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Questioning the Theoretical Basis of Current Global-City Research: Structures, Networks and Actor-Networks

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Abstract

The article critiques the theoretical basis for researching global cities as structures, networks, and actor-networks. First, Sassen's and Taylor's concepts for global urban command are closely examined to reveal, amongst other things, their inherent contradiction. This revelation is of fundamental importance because current research is proceeding apace on the assumption of their compatibility. Second, we move beyond a critique of structures and networks to expose a problem with re-conceptualizing cities as actor-networks. We explain how actor-network theory runs aground on a 'plasma' and consequently suggest a route out of that theoretical impasse by arguing for a re-conceptualization of cities modelled on the work of Badiou. Finally, we demonstrate how such a conceptual shift provides the theoretical basis for a new type of urban analysis that examines how cities strive to prohibit and dissimulate their unbinding and destabilization as networks. Thus, the article advances a new model for global-urban studies about how cities as networks are fragile, ongoing achievements, not only because — as actor-network theory has taught us — they hold together only because they are held together, but because — as Badiou shows us — they are blind to what they cannot take into account: multiplicity and event as products of subtraction.

'[A]dventures of the empty square. . . .'
Deleuze (2004: 190)

Introduction

Global cities are a well-established and vibrant research topic, spawning a vast, multidisciplinary literature that is rapidly expanding (for a flavour of this literature, see Brenner and Keil, 2006). Much of that literature is founded on two key axioms. Firstly, the worldwide distribution of economic activity necessitates strategic control functions that are to be found in, and therefore can be used to define, so-called 'global cities.' This is best illustrated by Saskia Sassen's (1991; 2001a) global-city thesis and model, which has

effectively eclipsed John Friedmann's (1986) world-city hypothesis. Secondly, the exercise of strategic control by actors in these global cities is accomplished through their capacity to network. This is best illustrated by Peter Taylor's world-city network thesis (2004). Although both axioms are thematically similar and have some empirical support, they are mutually exclusive. Sassen's thesis focuses on the strategic control capacity of *individual* cities on a case-by-case basis, yet Taylor's thesis focuses on the strategic control capacity of the worldwide *network* of cities as a functional whole. Accordingly, this article highlights a fundamental contradiction between Sassen's global-city thesis and Taylor's world-city network thesis. Moreover, in analysing this contradiction, the article reveals a profound construct-validity problem at the heart of the global-city/world-city network paradigm advanced by Sassen and Taylor, namely that 'strategic control' cannot be squared with 'corporate service centres', 'inter-city/intra-firm office networks', or any such envisioning of the world economy as a totality that is structured from a distance.

After exposing the contradiction between, and the inherent theoretical deficiency within, Sassen's and Taylor's urban network theses, we subsequently move on to reveal the inconsistencies at the heart of two of the most influential conceptualizations of networks currently in vogue with those researching the globalization–city nexus: namely, Manuel Castells' (1996) neo-structuralism, and Bruno Latour's (2005) actor-network theory (ANT). Whilst we critique Castells' theorization in its entirety — showing it to be self-contradictory — we discuss how the limitation of Latour's ANT is that it only treats multiplicity and event as products of addition. To address this problem we examine Alain Badiou's conceptualization of multiplicity and event because, unlike Latour, his ontology is attuned to the power of subtraction in forcing the event.

Accordingly, the article is organized into three sections. The first section details Sassen's global-city thesis and Taylor's world-city network thesis before exposing both a fundamental problem within them, and an unquestionable contradiction between them. In the second section we move on from our critique of Sassen and Taylor — and so with structures, structural-networks, neo-Marxism and the envisioning of globalization as controlled from 'global cities' — to critique Castells' 'space of flows', to expose its inherent contradictions as a theory, and thus as a theoretical basis for global-city research. Consequently, it is argued that the re-conceptualization of cities through actor-network theory *as* networks, rather than *in* networks, is a highly significant advance for urban studies (e.g. see Smith, 2003a; 2003b; 2010; Farías and Bender, 2010). However, rather than simply championing the ideas of actor-network theory, we strive to make further theoretical progress by highlighting two crucial problems with Latour's actor-network theory, and the validity of his kind of conceptualization for theorizing the city as network: firstly, the inability to think the specificity of the event, which invariably becomes conflated with performance and practice; and secondly, the recourse to a metaphysics of presence in which association takes all, such that it becomes impossible to comprehend the power of subtraction and the force of the event. Thus, the final section of the article presents a new conceptual architecture to address these problems with actor-network theory. We draw upon the set-theoretical ontology of Badiou in order to re-think the 'being-multiple' of global cities, and offer a new, radical approach and empirical agenda for global-urban research.

The aporia of the global-city and world-city network theses

> '[T]he concept of the global city
> introduces a far stronger emphasis
> on strategic components of the
> global economy, and hence on
> questions of power.'
> Sassen (2001b: 80)

Ever since the 1991 publication of *The Global City*, Sassen's 'global-city thesis' has become accepted wisdom for most research on cities such as London, New York and Tokyo. Her starting point is that 'The territorial dispersal of economic activities, of which globalization is one form, contributes to the growth of centralized functions and operations' (Sassen, 1994: 119). She contends that with globalization there is a 'new logic for agglomeration and key conditions for the renewed centrality of cities in advanced economies' (*ibid.*). Accordingly, global cities have acquired a *strategic role* in the leadership and management of an increasingly complex and integrated global economy. 'It is not simply a matter of global coordination but one of the production of global control capacities' (Sassen, 2001a: 349).

