

Reflections on space syntax as sociospatial theory

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Abstract

Few approaches have been quite so polemical and have stirred quite so many different responses as space syntax. This article is not an introduction to space syntax; rather it aims to discuss its substantive reach and epistemological status. This aim in mind, I shall propose a series of observations concerning the nature of the theory in order to highlight, on the one hand, its main contributions, such as the emphases on social reproduction, co-presence, and the embodiment of practice; its hybrid epistemology; its relational concept of space; and the reaffirmation of space as a living dimension. On the other hand, it shall discuss the limits of the theory concerning society-space relations: the reduction of social practice to movement, human interaction to social interfaces and encounter, and the actor to bodily presence; the primacy of syntax over semantics; the problem of time in the structuring of space; and the difficulties of theoretical contribution. Finally I look to discuss the theory's place regarding distinctions between urban and sociospatial theories, and dilemmas to be faced in its future development.

Keywords

Space syntax, theory, epistemology.

1. Introduction

Few sociospatial approaches have been quite so polemical and have stirred quite so many different responses from scholars of the city as space syntax. Reactions span from full, unproblematized acceptance, to its a priori rejection as a version of a positivist vision of the sociospatial, to silent absorption of its principal ideas and methods. For the same reasons, few approaches have been so misinterpreted and so successful. Space syntax emerged in the 1980s as a systematic theory of sociospatial phenomena. The new theory vividly evoked a social dimension of space previously only intuited, in a field dominated by the incipient cognitive view of human-space relations in theories of perception, the reduction of human practice to 'economic action' in the powerful explanations in spatial economics, and the reduction of human practice to work, social relations to class relations and space to centre-periphery relations posited in Marxist human geography.

In this scenario, space syntax proved to be a welcome novelty. The approach's systemic nature and objectivity suggested a theory capable of finally unmasking the influence that spatial organization has on social life, encountering structures in both urban and architectural space, and demonstrating the continuity between these scales. The theory also seemed able to identify problems in urban projects and the reasons behind their failures, as well as providing the desired scientific support for design interventions that both urban theory, frequently caught between scientific immaturity, descriptive inadequacy and normative imposition, and sociospatial theory, usually limited to theoretical discussions, had been unable to provide adequately to urban planning. These possibilities allowed space syntax to attract followers throughout the world. Of course, they were accompanied by detractors quick to point out its epistemological limitations, accusing the theory of excessive formalization and reduction, questioning its capacity to represent the city, its morphology and transformations, and the partial way in which it captures the social world.

This article is not an introduction to the concepts of space syntax. Also, it is not a consideration of the theory as an analytic toolbox and its role in design processes, however important these aspects may be. Instead it aims to discuss its substantive reach and epistemological status, and demystify the theory in terms of its apparent omnipotence (for some) and its apparent theoretical and substantive weakness (for others). This aim in mind, I shall propose a series of observations concerning the nature of the theory and the limits of its objective field; its limits vis-à-vis this same field; and, more widely, its limits vis-à-vis society-space relations. I shall explore these questions in order to get a clearer inkling of what its place is in the development of these fields of study, the dilemmas that surface in the attempt to expand its explanatory capacity, and what we can expect from its evolution.

2. What space syntax is not

In elucidating the substantive field, explanatory capacity and practical utility of a controversial theory such as space syntax, we can begin with what the theory is not, making use of the usual positionings and confusions, sometimes mentioned by its own creators.

2.1. A theory of the city should be capable of explaining what the city is and its forms of transformation.

This would require a mode of theorization and a methodology able to include both temporal and spatial processes of transformation, and the tangle of socioeconomic forces that impel them. Of course an interesting question is which theories are actually capable of encompassing these processes, either through discursive or quantitative means. Jacobs' (1969) *The Economy of Cities* is an interesting discursive attempt to grasp the origins and growth of cities. Spatial economics offers systematic studies on the emergence of urban structures as locational and density patterns (e.g. Alonso, 1964; Glaeser et al, 1992). More recently, we find works on economic networks active in spatial production (e.g. Wilson, 2008; cf. Allen, 2012); the modelling of cities as Jacobian machines of social interactivity in Bettencourt's (2013), a powerful approach which nevertheless falls short in descriptions of actual spatial patterns; and collections of systemic approaches to urban form, networks and flows in Batty (2013) and to complexity in Portugali et al (2012). Clearly the city is a challenge in understanding complexity, and we do have a less than perfect understanding of the highly elusive dynamics of urban transformation.

