International Journal of Law in Context, 6,3 pp. 243–255 (2010) Cambridge University Press
doi: 10.1017/S1744552310000145 Printed in the United Kingdom

Limits to 'thinking space relationally'

Martin Jones*
Wales Institute of Social and Economic Research, Data and Methods (WISERD) & Institute of Geography and Earth Sciences, Aberystwyth University

Abstract

This paper is written by a geographer and discusses the importance of 'thinking space relationally' in, and for, the social sciences. According to its advocates, relational thinking insists on an open-ended, mobile, networked and actor-centred geographic becoming. I position relational space within the lineage of philosophical approaches to space, drawing on examples taken mainly from human geography. Following this, the paper highlights some silences and limits, namely factors that constrain, structure and connect space. I acknowledge relationality but insist on the connected, sometimes inertial, and always context-specific nature of spatiality. The paper then considers the normative implications of this for politics, thinking first about regions, and then about policy.

> 'These new spatialities have become decisive for the constitution of place. The varied processes of spatial stretching, inter-dependence and flow, combine *in situ* trajectories of socio-spatial evolution and change, to propose place—the city, region or rural area—as a site of intersection between network topologies and territorial legacies. The result is no simple displacement of the local by the global, of place by space, of history by simultaneity and flow, of small by big scale, or of the proximate by the remote. Instead, it is a subtle folding together of the distant and the proximate, the virtual and the material, presence and absence, flow and stasis, into a single ontological plane upon which location—a place on the map—has come to be relationally and topologically defined. Grasping the implications of such a definition of place is not easy, given the grip of cartographic legacy measuring location on the basis of geographical distance and territorial jurisdiction.' (Amin, 2007, p. 103)

Introduction

The above quotation is indicative of a 'thinking space relationally' approach to human geography and the social sciences more broadly. This brand was coined with the publishing of the 2004 Vega Symposium, which was a collection of papers by leading advocates of relation space in human geography (see *Geografiska Annaler* 2004). This approach to social science 'defies easy summarizing' (Amin, 2007, p. 103) and for its advocates, space has to be seen as unbounded and formed through imbroglios of flows and networks. Relational space, then, is continuously being made, unmade and remade by the incessant shuffling of heterogeneous relations: its potential can never be contained

* This article is an abridged version of a much longer review of relational space, and its extension as 'phase space', published in *Progress in Human Geography* (Jones, 2009). I am grateful to the reviewers and editors of this special issue for specific comments on this article for a legal studies audience. The article has also benefited much from collaborations, on related themes, with Gordon MacLeod. I would also like to acknowledge the funding and support for the Wales Institute of Social and Economic Research, Data and Methods. WISERD is jointly funded by the Welsh Assembly Government (HEFCW) and the UK Economic and Social Research Council (ESRC) to draw together and build upon the existing expertise in quantitative and qualitative research methods and methodologies at Aberystwyth, Bangor, Cardiff, Glamorgan and Swansea Universities (see www.wiserd.ac.uk).

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

and its exuberance can never be quelled. What becomes of space always and necessarily eludes the grasp of every will to order.

This paper discusses the importance of this 'relational turn', drawing mostly on examples taken from human geography. It applauds 'thinking space relationally' but airs caution over the implication of its theorisations. It takes issue not with relational space per se, but with how 'relational' is itself theorised. I also question the normative political and policy assumptions made by relationalists. I discuss actually existing political/policy contexts, the geometry of the state, differential social power relations, notions of territory and how all this can be enlivened.

The context of 'thinking space relationally'

The narrative that I present in this section is the step-by-step shift in the conceptualisation of space from 'absolute' to 'relative', then 'relational' conditions. This is a large task to undertake in the limited space available. The absolute (or substantivalist) versus relative debate is well known – it forms the backdrop to geography, aspects of the social sciences dealing with space more broadly, and its evolution over the last century (compare Harvey, 1969; Jones, 2009; Sack, 1980; Sheppard, 2006; Smith, 1984; 2004). Both approaches are variously concerned with topography. Absolute space is a condition in which space exists independently of any object(s) or relations: space is a discrete and autonomous *container*. Approaches such as Kant's transcendental idealism see space as 'a kind of framework for things and events: something like a system of pigeon holes, or a filing system for observations' (Popper, 1963, p. 179, cited in Harvey, 1969, p. 207). The job of geography here is to fill containers or pigeonholes with information, through techniques such as cartography and by prescribing categories for data collection and analysis. Callon and Law call this the 'romantic' approach, which assumes things in space have analytical fixity and complete affinity to their spatial reference point such that 'distance and scale can be determined without ambiguity: we know who is big and what is small, and who is close to whom' (2004, p. 3). Pre-1950s regional geography concerns with delimiting natural, climatic and later human regions best illustrates this. The preoccupation with environmental determinism and agency-free landscapes, though, highlights the weaknesses of this approach (see Jones, 2009).

Pitched against this is relative space, which rests on two assumptions. First, space can be defined only in relation to the object(s) and/or processes being considered in space and time. Second, there is no defined or fixed relationship for locating things under consideration: a non-Euclidean perspective is adopted, where distance/relationships are relative and change over time and across space. Space, and also time, have 'positional quality' as Jammer (1954) puts it. In turn, the traditional three dimensions of space, plus a separate one for time, are merged into a single unified 'spacetime', as Einstein puts it, with four dimensions. A point in space thus becomes an event or moment in spacetime. In geography, it was in this vein that Nystuen advocated a new 'geographical point of view' based on five key concepts: '*direction* or *orientation*, *distance*, and *connection* or *relative position*' (Nystuen, 1963, p. 384, emphasis original). The followers of regional science pushed this a stage further by making direct links with Einstein's general relativity theory. Isard argued that regional science 'must adopt a four-dimensional space-time continuum and speak of world lines (world helices, etc.) of behaving units and institutions [and] probe deeply the gravitational interaction among social masses, as well as the impact of accelerating masses upon other masses' (1972, p. 151). Gregory has aptly noted this period as being one of undertaking 'social physics in a spatial context' (1978, p. 73).

