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## Abstract

*In Sweden, urban design and spatial planning is rarely addressed in anti-segregation initiatives. Architectural issues have more or less been confined to matters regarding housing policy. Although segregation is an inherently spatial concept, its spatial dimension is analysed using quite simple spatial models and weak theories on the relation between spatial and social phenomena, methods that provide few analytical insights from an urban design perspective. The Swedish cityscape is to a large extent characterized by post war development, strongly influenced by neighbourhood planning ideas. What is conspicuous in many of these areas is the extreme segregation of public space and that many neighbourhoods are relatively spatially isolated from the city as a whole. Since prevailing approaches are giving weak guidance for urban design there will be an attempt in this paper to in part re-conceptualise the issue and possibly generate new ideas on how to approach social segregation in a more spatially relevant way. This paper investigates how configurational theories and methods can contribute to more nuanced descriptions of spatial relations within different neighbourhoods and in the city as a whole. The result shows that the space syntax approach has the ability to shed light on essential configurational differences between neighbourhoods, even differences between neighbourhoods that generally are ascribed similar characteristics, for example areas included in national anti-segregation initiatives. If social segregation is related to segregation in public space it is essential that an approach is used that has the ability to capture such configurational properties. In this study it is found that more nuanced descriptions give valuable insight regarding the spatial conditions which opens for new possibilities for how policies in urban design can address the segregation problem and that this could be articulated with more efficient anti-segregation interventions, both on a neighbourhood level and on a city level.*

## 1. Increasing segregation in metropolitan areas

In Sweden, social segregation has been the subject of far-reaching political initiatives. Social and ethnic segregation, unequal living conditions, and unequal availability to services and to the labour market are commonplace and considered major social problems. It is stated that the negative outcome of segregation in some vulnerable areas limits possibilities for both individuals and neighbourhoods, difficulties that in the long run negatively can influence even national development and economical growth (SOU 2007:104). There has been an ever-increasing polarization between the most and the least attractive housing areas since 1970 (Öresjö 1997: 43) and it is stated that the inequality regarding the living conditions in different geographical areas has increased during the 1990s (SOU 2005:29). From an urban design perspective, a relevant question is how urban form influences these conditions, which calls for a better understanding of the social logic of the modern Swedish cityscape of today.

Since the mid 1990s, the Swedish government has worked with different area-based programmes to counteract segregation and to improve the conditions for a long-term sustainable growth (SOU 2007:104). The aims of the Metropolitan Initiative, running for a five year period from 1999, was to promote sustainable economical growth, promote equal living conditions for the inhabitants, and to break social, ethnic, and discriminating segregation. Common to the large housing estates

addressed in the programmes are a large proportion of residents with foreign background, low employment rates, low education levels, and a large proportion that depend on social allowances. The principle of selection is based on the composition of the residents and their social profile within a certain geographical area. However, the Metropolitan Initiative has had only marginal success and it is concluded that the understanding of the segregation phenomenon will only be partial if vulnerable areas are studied isolated from the rest of the society (SOU 2005:29). In spite of this critique the next initiative, The Urban Development Policy, has quite similar aim and direction (though the term "segregation" is more or less replaced by "exclusion"). For example, one objective is to decrease exclusion in urban districts (SOU 2007:104). To conceptualise such formulation and implement different actions without articulate the spatial dimension, appear to be quite difficult.

Although segregation is an inherently spatial concept, its spatial dimension is analysed using quite simple spatial models and weak theories on the relation between spatial and social phenomena (Marcus 2007). Social distance and exclusion is commonly pointed out as negative consequences of segregation which quite obviously is partly depending on configurational relations. The prevailing definitions and methods provide few analytical insights from an urban design perspective. This is suggested to be one reason for anti-segregation initiatives to rarely address urban design and spatial planning. In the political discourse, architectural issues have more or less been confined to matters concerning housing policy (SOU 1998:25; Andersson 2006). This limited focus may be a result of the difficulty to define the spatial dimension and to empirically capture how spatial configuration influences social segregation. It is evident from official planning documents that urban design and spatial planning rarely is perceived to have an applicable impact on social segregation. For example, in the Comprehensive Plan for Södertälje (2004) the segregation issue is explicitly related to residential composition and the strategy proposed is about achieving a mix of people through a mix of house types as well as a mix of forms of letting and ownership in both new and existing neighbourhoods. This paper explores how segregation in urban environments can be described more specifically by applying the latest theories and techniques in configurational analysis. The aim is to deepen our knowledge on the spatial dimension of social segregation and this is made by in part re-conceptualise the issue by focusing on segregation in public space rather than on differences regarding compositions of residential population. This primarily focus on urban form is a delimitation that needs to be emphasized strongly in order to avoid misunderstandings, since segregation is a very complex phenomenon that includes many fields and disciplines. The purpose of addressing segregation with an alternative spatial approach, a configurational approach, is to search for possibilities also within urban design to overcome negative consequences of segregation. It does not imply that other approaches are less important only that it is time to add a configurational approach as a complement: "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).