A theory along these lines would need to recognize the non-linear temporal processes of urban evolution (van der Leeux and McGlade, 1997), the three-dimensional morphology of the city, its relations to growth, densification and expansion, the problem of the substitution of architectural form (Wheaton, 1982), as expressions of interactions between the plethora of actors in different roles in the division of labour, positions in social space and places in open networks of economic production. Put another way, a fully-fledged theory of the city has to deal essentially with temporally continuous processes: the *morphogenesis*, *structuration* and *transformation* of the city, as expressions of social, economic and material forces, with circular effects. Space syntax deals with the (bi-dimensional) genesis and structuring of cities, throwing light on material properties and functional processes governing the emergence of spatial patterns from cellular aggregation leading to living urban systems (see Hillier, 1996; 2012). Descriptions of transformative processes say, in three-dimensional built form and its social contents, have to be *ad-hoc* constructions not stemming from the concept of space consciously defined at the heart of the theory. Currently, the theory only deals with some of the key issues of a fully-fledged theory of the city. It seems that epistemological limits in this sense are due to the origins of a concept of space focused on sociospatial relations based on copresence, as we shall see below. Nevertheless, the original theory of relations between society and space seems to have progressively searched the status of a theory of the city.

Clearly the boundaries between a theory of society-space relations and a theory of the city are at the very least blurred: they are partially overlapping fields. Something that prevents their complete overlap is the fact that sociospatial theories tend not to include the richness of urban transformation, just as urban theories tend to omit the connections between the city and social processes. As early as 1973 David Harvey had emphasized the need to adopt a theoretical position in

relation to the city's status as either (i) a self-contained structure with its own laws of transformation and internal production, or (ii) the expression of a set of social relations that form part of a wider phenomenon or structure. Until Bettencourt's (2013) groundbreaking work and Batty's (2013) recent turn, urban theories tended to fall into the first position; space syntax into the second. While one may criticize space syntax for providing insufficient explanations of the city, an analogous criticism can be made of urban theories, generally shallow when it comes to including social processes and their spatial implications.

2.2. However neither did space syntax aspire to the status of a broad "spatial theory of society."¹

It was originally defined rather as a theory of the social logic of space: a theory of the modes in which "spatial pattern can, and does, in itself carry social information and content" in the process imposing restrictions on otherwise entirely random patterns of space and encounter (SLS, p.xi). This focus implies that, as a theory of sociospatial relations, it cannot cover the entire field of possible relations. But as we shall see below, the field that it does cover had previously been unexplored.

3. The innovations of theory – or what space syntax does

Based on these delimitations, we can get a clearer idea of what the theory offers – not as a "theory of the city," but primarily as a "sociospatial theory," something that it does innovatively. Here I introduce some aspects rapidly in order to highlight them, though they certainly merit discussion in specific works.

3.1. The structuralist background; the use of Durkheim and anthropology

We know that the roots of the theory can be traced back to the 1970s and the work of Hillier and Leaman. The ideas combining the study of the spatial structure of settlements with aspects of their appropriation were turned into a theory of spatial organization of societies in Hillier and Hanson (1984) through the recourse to anthropological texts: these provided ideas unexplored in a sociospatial sense, as well as connections to new aspects of space. The structuralism of Lévi-Strauss offered a form of surpassing the dualism of the 'human-environment' paradigm, as well as the view of space as a projection of mental organization, taken from Lévi-Strauss himself, by proposing actors capable of thinking of the built environment as systems of discrete phenomena, containing in themselves a 'social logic' irreducible to subjective individual experience, or the "correlations between spatial organisation and fundamental structuring mechanisms in societies – mechanisms that seem close to what a society essentially is" (SLS, p.200). This logic refers to the recognition of an objective relation between the relational and geometric structure of settlements and the restrictions that they impose on movement and copresence as a system of barriers and permeabilities.