As with absolute space, relative approaches to space have had limits, which partially explain why human geography is adopting a 'thinking space relationally' approach. First, drawing on Grünbaum's (1963, p. 421) 'intrinsic metrical amorphousness of space' thesis, Harvey predicted that the 'empirical problem' that relativistic geography would ultimately face was to select a geometry to deal with the 'complexities of fields and forces', i.e. what is the source and structure of spacetime and what are the bounded or 'boundary conditions' that permit certain activities and

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

relations to take place (Harvey 1969, pp. 196, 209). In philosophy, Whitehead's writings tackled this conundrum by using process thought to capture the roles of 'events as active conditions in the ingression of sense-objects into nature' (1920, p. 158). He continued:

> '[I]t is in the progress of this investigation that scientific objects emerge. They embody those aspects of the character of the situations of the physical objects which are most permanent and are expressible without reference to a multiple relation including a percipient event. Their relations to each other are also characterised by a certain simplicity and uniformity.'
>
> (Whitehead, 1920, p. 158; cf. DeLanda, 2006)

In this context, relational thinking is a paradigmatic departure from the concerns of absolute and relative space, because it dissolves the boundaries between objects and space, and rejects forms of spatial totality. Space does not exist as an entity in and of itself, over and above material objects and their spatiotemporal relations and extensions. In short, objects *are* space, space *is* objects, and moreover objects can be understood *only* in relation to other objects – with all this being a perpetual becoming of heterogeneous networks and events that connect internal spatiotemporal relations (compare Dainton, 2001; Massey, 2005; Mol and Law, 1994). As Sklar puts it:

> '[I]nsofar as talk about spatiality is meaningful, the relationist alleges, it is talk about the spatial relations born to one another by the point material objects of the idealization. To view it as talk about "the structure of space itself" is to wallow in metaphysical confusion. Insofar as temporal talk is intelligible, it is talk about the temporal relations instantaneous events bear to one another. And insofar as spatiotemporal talk is meaningful, it is talk about the spatiotemporal relations born to one another by the ideal unextended and instantaneous concrete events that occupy the spacetime world on the substantival view. Properly speaking, the relata occupy the appropriate spacetimes only in the sense that they bear spatiotemporal relations to one another. Any other sense of "occupation" is absurd, for there is no spacetime itself to be occupied. Relations like being coincident spatially or being simultaneous temporally or having given invariant spatiotemporal interval between them are relations material points, events, or unextended events can have only to one another. They cannot have these relations to points of space, instants of time, or event locations in spacetime, for there are no such things over and above the material "occupants" of them. And certainly any talk of relations born to each other by points of spacetime itself is pure nonsense, for there are no such "points".' (1977, p. 168)

Relational thinking in spacetime philosophies originated with the work of Leibniz in non-Euclidean geometry and calculus, which critiqued (absolute) substantivalist theories for not analysing fluid dynamics, i.e. motion within and between objects, and for playing down the 'inner principles' of existence. In Shaw's discussions of Leibniz's *Monadology* (the text broadly covering the metaphysics of things) it is suggested that: 'One Monad is said to act upon another and thus to be more perfect when its state explains the state of the other. They are only *said* to act upon each other. In reality, each Monad unfolds its series of changes from its own inner principle, and in conformity with the development of every other Monad' (Shaw, 1954, p. 34, emphasis original). Elements of this thinking have been picked up and extended by Whitehead (see above) and in turn critiqued in the work of Russell (1937).

Relationalism, geography, and beyond

Before I discuss 'thinking space relationally' as a distinctive turn in the social sciences, I must acknowledge that its antecedents can be located in Harvey's work on spaces of historical materialism, the limited malleability of space thereafter, and later discussions on permanence and dialectics (see Harvey, 2006). And, outside geography, Dainton (2001) has clearly documented the various twists

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

and turns in how relational thinking has morphed, and we should always be wary of treating this body of thought as a homogenous concern. As Earman notes, 'there are almost as many versions of relationism as there are relationists' (1989, p. 12) and '[t]o defeat one tribe of relationists . . . is not to vanquish the whole nation' (Maudlin, 1993, p. 187).

In the 1990s with social constructionism and post-structuralism (compare Doel, 1999; Harari, 1979), and the displacement of topography with topological thinking and its notions of pleats and folds (see Deleuze, 1993; Deleuze and Guattari, 1983; 1988; Serres and Latour, 1995), more recent relational brands have become embedded in the social sciences and human geography through science and technology writings (Latour, 1988; 1993; Law and Mol, 2001), human/non-human–nature hybridities (Whatmore, 2002), accounts based in actor network theory (Hetherington and Law, 2000; Latour, 2005; Thrift, 1996; 2005; 2008), world-city networks and topologies (Smith, 2003a; 2003b), cities more generally (Amin and Thrift, 2002), research on mobile objects (Laurier and Philo, 2003), Bergson-inspired approaches to the nature of time (compare Deleuze, 1988; Massey, 2005; Prigogine, 1997), discussions on political subjectivities and identity (Mouffe, 1993; 1995), new theories of local and regional development (Amin, 2004a; 2004b; Storper, 1997), critiques of scale (Marston, Jones and Woodward, 2005; Jones, Woodward and Marston, 2007) . . . the list goes on. In short, the spatial project for relational thinkers is to replace topography and structure–agency dichotomies with a topological theory of space, place and politics as encountered, performed and fluid. For Latour (1988), this is 'infra-physics', which replaces systems of coordinates (Einstein, etc.) with 'activities' for 'framing' space. For Callon and Law, and following Deleuze (1993), this signifies a 'baroque' position in the social sciences, which insists: 'there is no distinction between the individual and his or her environment; that many, perhaps most, relations remain implicit; that entities are made out of a myriad of heterogeneous entities; that these in turn are made out of an infinity of other entities, and so on' (Callon and Law, 2004, p. 7).