Scholars before Sassen considered certain cities to be centres of corporate control because they housed the headquarters of multi-national corporations (MNCs). Sassen's argument is different because she assigns just a handful of those cities a new strategic role that is a product of them acting as the most important centres for financial markets, the production of financial innovations, and outsourced specialized business services (a.k.a. advanced producer services and commercial services). Specifically, she argues that what has driven the spatial concentration of 'global control functions' in global cities is not the relationship between corporations and business services, but the relationships amongst business services themselves. Business services increasingly gather together, not least because the individual contribution of any one business-service firm needs to be packaged alongside contributions from different but complementary business-service firms. It is this 'packaged complementarity' of geographically proximate business-service firms that embodies most directly Sassen's global-city thesis, and which marks her explicit shift away from Friedmann's emphasis on the spatial concentration of corporate headquarters in world cities. Furthermore, Sassen has added a new twist to the concept of agglomeration, whereby the proximal links between business services in cities such as London, New York and Tokyo are constituted for global rather than local reasons.

Sassen has arguably done most to define global cities as 'corporate service complexes' and 'centres of finance,' stressing 'the new dynamic of agglomeration' that compels business-service firms to congregate in a handful of locations (Sassen, 2001a: xx). However, what remains underdeveloped in her work is how the centres and complexes she identifies actually function to accomplish strategic control of distanciated economic activities on a global scale. Consequently, Taylor (initially with co-authors, see Beaverstock *et al.*, 1999; 2000a; 2000b; 2000c; 2003) has begun to address this neglected dimension in her work by turning attention away from the centres and complexes per se, towards how they interact with one another as a 'world-city network.'

Following Beaverstock *et al.* (2000a) in marrying Sassen's (2001a) thesis with Castells' (1996) concept of a 'space of flows,' Taylor has deployed the concept of 'inter-city networks' to describe and analyse in quantitative terms the interlocking *form* (Taylor, 2001; Taylor *et al.*, 2002) of the world-city network (Taylor, 2004). Given the need for strategic control of distanciated economic activity, which re-territorializes such functions onto the global scale, Taylor is unwavering in his insistence that what matters are not cities per se, but the relation between cities, which is primarily expressed through the globally dispersed intra-firm office networks of business-service firms. Sassen herself has increasingly come to echo such a sentiment in her development of a global-city model devised from her former global-city thesis: '[T]here is . . . no such entity as a single global city . . . ; the category "global city" only makes sense as a component of a global network of strategic sites' (Sassen, 2002: 31). What matters, then, is the worldwide *connectivity*, not the site-specific *agglomeration*, of business-service firms; and especially the quality and intensity of those connections. For example, New York and London may be said to be the most significant global cities not because they possess the most business-service firms, but because the New York and London offices of those firms tend to interact as the *dominant* partner with subordinate offices in other cities. In other

words, Taylor's contention is that if one investigates the structural relations of office networks, one will find ample evidence to suggest that some cities really have taken 'command' of the global economy.

Through the novel application of quantitative techniques drawn from spatial analysis, Taylor has correlated the worldwide distribution of the office networks of 100 business-service firms in six business-service sectors (accountancy, advertising, banking and finance, insurance, law and management consultancy) to identify the relative connectivity and structural relations of 316 cities, of which 34 express a preponderance of what he refers to as 'connectivity-through-dominance' over 'connectivity-through-subordination.' These 34 cities are the global economy's 'dominant cities.' When it comes to strategic command functions and the identification of 'global command centres,' however, Taylor limits his analysis to those 21 cities where business-service firms' headquarters are located. This reveals four levels of structural significance: (i) the 'mega' global command centres of London and New York, which are far more significant than; (ii) the 'major' global command centres of Chicago, Paris and Tokyo; (iii) the 'medium' global command centres of Amsterdam, Boston, Brussels, Frankfurt, Washington and Zurich; and (iv) the ten other European and North American cities that function as 'minor' global command centres. Of the 21 centres that Taylor identifies, ten are in Europe, ten are in North America, and only one is in Asia.

In a certain sense, Taylor simply runs with the *structural* implications of Sassen's essentially individualistic global-city thesis, while Sassen's (2001a: xxi) belated acknowledgement of 'transnational networks of cities' seems to accord with Taylor's emphasis on inter-city connectivity articulated through intra-firm office networks. However, the semblance of complementarity between Sassen's and Taylor's ideas masks a fundamental tension and a key construct-validity problem. One cannot infer interaction, coordination, command, control, domination and subordination from the mere existence of office networks, nor can one assume that office networks express a distribution of strategic control functions across cities. Similarly, the conceptual and empirical specification by both Sassen and Taylor of strategic control is inadequate. They have conflated strategic control with the 'servicing,' 'management,' 'co-ordination' and 'financing' of the global economy, and even routine business-service activities have been regarded as critically important 'top-level management and control functions' (a.k.a. global-city functions) that have been increasingly outsourced from corporate headquarters to specialized business-service firms. The capacity for business-service firms to accomplish truly strategic control of the global economy is not a self-evident outcome of corporate service complexes (i.e. spatial agglomeration) or inter-city/intra-firm office networks (i.e. the world-city network).