## **2 Housing segregation and its limitations**

The meaning of segregation in an urban context in Sweden today is more or less tantamount to housing segregation, a concept that dominates the debate and is found in many national documents on the subject. Housing segregation is defined through quantitative methods according to how selections of the residential population are distributed geographically. Segregation is studied as a relative and relational phenomenon, and generally three categorisation principles are used: demographic, socioeconomic, and ethnic (SOU 2000:37, Integrationsverket 2006, Andersson 2007). The discourse elucidates how segregation is manifested in an area (e.g. municipality or region) and 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 over time (Andersson and Bråmås 2004; Bråmås 2006; Integrationsverket 2006).

Within the housing segregation discourse, two main determining factors are identified: relational and fixed (RTK 2006). The main interest for urban designers is evidently the built environment, which thus in general is perceived as fixed and difficult to change, and hence, it is not investigated to the same

extent as relational factors. It is also notably that most descriptions of the built environment (that is rarely occurring) has been restricted to available statistical facts about the housing stock; e.g. year of construction, house type, number of storeys, and forms of tenure/ownership. The spatial layout and its configuration has neither been described nor addressed to any larger extent. As a result, architectural interventions within the anti-segregation initiatives have mainly been confined to housing policies if addressed at all. In spite of the fact that descriptions lack detailed information about spatial properties, a direct relation is frequently occurring between the problems of segregation and the large housing estates originating from the Million Programme<sup>1</sup> in general. These areas, originally designed to embody principles of community and co-operation, are now perceived as a measure that created housing segregation (Andersson 2007: 62).

From an urban design perspective, the shortcomings with the descriptions that follow the housing segregation approach, has primarily to do with three aspects. Firstly, it is the difficulties to find an adequate definition of the geographical area as this will determine the level of precision and influence how data is aggregated (often referred to as "The Modifiable Area Unit Problem", see O'Sullivan and Unwin 2002: 30-32). Secondly, it has to do with the lack of context as each area is studied isolated from its surroundings, meaning that possible influence from neighbouring areas is not considered. Thirdly, that the units are categorized according to the composition of its residents, and therefore, the description explains very little of the conditions of the built environment (Andersson 2001; RTK 2006; Legeby 2008). This all together makes it highly uncertain to draw far-reaching conclusions from such descriptions regarding spatial qualities.

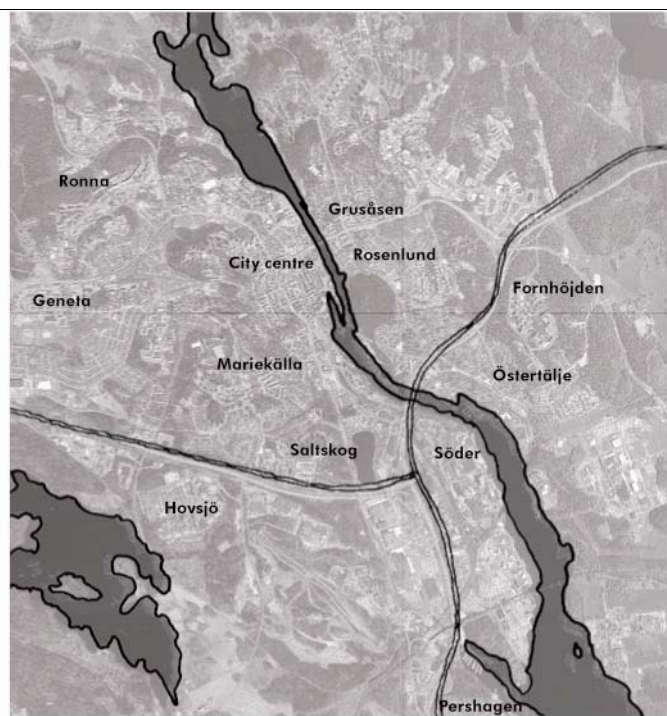
A critical discussion of how cities are analysed as spatial systems is made by Marcus (2008) who argues that theories and methods to analyse cities as spatial systems are underdeveloped. This reasoning is highly relevant in the context of segregation, especially when it comes to explore the role of urban form, since it calls for an analysis of urban systems at a finer scale, a scale that is possible to relate to everyday life rather than to an administrative perspective of space. This could be compared with Lefebvre's differentiation of conceived and lived space (1991). A way forward to deepen the understanding for the spatial parameter is to apply methods that describe spatial relations, i.e. distributions of space rather than distributions *in* space (Koch 2004). Thus, the initial question is partly reformulated, implying a shift in focus from a bird's eye view to a street-level view and from such point of departure, explore integration and segregation (i.e. spatial accessibility) through public space.

### **3 The space syntax approach**

Space syntax aims at reflect both the objectivity of space and our intuitive engagement with it. Space is not seen as a neutral background to human activity, but as an intrinsic aspect of everything human beings do. Urban form in itself seems to have a promising potential to facilitate integration processes. Space is not just about properties of individual spaces, but about inter-relations between the many spaces that make up the spatial layout. (Hillier and Hanson 1984; Hillier 1996; Hillier and Vaughan 2007). This indicates that when studying social segregation, spatial analysis needs to consider both the comprehensive level and the local level. Such approach captures a neighbourhood's spatial position in a wider context, and in addition, it makes a relevant comparison possible between different neighbourhoods regarding spatial conditions. Design and planning decisions have often had some unexpected effects on problems such as social isolation and economic segregation. For example, it was widely believed that to break large residential developments into small inward looking units would promote stronger local communities, and that lower population densities would decrease crime and social malaise. However, these ideas seem to have been more part of the problem than the solution (Hillier 1988). Studies have shown that there is a spatial mechanism involved in the creation of poverty areas and 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, 248). When studying the relationship between physical segregation and social marginalisation in urban environment it is found that some urban areas are especially prone to settlement by impoverished immigrants. It is suggested that the physical separation of poverty areas from the economic life of the city implies a lack of potential for the economically marginalized to integrate into society (Vaughan 2005).