'Thinking space relationally' is a hugely empowering perspective. It suggests that space and its orders are always open such that 'the local is an achievement in which a place is localised by other places and accepts "localisation" itself. But this means that no place is closed off' (Callon and Law, 2004, p. 6). Advocates suggest that the conditions of economic circulation, hyper mobility, time–space compression and cultural insignia warrant a completely new conceptualisation of space. For Thrift, '[s]pace is no longer seen as a nested hierarchy moving from "global" to "local". This *absurd scale-dependent notion* is replaced by the notion that what counts is connectivity' (2004, p. 59, emphasis added). This squares with writings in philosophy, where relationists 'only recognize the material bodies and the spatial relations between material [and] are committed to the *non*-existence of unoccupied places and regions' (Dainton, 2001, p. 143, emphasis original).

Relational thinking, the region and limits

Relational space, certainly that brand used in human geography, is heavily normative and it has been used to make arguments about an unbounded politics and a non-territorial form of policy-making and policy delivery. Applying this to 'the region' – one of the core concepts in human geography that relational approaches have sought forcefully to redefine, and more broadly an ongoing battleground for redefining the discipline (Jonas, 2006) – Massey and colleagues, for instance, propose that 'an adequate understanding of the region and its futures can only come through a conception of places as open, discontinuous, relational and internally diverse' (Allen, Massey and Cochrane, 1998, p. 143; see also Massey, 1994, pp. 152–55) and 'thinking "a region" in terms of social relations stretched out reveals, not an "area", but a complex and unbounded lattice of articulations' (Allen *et al.*, 1998, p. 65). Drawing on London – 'only because it came to mind first, not because it is any more relationally constituted than any other place' (Amin, 2004a, p. 34) – Amin adds that cities and regions should be seen as places '*without prescribed and proscribed boundaries*' (p. 34, emphasis original) and conceptualised as:

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

> '[N]odes that gather flow and juxtapose diversity, as places of overlapping—but not necessarily connected—relational networks, as perforated entities with connections that stretch far back in time and space, and resulting from all of this, as spatial formations of continuously changing composition, character, and reach.' (Amin, 2004a, p. 34)

Bringing both perspectives together, Amin, Massey and Thrift (2003) propose a 'relational grammar of politics' to challenge the contemporary state-driven territorial management practices of devolution and constitutional change (in the UK). This advocates: dispersing some of the political/policy forms and functions of capital/global cities into provincial regions by using mobile and travelling political performances; creating alliances between places/regions to foster 'external connectivity'; and nurturing a 'cosmopolitan regionalism' that replaces regional identities, and their deemed-to-be parochial senses of belonging (a 'politics of territorial confinement'), with a 'politics of local and translocal engagement'. This last is a distinctly non-territorial project because performing/performed politics takes place *in and across* territory, as opposed to being a politics *of* territory, and this harnesses an important *practice* of democracy in a relational world (Amin and Thrift, 2002; Massey, 2005).

As noted by Jones and MacLeod (2004; MacLeod and Jones, 2006; 2007), given that all territories are mutually constitutive and reflective of dynamic social, economic and political action (Paasi, 1996; 2003a; 2003b) the relational programme has considerable appeal. Moreover, given the prominence of global spaces and networks of flows, it is reasonable to claim that economic and cultural geographies will increasingly be imagined and performed in and through an intricate geometry of trans-border (though never placeless) networks (Amin, 2002; 2004a; 2004b). A relational approach to space and place, then, would seem a promising theoretical avenue to explore the contemporary mobile world and its circuits of commodities, people and ideas. Nonetheless, the advocates of 'thinking space relationally' seriously overstate their case. Despite the multiple potentials of space flagged in relational thinking, factors can constrain and structure space. All things considered, 'potential' does not necessarily become 'an actual' (see Messina and Rutherford, 2009). This needs to be considered more carefully by relational advocates, as do issues of connection.

First, while Massey (1994; 2007), Allen *et al.* (1998) and Amin (2004a) present a convincing case of London/the southeast as a region of relational topologies vis-à-vis various maps of transregional and transnational *economic* flows and interchange, this is only part of this region's 'story', and of a unique (English) region at that, given its long-established international networks. Other regions and places for that matter might lend their weight to different theoretical perspectives and also perform more conventional territory-based political, economic and cultural strategies – a point conceded in later work by Allen and Cochrane (2007). The obvious danger of translating uniqueness into one-region-tells-all scenarios is certainly an issue for relational thinkers to critically consider.

Second, Cochrane points out that relational thinking implies openness that often belies the lived-experience of many. Contextual forces within advanced capitalism (such as class, race and gender) are considered important for framing and allowing certain possibilities and opportunities to exist (Cochrane, 2003). To ignore this runs the risk of lapsing into spatial voluntarism. In economic geography, Allen makes similar arguments, drawing our attention to the importance of power relations and actor-specific practices in the making of relational economic spaces (Allen, 2004).