The problems, already implicit in the original global-city thesis, are brought out most tellingly in the revised edition of *The Global City* (Sassen, 2001a) — especially in the fifth organizing hypothesis of the 'global city model' (*ibid.*: xxi) and the epilogical response by Sassen to her critics — and in the introduction to *Global Networks–Linked Cities* (Sassen, 2002). On the one hand, Sassen suggests that '[G]lobal control and command functions . . . constitute a distinct corporate subsector . . . in each city . . . as part of a network that connects global cities across the globe through firms' affiliates or other representative offices, and through the specialized servicing and management of cross-border transactions' (Sassen, 2002: 8). On the other hand, Sassen also suggests that '[G]lobally integrated organizations require central places where the work of globalization gets done. . . . The mobility of capital . . . needs to be managed, serviced, co-ordinated. These tasks are often place-bound, . . . the anchoring of multiple cross-border dynamics in a network of places, prominent among which are cities, particularly global cities or those with global city functioning' (Sassen, 2002: 8–9). While Sassen has arguably been relatively successful in side-stepping the disconcerting implications of this ambivalent conceptualization which seeks to 'place' the work of strategic control 'on' global circuits, Taylor has

sought to overcome this ambivalence by literally going with the '*flow*' — to borrow a term most famously associated with Gilles Deleuze and Félix Guattari (1988) and Castells (1996). (We turn to the specific issue of the metaphor of flow below.) However, what has become lost in the whirligig of office networks (now extended by Taylor *et al.* to encompass over 300 cities), and general list-mania, is the specificity of 'strategic control' and 'command-and-control,' without which the very concept of the global city *and* the coherence of the world-city network fall apart.

Towards a new conceptual architecture

> 'One thing he was certain of was that a new conceptual framework was needed'.
>
> Houellebecq (2001: 267)

The confusion of existing work on global cities, exemplified by Sassen and Taylor, boils down to an inadequate envisioning of the world economy. Given the decomposition of structuralist conceptions of 'structure' over recent decades, and the failure of a host of theoretical endeavours to recoup this shattered totality, it is perhaps unsurprising that so many writers should have alighted upon a host of ill-conceived metaphors to carry their research programmes forward. 'Network,' 'flow,' and 'performance' are striking examples in this regard, and they will be familiar to everyone working in this field. Where there was once a conception of an economic *structure* that was more or less decentred and over-determined in the Althusserian (1977) sense, there are now a host of *networks* that are more or less durable, more or less commensurable, and more or less effective. For some, these networks constitute a 'space of flows' through which the entirety of the social formation is being rearticulated. Exemplifying this kind of thinking is Castells (1996: 411), for whom 'space is the material support of time-sharing social practices'. One thinks, for example, of those transportation infrastructures that help to synchronize the social formation: road networks, canal networks, rail networks, etc. The well-publicized twist that Castells gives to this conception is the observation that whilst these material supports were once 'assimilated to contiguity', they are now given over to discontinuity, seamlessly synchronizing distal locations, primarily through electronic communication. While we could raise innumerable objections to this way of thinking, for the purposes of the present discussion we will simply focus on the form that Castells attributes to this discontinuous support: flow.

'Flows are not just one element of the social organization', observes Castells (*ibid.*: 412), 'they are the expression of processes *dominating* our economic, political, and symbolic life'. In the wake of structure, then, Castells (1996) offers us the networked 'space of flows' as the dominant material support of the social formation. In such a space, power derives from the capacity to direct a myriad of flows. 'Some places are exchangers, communication hubs playing a role of coordination for the smooth interaction of all the elements integrated into the network', he suggests (*ibid.*: 413). 'Other places are the nodes of the network, that is the location of strategically important functions that build a series of locality-based activities and organizations around a key function in the network'. Given this neo-structuralist conceptualization, it is not surprising that Castells (*ibid.*: 415) should claim that '[T]he analysis of global cities provides the most direct illustration of the place-based orientation of the space of flows in nodes and hubs'.

As it stands, the metaphor of flow is unsatisfactory. While some writers have sought to refine its meaning and usage, preferring, for example, a mercurial rather than a watery specification (Clark, 2005), in the context of the present discussion it is sufficient to note two fatal flaws with the metaphor of flow. Firstly, having acknowledged the essential

intransitivity of space[1] — to borrow John Law's (2000) apt expression — Castells (2000: 14) needs to divest flow of its contiguous form: 'The space of flows refers to the technological and organizational possibility of organizing the simultaneity of social practices without geographical contiguity'. However, a non-contiguous flow, be it abstract or material, is self-evidently oxymoronic. Secondly, having declined structural causality, Castells needs to invest flow with causal efficacy. However, rather than regard flow as an erosive power in its own right (*cf.* Deleuze and Guattari, 1988), Castells (1996: 413) treats flow as an instrument of power, arguing that there is a 'network of flows whose architecture and content is determined by the powers that be in the world'. Not only does this neutralize the power ostensibly vested by him in a myriad of flows, it calls forth an exterior agency that exercises power through the space of flows. Hence Castells' (*ibid.*) insistence that 'The space of flows is not placeless, although its structural logic is'. In the hands of Castells, flows (and the spaces thereof) are deprived of their fluidity and divested of their agency. This externalization of power is endemic to both structuralist and neo-structuralist conceptions. Indeed, Sassen (1994: 97) provides a striking example of how her thinking matches Castells': 'At the limit we may see terrains of centrality that are disembodied, that lack any territorial correlate, that are in the electronically generated space we call cyberspace'.

For others, the decomposition of structure has precipitated a renewed interest in practice, performance, and enactment. Instead of locating agency in a supplementary dimension (e.g. infrastructures, powers that be, and terrains of centrality), such a disposition locates it within the eventfulness of 'a moment-ary world . . . which must be acted into' rather than within the functionalism of 'a contemplative world' that can be controlled and commanded from a distance (Thrift, 2000: 217). Whether it comes in the guise of actor-network theory, social studies of finance or cultural economy, the key move in this regard is an investment in immanence and multiplicity.