Here we encounter the introduction of an explicit urban role for copresence at a time when Goffman (1967) and Giddens (1984) were emphasizing it as a central sociological theme. The intensities and controls of copresence were associated with social interfaces that expressed different modes of social organization, as encountered in Durkheim (SLS, p.18) – the control of the encounter between socially different actors, typical of organic solidarity, or between similar actors, typical of mechanical solidarity (SLS, p.142). This approach cleared the way for an entirely new element in the constitution of the social world: the influence of the configuration of settlements on encounters, recognized, as in Giddens, as a means of social reproduction

3.2. The relational concept of space

The relational approach looks to explore spatiality through an insight that recalls Saussure: as a system of differences where the "meaning" of space is not recognized as intrinsic, but as an outcome of differences themselves (Hillier, 2011). This concept of relational space enables the inversion of the

¹ See Hillier and Hanson (1984:18). I shall use the following abbreviations: The Social Logic of Space (SLS); Space is the Machine (SM).

usual view fixed on the positive form of built space, the tangibility of its surfaces (Holanda, 2010). While this relational view is found in previous approaches,² it will allow a disaggregated description of space able to generate non-planar graphs and capture spatial differentiation,³ which in turn will be related to factors of distance and movement (only implicitly considered in economic theories of urban form, in the form of accessibility and metric distance) and cognition (until then only partially considered in the structural recognition of urban space). This topological approach allowed the theory to develop an unequivocal view (and thus one subject to criticisms) of the structures of space. Especially at the scale of the city, this reading enabled a clear advance in the description of spatial patterns – and more: it showed how they relate to underlying social processes in a structurally more detailed way than spatial economics.

3.3. The emphasis on copresence, movement and the embodiment of practice

If I had to isolate the idea most responsible for the theory's success as a systematic description, I would say it was using the topological insight and the relation between urban morphology and the volatile morphology of pedestrian movement in the city to develop (i) a new sociospatial theory; (ii) a clear, didactic description of spatial patterns stimulating to a young science of the city; and (iii) applicability to understanding problems in architecture and urbanism, and the practice of design, with empirical support. The emphasis on copresence, movement and (less explicitly) the embodiment of movement matched other developments in social theory at the time, such as the attention paid to the sociological importance of the encounter (until the 1970s taken to be a minor theme) in Erving Goffman's work, and its definitive inclusion in a general theory of the social by Anthony Giddens in the 1980s, along with the idea of encounters in space-time as an aspect of the recursivity of practice and social structuration. The relation between configuration and movement is today in the process of being absorbed and naturalized in architectural and urban discourses alike (e.g. Frederick, 2007).

3.4. The reassertion of space as a living dimension

The theory, in its own way, consists of a strong reaffirmation of space as a living dimension – based on its inherent relationality – for the urban actor and for social reproduction, confined to aspects such as cognition and the “raw materials” of the social in the form of copresence and social codes. It is also a reaffirmation of the city as central to human development, echoing the emphasis made by Jacobs (1961) and others more recently (Soja, 2000; Glaeser, 2010; Scott and Storper, 2014).

4. The limits of theory – what space syntax does not do

Having established what the theory is not and its points of contribution, we can turn now to examining its limitations – what it does not do, but perhaps could.

4.1. Limits of the theory in its own substantive field

Hillier and colleagues assert that “[i]n urban systems configuration is the primary generator of pedestrian movement patterns, and, in general, attractors are either equalisable or work as multipliers on the basic pattern established by configuration” (Hillier et al, 1993, p.31). Here we encounter one of the most heavily criticized propositions of space syntax. Attractors “are a mere consequence of configuration [...] the tallest buildings appear in the most integrated parts of town” (Ratti, 2004a, p.6). It is not my intention to summarise this debate (see Ratti, 2004a; Hillier and Penn, 2004; Ratti, 2004b). Instead, I would like to stress the morphogenetic dimension of the problem, implied but not explored by Ratti. I would initially point out that building height and density are not

² E.g. Kruger (1979); Krafta (1994) and Erickson and Jones (1997); for a proper review of these approaches, see Batty (2013).

³ For an example of a previous topological approach, see Kruger (1979); for a proper review, see Batty (2013). I also thank one of the anonymous referees from bringing the point on spatial disaggregation, differentiation and non-planar graphs.

equivalent things, as assumed by Ratti, but only partially interdependent, as demonstrated in Leslie Martin's insightful "The grid as generator" (Martin and March, 1972). Secondly, the view that the effect of attractors is either equalisable or multiplying in relation to the street network assumes that accessibility is a property shaping location patterns in cities seen as systems of perfectly convergent patterns. However, nothing guarantees that the historical production of urban space will involve a precise collective reading of accessibility potentials and their translation into location patterns. Thirdly, the proposition that attractors are a consequence of configuration is clearly a choice to see cities through a static perspective. If we see cities as transforming phenomena, this could only be the case were the street network always conceived and built as an overall system prior to built forms. In cities that grow organically, we cannot discard the influence of unpredictable activities' location – free from a linear, deterministic relation to accessibility – on the shaping of the grid, deforming the directions of new streets on the basis of the aggregates of built forms.