What seems to be conspicuous in many of the post-war suburbs is the segregation in public space; the disrupted relation between buildings and public space, that different scale of movements is disrupted, and that residents in these estates efficiently have been geographically separated from others (Hillier 1996; Hanson 2000; Klasander 2001). The lack of compression of scales is argued to be related to the linking between the local and the global context (Hiller et al. 1993, 35).

#### 4 A configurational analysis of the city of Södertälje



**Figure 1**  
Södertälje.

Area	Population	Foreign background	Population 20-64 years	Employment rate	Unemployment rate	Soc. allow. (div. per area)	Soc. allow. (pop.)
Fornhöjden	3 414	59 %	2 093	61 %	5,7 %	9 %	8 %
Hovsjö	5 054	82 %	2 879	48 %	8,1 %	16 %	11 %
Ronna	6 734	79 %	3 827	63 %	8,9 %	23 %	14 %
Geneta	4 621	66 %	2 675	58 %	6,3 %	10 %	5,3 %
<b>Södertälje</b>	<b>83 642</b>	<b>40 %</b>	<b>48 239</b>	<b>72 %</b>	<b>3,8 %</b>	<b>100 %</b>	<b>-</b>

**Table 1**

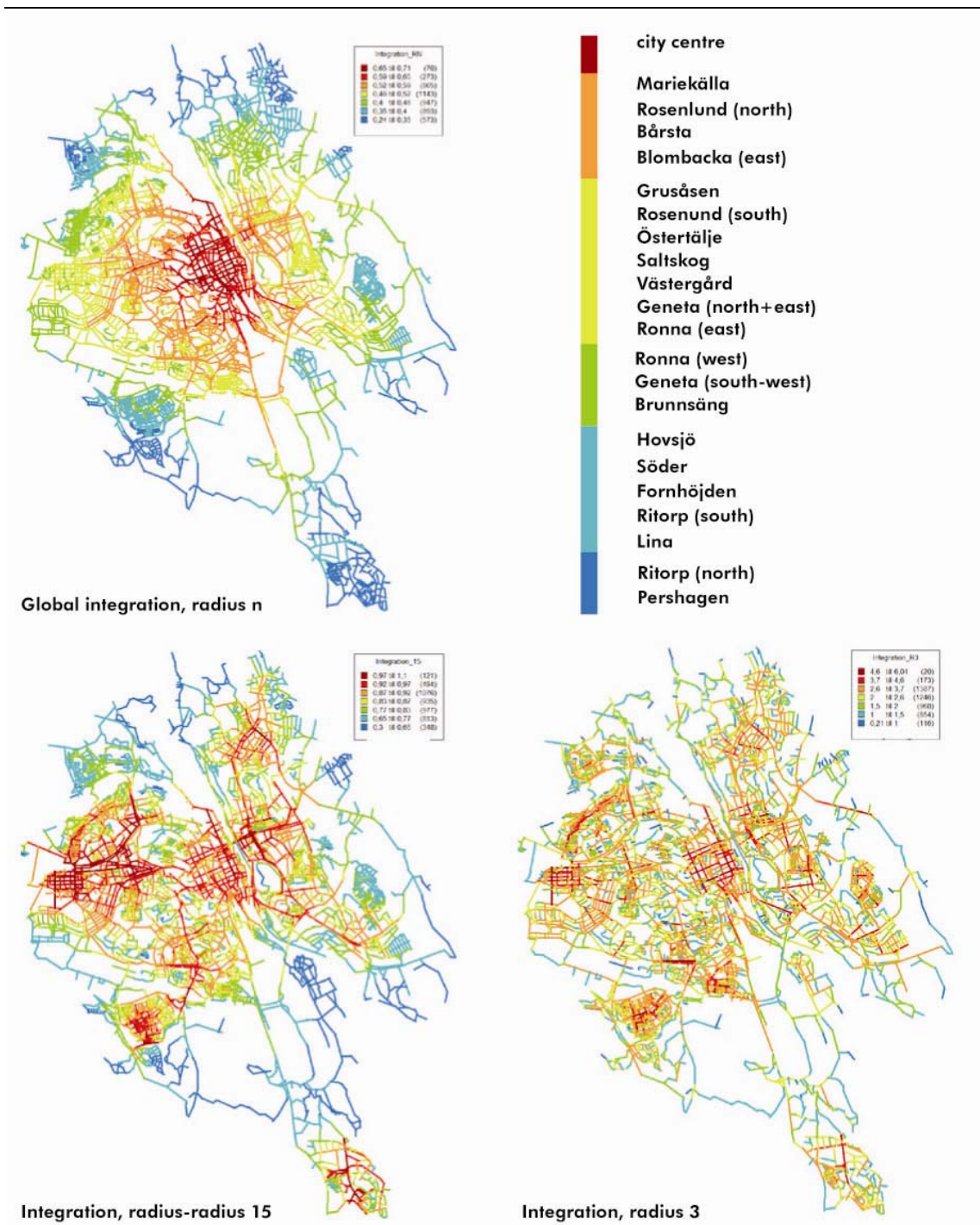
*Social data of the residents in the four areas included in national anti-segregation initiatives (Södertälje kommun 2007a, Södertälje kommun 2007b, and [www.usk.stockholm.se](http://www.usk.stockholm.se)).*