Latour (2005) provides one of the clearest expositions of this kind of thinking, three aspects of which stand in marked contrast to the work of Castells, Sassen and Taylor: contiguity, superficiality and translation. For Latour, power does not derive from an exteriority, but is an immanent effect of an association of heterogeneous elements, which Latour refers to as an actor-network: action is assembled. Latour's world is entirely composed of associations, such that existence — as a power to effect and to be effected, to borrow an apt Deleuzean formulation — is a function of attachment. Consequently, for Latour the world is configured through continuous association, and this principle prohibits social scientists from drawing upon supplementary dimensions that they have surreptitiously held in reserve, such as 'context,' 'structure,' 'infrastructure' or 'scale.' Hence the three key injunctions of actor-network theory: 'don't jump', since the sequence of entrained associations cannot be skipped, least of all by shifting scales or adding dimensions; 'keep everything flat', since every conceivable qualification (e.g. weak and strong, small and large, near and far, low and high, and ephemeral and durable) is a local effect of association and disassociation; and 'don't fill in the blanks', since there is nothing that could be set apart from the full constellation of associations (Latour, 2005: 190 and 246).

By emphasizing immanence and association, it should be clear why actor-network theory is incompatible with structuralism and neo-structuralism, both of which depend upon an exterior agency to occasion, command and control events (Smith, 2007a). This incompatibility is most apparent in the different conceptions of network. For Castells, Sassen and Taylor, the network of global cities is regarded as a combinatorial matrix of substitutable functionaries. Through the adventure of the empty square,

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1   The adoption of an intransitive conception of space (and time) marks a fundamental transition in socio-spatial analysis, which is sometimes rendered as a shift from topographical to topological thinking. Basically, the intransitive conception takes nothing for granted. It assumes that all spatial formations and spatial relations are constructed. Distance, location, dimension, size, and scale are accomplishments, and do not always take on consistency.

without which nothing would happen, structural relations determine the distribution of hubs, nodes, and command and control centres, all of which transmit forces that remain invariant as if the placeholders were faithful intermediaries. For Latour (2005: 107, original emphasis), by contrast, networks comprise heterogeneous associations that propagate '*transformations* manifested by the many unexpected *events* triggered in the other mediators that *follow* them along the line' (*cf.* the usage of 'rhizome' in Deleuze and Guattari, 1986; 1988). This is because agents are transformers rather than relays. Their actions *make* a difference. So, 'Instead of simply transporting effects without transforming them, each of the points in the [network] may become a bifurcation, an event, or the origin of a new translation' (Latour, 2005: 128). For structuralists, every occurrence repeats the structural relations. This is why the structure can be set apart from every occurrence, and why every occurrence has no purchase whatsoever on the structure. Where structures are dynamic, it is therefore important to appreciate that this dynamism is structural rather than evental. For actor-network theory, however, every occurrence is evental.

Now, the newfound emphasis on practice, performance and eventfulness has been especially fruitful in actor-network theory, social studies of finance and cultural economy (see e.g. Knorr Cetina *et al.*, 2000; 2004; Knorr Cetina and Bruegger, 2001; 2002a; 2002b; 2004; Schatzki *et al.*, 2001; Buenza and Stark, 2003; 2004; 2005; Zaloom, 2003; 2004; 2005; Farías and Bender, 2010). It would therefore be tempting to re-conceptualize global cities as actor-networks in Callon's and Latour's sense: as associations of heterogeneous materials and practices that enact a transformatory performance of enculturated economic activity (see Beaverstock and Doel, 2001; Beaverstock *et al.*, 2002; Doel and Hubbard, 2002; Smith, 2003a; 2003b; 2005; 2007a; 2007b; 2010). If cities can be said to matter, and some to matter more than others, this is not because of a structural–functionalist disposition that would accord such cities a privileged position, but because their degree of association expresses a heightened propensity to affect and to be affected. 'The more *attachments* it has, the more it exists' (Latour, 2005: 217, original emphasis). Association takes all, including dimensions and scales, quantification and qualification, and structures and events. 'As soon as we get out of some interaction, we should ignore the giant signs "toward Context" or "to Structure", a third dimension *in which* all the interactions should find a place', insists Latour (*ibid.*: 171). Instead, '[W]e should turn at a right angle' to follow another interaction. '[W]e have to try to keep the . . . domain completely *flat'*. Association traces out the whole of existence. Strictly speaking, once one has doggedly followed the labyrinthine trail of associations that compose an event, there should be nothing left to explain. Association is exhaustive. 'If a description remains in need of an explanation, it means that it is a bad description', cautions Latour (*ibid.*: 137).

Having alighted upon the power of continuous association, Callon and Latour entreat us to shift from an old-style empiricist fixation on ostensibly stable 'matters of fact' to a new-fangled empiricism engaged with evidently unstable 'matters of concern'. In practice, these forms of association reveal themselves to be '*more* risky, *more* costly, *more* debatable, *more* interesting, and *more* publicly relevant' (Latour, 2005: 115, original emphasis) because every act of association/disassociation potentially puts the entire constellation at stake. One thinks, for example, of Michel Callon's (1998) rendition of '*homo economicus*', Donald MacKenzie's (2001) account of the Black-Scholes option-pricing equation, and Caitlin Zaloom's (2003) description of the E-trader graphic user interface. The transformatory events occasioned by these examples cannot be accommodated within the adventures of the empty square. No set of structural relations in-forms their emplacement and trajectory within the world, least of all any kind of social or technological determinism. Their capacity to effect and to be effected is quite simply aleatory. Hence the necessity of following their mutability, *in situ* and *in practice*.

Structuralist and neo-structuralist conceptions of command and control require an exteriority from which 'the powers that be' can regard the totality of structured relations.