Concerns with the spatial relations of permanence (material and discursive) follow from this, concerns with which relational thinkers seem uncomfortable. Work on regions and identity, for instance, has pointed out that many everyday realpolitik acts of regionalisation and/or regionalism – as, for instance, in state forces classifying a region as a 'problem' or local activists campaigning for devolved government and cultural rights – often distinguish a pre-existing or

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

aspirant *spatial scale* or territorially articulated space of dependence through which to conduct their actually existing politics of engagement. In other words, when performing their practical politics, agents imagine and identify a discrete, bounded space characterised by a shared understanding of the opportunities or problems that are motivating the very nature of political action (Jones and MacLeod, 2004; MacLeod and Jones, 2007; also Tomaney, 2007). However, for Amin we should *not* assume:

> '[T]hat there is a defined geographical territory out there over which local actors can have effective control over and can manage as a social and political space. In a relationally constituted modern world in which it has become normal to conduct business—economic, cultural, political—through everyday trans-territorial organization and flow, local advocacy . . . must be increasingly about *exercising nodal power and aligning networks* at large in one's own interest, *rather than about exercising territorial power . . . There is no definable regional territory to rule over.*'
>
> (2004a, p. 36, emphasis added)

This statement does not pay sufficient attention to how regions are being constructed and mobilised in and through territorially defined political, socioeconomic and cultural strategies. On this, much of the political challenge to devolution prevailing across Europe and elsewhere is being practised and performed through an avowedly territorial narrative and scalar ontology (Jones, 2004; Paasi, 1996; 2002a; Painter, 2008): albeit often enacted through topologically heterogeneous transregional and cross-border networks of 'fluidity' and circulation. An example of this is the approach taken by the European Commission to regions, which are perceived to be 'the basis for Europe's cultural wealth and a point of identification for the citizens. [Regions] are a source of economic growth and social welfare' (Hüber, 2008, p. 1). The European regional map of various territorial and territorialised units, which is used to deliver Directorate General funded Regional Policy, is being continually produced and reproduced through stretched-out and heterogeneous social and political territorial relations involving actors in individual demarcated territorial spaces and also their networked and relational representatives in places such as Brussels, Strasbourg and Luxembourg (see Keating, 1998).

Contrary to the beliefs of relational approaches to space, then, mobility and fluidity should not be seen as standing in opposition to territories and we should, therefore, *not* be forced to adopt a 'networks versus territories' scenario. On the one hand, networks should not be seen as non-spatial and without 'geographical anchors' – a much forgotten point made by Haggett and Chorley (1969) – and on the other hand, territories and scales should not be viewed as closed and static (Bulkeley, 2005; Dicken, Kelly, Olds and Yeung, 2001; Hudson, 2007; Jessop, Brenner and Jones, 2008; Leitner, Pavlik and Sheppard, 2002; 2008; Leitner and Miller, 2007; MacLeod and Jones, 2007).

This behoves us to make analytical distinctions between 'territory' (appropriated enacted space), 'territoriality' (the sum of relations between subjects therein) and 'territorialisation' (the process through which these relations are established) – see Raffestein (1986, cited in Philo and Södertström, 2004). Relational thinkers appear to create a crude caricature, whereby all non-relational thinking is conveniently displaced into notions of static space and deemed to omit 'much of the topology of economic circulation and network folding' that is characteristic of contemporary capitalism (Amin, 2002, p. 395). This *non-territorial trap* (cf. Agnew, 1994) plays down the fact that territories are 'not frozen frameworks where social life occurs. Rather, they are made, given meanings, and destroyed in social and individual action' (Paasi, 2003b, p. 110). Furthermore, territorialisation involving social and political action is being constantly articulated to form conic geometries, or what Peterson (1988) calls 'topologia'? The question here becomes how far territorialised forms of political power can be folded or bent without losing identity. Relational thinking rarely questions whether 'topology' – a concept from mathematics that describes the geometry of relations whose qualitative structure is

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

robust to various kinds of transformation or 'folding' – has certain properties that ensure that its relational constituents and coordinates return to their spatial form, thus limiting the open-endedness inferred by geographers (on this, see Harvey, 1969; Peterson, 1988; Stewart, 1975). The rare exception to this is work of Whatmore – who posits relationally that territory and its governance are in practice 'plastic achievements' and research needs to 'focus attention on the tangle of socio-material agents and frictional alignments in which it is suspended and to recognise that they harbour other possibilities' (Whatmore, 2002, p. 87).

Political geometries of emergence

This paper has endeavoured to give an overview of what it means to 'think space relationally'. This approach has its strengths and weakness, and relational space has to address the critique of Dainton (2001, pp. 140–44; see also Harrison, 2006; Sunley, 2008) if it is to transform the social sciences. Dainton claims that five areas need to be addressed in future research on relational space, which are:

(1) What are the relations in question? A distinction needs to be made here between relations and relational properties.
(2) How exactly should we think of them, i.e. what are the relational properties for existence in spacetime?
(3) What is it, exactly, that they relate? The answer to this, of course, is material objects, but which objects are relationists talking about, and what forces govern their existence through internal *and* external spatial relations/extensions? Not engaging in this results in 'the connection problem' (Dainton, 2001, p. 143): that where it becomes impossible to distinguish between necessary and contingent spatial relations, such that all objects are *necessarily* spatially related – the everything is connected thesis – and, as Harvey reminds us, the 'reduction of everything to fluxes and flows, and the consequent emphasis upon the transitoriness of all forms and positions has its limits' and says nothing about nothing (Harvey, 1996, p. 7). The thinking behind this statement and the search for an alternative can be further spelled out as:

> '[I]n addition to providing an explanation of the *constraints* on spatially related things, such an account must provide some explanation of the distinctive ways that such things are *connected*' (Dainton, 2001, p. 138, emphasis original)

(4) Can and how do we distinguish between different states of motion, i.e. acceleration and fixity, and are all relational things equally mobile?