The city of Södertälje, 30 kilometres south of Stockholm, has 84 000 inhabitants of which about 40% have foreign background <sup>2</sup>. The issue of social segregation and exclusion has been a prioritised issue for long time in Södertälje. The cityscape, as in many Swedish cities, is to a large extent characterized of the post-war development, strongly influenced by the neighbourhood planning ideas (Franzén and Sandstedt 1981) as there was a rapid urban expansion after the 1940s as a result of industrialisation. Four large housing estates are included in national anti-segregation initiatives, selected through the social profile of its residents (see figure 1, table 1). Urban design matters have not been addressed in the initiatives in Södertälje; rather it has been a focus on education, employment, and local organisation. The absence of architectural initiatives has made the situation worse; it is argued that the passiveness of the planning authority has contributed to an increased isolation and exclusion of these vulnerable areas. By ignoring the physical aspect of segregation it is argued that the Metropolitan Initiative lost the factor that has

maintained the permanence of segregation (Hajjighasemi 2005, 101). Through the spatial analysis in this study it will be possible to identify urban segregation based on configurational properties.

#### 4.1 Empirical results – spatial integration

The spatial model (the axial map) comprises the whole city and the spatial system is acknowledged as a continuous system so that micro-scale variations are made visible. The analysis of global integration (radius n) clearly shows that Södertälje has a well defined core with high integration. The surroundings has a concentric character but with stronger integration towards the west and south than to the east and north. A few highly integrated lines stretch from the core and outwards. Generally, neighbourhoods tend to have stronger integration towards the city core compared with cross connections that are much weaker. There are also some spatially isolated areas found on a surprisingly close geographical (or metric) distance from the city centre.

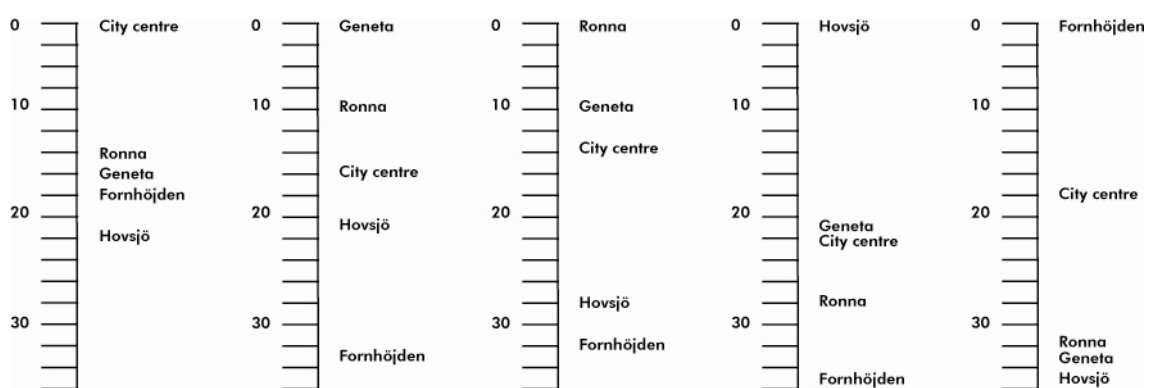


**Figure 2**  
*Integration at different radius.*



As the radius of the analysis is decreased to 15 (i.e. radius-radius for the system) another pattern appear. A couple of new integration nodes stand out, for example in Geneta, Hovsjö, Rosenlund/Grusåsen, and Pershagen. Integration at this level shows a stronger integration from the core to the west and the east than to the south or the north. Geneta, one of the areas included in the anti-segregation initiatives, surprisingly distinguish from many other areas, since it in spite of its metric distance from the city core appear as highly integrated at this level and well connected to the city core (at least in its northern part). Interestingly enough, in this part of Geneta, unlike most other suburbs, there is actually a street in the north that have a great diversity of land use, including commercial businesses, restaurants, as well as churches and assembly facilities. The character of many of these activities clearly indicates that they are not just turning to the local area but also attract people from other parts of the city. However, some neighbourhoods are still spatially very segregated from its surrounding even at this level, for example Fornhöjden, Söder and Lina.

When studying local integration several integration congregations appear, indicating a kind of centrality for different neighbourhoods. Some areas have a very distinct core while there in other areas is difficult to identify a "main street" or a "central square". As integration at different radius is compared it is possible to sense a rather predictable situation in the inner city (with a block grid structure) as the integration core at different radius tend to be more consistent, and also is enlarged as the radius is increased. In many of the suburbs however, the differences between radius 3 and 7 is surprisingly small; even though the radius is increased the physical catchment area seems to be only limitedly increased. In some cases this can be explained to be caused by a more crumpled structure with shorter and several more axial lines, and in some cases it seem to be caused by a prominent enclave-design. Some neighbourhoods have both these features. One important finding is that on the global level both so called vulnerable areas as well as affluent areas have a strongly segregated location within the system. Such spatial hierarchy seems to have an isolating effect on the residents. However, it is suggested that such a spatial hierarchy means beneficial effects for some areas while other seems to be more disadvantaged by such properties. Hence, the spatial isolation seems to facilitate both the character normally referred to as "segregation of choice" and the character referred to as "segregation of coercion" (Varid 2005).