Given that there is nothing outside association, however, there can only ever be a simulacrum of exteriority. For Latour, this simulacrum is *added* to the set of heterogeneous associations. It is just one more site amongst others, and insofar as it claims to regard everything, it functions like a Panorama rather than a Panopticon.[2] In other words, the adventure of the empty square is played out within a space that closes itself off from the space of heterogeneous association. In stark contrast to the Panopticon and the Panorama, Latour coins the neologism Oligopticon to refer to those sites that re-present[3] their embedment within a multiplicity of associations. Consequently, command and control rooms, and centres of calculation, are neither all-seeing nor all-powerful. They are simply intensely connected, and their strength derives from their capacity to affect and to be affected by the multiplicity of associations. This is what allows for a mere assembly of heterogeneous materials to take on 'consistency' and become an assemblage and an actor-network.

Since existence is wholly accounted for by association, actor-network theory continues to be disturbed — both positively and negatively — by what Latour variously refers to as the 'in-between', 'space', 'plasma' and 'unformatted phenomena'. He is acutely aware that 'traceable connections . . . have always to be considered against a much vaster backdrop of discontinuities' (Latour, 2005: 245), and this is partly because every association is a bifurcation and may have been otherwise. According to Law (2004: 144), actor-network theory 'assumes out-thereness to be overwhelming, excessive, energetic, a set of undecided potentialities, and an ultimately undecidable flux'. This inordinate 'reserve' is important for many reasons, not least because Latour invests it with revolutionary potential (although it should not be confused with that other 'reserve army' he identifies, the so-called 'missing masses' of non-humans, who fully exist on account of their power to affect and to be affected within socio-technical actor-networks).[4] Yet this boundless 'reserve' cannot be accounted for — let alone described — by practice, performance or association. From this point on, actor-network theory irretrievably breaks down. Association may take all (including spatialization and temporalization), but it is merely a fraction — an infinitesimally small fraction — of what has been held in reserve. The whole of existence is a fragile skein of more or less precarious associations suspended in a vast 'plasma'. While actor-network theory exhausts itself tracking these associations, it has no purchase whatsoever on the 'plasma,' which is by definition inexistent, inapparent and untraceable.

Where should the conceptualization of global cities go from here? We suggest that global-city research needs to retrieve the notion of the event from its reduction to performance, practice and association. The limit that actor-network theory encounters in its remorseless trailing of associations is its inability to subtract. In so far as it is based on an ontology of association, actor-network theory knows only of addition through the extension of agency to all things. Specifically, if existence is entirely accounted for by association (a metaphysics of presence), and if there is nevertheless more to existence than these associations, then this 'excess' must be held in abeyance as a limitless and unpresentable reserve: plasma. (Latour repeatedly calls our attention to the impoverishment of the totality of associations in comparison to the superabundance of that which is suspended in reserve: 'The world is not a solid continent of facts sprinkled by a few lakes of uncertainties', he says, 'but a vast ocean of uncertainties speckled by

2 The Panorama was a nineteenth-century visual attraction that completely immersed spectators within a simulacrum of reality. The Panopticon was a prison layout formulated by Jeremy Bentham that enabled the guards to see all of the prisoners without themselves being seen. Latour's point is that the 'total view' is fabricated in a site cut off from the network of associations that it ostensibly re-presents.
3 In this context, 're-presentation' should register as both representation and repetition.
4 'To every action . . . you have to add an immense repertoire of missing *masses*. They are needed to balance the accounts, but they are *missing*. . . . [T]here exists a reserve, a reserve army, an immense territory — except it's neither a territory nor an army — for every formatted, localized, continuous, accountable action to be carried out in' (Latour, 2005: 245, original emphasis).

a few islands of calibrated and stabilized forms' (Latour, 2005: 245; *cf.* Serres, 1995).) Nick Lee and Steve Brown (1994) were therefore entirely mistaken in their influential claim that the illimitable associability of actor-network theory risked annihilating all vestiges of the Other. For, whilst association does indeed take all, the whole remains open. This is something that Annemarie Mol and John Law (1994) attempted to convey in their promotion of a fluid spatiality in which associations are indiscernible, incomplete and undecidable; a fluid space that is diametrically opposed to Castells' conception of a 'space of flows'. It should now be clear why this increasingly influential ontology of association is destined to fall short, and why we desperately need another way of engaging with global cities. In the next section we will argue that the subtractive ontology of Badiou offers a way to redress the shortfall of actor-network theory's associative ontology. Contrasting Latour and Badiou is especially instructive for global-city research since it will help clarify what the notions of 'association' and 'multiplicity' entail.

A new conceptual architecture

> '[W]hat we should devise is a strategy
> that can dispense with exteriority.'
> Lyotard (1978: 207)

Actor-network theory is not alone in its inability to engage with something other than addition. Extant accounts of global cities and the world-city network have invariably banked upon either the extraction of power so that it may command and control from a distance or the dissemination of power so that it may saturate and over-code the assemblage within which it circulates. The new conceptual architecture that we propose here takes a very different approach: *subtraction*.[5] 'It is not easy to subtract', warns Badiou. 'Sub-traction, that which draws under, is too often mixed with ex-traction, that which draws [out]' (Badiou, 2006: 105–6). Indeed, we are struck by the way in which actor-network theory oscillates between drawing out and drawing back, associating and disassociating, assembling and disassembling, formatting and un-formatting, et cetera, without ever broaching the illimitable. This is where Badiou may help.

