What knowledge can a spatial approach add to the understanding of segregation?

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Abstract
In Sweden, social segregation is a priority. In fact, the national urban development policy addresses urban districts characterised by exclusion. In most of the anti-segregation initiatives the spatial dimension is quite absent even though segregation is an inherently spatial concept. The spatial dimension is often analysed and discussed using quite simple spatial models and weak theories about the relation between spatial and social phenomena. This paper discusses how spatial theories and methods can contribute to the segregation issue and attempts to study the possibilities how to counteract segregation through urban design and planning. Because urban form and urban structures influence living conditions, it is relevant to explore these spatial conditions with a spatial approach. However, the spatial dimension can never be fully understood or successfully managed without a powerful theory of space as a social entity.

There is a need to fill a knowledge gap within the architectural research field. What we need is a toolbox of theories and methods that are able to link physical forms and spatial structures to social outcomes that correspond to real space, the space that people inhabit in their everyday activities.

The role of public space has not been highlighted in the debate and it is argued that it has been underrated. Segregation in public space has a strong influence on issues such as exclusion since it partly determines the conditions for urban life, the accessibility to urban life and accessibility to important functions in society. It is argued that a spatial approach opens new possibilities for improvements in both vulnerable areas as well as in the city as a whole. If social segregation – or rather exclusion – has to do with segregation in public space, it would be wise to consider how policies in spatial planning and urban design can address the problem.
Introduction
In Sweden’s metropolitan areas, one of the major societal problems is social segregation: social and ethnic segregation, unequal living conditions, and unequal access to services and labour market. Several initiatives aim to decrease segregation but so far only with marginal effects (SOU 2005:29). A broad and coherent political approach is needed that includes several political areas (SOU 2007:104). Until now, politicians have not made urban design and spatial planning a priority; the political discussion has been confined to issues concerning housing policy (i.e., ownership or tenancy). The spatial dimension in anti-segregation initiatives is quite absent even though segregation is an inherently spatial concept. From the perspective of urban design, it appears as if the spatial dimension has not been thoroughly addressed, and it is possible that its role has been either overlooked or oversimplified.

This paper discusses how architectural research can contribute to the segregation issue. How can segregation be addressed using a spatial approach? How can urban design interventions and policies be used to reduce negative effects of segregation? These issues need to be developed further. This study stresses that a spatial approach is not taken simply because there has been a lack of spatially relevant theories, methods, and descriptions related to segregation.

A spatial approach entails a different point of departure with a stronger focus on the built environment itself. It is argued that the spatial dimension can never be fully understood or successfully managed without a powerful theory of space as a social entity. Such a theory has been poorly described or absent from most discourse on the subject. There is reason to question if the prevailing definition of segregation (according to residential constitution) might be too one-sided and therefore misleading in this context. That is, segregation in public space seems to be a far more urgent issue that also offers many possible interventions in the built environment that can address segregation.

This paper starts with a brief outline of how segregation is described in national documents. A discussion follows about prevailing research approaches within the segregation field in relation to spatial implications. The examples are based in the traditions of quantitative human geography and qualitative urban sociology, narrowing the role the spatial component is given. The limitations and potentials of these approaches from an urban design perspective will be presented. Then spatial theories and methods are described and used to illustrate how social logic of urban structures can be understood. Finally, a discussion sums up the findings and present possible future research.

Social segregation and its consequences
During the last ten years, housing segregation has increased in most Swedish municipalities (Integrationsverket 2007). The physical separation between groups in society is a manifestation of social distance between different populations. Exclusion is the most negative outcome for society (SOU 1997:118). People are being excluded from important parts of social life and isolation makes it difficult to enter the labour market. Trust in other people and the democratic system (including political participation) is also crucial. The idea that people have the right to equal living conditions is stressed in the National Policy of Urban Development (2007/08:1). During the 1990s, the inequality regarding the living conditions in different geographical areas have increased. This has spatial relevance since it partly has to do with accessibility to important functions in society, such as education, labour market, and service (SOU 1997:118). Furthermore, the living conditions actually are worse in deprived areas (Social Rapport 2001). Accordingly, people with the least resources are living in geographical areas that provide the worse living conditions.
Several of the Swedish anti-segregation initiatives – e.g., the Metropolitan Initiative launched in 1999 – have been area-based programmes that address vulnerable areas (Gustafsson 2005). These programs try to increase long-term sustainable growth by providing new job opportunities and addressing social, ethnic, and discriminatory segregation. Some evaluations of the programs have stated that these programs have made significant difference. These programs, however, have also been criticised as monumental failures. Calling an area “deprived” or “segregated” may lead to stigmatization, resulting in an unfavourable image of an area. That is, these labels may influence how its residents and others perceive it (Hajighasemi 2005, Hacking 2002). A large number of residents in the addressed areas have indeed been favoured, but local actions alone will not have an impact on the overall causes or mechanisms of segregation. The understanding of the segregation phenomenon will only be partial if vulnerable areas are studied isolated from the rest of the society: “Segregation is not the responsibility of the vulnerable area. It is a matter for the whole of the municipality, region, society.” (SOU 2005:29). In the Urban Development Policy launched by the Swedish government, the objectives are partly reformulated; but still, focus is on vulnerable areas. One objective of the program is to decrease exclusion in urban districts (SOU 2007:104). Such formulation is difficult to conceptualise without considering the spatial dimension.