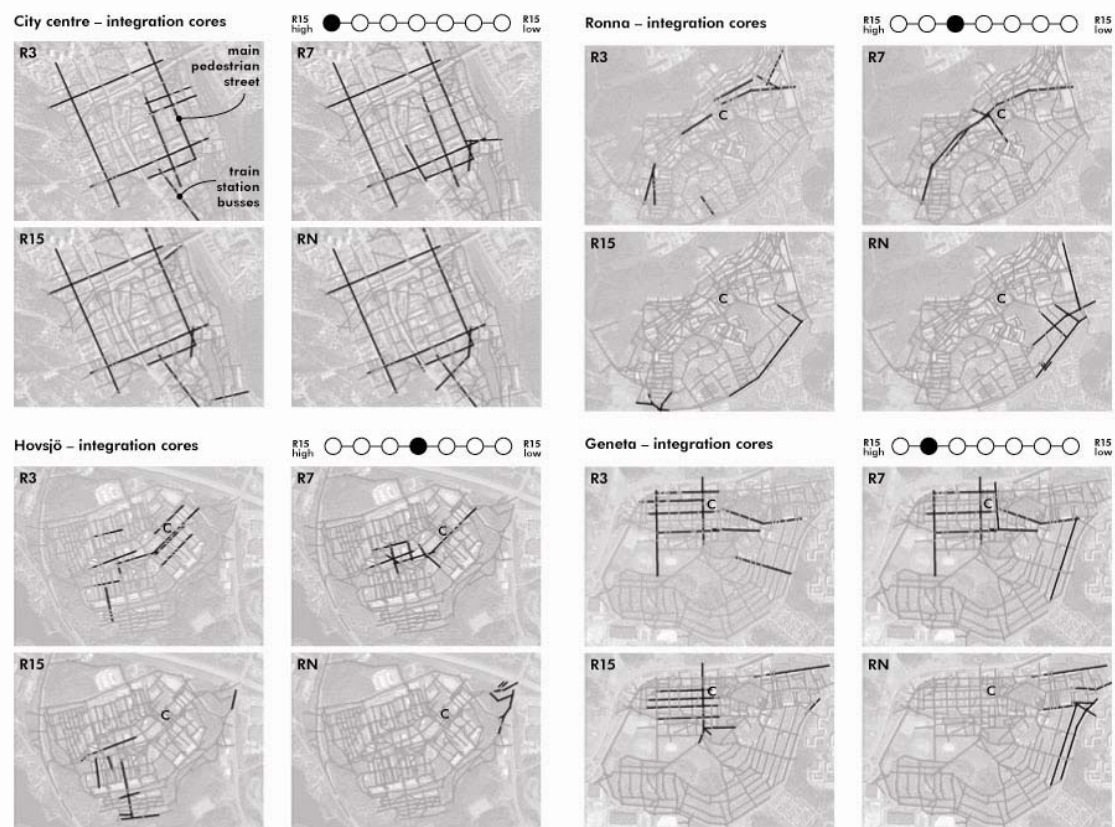
**Figure 3**  
*Step depth analysis.*

Another way of define spatial distance is through depth analysis. In other studies it is found that deprived areas (or ghettos) are characterised by a high depth measure in relation to the surroundings (Vaughan et al. 2005). When comparing the four housing estates included in the national anti-segregation initiatives (originating from the Million Programme), some interesting differences are exposed. From the city core the step depth to the four areas (to the planned local centre) range from 14 for Geneta, 16 for Ronna, 18 for Fornhöjden, and 22 for Hovsjö. Generally, focus is on the distance between the city centre and a suburb but here another perspective is also analysed. Fornhöjden turns out as the most distantly located area in relation to the others; between 32 and 35 steps (see figure 3). It is possible to relate this to information regarding how the civic community is organised in the different areas even though it is difficult to say if it is related to the spatial connections or to other circumstances. However, the population in the three neighbourhoods

Ronna, Geneta, and Hovsjö, are described to have well-developed relations; for example within Assyrian-Syrian communities, associations, and churches, as well as through kinship, a relationship that is especially strong between Geneta and Ronna (Södertälje municipality 2007). In Fornhöjden on the other hand, the different Assyrian-Syrian communities are not described to be that influential even though about 30% of the population comes from (or has a connection to) nations in the Middle East. Here the civic society instead is described to be more strongly associated to the neighbourhood itself rather than bound to a certain ethnical or cultural context.

#### 4.2 Planned centres in integrated locations?

A common critique of many of the modern suburbs in Sweden is that the local centres are not well functioning; neither as a social meeting place nor for commercial activities. They are often described as turned inside out or not located in a central position in the neighbourhood (Klasander 2001; Olsson, Ohlander and Sondén 2004). In this paper it will firstly be analysed if planned centres in Södertälje is located at the global and/or at the local integration core. Secondly, the overlapping of local and global integration in general will be studied for different neighbourhoods in order to relate this to the notion of synergy effects as different levels of integration overlaps, creating a compression of scales (Hillier et al. 1993, 35; Hillier 1996). Similar reasoning is made by Jane Jacobs who beside a local activity also is emphasizing continuity and influences from the city level as one essential aspect of a functioning urbanity (Jacobs 1992).



