upon ‘Slice Theory’, but on the utterly pointless endless debates within which it features as a live option.

whether a 'time-slice' analysis, or a 'temporal parts' analysis, captures the supposed essence of what makes a person the person they are, continuous over time, or solves puzzle cases such as those made famous by Parfit. David Lewis's work is thought by many to have made a decisive contribution to the problem of personal identity, in just such a fashion.²⁴

If I am right, by contrast, then it follows that all that alleged philosophical progress is very moot.

I have already made clear in my Garfinkelian and Wittgensteinian musings earlier that, so long as we reject the kind of theoreticist fantasies to be found in the work of Lewis, Jackson, Sider *et al*, then slicing time is just fine – as (ordinary) people do it . . . all the time. Albeit in very different ways: Compare for instance the likely attitudes towards time of a prisoner ('doing time'), a dying person ('running out of time'), and a keen British drinker (running out of time each night at the bar). What isn't fine is the fantasies of what time slicing is (or should be), fantasies which are imposed by social scientists upon these (diverse, ordinary) people, and by philosophers upon not only them but also upon natural scientists (i.e. Philosophers sometimes appear to want to tell even practising physical scientists how they ought to think about what time is, what it is composed of.). And the final reason why such purely theoretic impositional time-slicing isn't fine is that the fantasies of philosophers and social scientists hereabouts are simply not needed. We – drinkers, the dying, prisoners,²⁵ and (in their

24. Here are some of the key references: Lewis's "Survival and Identity", plus postscripts, in his *Philosophical Papers* vol.I (Oxford: OUP, 1983), pp. 55–77; "Counterparts of persons and their bodies" *J.Phil.* 68 (1971), pp. 203–211; *On the plurality of worlds* (Oxford: Blackwell, 1986); and also John Perry's "Can the self divide?" *J.Phil.* 69 (1972), 463–488. A useful overview of the 'literatures' which I have been discussing here is provided by T. Sider, in his "Recent work on identity over time", *Philosophical Books* 41 (2000), 81–89.

25. Re. prisoners, fascinating documentation is also provided by the greatest of Holocaust survival accounts, such as Levi's and Frankl's. Compare for instance pp. 91–2 of Viktor Frankl's *Man's search for meaning* (New York: Washington Square Press, 1985 [1946]): "In camp, a small time unit, a day, for example, filled with hourly tortures and fatigue, appeared endless. A larger time unit, perhaps a week, seemed to pass very quickly. My comrades agreed when I said that *in camp a day lasted longer than a week*. How paradoxical was our time-experience!" (emphases added) Paradoxical indeed – but nevertheless, it apparently *was* their experience. 'Clock time' is not the only time. (And neither is there only one 'clock time' – cf. again Einstein. If we *do* risk talk of time-slices, we ought to be clear that, according to Relativity Theory, there will be infinitely many durationless slices of time which include a given event.

particular way) working physicists – can by and large experience and divide up time perfectly well, thank you very much.²⁶

And in those cases where we cannot experience and divide up time perfectly well (e.g. if we are painfully superstitious about dates; or if we are always *hurrying* through our lives; or if we frequently just miss deadlines – e.g. if we don't deal well with “Last Orders at the bar, please!”, etc. etc.), it is I venture not philosophical or sociological theory of time that is likely to help us, but rather, counselling, or meditation, or an evening *relaxing* down the pub, or perhaps a kick up the backside, or perhaps social revolution, or . . .

For the boggle at time, the feeling that there is something peculiar about an existence that is not static, an existence that rather *unfolds*, an existence whose presence is apparently ‘only’ in the fleetingly evanescent present . . . this boggle is not, I venture to suggest, at root an *intellectual* problem, at any rate if we mean by ‘intellectual problem’ a problem demanding resolution by means of the production of a theory (or even dissolution by means of a merely-worded therapy). The boggle at time, the feeling in particular of being ‘confined’ in the present without ‘access’ to the past (or future), is not a genuine motivation for a theoretic picture (e.g. of ‘time-slices’), but should be honestly admitted to be rather a *mood*, a mood of rebellion against the human condition,²⁷ or, more broadly, against the condition of actually being, existing, *at all*. For, of course, unless something unfolds, unless one is not literally in (e.g.) the past, then one does not live *at all*. Being-in-time, becoming-over-time . . . this is a privilege reserved for those beings which are not (as God supposedly is) ‘timeless’.

So the boggle at time, as manifested for instance in a feeling of ‘ungroundedness’ in one's past, in one's life . . . this boggle, if it is actually felt, is to be responded to not with words that would silence or force to a conclusion, but with methods, ‘therapies’ of one kind and another (philosophical, psychological, socio-political, etc.), therapies which re-acustom the anxious or confused bogglee to their *living*, which just means living-in-time, not stuck in a series of static

Philosophical advocates of ‘time-slice’-talk never to my knowledge take this into account.)