Examples of different discourses in the field of urban segregation

There are different ways to approach and to conceptualize segregation. This section briefly discusses the spatial implication of two examples. In addition, segregation as defined and their methods are described. Furthermore, limitations and potentials from an urban design perspective will be discussed. Although the discourses primarily have other issues in focus than design level matters, they deliver some interesting contributions to urban design that could be developed further.

The dominating discourse in the field of urban segregation is housing segregation, which is also referred to in national documents. The concept of segregation is defined as geographical separation between different selections of the population according to where they live. Hence urban areas are described through its residential composition, measured through quantitative human geography methods. Segregation is understood and studied as a relative and relational phenomenon, and the literature uses three categorisation principles: demographic, socioeconomic, and ethnical (SOU 2000:37, Integrationsverket 2006, Andersson 2007). This discourse elucidates how segregation is manifested in an area (i.e., municipality or region) as well as describes processes and mechanisms behind the segregation phenomenon. Recently, the use of longitudinal methods has significantly contributed to the field in this respect as it reveals how housing segregation develops (Andersson & Brämå 2004, Brämå 2006, Integrationsverket 2006).

In the discourse, two determining factors are identified: relational and fixed. Relational factors refer to the actions of institutions and of individuals and fixed factors refer to the built environment and physical structures (RTK 2006). For architects and planners, those fixed factors are constantly addressed, making them highly relevant from an urban design perspective. In studies of housing segregation, however, the fixed factors are perceived as difficult to change and are not investigated to the same extent as the relational factors. Attention has been restricted to housing policies, whereas policies relating to spatial planning and urban design have not been addressed. Nevertheless, when it comes to the identification of the consequences of segregation, this approach addresses the neighbourhood effects, which strongly are related to the physical
environment. The status of the population and the spatial conditions that affect people equally determine these effects (Andersson 2007, RTK 2006).

What are the potentials and the limitations of the housing segregation discourse in the realm of urban design? The limitation of the way housing segregation is conceptualised and defined has to do with two things: the definition of the geographical area and the use of residential statistics only. The definition of the extension of a geographical unit is in itself problematic since the size (level of resolution) will influence the result. In addition, the unit is taken out of its spatial context; therefore, the influences from the surroundings are concealed. Since populations in areas very seldom show a homogenous social profile there is a risk that important differences within an area are lost. Housing segregation analyses do not take into account people working or visiting the area. These weaknesses have already attracted attention and the measures are sensitive with respect to how areas are defined as well as how the different categories are defined (Marcus 2008, RTK 2006). The descriptions have also been criticised for representing a top-down perspective.

The second example is a discourse using qualitative methods within the urban sociology tradition and attempts to describe the segregation phenomenon from the view of the residents (Lilja 2002). This approach primarily responds to issues regarding meaning and identity with a focus on understanding the dynamic relation between human beings and built environments and to find out how exclusion is manifested in segregated suburbs. Information is gained about how people use, perceive, and value the physical environment through in-depth interviews. The description illustrates how a certain people in a certain time with certain resources relate to space and how they make use of the built environment. This approach combines an external, quantitative perspective with an inside perspective from the residents’ view.

The findings regarding the spatial dimension indicate that there are integrating mechanisms in the physical environment that are not visible. Nevertheless, the built environment can help people interact with one another, significantly mitigating segregating forces. The design of most post-war areas however, does not support urban life. People, who feel excluded from society at large, are those who especially appreciate the opportunities to interact. It should be emphasised though, that there are also residents with strong bounds to their suburbs, and who not perceive themselves as being excluded from society. The prevailing planning practice is criticised for having technical overtones instead of a humanistic design. It is suggested that planning practice would be more efficient if more of the planning and urban design practice is handed over to the residents themselves, enabling them to leave their personal marks on the area (Lilja 2002).