Badiou, like Latour, argues that there is always a fully deployed situation — a multiplicity — that is stabilized and lent consistency on the basis of a 'founding' element that does not belong to the multiplicity. Yet unlike Latour, Badiou realizes that for an event to occur, it must be subtracted from the stabilization of a fully deployed situation. So, 'in a concrete situation we have . . . two terms: first, a world, a world situation — something where all things exist; and after that, an event, sometimes, an event — which is something which happens *for* this world, not *in* this world' (Badiou, 2005a: unpaginated). Badiou calls the 'place of taking place' the situation, and the 'place of subtraction' the evental site (*site événementiel*).[6] For the evental site to give rise to an event — by which Badiou means a singular occurrence that may shatter the order of things — there must be 'a sort of "fragility" peculiar to the site, which disposes it to be in some sense "wrested" from the situation' (Badiou, 2006: 101). By way of illustration, suffice to say that Jacques Derrida has 'wrested' innumerable

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5 When subtraction does figure in existing accounts it is invariably under the guise of exclusion or resistance. What we are engaging with is the *power* of subtraction (*cf.* Baudrillard, 1990; Doel and Clarke, 2007).
6 Badiou's English-language translators have coined the neologism 'evental' due to the inappropriateness of the word 'eventful'.

'fragile foundations' from their 'evental sites.' The limitations of both structuralism's and actor-network theory's conception of command and control within the world-city network should now be clear, since power is neither *added* to the multiplicity of associations as a supplementary dimension ($n + 1$), nor can it simply be *included* within the multiplicity as one site amongst others (n). Power must be *subtracted* from the multiplicity (n-1).

For Badiou (2003: 62), as for Derrida, 'An event is linked to the notion of the *undecidable*' — otherwise 'Its occurrence would be calculable within the situation', and it would therefore be a non-event, a sterile repetition of the same. 'As Mallarmé would put it, it is necessary that we not be in a predicament where nothing takes place but the place. For the place as such (or structure) gives us only repetition' (Badiou, 2006: 114).[7] MacKenzie (2001) and Michael Schrage (1999) offer wonderful examples of evental sites: the flaw in the division unit of Intel's Pentium Processor that could have precipitated a concatenation of catastrophic errors in the valuing of complex financial products, and the inadvertent transformation of business practices occasioned by programming a computer to perform accountancy recalculations. By wresting the founding element from a fully deployed situation, each event gives rise to an unfounded multiple that 'is intransitive to the place in which "it" comes' (Badiou, 2006: 103). A regard for events takes one away from the double bind of 'closed' actor-networks on the one hand, in which association takes all, and 'open,' plasma-like reserves on the other hand, from which all possible associations are illicitly withdrawn. For, as we have seen, an event is neither the forging of an association nor the belated arrival of what has been held in reserve.

Global cities are neither commanded and controlled by structural powers nor practiced and performed by actor-networks. They are multiplicities. Obviously, a multiplicity is not one.[8] It is a multiple of multiples, whose composition and decomposition can be perpetually reworked (Doel, 2001). '*The one* as such . . . is not. It is always the result of a count, the effect of a structure, because the presentative form in which all access to being is to be had is the multiple, as multiple of multiples . . . [T]he being-of-the-one is a retroactive fiction, and what is presented always remains a multiple' (Badiou, 2005b: 90–1, original emphasis). This is true of global cities and the world-city network. They exist as multiples of multiples, not as ones. There is no such thing as a global city or a world-city network.

Assuming that ontology is mathematics (since mathematics thinks pure multiplicity), Badiou draws upon axiomatic set theory to distinguish two fundamental ways of relating multiples: *belonging*, through which one multiple is counted as an element in the presentation of another (e.g. cities that are said to belong to the roster of global cities), and; *inclusion*, through which a multiple is treated as a sub-multiple (or sub-set) of another (e.g. cities included in the world-city network in so far as they express a 'connectivity-through-dominance' or a 'connectivity-through-subordination'). As a multiple of multiples, the situation has an immanent structure that counts each of its elements as one (i.e. each city is presented as a global city), but it also has a meta-structure — a state — through which the situation itself is re-counted as one (i.e. the set of global cities is re-presented as a world-city network). In order words, the presented multiples qua situation are re-presented as a state of the situation. 'A situation presents one-multiples; the state re-presents parts or compositions of those multiples' (Badiou, 2005b: 273). So, within global-city research, economic distanciation presents the one-multiples of 'global cities' qua multiples of advanced-producer-service firms, and this

7 Since actor-network theory lets association take all, it inadvertently participates in what Badiou refers to as 'evental revisionism'. It effectively declares that 'Nothing took place but the place, predicative descriptions are sufficient' (Badiou, 2006: 148).
8 Since 'pure multiplicity . . . cannot consist in and of itself, . . . ontology, if it exists, must be the theory of inconsistent multiplicities . . . shorn of every predicate other than its multiplicity' (Badiou, 2006: 43–4).