This theoretical and methodological insistence on the priority of the street network demands a constant effort to legitimize it substantively by fixing it at a point of origin of the process of urban production and at a privileged place in the explanation. However the attribution of the effects of processes such as the distribution of densities and activities to the street network leads to the reification of its role as the driving force for all the patterns. This runs counter to the principle of an integrated urban reality, produced as interconnections at different levels of materiality and ignores the different temporalities at work in the production of urban space. It distorts the view of the city-making as a changing relation of materialities implying the (constant and problematic) passage between (actual and potential) distributions of co-presence, accessibility, density and activity – the seemingly cyclical *convergence* and *divergence* of urban patterns as a city changes (see Netto et al, 2012).

4.2. Limits concerning society-space relations and the problem of meaning

In direct relation to the previous item, the systematic absence of the built morphology and the methodological and substantive priority given to the street network implies the absence of a spatial dimension we can call *semantic*, the process of constructing intelligible contents on the basis of our references to spaces and the practices realized within them. This notorious absence has a price: namely limits when it comes to recognizing the complex role of space in a society's production and reproduction and the webs of association of actors.

4.3. The problem of excluding meaning

The problem of meaning has been treated by syntactic theory in a very particular way. "A theory of meaning, generic or otherwise, does not take us very far," Hillier (2011, p.125) recently warned. Naturally the substantive force of space syntax depends on "the primacy of syntactic structure over semantic representation" (SLS, p.49). The theory concedes that *natural (discursive) language* is the only completely semantic language. Systems like space are, he proposes, primarily *morphic languages*. Morphic languages contain only generic or syntactic meanings, generated in the comparison between one spatial form and other forms recognized as differences (significance). By contrast semantic meaning (signification) occurs only when a form is associated with something outside of it and distinct from it. In morphic languages, significance would take precedence over signification as the 'primary meaning' – and become its source. Hillier looks to show that, even in the field of architectural form and aesthetics, semantics is something dependent on syntactic meaning.

Imagine for an instant that the world that we experience spatially is completely "syntactical." This would be indeed an informational world, but one operating through descriptive information, namely that of structural principles of space as a conditioning factor of bodily movement and, through the latter, of social encounters. These would be spaces without recognisable informational contents related to specific practices, a social world without discursive and communicative developments. Bear in mind that most of the social information embedded in space itself, identified with great insight by the theory, is *generic information* (as in the concept of "generic function") ordering patterns of encounter and social interfaces – but generic nevertheless.

In turn, I argue that the informational role of space cannot stop there. Space syntax highlights the dispute between its position, which sees the meaning (syntactic) as produced through the differences between components, and the position that takes meanings (semantic) to be external to things. There are however diverse theories – from hermeneutics to analytic philosophy to communication theory – that claim the opposite: the inherence of semantic meanings. There are properties of meaning such as the property of being produced through practice (Wittgenstein, 2001), the contextual role of meaning supporting communication (Habermas, 1984), meaning as indication (Husserl, 1976) and the relational construction of meaning in networks of references to things and events, acts (and places) (Luhmann, 1995). Now, despite obvious difficulties of empirical objectification, there is no reason to believe that these properties would not include space – nor does it seem reasonable to claim these as non-existent. Following the Wittgensteinian insight, networks of meanings are produced in space through our own practical and cognitive activities within it (Netto, 2008; forthcoming). And on this point we have the potential to insert space in a key moment of social reproduction: the connection between our acts in space that will in turn form systems of interaction.

4.4. *The reduction of social practice*

By establishing the difference and rupture between natural and morphic languages, Hillier also breaks with the possibility of an informational relation between practice, language and space. How can we expect the complex meanings of *space* produced through practice or in reference to practice, to relate with the meanings of *language* when one operates syntactically, through differences, and the other semantically, through references? If space is to take part in our practices of association and their entanglements with language, then space and practice must be connected: they need to share at least part of the same informational nature that allows practices to be related. Ignoring a more complex informational dimension in space is an obstacle to broadening the recognition of the role of space in association, which depend on connections created through semantic meanings exchanged between communicating actors. Sociospatial theory cannot afford to ignore the dimension of meaning since meaning (as semantic information or contents related to purposes, intentions, ideas, decisions, and their linguistic and communicative formation) shapes behaviour and social practices, which in turn are capable of changing cognitive and practical contents of space and its very shape. A non-physical thing like meaning, abstract in itself, may control and change the physical world (Popper, 1972:229-232). And that's the beauty of it.