What follows examines the potentials and limitations of this discourse and its qualitative methods used to study spatial planning or urban design. One of the advantages of this approach has to do with the ambition to describe the situation from a user perspective, which is highly relevant from an urban design perspective. The possibilities for urban life are important and this partly has to do with the physical environment. However, these types of analyses need to be further developed to be useful in architectural studies. Usually, it is thoroughly described how things are but very little of why the urban structure does not support urban life or encourage interaction. How does space and urban structures support or hinder urban life? The integrating mechanisms need to be made visible and relations between built environment and social outcomes need to be illustrated. As segregation is a relational phenomenon, it is important to understand and foresee social outcomes as a result.
of the built environment. This understanding looks to local effects as well as remote effects (Galster 2001, Brandberg 1999). Hence urban design involves not only the residents in segregated areas but also people who work or visit the area as well as residents in neighbouring areas since they have a potential to influence urban life.

The discourses outlined above do not explore and identify spatial causal explanations for segregation. Rather, this seems to be an essential task for the architectural research field.

A need to fill a knowledge gap within the architectural research field

In many studies based on statistical data, the social phenomena are taken out of a real space and placed into a logical space that is no longer related to the world of real space and materiality (Hillier & Vaughan 2007). An area is always to some extent influenced by its surroundings, which many analyses leave out. Hence it would be highly unsound to draw far-reaching conclusions regarding the spatial properties from such descriptions. This indicates that there is a great need for knowledge that explains how changes of the built environment and spatial structures affect social outcomes and it seems to be an important task for the architectural research field to contribute with such knowledge. This paper argues that a better understanding about complex urban structures can only be achieved by accurately studying the urban structure per se.

There are many examples in history where built environments do not fulfil the primary social intentions. Many post-war areas have been severely criticised. At present, attention is again being drawn to suburbs from the 1960s and 1970s (housing estates within the one million programme) since there is an increasing need for upgrading. In addition, new area-based programmes have recently been launched (2007/08:1). In the evaluation work of the Metropolitan Initiatives, there is a special report about the built environment where deficiencies are identified and a set of proposals are outlined (Schultz 2004). However, a highly relevant question remains: Are we better equipped to foresee social outcomes of changes in built environment and urban structures today than when the areas were built? What methods do we have to identify the socio-spatial potential in different areas? Are we able to establish how efficient different proposals are?

Preliminary results from empirical studies that are currently conducted by the author within the framework of a Swedish government funded research project indicate that the spatial conditions vary considerably between city districts. Even the different million programme areas present great variations regarding their spatial shortcomings and advantages, a deficiency that indicates that the areas need to be addressed quite differently.

It is obvious that we have a knowledge gap within the architectural research field. What we need is a toolbox of theories and methods that are able to link physical and spatial forms to social outcomes that correspond to real space, the space that people inhabit in their everyday activities. What we learn from other discourses is that a design level approach needs to narrow down in scale and in some way take into consideration spatial relations between areas as well as relations to the city as a whole.

A spatial approach includes a reformulation of several components within the problem field; definitions need to be spatially relevant and descriptions need to be both stringent and systematic and to some extent quantifiable. A crucial aspect is that spatial systems need to be placed in testable models to predict outcomes of changes in urban structures. This is especially important since most changes in the built
environment are long-term and expensive investments. Regarding the conceptualisation of segregation, it might be fruitful to focus on the negative effects that are associated with segregation, such as exclusion and unequal living conditions. That some people lack access to important functions is to some extent determined by spatial factors. It is highly relevant to shed some light on how the spatial conditions support accessibility to key features such as other people, services, and work places in different areas.

The idea of interplay opens interesting reinterpretations of how segregation may be conceptualised and addressed (Olsson 2005). This discourse represents a quite different point of departure since it focuses on urban life and the interplay among populations in public space. The notion acknowledges the need people have to be seen, to share public space with other people, and how this encourages tolerance and the integration processes, all needs that are important for the discussion of exclusion in society. Interplay in public space is as important as housing segregation. Different levels of urban life are defined: the cosmopolitan urban life (with a dominance of strangers), the neighbourhood urban life (a local kind of urban life), and the interaction that is likely to appear between neighbours sharing the same yard or street (Olsson et. al. 2004, Olsson 1991). Empirical studies indicate that interplay is favoured when these different levels of urban life overlap (Olsson et. al 2004). The conditions for urban life depend on the built environment, land use, and density and mix of people. Location and the issues of centrality and periphery are also discussed. Interplay in public space is not only determined by where people live, but also where people work and conduct every day activities.