These four questions get to the concern that 'it must be by virtue of some *structural features* of the world that material objects, were they present, would enter into *certain patterns of relations and not others*' (Malament, 1976, p. 315, emphasis added). Pushing this further, for Dainton (2001, p. 197), relationism needs to 'embrace a richer collection of spatiotemporal relations' and also consider 'inertial paths', i.e. conceptualise forces that restrict, constrain, contain and connect the mobility of relational things. Writing on Leibniz, Hacking notes that: '[s]ubstances are bundles of attributes, but not all attributes are substances. Only active principles of unity will do' (Hacking, 1972, p. 151). Harvey's critique of Leibniz's 'windowless' world and Whitehead's (1978) process philosophy is also highly relevant here: it is suggested that there should not be 'barrier[s] to construing things and entities as "permanences" or even relatively autonomous entities provided we recognize how those things and entities are constituted, sustained and ultimately dissolved in flows and how all entities are relationally defined with respect to others' (Harvey, 1996. p. 73). Last, Bhaskar's skilful writings on critical realism also apply.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

> '[I]n working towards a relational conception of collectivities we need to understand any given collectivity both in terms of its relationships with other collectivities (and in particular those in terms of which it is oppositionally defined or defines itself) and in terms of its international relationships.' (Bhaskar, 1989, p. 8)

(5) Two readings of relational space exist, the *realist* approach and the *ideal* approach, and these are frequently conflated by those working outside philosophy, which can lead to problems of translation. For *realist relationists*, true statements about space are made true by *facts about material bodies* and the way they are related, which can involve detailed and diverse empirical observations and abstractions from reality. By contrast, for *idealist relationists*, true statements about space are made true by *facts about human minds* and/or patterns of sensory experience. This captures how we believe things could and should be, often based on more normative, abstract and selective experiences. Based on selective, and at times without, empirical connections, the 'thinking space relationally approach' often falls into the latter category: it lacks a widely applicable and observable material basis.

Addressing all this is a serious challenge. A heightened appreciation of time and bringing this more centrally into relational thinking is one way forward. With the exception of Massey's (2005) recent writings on the elusiveness of place, it is difficult to trace any *temporal depth*, or what Smith (1990, p. 160) calls 'deep space', in relational approaches to space. Current accounts on 'thinking space relationally' in many ways resemble Abbott's (1952) 'flatland' – a flat and timeless plane, which is be contrasted with a multiple dimensional 'spaceland' where time gives space 'extra height' – because their open-ended networks, events, encounters and fluids appear to operate in a spatiotemporal vacuum, when it is impossible to picture empty space and empty time (compare Dainton, 2001; Earman, 1989; Field, 1980; Manning, 1960). Amin *et al.* (2003), for instance, have *no time* for locally rooted territorial identities that are often embedded in the consciousness of inhabitants, and instead support 'cosmopolitan regionalism' with its open-ended and timeless politics of connection and encounter as preferred political and cultural strategy. Cosmopolitan things, though, can knock up against each other in all kinds of interesting and networked ways, be sticky, gel and get anchored or 'moored' (Urry, 2003, p. 49) through power, political strategy and acts of social resistance. Relational entities are thus not always hyper-mobile. An embedded perspective, which after Field (1980, pp. 154–55) we might want to call the 'space-time point' dynamic, is fundamental to the juxtaposition and order of things in/as space (cf. Crang, 2005; Massey, 2005).

All this, of course, has further implications for the normative brand of relational thinking alluded to above in my discussion on regions. Thinking space in a connected relational manner, which is what I have argued in my critique, opens up a field of *political geometry*, whereby researchers can track multifarious spatial synchronisations and when these are in synch, or what Golubitsky and Stewart (2000) term the 'symmetry perspective' when referring to the behaviour of complex systems, they can be institutionalised as contiguous and symmetrical or territorial shapes (cf. Painter, 2008). Pushing this point further, although I am sympathetic but cautious of notions that '[c]onceptualising space as open, multiple and relational, unfinished and always becoming, is a prerequisite for history to be open and thus a prerequisite, too, for the possibility of politics' (Massey, 2005, p. 59), there *may* be certain circumstances in which, as an object of analysis, practical and bounded spaces that have been institutionalised through particular struggles and become identified as discrete territories in the spheres of economics, politics and culture, *matter* (see Hudson, 2007; MacLeod and Jones, 2007). My take on relational space, then, is also sensitive to cross-border complexities and tensions, strategies and tactics, in its recognition of the unfolding, dynamic and overlapping nature of space. Rather than compete for mobile economic dividends in an increasing neoliberal context, by focusing on territories, spaces *and* flows, my perspective provides a basis for articulating collaboration and coherence.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

On a related point, by momentarily freezing spacetime, my connect reading of relational space asks questions about what type of economic development is actually taking place, exploring at the same time *which* constellations of forces are energising this. Martin and Sunley (2007) have been exploring similar issues in recent work on the interfaces between complexity thinking and evolutionary economic geography. My relational space is the active product of reciprocal relationships between economic behaviour, the politics of representation and identity, state power geometries, and the sedimentation of these practices in spacetime. In turn, coalition building and its politics are active and ongoing processes – rich in political strategy, territorial awareness and cultural expression – which may allow activists and policy-makers to actually uncover behaviour in relation to the very formation of those interdependent conventions and constellations that are always being talked about within 'leading-edge' economies (Scott and Storpe, 2003).