26. Some of the particularities of physicists' particular ways of dealing with time are again explicit and implicit in Garfinkel on Schutz – see references above.

27. A *senseless* mood? If so, is that any better than a senseless thought? A question too big for the present context: I attempt to address it in my “Literature as philosophy of psychopathology”, forthcoming in *Philosophy, Psychology, Psychiatry*.

instants; nor statically co-existing in past, present and future; nor reified outside all time.

And I am not mocking the ‘boggle’ here – for I would be mocking myself. I too have felt this boggle, which can be horrible, truly and deeply terrifying.²⁸ But if and when one finds oneself able, through talk and love and luck, to change one’s mood . . . to give up the sense of confinement in a fly-bottle that under continued psychological pressure shrinks to nothing at all (solipsism of the present moment) . . . to feel the ‘Now’ not as a static moment but as part of a continuity, a life . . . then one can perhaps enjoy even more than before the incredible opportunity of being, of living . . . rather than feeling confined to a static yet evanescent Now or condemned to an imaginary stale, ‘Godly’ fixedness outside time altogether. (This latter fixedness is I think what many philosophers have in fact envied God – this is philosophy’s rebellion against being (human). The desire to see all of history as from outside, the desire to be able to look at it as one looks at the words on a stick of rock, is covertly a desire not to be, not to become and not to change and not to live – at all.)

If the risky question, “What is ‘the present’?” be asked, then, the safest answer is a negative one, such as, “It’s *not* a (durationless) instant.”²⁹ But let me take the risk, in closing, of venturing a few more ‘positive’ words about what it is to experience time in a mood undistorted by any pathology, intellectual or otherwise . . . the risk of employing a few spatial metaphors of my own (but I urge the reader to bear in mind throughout that these are only metaphors, and almost certainly uncashable ones).

The present has to be ‘embedded in’ and *intermeshed* with past and future. The present might be presented as a growth out of the past

28. For more on what it is like to feel this ‘boggle’, see Louis Sass’s work. A quick further insight into the boggle can be attained by thinking through the following: if one boggles at more than the present, if one doubts *time*, then nevertheless (or indeed *in particular*) ‘the present moment’ is ‘dimensionless’. So if ‘it’ becomes focal, if one tries to hold onto it and forgets all else, *trusting only the present*, then one ends up holding onto . . . nothing at all. *The one thing one trusted* dissolves on one. (Cf. also n. 30, below.)

29. See again my “Is ‘What is time?’ a good question to ask?” (in *Philosophy* 77 (2002)) for further argument in this direction. In that argument, I follow Wittgenstein’s thought (e.g. on p. 6f. of the *Blue and Brown Books*, and para.s 89–90 of *Philosophical Investigations*) that the substantialisation of time as an effort to explain ‘what time is’ is a deep – indeed *paradigmatic* – example of philosophical confusion.

and into the future. It has no definite duration (Compare ‘When did this plant start growing?’; or, indeed, ‘When did it start dying?’). As discussed above in reference to Garfinkel, and in relation to the potential usefulness of the notion of time-slices *if* they are taken to have duration and understood to reside in people’s lives as lived, *one can give ‘the present’ as much or as little duration as is contextually apposite*. And in our actual practices, such context is almost invariably presupposed, generated or (more rarely) explicitated. This is much of what the Ethnomethodologists work on presenting to their readers – the ways that actual ‘language-games’ etc. (e.g. those of prisoners, of schoolchildren, even of astrologers, and so on) yield variegated lived senses of past, future and present . . . of *time*.

And once more: ‘the present’ may be the briefest of moments, or this year, or as long as this mood lasts, or a thousand other things, depending on context.³⁰

In its actuality in particular everyday contexts, the present is far less likely to *dissolve* on one, than under the mode of presentation which we tend to find in ‘mainstream’ philosophy of time and of identity. I believe that standard philosophic modes of ‘atomising’ and analysing time pose an actual socio-psychological risk: they risk alienating one from time as lived, and trapping one in a ‘private’ durationless present . . . in a nothing which leaves one no grounding. To say it again: unlike the Wittgensteinian (and the best of the phenomenological / ethnomethodological) approach which I have been endeavouring to lay out in this paper, standard Metaphysical and ‘Analytic’ ways of thinking time (as exemplified paradigmatically for instance in the Anglo-American technical concept of ‘[instantaneous] time-slice’) may actually be psychologically dangerous.

30. This point was I believe first understood by S.H.Hodgson, E.R.Clay and William James. James holds that it is *at most* only in extraordinary circumstances (e.g. in some psychopathological ‘boggles’, and perhaps in some religious experience) that the present is reduced to a time-slice, to an ‘instant’. It should be thought of, if at all, rather as something like a boat (his metaphor), or as an indivisible fuzzy blob (my metaphor). See for instance pp. 607–610 of James’s (*op. cit.*), for detail.