This approach is highly relevant from an architectural point of view since the conditions for urban life are partly determined by accessibility and movement, conditions that relate to spatial properties. Consequently, different neighbourhoods could be described and analysed (using quantitative spatial methods) according to their potential for interplay in public space depending on its location, the spatial structure, and the accessibility to people.

It is possible that the strong focus on housing segregation has ignored other perspectives in the debate and in research. Interplay may allow for a different way to view the problem of segregation. If exclusion is a key feature and interplay in public space is as important as housing segregation, this turns the focus to the public space itself and the conditions for urban life at different levels. Many vulnerable areas and some of the most prosperous areas are strongly segregated in the urban fabric. At a local level, however, the vulnerable areas are characterized by a significant segregation in public space that is not found in cities in general. If social segregation – or rather exclusion – has to do with segregation in public space, it would be wise to consider how policies in spatial planning and urban design can address the problem.

Linking social theories to the built environment

Hillier has stressed the need to link social theories to design level theories. Hillier believes that little is known about how patterns of living and working can be affected, for good or ill, by the physical and spatial forms we impose on them. It is argued that built environment professionals to a large extent make use of theory-like propositions that link the social outcomes to the physical and spatial form of the built environment. “In the absence of scientifically tested propositions, a shifting consensus of beliefs fills the need, and it can take decades of social costs to show the inadequacy of these beliefs” (Hillier 2008). What we find in practise are a number of conventional, theory-like propositions that link spatial forms to social outcomes. Such ideas have powerfully influenced design and planning and might even be viewed as paradigms. It was widely believed that
breaking large residential developments into small inward looking courtyards or piazzas would promote stronger local communities, that lower population densities would lessen crime and social malaise, and that public open spaces with good enclosures would be successful and frequently used. However, these ideas seem to have been more part of the problem than the solution (Hillier 1988). These quasi-theoretical ideas are not based on evidence and the experience suggests that they are probably wrong. According to Hillier, space has an active and structured engagement with social life, and without understanding this it is impossible to fully realise the theoretical promise of the social study of space. In the society-space relation focus is first and foremost on space in the space syntax approach. Such studies look for evidence of social processes in the spatial forms of the built environment and such greater descriptive precision both permits linkages to mainline formulations in social theory and leads to testable design level propositions (Hillier 2008).

Space syntax was conceived in the 1970s and began from the observation that space is the common ground of the physical and social cities. The physical city refers to a large collection of buildings linked by space and the social city refers to a complex system of human activity linked by interaction. Urban practice and theory must connect one to the other. The social city is either side of the physical city: it brings it into existence and then acts within the constraints it imposes. Space syntax is built on two formal ideas that try to reflect both the objectivity of space and our intuitive engagement with it. Firstly, space is not only the background to human activity, but also an intrinsic aspect of everything human beings do. Secondly, human space is not just about the properties of individual spaces, but also about the inter-relations between the many spaces that make up the spatial layout of a city. This is called the configuration of space: meaning the simultaneously existing relations among the parts that make up the whole. Configuration matters since it expresses the property of space that more than any other is the means by which space both acquires social meaning and has social consequences (Hillier & Vaughan 2007).

In this context, it is possible to relate the notion of interplay to the theory of natural movement (Hillier et al. 1993). Analyses of street networks have shown that its spatial configuration was in and of itself a major factor in shaping movement flows that can be analysed through levels of spatial integration. Hence the spatial configuration was largely responsible for the ways in which patterns of human co-presence emerge in the network (Hillier et al. 1993). This is intuitively clear, mathematically necessary, and empirically demonstrable. It is also the key to understanding cities as socially meaningful patterns of relative integration and segregation (Hillier & Vaughan 2007). For example, urban space can direct the movement of people and where they congregate; these places are usually perceived as safer than other less used places. When analysing the conditions for interplay however, it is also important to capture the intensity in urban life and the possible mix of people.

Space is conceptualised as an active and independent component in the analysis of social patterns according to space syntax. By separating the spatial form from the social in the first instance, it is possible to decipher the influence of social factors on spatial form and in turn the impact of spatial form on social outcomes (Hillier & Vaughan 2007). Another significant advantage is that space syntax analysis works across scales, which have been pointed out as a limitation within other discourses.