situation is re-presented in the state of a 'world-city network'. Badiou employs the axioms of set theory — specifically the theorem of the point of excess — to demonstrate that the excess of the re-presented state over the presented situation is both incalculable and errant: '*no multiple is capable of forming-a-one out of everything it includes*' (Badiou, 2005b: 85, original emphasis). Hence the fact that the world-city network exceeds absolutely the global cities that it re-presents, re-counts, and re-secures. The state of the situation always differs from the situation: the set of sub-sets (the representative multiplicity qua world-city network) is incommensurable with the set of elements (the presentative multiplicity *qua* global cities). This difference is aptly illustrated by the computer visualization of heterogeneous financial data on trading screens.[9] Self-evidently, the state of the situation as re-presented on those screens exceeds the situation that they re-count. The combination and permutation of data have unlimited potential. Moreover, as traders and computer programmers know only too well, value can only be extracted from the state of the situation, and not from the situation itself. There is nothing of value in an inconsistent multiplicity. (Indeed, there is only a situation to the extent that it is re-stated, since this doubling is what enables something to be counted retroactively as if it were one: e.g. *the* market, *the* world economy, *the* world-city network.) Nevertheless, the capacity of traders to extract value depends on their ability to exploit differences between the various *states* of the situation, since the situation is always re-presentable in innumerable ways. Each trader, each screen, and each program will re-count the situation differently. These differences provide the occasion for competitive advantage. For Sassen and Taylor, a similar state of excess characterizes the capacity of the world-city network to re-present and re-state the set of global cities. The power of the network is a function of the consistency that it is able to lend to those cities, firms, and activities that it re-presents in its state.

Now, just as Latour insists that an actor-network 'consists' through transformation rather than transmission, so too does Badiou: consistency is the 'forming-into-one' of the multiple; consistency is what is held together. He illustrates this with reference to the Marxist conception of the State, in which the latter's counting-for-one never represents the multiple of individuals (the true unity of the social bond), but re-presents the multiples of classes (the false totality of dissimulated social antagonism). '*[T]he State is not founded upon the social bond, which it would express, but rather upon un-binding, which it prohibits*' (Badiou, 2005b: 109, original emphasis). For when it comes to the state of the situation it is always a matter of seeking to thwart unbinding and inconsistency. This is analogous to what Taylor does when he re-presents the state of the world-city network by including global cities configured in terms of 'connectivity-through-dominance' and 'connectivity-through-subordination.' The network is held together.

While the power of the world-city network (the state) always exceeds that of the multiplicity of global cities (the situation), the network blinds itself to what it cannot take into account. Badiou (2005b: 174) refers to this excess as a singular multiplicity, 'upon which the state's metastructure has no hold. It is a point of subtraction from the state's re-securing of the count'. This excess *belongs* to the extant situation without being *included* in its re-presentation as a state of the situation. For while one might expect that everything that is presented in a situation, and which can be counted upon, may also be re-presented in the state of the situation, this is not the case. Badiou gives the example of someone who is part of a household but unknown to the State. Being un-presented within the state of the situation, this person *belongs* to it without being *included* in it. There are, then, 'two regimes of presentation that cannot be sutured together within the order of quantity: the immediate regime, that of elements and

9   We are grateful to Michael Pryke for bringing this example to our attention, and in particular the data-visualization software of firms such as Cantor Market Data, Fractal:Edge, and Panopticon Software.

belonging (the situation and its structure); and the second regime, that of parts and inclusion (the state)' (Badiou, 2005b: 278). Indeed, the lack of correspondence between presentation and re-presentation is the rule rather than the exception: 'The State is fundamentally indifferent to belonging yet it is constantly concerned with inclusion. Any consistent subset is immediately counted and considered by the State, for better or worse, because it is a matter of representation. On the other hand, . . . it is always evident that in the end, when it is a matter of people's *lives* . . . the State is not concerned' (Badiou, 2005b: 107–8, original emphasis).

Nothing will come of the recombination of the multiples that have already been taken into account by the state of the situation. Their composition, decomposition and re-composition can always be counted upon to re-secure the bonds of inclusion. Every conceivable 'event' may become an occasion for profit, as evidenced by the advent of catastrophe bonds and weather derivatives in the financial markets (Pryke, 2007). Evental sites, by contrast, have the potential to transform the state of the situation precisely because only the site is re-presented, not the inconsistent multiples that compose the site or the void that it borders. It is, in a sense, 'a multiple "admitted" into the count without having to result from "previous" counts' (Badiou, 2006: 175). One thinks, for example, of commodity fetishism or free labour. The re-presentation turns a blind eye to what it *really* re-presents. There can only be a re-count on condition that something is dis-counted. Evental sites un-present and unbind multiples that are inexistent and inapparent within the situation and its state. This is why evental sites teeter on the edge of the void. They respond to the excrescent superpower of the State with the subtractive power of aleatory events. However, Badiou, like Deleuze, Derrida and Latour, insists that there is no evental *situation* that may transform the totality of things, only evental *sites* within particular situations and states. So, while the world-city network appears to re-present London and New York as the global cities that truly matter, we would suggest that there are other evental sites that have an even greater transformatory potential. These sites are not located within particular global cities, but they belong to the network without being included in it.

The 'global financial crisis' (2007 to date) is a fine example of an event with such an *evental site* (a place of subtraction). The latest crisis of financial capitalism, where the world's financial centres — from the Bourse's of Mexico, Jakarta and Moscow, to Euronext, the London Stock Exchange and the New York Stock Exchange — are experiencing extraordinary loses of value because they are under the same rubric, is an example of how a singularity has destabilized the established order. For Badiou (2008), the 'founding element' (*evental site*) is not the unfolding of the event from the world's financial centres which he likens to a 'disaster movie,' but rather the subtracted 'collective,' the 'ordinary folk,' the event's 'audience,' who are victims of the unfolding drama. In other words, the story of how financial 'innovations' in Asset Backed Securities (ABS) such as the establishment of Special Purpose Vehicles (SPVs) and Special Purpose Companies (SPCs), and the creation of Credit Mortgage Obligations (CMOs), Credit Derivative Obligations (CDOs), and Credit Loan Obligations (CLOs), made the illiquid liquid to produce a financial world is not the *evental site*. As it turns out, what is transforming the world's economy is not the 'global city' (it is certainly not in 'strategic control'), but rather the 'sub-prime' or NINJA (No Income, No Job or Asset) American 'home owner' who, whilst belonging to the world's financial networks, was not included in those networks until it was too late. It is the 'invisible masses,' the 'home owners,' who have been subtracted that have forced the event. The truth of all that financial alchemy — the re-counting of multiples to produce investment-grade securities — in financial centres such as New York and London is that the value of many of those securities was baseless precisely because they included a multiplicity that was inconsistent and incalculable. As governments around the world choose to spend taxpayers' money on saving their global cities ('save the banks'), it is the 'invisible masses' who are facing the sharp end of financial capitalism's latest crisis: recession, mass unemployment, debt, homelessness. The 'invisible masses' are

