



Review

Beyond the built-up form/mobility relationship: Spatial affordance and lifestyles



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ABSTRACT

The aim of the paper is to explore the interplay of spatial affordance and lifestyles within a metropolitan context. The reorganisation of urban regions in integrated metropolitan areas generates new lifestyles based on hyper-mobility (often in the form of car dependency) and poly-topic practice of space. At the same time, the physical and functional characteristics of urban and rural components of space are modified. Within a quantitative approach, spatial indicators are used to describe the different facets of spatial affordance and of lifestyles of the resident population. The case study is the French Riviera metropolitan area, in south-eastern France. The indicators are used within a Bayesian Network model to identify typologies of place in the metropolitan area. Two typologies are produced. The first one identifies seven classes of spatial affordance ranging from regularly planned, dense and mixed urban cores to less accessible peripheral rural villages under metropolitan influence. The second one looks for profiles of place based on the prevalent lifestyles of its population (dwelling regimes). Once again seven classes are determined, including urban, suburban and metropolitan-rural lifestyles. The correspondence between spatial affordance and lifestyles is later explored to compose a more thorough description of places. The research confirms the need to enlarge the view of the built-up form/mobility relationship, shows the usefulness of the concepts of spatial affordance and dwelling regimes and explores new methodologies for identifying profiles of place. The probabilistic framework of Bayesian Networks proves particularly well suited to capture the fuzzy relationship between spatial affordance and lifestyle.

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1. Introduction

Research on the relationship between built-up form and mobility behaviours in urban space has a long tradition. Transformations in urban morphology, transportation (and communication) networks and mobility behaviours nourish a vast debate on the contemporary metropolis (Wiel, 1999; Ascher, 1995; Castells, 2002). As far as empirical research is concerned, Newman and Kenworthy (1989, 1998) as well as Kenworthy and Laube (1999) first highlighted the role of urban density in a world-wide comparison of metropolitan areas. According to these authors, population density, measured at the metropolitan scale, shapes both transportation offer and average mobility behaviours of city-dwellers. Their researches were seminal and have given rise to several developments (Naess, 1995; Giuliano & Narayan, 2003; Van de Coevering & Schwanen, 2006) as well as harsh critiques due to the aggregate level of the analysis and the simplified conceptual (and empirical) relations among the phenomena (Gordon & Richardson, 1989, 1997; Fouchier, 1997). Inspired by Newman and Kenworthy's work, international comparisons at the metropolitan level have thus later been conducted in order to better specify the causal chain of the built-up form/transportation/mobility interaction, and to evaluate its overall performance in a sustainable development perspective (Fusco, 2004; Le Nechet, 2011). Urban densities, transportation offer and accessibility levels have also been studied at municipal level within a given metropolitan area (Camagni, Gibelli, & Rigamonti, 2002). Cervero and Kockelman (1997) investigate the relationship even more locally, distinguishing the relative role of density, functional diversity and urban design within urban neighbourhoods. The impact of the configuration of street networks on modal choice, and more particularly on walking habits, has also been explored through ad hoc surveys (Genre-Grandpierre & Foltête, 2003; Rodriguez & Joo, 2004). On these bases, planners have identified design strategies to foster or hinder different patterns of mobility behaviours (Boarnet & Crane, 2001). More generally, mobility survey data open the way to the analysis of the impact of built-up form on mobility behaviours integrating further socio-economic characteristics of the households (Cervero, 2002). At this local scale as well, causal links among variables have been better explored (Bagley & Mokhtarian, 2002; Handy, Cao, & Mokhtarian, 2005; Lin & Yang, 2009). Research in this field is so vast, that meta-analyses are proposed to summarize results obtained with different variable definitions, methodologies and study areas. Ewing and Cervero (2010), for example, overview research based on regression analysis of mobility behaviours on built-up form parameters over the last two decades.

Advances of empirical research on the connection between built-up form and behaviours from city dwellers have thus identified elasticities of modal choice and destination preferences for different categories of people, as well as transit-inductive, car-inductive and walking- or cycling-inductive morphological arrangements. We think nevertheless that trying to identify the impact of every form element on people's

behaviour (which is the very aim of regression analysis) should not be the only research strategy. The different aspects of built-up form overlap among them as well as with other functional and perceived characteristics of the urban space, contributing to a more general "habitat" or "ecosystem" for urban and metropolitan life. A "habitat" is a systemic view of physical, functional and perceived elements of urban morphology, taking into consideration the mutually reinforcing interactions among elements. The concept of overall physical affordance of a given habitat seems to us an appropriate generalization of the mobility-inductive characteristics of specific form elements. At the same time, mobility has to be placed within the broader context of lifestyles and attitudes of city-dwellers (Kaufmann, 2000, 2007; Lanzendorf, 2002; Urry, 2007). Mobility behaviours are part of more general lifestyles reflecting people's habits, attitudes, values and aspirations in urban space. Econometric models are thus starting to address lifestyle-related mobility patterns (Pinjari et al., 2011).

Going back to the debate on the contemporary metropolis, we think that spatial affordance and lifestyles can indeed throw new light on the most recent transformations of urban space. The reorganisation of urban regions in integrated metropolitan areas, often referred to as metropolitanisation process (Ascher, 1995; Lacour & Puissant, 1999), gives birth to new lifestyles based on hyper-mobility (often in the form of automobile dependency) and poly-topic practice of space (Stock, 2004). At the same time, metropolitanisation modifies the physical and the functional characteristics of the urban and rural components of space and enlarges the usual perimeters of the urban realm.

The aim of this paper is thus to explore the interplay of spatial affordances and lifestyles within a given metropolitan context. The case study of our analysis is the French Riviera metropolitan area, showing important diversity both in physical characteristics and in prevailing lifestyles.

The rest of the article will be structured as follows. Section 2 introduces the concepts of spatial affordance, lifestyle, dwelling regime and place. Section 3 presents the case study of the French Riviera and the empirical data of the analysis. Section 4 presents the research methodology, namely spatial indicators and multivariate clustering through Bayesian Networks. Sections 5 and 6 show the results of Bayesian clustering on indicators of spatial affordance and dwelling regime within the French Riviera metropolitan area. Section 7 proposes a cross-analysis of the two typologies of metropolitan space previously identified and explores the empirical correspondence between them. Conclusions, critical assessment and perspectives of future development of the research are presented in Section 8.

2. Spatial affordance, lifestyles and the functioning of metropolitan space

The concept of affordance was first introduced by Gibson (1979) in ecological psychology. Affordance is the characteristic of an object to suggest its functionality and use through elements that can be directly

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