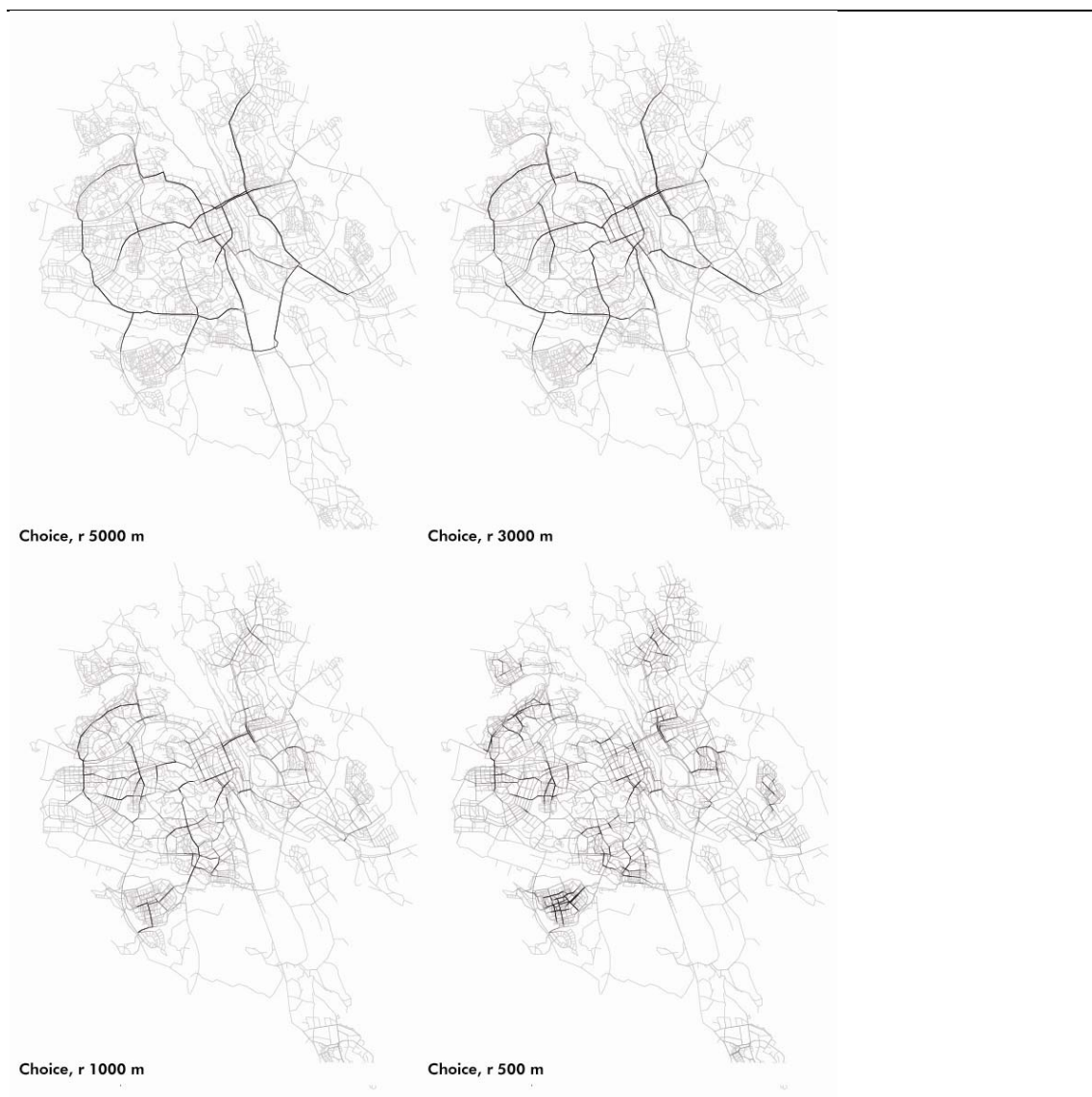
**Figure 4**  
*Integration cores in the city centre, Ronna, Hovsjö and Geneta.*

Starting with the centres; the result indicates that the intention to locate planned centres in highly accessible locations seems not to have been fulfilled in many of the studied neighbourhoods in Södertälje. Half of the areas have a planned centre that is not located where the local or the global integration core is found. Common features for these neighbourhoods are that they are peripheral located from the city core and planned and built after 1960. In some areas the planned centre is found at the local integration core. In two areas the planned centre is where both the local and the

global integration cores overlap in the area, which is a location that can be described as being optimized from a configurational perspective which means that it has the potential to derive advantage from urban form to support the intended use. However, it needs to be emphasized that even if it is an optimized location within that specific neighbourhood the area itself might still be weakly integrated in the overall structure. Figure 4 shows four of the areas with the ten most integrated spaces at different radius highlighted.

### 4.3 Important links within and between neighbourhoods

Integration reflects spatial accessibility, a kind of centrality, but in urban studies it could also be of relevance to analyse the potential for through-movement (choice) and identify the spaces (or segments) that are most likely to be frequently used as routes (Hillier and Iida 2005, 553). Still, it is important to bear in mind that also choice analysis is about the spatial system in itself; its properties and its potential. To capture properties such as accessible density still other complementary methods need to be used, for example Place syntax tool (Ståhle, Marcus and Karlström 2005).