the void of the global-city and world-city network; they are the evental site that has begun to unbind and destabilize the networks of financial capitalism. They constitute the evental site where the potential for an alternative politics and a different version of globalization resides.

Conclusion

In this article we have sought to interrogate the two axioms that sustain global-city research. The first axiom suggests that the world-wide distribution of economic activity necessitates strategic control functions that are to be found in, and therefore can be used to define, so-called 'global cities.' This is best illustrated by Sassen's (1991) global-city thesis. The second axiom argues that the exercise of strategic control by actors in these global cities is accomplished through their capacity to network. This is best illustrated by Taylor's (2004) world-city network thesis. We argue that these two contradictory axioms are both untenable for a very simple reason. They assume the existence of a totality that is structured from a distance. They envision capitalism as a single 'world' economy that is commanded and controlled by a limited set of 'global cities' and 'global command centres.' A partial critique of this envisioning might focus on the superficiality, unevenness, and patchiness of this supposedly unified world economy. It might also note the haemorrhaging of command and control capabilities as they disseminate throughout the network of 'global' cities and advanced-producer-service firms. A thoroughgoing critique of this envisioning would dispel the illusion that the world economy is a structured totality. Yet while so many writers have alighted upon performance, practice, and actor-networks as a total solution to the problem posed by the decomposition of structure, we have argued that the event is a more fitting solution, provided that it is wrested from the metaphysics of presence and rearticulated by way of a subtractive ontology.

We are finally in a position to resolve the aporia at the heart of the global-city literature. The global city and the world-city network are multiplicities to be sure — but they are founded neither on the adventure of the empty square (i.e. the structural relations of command and control) nor on social or technological determinism (the 'powers that be' or the 'information revolution'). Naturally, the multiplicities are infinite in extent — not because they infiltrate every morsel of Earth, but because they are composed of an infinite number of other multiplicities: from advertisements, airports and armchairs to ziggurats, zoos and zucchini, not to mention business services, financial districts, and 'flows' of capital, commodities and labour. All of these multiplicities are both presented and re-presented within global cities and the world-city network. What is present but cannot be re-presented without inconsistency is the foundation of the global-city concept and the world-city network with respect to the circulation of capital: the reduction of symbolic ambivalence to economic equivalence, i.e., the forcing of value (Doel, 2006). The baselessness of value is the evental site, a place of subtraction that belongs to the situation without being included in its state. If something is to happen, it will have to happen here. Meanwhile, the power exercised by global cities is not that of commanding and controlling the global economy. Their power derives from re-presenting the state of the situation. They literally re-count the multiples that compose a situation. Such is the dual law of the market as qualification and quantification (counted and re-counted) — but it is a market that is at once composed and decomposed (*à la* actor-network theory, cultural economy and the social study of finance), as well as being traversed and disarticulated by the 'the unpresentable errancy of the void, and the irremediable excess of inclusion over belonging' (Badiou, 2006: 110). At this point we can discern a profound difference between Badiou and Latour. For although both insist on *localizing* the global — in the sense that the 'outreach' of the global, so to speak, is always accomplished in situ — Latour remains wedded to a metaphysics of presence (the infinitely labyrinthine trace of association) while Badiou is attentive to a subtractive

ontology (the un-binding force of the event). When all is said and done, what the latter allows us to appreciate is that the world-city network is not what holds together, but what unbinds together — an unbinding that it desperately seeks to dissimulate and prohibit.

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Résumé

L'article critique la base théorique des recherches qui considèrent les villes planétaires comme des structures, réseaux ou acteurs-réseaux. D'abord, les concepts de commandement urbain mondial de Sassen et de Taylor sont examinés afin de dévoiler, entre autres, leur contradiction intrinsèque. Ce point est fondamental puisque la recherche actuelle progresse en postulant leur compatibilité. Ensuite, dépassant la critique des structures et réseaux, l'article expose la problématique de la reconceptualisation des villes en tant qu'acteurs-réseaux. Après avoir expliqué comment la théorie de l'acteur-réseau se brise sur un 'plasma', il préconise une issue à cette impasse théorique en reconceptualisant les villes à partir des travaux de Badiou. Pour finir, il montre comment ce changement de référentiel conceptuel apporte une base théorique à un nouveau type d'analyse urbaine qui traite la manière dont les villes s'efforcent d'empêcher et de dissimuler leur rupture et leur déstabilisation en tant que réseaux. L'article propose ainsi un nouveau modèle pour des études sur les villes planétaires qui s'intéressent au fait que les villes en tant que réseaux sont des réalisations permanentes fragiles, pas seulement parce que (comme l'a enseigné la théorie de l'acteur-réseau) leur cohérence tient uniquement au fait que les réseaux sont maintenus assemblés, mais parce que (comme Badiou le montre) ces réseaux n'envisagent pas ce qu'ils ne peuvent prendre en compte: multiplicité et événement en tant que résultat d'une soustraction.