My critique of relational space could provide a way of *tracing* the polymorphic organisation of sociospatial relations expressed in the work of Jessop *et al.* (2008) and Leitner *et al.* (2008). The latter propose a multidimensional framework for studying contentious politics with scale, place, positionality, networking and mobility shaping each other and in turn influencing the trajectory of politics. Last, connected relational space is a way of taking forward the notion of 'multitude politics', found in the work of Hardt and Negri (2004; 2009). These authors are striving for an 'altermodernity' politics of connection and 'left assemblage' (Tampio, 2009), whereby the many spaces of social movements can be joined up and their energy channelled in a more sustainable manner than has previously been the case, so that political goals can be realised. Watch this space . . .

References

ABBOTT, E. A. (1952) *Flatland: A Romance of Many Dimensions*. New York: Dover.

AGNEW, J. (1994) 'The Territorial Trap: The Geographic Assumptions of International Relations Theory', *Review of International Political Economy* 1: 53–80.

ALLEN, J. (2004) 'The Whereabouts of Power: Politics, Government and Space', *Geografiska Annaler: Series B* 86, 19–32.

ALLEN, J. and COCHRANE, A. (2007) 'Beyond the Territorial Fix: Regional Assemblages, Politics and Power', *Regional Studies* 41: 1161–1175.

ALLEN, J., MASSEY, D. and COCHRANE, A. (1998) *Rethinking the Region*. London: Routledge.

AMIN, A. (2002) 'Spatialities of Globalization', *Environment and Planning A* 34: 385–399.

AMIN, A. (2004a) 'Regions Unbound: Towards a New Politics of Place', *Geografiska Annaler: Series B* 86: 33–44.

AMIN, A. (2004b) 'Regulating Economic Globalisation', *Transactions of the Institute of British Geographers* 29, 217–233.

AMIN, A. (2007) 'Re-thinking the Urban Social', *City* 11: 100–114.

AMIN, A., MASSEY, D. and THRIFT, N. (2003) *Decentering the National: A Radical Approach to Regional Inequality*. London: Catalyst.

AMIN, A. and THRIFT, N. (2002) *Cities: Reimagining the Urban*. Cambridge: Polity.

BHASKAR, R. (1989) *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy*. London: Verso.

BULKELEY, H. (2005) 'Reconfiguring Environmental Governance: Towards a Politics of Scales and Networks', *Political Geography* 24: 875–902.

CALLON, M. and LAW, J. (2004) 'Guest Editorial', *Environment and Planning D: Society and Space* 22: 3–11.

COCHRANE, A. (2003) 'The New Urban Policy: Towards Empowerment or Incorporation? The Practice of Urban Policy', in R. Imrie and M. Raco (eds), *Urban Renaissance? New Labour, Community and Urban Policy*. Bristol: Policy Press, 223–34.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

CRANG, M. (2005) 'Time: Space', in P. Cloke and R. Johnston (eds), *Spaces of Geographical Thought*, London: Sage, 199–217.
DAINTON, B. (2001) *Time and Space*. Chesham: Acumen.
DELANDA, M. (2006) *A New Philosophy of Society: Assemblage Theory and Social Complexity*. London: Continuum.
DELEUZE, G. (1988) *Bergsonism*. New York: Zone Books.
DELEUZE, G. (1993) *The Fold: Leibniz and the Baroque*. Minneapolis: University of Minnesota Press.
DELEUZE, G. and GUATTARI, F. (1983) *On the Line*. New York: Semiotext(e).
DELEUZE, G. and GUATTARI, F. (1988) *A Thousand Plateaus: Capitalism and Schizophrenia*. London: Athlone Press.
DICKEN, P., KELLY, P. F., OLDS, K. and YEUNG, H.W.-C. (2001) 'Chains and Networks, Territories and Scales: Towards a Relational Framework for Analysing the Global Economy', *Global Networks* 1: 89–112.
DOEL, M. (1999) *Poststructuralist Geographies: The Diabolical Art of Spatial Science*. Lanham: Rowman & Littlefield.
EARMAN, J. (1989) *World Enough and Space-Time: Absolute Versus Relational Theories of Space and Time*. Cambridge, MA: MIT Press.
FIELD, H. (1980) *Science Without Numbers*. Princeton, NJ: Princeton University Press.
GEOGRAFISKA ANNALER (2004) 'The Political Challenge of Relational Space: The Vega Symposium', *Geografiska Annaler: Series B* 86: 3–78.
GOLUBITSKY, M. and STEWART, I. (2000) *The Symmetry Perspective: From Equilibrium to Chaos in Phase Space and Physical Space*. Berlin: Birhäuser Verlag.
GREGORY, D. (1978) *Ideology, Science and Human Geography*. London: Hutchinson.
GRÜNBAUM, A. (1963) *Philosophical Problems of Space and Time*. New York: Knopf.
HACKING, I. (1972) 'Individual Substance', in H. G. Frankfurt (ed.), *Leibniz: A Collection of Critical Essays*. New York: Anchor Books, 137–53.
HAGGETT, P. and CHORLEY, R. J. (1969) *Network Analysis in Geography*. London: Arnold.
HARARI, J. V. (eds) (1979) *Textual Strategies: Perspectives in Post-Structuralist Criticism*. London: Methuen.
HARDT, A. and NEGRI, M. (2004) *Multitude: War and Democracy in an Age of Empire*. New York: Penguin.
HARDT, A. and NEGRI, M. (2009) *Commonwealth*. Cambridge, MA: Harvard University Press.
HARRISON, P. (2006) '*How shall I say it* . . . ? Relating the nonrelational', *Environment and Planning A* 39: 590–608.
HARVEY, D. (1969) *Explanation in Geography*. London: Arnold.
HARVEY, D. (1996) *Justice, Nature and Geography of Difference*. Oxford: Blackwell.
HARVEY, D. (2006) 'Space as a Keyword', in N. Castree and D. Gregory (eds), *David Harvey: A Critical Reader*. Oxford: Blackwell.
HETHERINGTON, K. and LAW, J. (2000) 'After Networks', *Environment and Planning D: Society and Space* 18: 127–132.
HÜBER, D. (2008) *Working for Regions: EU Regional Policy 2007–2013*. Brussels: European Commission.
HUDSON, R. (2007) 'Regions and Regional Uneven Development Forever? Some Reflective Comments upon Theory and Practice', *Regional Studies* 41: 1149–1160.
ISARD, W. (1972) 'Why is General Relativity Theory Relevant to Regional and Other Social Sciences', in Funk R. (ed.), *Recent Developments in Regional Science*. London: Pion, 150–53.
JAMMER, M. (1954) *Concepts of Space*. New York: Dover.
JESSOP, B., BRENNER, N. and JONES, M. (2008) 'Theorizing Socio-spatial Relations', *Environment and Planning D: Society and Space* 26, 389–401.
JONAS, A. E. G. (2006) 'Pro Scale: Reflections on the "Scale Debate" in Human Geography', *Transactions of the Institute of British Geographers* 31: 399–406.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