4.5. *The reduction of the actor*

A material world without meaning and discursive, communicative or reflexive developments implies a reduction of the social actor to something like a mobile automaton trapped in a teleology of movement between points of occupation – an individual movement explained by a probabilistic frame of collective movement, latent in spatial configuration; moulded by Durkheimian solidarities, but evading individual interpretations. This reminds of a critical passage in Popper's *Of Clouds and Clocks*: "Everything that happens in such a world is physically predetermined, including all movement and therefore all our actions. Thus all our thoughts, feelings, and efforts can have no practical influence upon what happens in the physical world" (1972:217). Despite the idea of probabilistic movement, it is hard to fully reject the adequacy of Popper's ironic description. Furthermore, in a theory that assumes "a privileged observer entirely external to the system" (Griffiths, 2011:78), the *experience of urban space* is reduced to the cognition of geometric properties. Social experience itself runs up against limits: the experience of the other through space is limited to the encounter controlled (or not) by space, excluding the discursive negotiations between actors as part of the dynamics of mutual recognition and social interfacing. In syntactic space there can be no communication or politics. The construction of an actor capable of more than seeing would require a considerable epistemological transformation – which cannot be undertaken through an exclusively physical concept of space.

4.6. *The physicalist approach to space and the problem of representation*

Other critiques of space syntax refer to its alleged fixation on form, where space is defined almost exclusively as pure geometry and structure – an essentially physicalist conception of space, focused on the analysis of configurations and hierarchies. Many of these limitations seem to occur due to an epistemological position: what Soja calls “the conceptual autonomy of the physical space,” or what Hillier (1999) calls the “built environment as an autonomous variable.” This physicalist view demands conceptual operations to sustain the objective universe defined by the theory in a way that overlooks the importance of other aspects, such as richer informational and affective dimensions of space, practice and human experience, and legitimizes its own methodological requirements. Despite its broader spatial reflections, the theory seems currently imprisoned in the axial line. The problem is that representation cannot dominate the objective domain of a theory. Clearly the phenomenon of space is bigger than the properties depicted by the line or any other form of representation. But in the case of space syntax, representation seems to have taken the place of the thing represented, and this reductive and reifying conflation requires ignoring all the other connections between space, practice and human experience.

4.7. *The problem of time in the structuring of space*

I remarked previously a difficulty with the temporal dimension of urban structuration, a key issue especially if a theory aspires to the status of a theory of the city. Space syntax describes the genesis of the form of settlements by expressing both a movement economy (SM) and the cognition of these emergent spatial structures, the ‘syntactic generators’ (SLS). The recognition of structural characteristics in the ‘inverted genotype’ (discrete descriptions of the relations contained in the sequencing and interconnections of spaces) is seen to replicate the conditions informing natural movement and patterns of encounter between distinct solidarities. There is a temporality inherent in the production, cognition and appropriation of these social and spatial structures. Its principles seem to be captured conceptually. In a syntactic approach, the production of a spatial structure involves both a morphogenetic and a cognitive process (SLS, p.207). However, the genotype to some extent imprinted in urban and architectural structures (the social descriptions contained in spatial form) “tends to conserve the present and have no regard for the past” and not have a “genetic memory” (SLS, p.44). A spatial system would be, at any instant, a complete *description* of itself. The process of selection through random variation is seen to provide the mechanism to explain why certain modes of spatial organization last longer than others – in this case, in accordance with the degree to which they are adapted to the social logic they contain: “the functional ‘fit’ between the society and the spatial description [...] is so absolute that the temporality internal to the society itself is effectively flattened” into descriptions of spaces “without sufficient acknowledgement of their contingent and open nature” (Griffiths, 2011, p.81-86).

This cognitive and practical fit between space and what occurs socially within it is rendered more flexible by the concept of *generic function* (Hillier, 1996). The concept presents architectural structures as generic enough in their internal sequence to serve different social activities. However this concept appears to enter into contradiction with that of description retrieval and the generative elements of the genotype at the scale of architectural structures. If architectural space tends to have a generic function, the cognitive mechanism of description retrieval can only grasp functionally generic information, limited to (generalised) copresence and movement patterns, in turn rendering its use in the cognition of ongoing practices too superficial to be informative. It is therefore unclear the extent to which architectural space is structured to function as a source of codes of social organization (via probabilistic restriction/intensification of the encounter) and the extent to which it is not. This contradiction appears to a lesser degree at an urban level. At this scale, the theory predicts the differentiation between the generic and transcultural spaces of the “economy”, and the idiosyncratic spaces of “culture” – a reinterpretation able to show that the principles of solidarity coexist even in the same society and are active in the shaping of urban spatial patterns (Hillier, 2002). Cities also possess generic structures that enable them to adapt to different modes of social organization and forms of production – a fact that would explain, for example, why the same structures can support different economic phases in a city’s history (Hillier and Netto, 2002) (all based on the possibility of generalized interaction, only marginally restricted by the urban street