**Figure 5**  
*Choice analysis*

In Södertälje the potential for exchange within and between neighbourhoods is in focus which makes it interesting to identify important links. The choice analysis (which is conducted on the segment map) at radius 5000 and 3000 metres show that two of the large housing estates, Hovsjö and Fornhöjden, are spatially efficiently excluded from the highly frequented movement network,



while the other two, Geneta and Ronna, are at least intersected. This is an important difference indicating that accessibility to Hovsjö and Fornhöjden is already on a global level strongly impaired. From a design perspective it is also of relevance to highlight the character of these highly important linkages; the main paths through which one access these areas. From a safety and security perspective it is possible to see that in some areas the most important paths are poorly designed (figure 6), this becomes especially important as households in these areas do not have access to private cars in the same extent as in other more affluent areas which makes the population even more dependent on the quality of the pedestrian paths beside public transportation. When reducing the radius to 1000 and 500 metres the choice analysis identifies some areas that are highly consistent through scales, which can be described as predictable. Other areas feature a more indistinct pattern, for example Hovsjö, where the different levels of movement flows are quite disparate. In Geneta and Ronna there is an identifiable main path that proves to be important on all different scales, while there in Hovsjö and Fornhöjden is no such self-explanatory or natural main path.



**Figure 6**

*The character of the main paths and streets in Hovsjö.*

The choice analysis, in comparison with the integration analysis, more distinctly highlights the important spaces (segments) for movement within and between areas. Hence, some spaces might come out as important for through movement in the choice analysis even though they are not well integrated. To interpret the results from a design perspective the theoretical difference between these measures need to be stressed and is pointed out by Hillier; integration (i.e. topological analysis) deals with closeness of a space to its neighbourhood and therefore we can intuit it. Choice (i.e. geometrical analysis) cannot be intuited because it deals with how the segment we are on feature on routes between locations which might be quite remote (Hillier 2007, 3).

## 5 Discussion and conclusions

The different spatial analyses demonstrate that Södertälje is a spatially segregated city and that there are large differences between neighbourhoods regarding the spatial potential. Neighbourhoods have generally relatively strong spatial connections towards the core but weak cross connections. Some areas, that geographically seem to be close to the city centre, prove to be segregated due to its spatial configuration; the design of the layout obstructs spatial integration, isolates the neighbourhood and efficiently impairs accessibility.

The integration analysis reveals that both vulnerable as well as affluent areas are found in segregated positions on a global level. It is argued that these areas and its residents are more thrown upon the area's own resources, a situation that most likely is advantageous for people in the affluent areas, while most probably unfavourable for residents in vulnerable areas with poor resources. Hence, spatially segregated areas afford properties which make them potentially more vulnerable, a vulnerability that is built into the design. It can be compared with findings by Hanson who is arguing that disabling effects caused by urban design ideas tend to have the greatest impact on the weakest and least powerful people socially; those who depend on their local environment the most to support them in their everyday life, like children, elders, the sick and disabled, the unemployed (Hanson 2000, 117). This means that it is not possible to say that spatial segregation per se necessarily means that a local population is disadvantaged; thus, to be able to predict outcomes, one need also to consider the social profile of the residents. This is crucial to highlight, since urban designer in practice have great influence on the configuration of space but generally very little control over the population, especially not variations over time.

An important finding to highlight is the large differences between the four housing estates included in the national anti-segregation initiatives. In the debate it is often suggested that there should exist a kind of "bag of fix" that can turn downward tendencies in these kinds of areas. This study proves that this is not the case, at least not in Södertälje. The four areas have different spatial potential, caused by different position globally, and different spatial shortcomings and qualities on a local level that need to be acknowledged. Two of the areas are well integrated in the comprehensive urban fabric, have higher accessibility, hence, larger potential for an interchange. Hovsjö is the area that distinguishes from the others; the most important paths are for pedestrians and bicyclists only, and they are weakly constituted by buildings, hardly providing a safe and secure walkable environment. Hovsjö as a neighbourhood is more spatially fragmented than the other areas, indicated both by the integration analysis and the choice analysis. These findings are of great concern as Hovsjö has a population with the lowest employment rate and that few households have access to private vehicles in comparison to other areas. Also, Hovsjö has the highest share of people with foreign background (82%) of which many has arrived to Sweden relatively recently.

If discussing the impact of segregation in public space on a comprehensive level it is suggested that a spatially segregated and hierarchical urban environment is less robust than an integrated and continuous system, and hence, one can argue that it is less sustainable. The results show that spatial segregation is not a phenomenon restricted to poor areas, and hence, it is not only so called vulnerable or areas characterised of exclusion that need to be taken into account in anti-segregation initiatives. Social segregation is a concern of the whole city, particularly from an urban design perspective. If a municipality has areas that feature low accessibility it becomes even more important how common resources are distributed compared with more integrated urban structures if equal living conditions is aimed at. In the same way one can discuss about housing segregation, the more isolated a neighbourhood is the greater is the need for a diverse population with different social profile within the neighbourhood itself. And as the social profile is believed to be closely related to the housing stock there is also a need for a balanced supply of different house types and forms of letting etc. It is important to emphasize that this paper has been about analyses that are about spatial features only. In order to further explore possible consequences of the spatial conditions one need to add social data. Such analysis could have the ability to more specifically reveal what segregation in public space implies for the accessibility to other people and for the accessibility to important resources in the city. These issues would be highly interesting to attend to in future research.