JONES III, J. P., WOODWARD K. and MARSTON S. (2007) 'Situating Flatness', *Transactions of the Institute of British Geographers* 32: 264–276.

JONES, M. (2004) 'Social Justice and the Region: Grassroots Regional Movements and the "English Question"', *Space and Polity* 8: 157–189.

JONES, M. (2009) 'Phase Space: Geography, Relational Thinking, and Beyond', *Progress in Human Geography* 33: 487–506.

JONES, M. and MACLEOD, G. (2004) 'Regional Spaces, Spaces of Regionalism: Territory, Insurgent Politics and the English Question', *Transactions of the Institute of British Geographers* 29: 433–452.

KEATING, M. (1998) *The New Regionalism in Western Europe: Territorial Restructuring and Political Change*. Cheltenham: Edward Elgar.

LATOUR, B. (1988) 'A Relativistic Account of Eistein's Relativity', *Social Studies of Science* 18: 3–44.

LATOUR, B. (1993) *We Have Never Been Modern*. Brighton: Harvester Wheatsheaf.

LATOUR, B. (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

LAURIER, E. and PHILO, C. (2003) 'The Region in the Boot: Mobilising Lone Subjects and Multiple Objects', *Environment and Planning D: Society and Space* 21: 85–106.

LAW, J. and MOL, A. (2001) 'Situating Technoscience: An Inquiry into Spatialities', *Environment and Planning D: Society and Space* 19: 609–621.

LEITNER, H. and MILLER, B. (2007) 'Scale and the Limitations of Ontological Debate: A Commentary on Marstib, Jones and Woodward', *Transactions of the Institute of British Geographers* 32: 116–125.

LEITNER, H., PAVLIK, C. and SHEPPARD, E. (2002) 'Networks, Governance, and the Politics of Scale: Inter-urban Networks and the European Union', in A. Herod and M. W. Wright (eds), *Geographies of Power: Placing Scale*. Oxford: Blackwell, 274–303.

LEITNER, H., SHEPPARD, E. and SZIARTO, K. M. (2008) 'The Spatialities of Contentious Politics', *Transactions of the Institute of British Geographers* 33: 157–172.

MACLEOD, G. and JONES, M. (2006) 'Mapping the Geographies of UK Devolution: Institutional Legacies, Territorial Fixes, Network Topologies', in M. Tewdwr-Jones and P. Allmendinge (eds), *Territory, Identity and Space: Spatial Governance in a Fragmented Nation*. London: Routledge, 335–52.

MACLEOD, G. and JONES, M. (2007) 'Territorial, Scalar, Networked, Connected: In What Sense a "Regional World"?', *Regional Studies* 41: 1177–1191.

MALAMENT, D. (1976) 'Space, Time and Spacetime', *The Journal of Philosophy* 73: 306–323.

Manning, H. P. (ed.) (1960) *The Fourth Dimension Simply Explained*. (New York: Dover.

MARSTON, S. (2000) 'The Social Construction of Scale', *Progress in Human Geography* 24: 219–242.

MARSTON, S., JONES III, J.P. and WOODWARD, K. (2005) 'Human Geography Without Scale', *Transactions of the Institute of British Geographers* 30: 416–432.

MARTIN, R. and SUNLEY, P. (2007) 'Complexity Thinking and Evolutionary Economic Geography', *Journal of Economic Geography* 7: 573–601.

MASSEY, D. (1994) *Space, Place and Gender*. Cambridge: Polity.

MASSEY, D. (2005) *For Space*. London: Sage.

MASSEY, D. (2007) *World City*. Cambridge: Polity.

MAUDLIN, T. (1993) 'Buckets of Water and Waves of Space: Why Spacetime is Probably a Substance', *Philosophy of Science* 60: 183–203.

MESSINA, J. and RUTHERFORD, D. (2009) 'Leibniz on Compossibility', *Philosophy Compass* 4: 962–977.

MOL, A. and LAW, J. (1994) 'Regions, Networks and Fluids: Anaemia and Social Topology', *Social Studies of Science* 24: 641–671.

MOUFFE, C. (1993) *The Return of the Political*. London: Verso.