network). Hence the field of research tends to assume the transformation of space as an unproblematic convergence of patterns, sufficiently projected in a synchronic space – a closed system of universal invariants that suppresses the implicit temporality of the theory (Griffiths, 2011; cf. Holanda, 2011), and that has still seldom been questioned in the field of syntactic research.

5. The future of theory as epistemological dilemma

A number of works have searched to develop the theory in many directions. Risking oversimplifications typical of a very brief selection, we find expansions on key subjects like spatial practices and cultural narratives (Psarra, 2009; 2010), segregation and exclusion (Holanda, 2000; Vaughan et al, 2005; Vaughan, 2007; Vaughan and Arbaci, 2011), the historicity of spatial practices and cultures (Griffiths, 2011; 2012), spatial economy (Penn and Turner, 2004; Penn et al, 2009; Chiaradia et al, 2013; Narvaez et al, 2014), perception and the material world (Turner, 2005; Seamon, 2007; 2012), cognitive behaviour and way-finding (Conroy-Dalton, 2003; Peponis et al, 2004; Hölscher et al, 2007), agent-based and visual-based simulations (Turner et al, 2001; Turner, 2003), and so on.⁴ These expansions considered, I should like to conclude this discussion by identifying some of the bifurcations and dilemmas in relation to the future of space syntax as a theory. I believe that at least three possibilities can be identified for researchers wishing to engage with (any) theory and its study method:

5.1. *The maintenance and reproduction of a theory* is naturally one course of action. Its usefulness to design and planning would be emphasized, and perhaps become more widely used.

5.2. *Rupture is a risk*: theories that fail to interact with other ideas in circulation and with newer views tend to be superseded. It seems more reasonable to think that the history of ideas has been precisely one of contamination and change as a way for theories to continue to matter. Theories with open epistemological frameworks are naturally prone to that.

5.3. *Adaptation and evolution* may demand more than additions and peripheral changes of concepts. Given the closure of the syntactic concept of space in its physical dimension, the core of the theory may be required to transform itself. In this case there would be a need to open up methodological aspects to connections with other concepts and to incorporate at least partially other dimensions of the urban and the sociospatial. Paths of connection are being made outside the field of syntactic research but in communication with it – these include those listed below, which I know about, though undoubtedly other possibilities can be imagined for the theory's expansion.

- As urban theory: bridges to urban transformation via the explicit exploration of cellular elements of built forms and their contents, linked to the street network, in an overtly temporalized, dynamic view usually explored in urban simulation models.⁵

- As urban theory: bridges to networks of material reproduction and the transformation of urban form systematically captured in spatial economics, e.g. the insertion of the topo-geometric approach to urban structure in the analysis of the spatial constitution and the performance of economic interactions.⁶

- As sociospatial theory: bridges to the insertion of relational space in the construction of systems of interaction, moving beyond encounters and copresence via the recognition of space and cities as expression and support of informational practices.

⁴ Other works bring additions mostly related to geometry and spatial properties, analytical tools and properties in street networks, which relate to methodological gains, beyond the scope of this article.

⁵ Cellular processes are in fact at the core of the syntactic morphogenetic theory (see Hillier and Hanson, 1984), something that could be pursued.

⁶ This path relates with works on relations of urban configuration and land use patterns (e.g. Penn and Turner, 2004; Chiaradia et al, 2013; etc.).

Irrespective of the paths taken, I believe that we also require new approaches that escape the dead ends into which the different strands of urban and sociospatial knowledge have been drawn, anchored in apparently irreconcilable views of space. For more than one reason, the future of urban and sociospatial theories seems to lie first in a convergence of strengths of different theoretical achievements, breaking free from what McGlade and van der Leuw (1997) call “epistemological purity”; second, it lies in the end of incompatibilities between theories of society-space relations and theories of the city – the end of Harvey’s distinction between views of the city as a self-contained structure and the city as the expression of social interactions and relations announced by Batty, achieved to an initial extent by Bettencourt, and relentlessly pursued by Hillier.

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