For further discussion of what it is to live in time, with a ‘sophisticated’ yet entirely ordinary and everyday sense of time, see my “Is there a legitimate way to raise doubts about the immediate future ‘from the perspective of’ a *doubted* immediate past?” (in *Wittgenstein-Jahrbuch 2000* (Frankfurt: Peter Lang, 2000)). I hope in future work to discuss the sense in which mystical and spiritual practices (e.g. Zen) *while* ultimately tending, as the apex of their enlightenment, to ‘leave everything as it is’, can nevertheless *appear* to depart radically from our everyday sense of time.

If 'being in the moment' or 'living in the present' means something, then, what it means surely must reflect the rich phenomenology of everyday life, not (e.g.) the rarefied fantasies of Anglo-American philosophers. For instance, it must mean things more like "I am now walking down the street through Camden Town to meet my mother", or like "This rose is exquisite", than like (say) "Black spot here now" or "The state of the Universe at time t is as follows; molecule a is in position [such-and-such], molecule b is ... " ...

My primary target in this paper has been the view, if intended as a *view* (as a controversial thesis³¹), that there are temporally-infinitely-thin, spatially-three-dimensional time-slices. In endeavouring thoroughly to diagnose and dissolve away that view, I have undertaken also to question the debates in which such a view is located, and the *underlying* projects of spatialising time, or even of thinking of time as a dimension, at all, in prose. I have urged that we need to be against time-slices (if by that expression we mean anything more than the mundane meanings which it can assume in the lives of geologists and other ordinary human beings). *Time is up*, I think, for the 'instantaneous time-slices' beloved of most philosophers. Influential philosophies of time as apparently diverse as those of Lewis and (even against his intentions) Bergson thus must come to grief. *The very idea* of 'time-slice' upon which in their different ways they rest – the very idea of spatialising time, and of rendering the 'resulting 'slices' of potentially infinitely small measure – turns out on closer acquaintance simply not to amount to anything that has yet been made sense of, in despite of the vast amount of ink that has been spilled over it.

Roll on rather acquiescence in time as a motley, as a multifarious (continuous and divided) organisational phenomenon. As a ubiquitous lived 'tool' for the organisation and co-ordination of

31. See *Philosophical Investigations* para.126. If time-slice-talk was/is through-and-through intended or heard only as a (dispensable) way of representing things, then it needn't be harmful, even when the time-slices in question 'are' 'infinitely thin'. 'Time-slice-talk' is either unexciting and would not be disagreed over or it is *incoherent*: that has been my claim in this paper. In its non-disputable, innocent version, time-slice 'theory' isn't even as much of a picture, I would suggest, but *just* a mode – a manner – of representation. As such, it is no more true or sensical to suggest that time is a continuum of instants (see my critique of Dummett (*op. cit.*)) or can be 'generated' out of time-slices than it is to suggest that space can be 'generated' out of points (which has not stopped people sometimes saying the latter, too ...).

human activities,³² a tool so completely involved in those activities that Anti-Realism about it is as unstateable as Realism about it is unnecessary.³³

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32. Again, this is I think where Einstein comes in. His interest is predominantly in (those unusual) cases where the speed of light becomes relevant to the co-ordination of activities (such as the making of certain physical observations). Such cases are the very cases where the rates of certain more or less natural processes – the very things which we use to measure time – tend (so far as an observer can tell) to change from what we are used to. Normally, the rate of certain processes can pretty harmlessly simply be identified with time (Think of (reliable) clock-time; what happens within clocks and is manifested by them *tells* us the time). So those (unusual) circumstances which are important to Einstein perhaps confuse us: we perhaps unwittingly continue to identify the rate of those processes with ‘time itself’, *conceived of in pre-Einsteinian fashion*, and come to speak of ‘time-dilation’ etc.; whereas this might less misleadingly simply be seen as a picturesque way of describing the way in which certain natural etc. processes are (so far certainly as an observer is concerned) affected by extremely high accelerations (i.e. by what is required to approach near to the speed of light). (For further detail, see my discussions of ‘the standard metre’ etc. in my paper (in *Philosophy* 77 (2002)) on Dummett on time; plus n. 1, above.)

33. The inspiration of this paper comes from conversations with David Gamez and David Smith of Essex – my thanks to them both. Thanks also to an audience at the Orders of Ordinary Action Conference, Manchester Metro. University, July 9–11 2001, and to Michael Dummett, Rod Watson, Richard Hamilton, Phil Hutchinson, Dave Francis, Nadine Cipa, Ian Breckenridge, Graham Read, Louis Sass, Jim Morley, Jerry Goodenough, two anonymous referees, and (especially) to Josh Parsons, Tess Read, Angus Ross and Wes Sharrock. Thanks finally to the A.H.R.B. for funding the research leave which made writing this paper possible.