MOUFFE, C. (1995) 'Post-Marxism: Democracy and Identity', *Environment and Planning D: Society and Space* 13: 259–265.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

NYSTUEN, D. (1963) 'Identification of Some Fundamental Spatial Concepts', *Papers of the Michigan Academy of Science, Arts, and Letters* 48: 373–384.

PAASI, A. (1991) 'Deconstructing Regions: Notes on the Scales of Human Life', *Environment and Planning A* 23(2): 239–256.

PAASI, A. (1996) *Territories, Boundaries and Consciousness: The Changing Geographies of the Finnish–Russian Border*. Chichester: John Wiley.

PAASI, A. (2002a) 'Place and Region: Regional Worlds and Regional Words', *Progress in Human Geography* 26: 802–811.

PAASI, A. (2002b) 'Bounded Spaces in the Mobile Word: Deconstructing "Regional Identity"', *Tijdschrift voor Economische en Sociale Geografie* 93: 137–148.

PAASI, A. (2003a) 'Boundaries in a Globalizing World', in K. Anderson, M. Domosh, S. Pile and N. Thrift (eds), *Handbook of Cultural Geography*. London: Sage, 462–72.

PAASI, A. (2003b) 'A Companion to Political Geography', in J. Agnew, K. Mitchell and G. Toal (eds), *A Companion to Political Geography*. Oxford: Blackwell, 109–122.

PAINTER, J. (2008) 'Cartographic Anxiety and the Search for Regionality', *Environment and Planning A* 40: 342–361.

PETERSON, I. (1988) *The Mathematical Tourist: Snapshots in Modern Mathematics*. New York: W. H. Freeman and Company.

PHILO, C. and SÖDERTSTRÖM, O. (2004) 'Social Geography: Looking for Society in its Spaces', in G. Benko and U. Strohmayer (eds), *Human Geography for the 21st Century*. London: Arnold, 105–138.

POPPER, K. (1963) *Conjectures and Refutations*. London: Routledge and Kegan Paul.

PRIGOGINE, I. (1997) *The End of Certainty: Time, Chaos and the Laws of Nature*. London: Free Press.

RAFFESTEIN, C. (1986) 'Territorialité: concept ou paradigme de al géographie sociale?', *Geographica Helvetica* 41: 91–96.

RUSSELL, B. (1937) *The Philosophy of Leibniz*. London: George Allen and Unwin.

SACK, R. (1980) *Conceptions of Space in Social Thought: A Geographic Perspective*. Minneapolis, MN: University of Minnesota Press.

SCOTT, A. and STORPER, M. (2003) 'Regions, Globalization, Development', *Regional Studies* 37: 579–593.

SERRES, M. and LATOUR, B. (1995) *Conversations on Science, Culture, and Time*. Ann Arbor: University of Michigan Press.

SHAW, R. L. (1954) *Leibniz*. Harmondsworth: Penguin Books.

SHEPPARD, E. (2006) 'David Harvey and Dialectical Space-Time', in N. Castree and D. Gregory (eds), *David Harvey: A Critical Reader*. Oxford: Blackwell, 121–41.

SKLAR, L. (1977) *Space, Time, and Spacetime*. Berkeley: University of California Press.

SMITH, N. (1984) *Uneven Development: Nature, Capital, and the Production of Space*. Oxford: Blackwell.

SMITH, N. (1990) *Uneven Development: Nature, Capital and the Production of Space*, 2nd edn. Oxford: Blackwell.

SMITH, N. (1995) 'Remaking Scale: Competition and Cooperation in Prenational and Postnational Europe', in H. Eskelinen and F. Snickars (eds), *Competitive European Peripheries*. Berlin: Springer.

SMITH, N. (2004) 'Space and Substance in Geography', in P. Cloke P. Crang and M. Goodwin (eds), *Envisioning Human Geographies*. London: Arnold, 1–29.

SMITH, R. (2003a) 'World City Actor-Networks', *Progress in Human Geography* 27: 25–44.

SMITH, R. (2003b) 'World City Topologies', *Progress in Human Geography* 27: 561–582.

STEWART, I. (1975) *Concepts of Modern Mathematics*. Harmondsworth: Penguin.

STORPER, M. (1997) *The Regional World: Territorial Development in a Global Economy*. New York: Guilford.

SUNLEY, P. (2008) 'Relational Economic Geography: A Partial Understanding or a New Paradigm?', *Economic Geography* 84: 1–26.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press

TAMPIO, N. (2009) 'Assemblages and the Multitude: Deleuze, Hardt, Negri, and the Postmodern Left', *European Journal of Political Theory* 8: 383–400.
THRIFT, N. (1996) *Spatial Formations*. London: Sage.
THRIFT, N. (2004) 'Intensities of Feeling: Towards a Spatial Politics of Affect', *Geografiska Annaler: Series B* 86: 57–78.
THRIFT, N. (2005) *Knowing Capitalism*. London: Sage.
THRIFT, N. (2008) *Non-representational Theory: Space/Politics/Affect*. London: Routledge.
TOMANEY, J. (2007) 'Keep a Beat in the Dark: Narratives of Regional Identity in Basil Bunting's Briggflatts', *Environment and Planning D: Society and Space* 25: 355–375.
URRY, J. (2003) *Global Complexity*. Cambridge: Polity.
WHATMORE, S. (2002) *Hybrid Geographies*. London: Sage.
WHITEHEAD, A. N. (1920) *The Concept of Nature*. Cambridge: Cambridge University of Press.
WHITEHEAD, A. N. (1978) *Process and Reality*, corrected edn. New York: The Free Press.

https://doi.org/10.1017/S1744552310000145 Published online by Cambridge University Press