Earlier studies has shown that more segregated public spaces are more often used by the local population, whereas more integrated public spaces also attract people from other city districts. However, as stressed above, there is also a need to take into account the issue of density. For example, interplay in public space partly depends
on spatial structures that are able to capture with integration analyses, but the accessible density of the population also needs to be understood. For this purpose, the Place Syntax Tool is useful. The tool captures a very fine scale of accessibility to the population (or any other statistical data) at different ranges from certain locations. Through these analyses, the definition of a geographical area does not need to be fixed; rather it can be adjusted to the specific purpose of the analysis (Ståhle et al. 2005).

Today, there are many examples within the field of space syntax of how segregation is related to the built environment in different ways. In a study of poverty in London, comparing statistics of poverty in late 19th century with today’s data, it is suggested that there is a spatial mechanism involved in the creation of poverty areas, a phenomenon that leads to a strong correspondence between spatial segregation and poverty. It is argued that spatial segmentation of areas has detrimental effects on the most vulnerable populations, especially those who depend on local movement and local networks for support and exchange (Vaughan 2007). In this context, however, it is also emphasised that positive outcomes can only emerge because spatial improvements are coupled with targeted social improvements. The relationship between poverty and spatial segregation has also been investigated in a study of Jewish settlements (in Leeds, England) in the latter six decades of the nineteenth century (Vaughan 2001).

A study of morphological changes in London has determined that design ideas are related to specific preconditions for sociability (Hanson 2000). Space syntax is used to show the shift in design paradigms over time. The result indicates that modernistic areas have isolated people from each other, both on the neighbour level and on the neighbourhood level. The spatial causal explanations look to the properties of the urban structure and the accessibility of areas. In addition, the constitution of the public space – how buildings and entrances are located in relation to open space – influences human interaction. It is shown that development has gone from an ‘all-neighbour-area’ to a ‘no-neighbour-area’. The conditions for urban life and interaction with neighbours turn out to be prominently poorer in those areas where the social ambitions govern the design ideas (Hanson 2000).

Conclusions and possible future research

National reports and other discourses strongly suggest that spatial dimension plays a significant role for the segregation issue; nevertheless, the approaches do not present the kind of methods or tools that fulfill the requirements from an urban design practice perspective. The responsibility for a development of such approach naturally falls within the research field of architecture.

Today, little credence is given to the possibilities to counteract segregation trough the practice of spatial planning and urban design. The empirical elaborations that are presently being carried out in Södertälje municipality investigate the potential of a spatial approach. Hopefully, the findings will contribute with knowledge regarding how urban form and structure – which is a result of urban design – influences social outcomes, such as urban life. This might shed some light on how urban design interventions and policies can be used to reduce the negative effects of segregation.

The space syntax approach seems to have a promising set of methods and tools to profoundly explore spatial key factors and is enabling detailed analyses ‘on a street level’. The shift from housing segregation descriptions based on residential statistics to descriptions that mirror how space is actually used is important. Such spatial descriptions have the potential to bridge the often unproductive conflict between quantitative and qualitative descriptions (Marcus 2007). The quantitative methods bring certain advantages within the practice of urban design since it enables comparisons between different areas as well as a follow-up of the social consequences of
What knowledge can a spatial approach add to the understanding of segregation? Comprehensively based analyses are crucial since segregation is a relational phenomenon and also in order to capture obscure consequences that might appear as a consequence of some remote interventions.

A current study in Södertälje explores how the segregation issue may be addressed through a spatial approach. This study analyses the degree of segregation in public space since it is argued that such a description is more appropriate when it comes to understanding the spatial implications of segregation, such as exclusion and equal living conditions. The conditions for interplay is studied and areas are analysed according to how integrated they are both locally and globally at a city level. In addition, the issue of accessible density of other people, for example, is captured using the place syntax tool analyses. Global integration captures movement over long distances, and such urban life is likely to be characterised by a large number of strangers while local integration captures movement over shorter distances, such as within neighbourhoods. Preliminary results show that public space in many of the vulnerable areas is highly segregated and that different levels of integration do not overlap to any larger extent.

Finally, it needs to be emphasized that to address segregation with a spatial approach does not imply that other are less important only that it is about time to add the spatial approach as a complement within the field. This is a way of thoroughly search for possibilities within the field of architecture to overcome the negative consequences of segregation in society.

“Even if space has an explanatory power over the formation and persistency of deprived areas, it is not replacing other explanations”. (Vaughan et al. 2005).
Place Syntax Tool analysis shows accessible density of residential population with employment (within a radius of six axial turns from every address point).

Place Syntax Tool analysis shows accessible density of working population (within a radius of six axial turns from every address point). The different levels of density influence the character of urban life.
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