It is stressed, that an increased and nuanced knowledge about the spatial configuration is a necessity for more effective urban design and planning policies within anti-segregation initiatives. The findings of this study open for a possibility to widen future anti-segregation interventions to also include urban design practice, which so far, has not been part of the strategies in Södertälje as in many other cities in Sweden. Earlier experience from studies on social segregation emphasize that coordinated initiatives, including engagement from all actors concerned, seem to have the greatest potential for successful results (Hajighasemi 2005; Öresjö 2006).

## Notes

- 1 The Million Programme was a political project with the aim to build one million housing units within ten years (1965-1974) in order to put an end to the severe housing shortage in Sweden.
- 2 Stockholms Stads Utrednings- och Statistikkontor AB (USK). [www.usk.stockholm.se](http://www.usk.stockholm.se)

## References

- Andersson, Roger. 2001. Skapandet av svenskglea bostadsområden. In *Den delade staden*, ed. Lena Magnusson, 83-114. Umeå: Boréa.
- Andersson, Roger. 2006 Breaking segregation – Rhetorical Construct or Effective Policy? The Case of the Metropolitan Development Initiative in Sweden. *Urban Studies*, Vol. 43, No. 4, 787-799.
- Andersson, Roger. 2007. Ethnic Residential Segregation and Integration Processes in Sweden. In Schönwälder, K. E. *Residential Segregation and the Integration of Immigrants: Britain, the Netherlands and Sweden*. S. S. R. C. Berlin: Wissenschaftszentrum Berlin für Sozialforschung gGmbH.
- Andersson, Roger and Åsa Bråmås. 2004. Selective Migration in Swedish Distressed Neighbourhoods: Can Area-based Urban Policies Counteract Segregation Processes?. *Housing Studies* Vol. 19, No. 4, 517-539.
- Bråmås, Åsa. 2006. 'White Flight'? The Production and Reproduction of Immigrant Concentration Areas in Swedish Cities, 1990-2000. *Urban Studies* 43:7, 1127-1146.
- Franzén, Mats and Eva Sandstedt. 1981. *Grannskap och stadsplanering: om stat och byggande i efterkrigstidens Sverige*. Uppsala: Univ.
- Hajighasemi, Ali. 2005. *Att bryta den beständiga segregationen: fallet Södertälje*. Projektet för utvärderingen av Storstadsatsningen, Huddinge: Södertörns högskola.
- Hanson, Julianne. 2000. Urban transformations: a history of design ideas. *Urban Design International* No. 5, 97-122.
- Hillier, Bill and Julianne Hanson. 1984. *The social logic of space*. Cambridge: Cambridge Univ. Press.
- Hillier, Bill. 1988. Against Enclosure. In *Rehumanizing Housing*, eds. N. Teymour, T. Markus and T. Wooley, 63-85. Butterworth, London.
- Hillier, B., A. Penn, J. Hanson, T. Grajewski and J. Xu. 1993. "Natural movement: or configuration and attraction in urban pedestrian movement". *Environment and Planning B: Planning and Design* 20, 29-66.
- Hillier, Bill. 1996. *Space is the machine: a configurational theory of architecture*. Cambridge: Cambridge University Press.
- Hillier, Bill and Shinichi Iida. 2005. Network effects and psychological effects: a theory of urban movement. In *Spatial Information Theory, Lecture notes in computer Science 3603*, eds. A. Cohn, and D. Mark, 473-490. Springer Verlag.
- Hillier, Bill. 2007. Using DepthMap for urban analysis: a simple guide on what to do once you have an analysable map in the system. *MSc Advanced Architectural Studies 2007-8*. UCL.
- Hiller, Bill, and Laura Vaughan. 2007. "The city as one thing" in Vaughan, Laura, *The spatial syntax of urban segregation*. *Progress in Planning* No. 67 205-294.
- Integrationsverket. 2006. *Rapport integration 2005*. Norrköping: Integrationsverket.
- Jacobs, Jane 1992 [1961]. *The Death and Life of Great American Cities*. Vintage Books ed. New York.
- Olsson, Sören, Marianne Ohlander and Gerd Cruse Sondén. 2004. *Lokala torg: liv, miljö och verksamheter på förortstorg*. Göteborg: Institutionen för socialt arbete, Göteborgs Universitet.
- O'Sullivan, David and David J. Unwin. 2002. *Geographic information analysis*. New York: J. Wiley.
- Klasander, Anna-Johanna. 2001. *Stads-delar: förorter som stadsbyggnadsfråga*. Göteborg. Chalmers Tekniska högskola.
- Koch, Daniel. 2004. *Spatial systems as producers of meaning: the idea of knowledge in three public libraries*. Stockholm: KTH School of Architecture.
- Lefebvre, Henri. 1991. *The production of space*. Oxford: Basil Blackwell.
- Legeby, Ann. 2008. What knowledge can a spatial approach add to the understanding of segregation?. In web-proceedings from the conference *Architectural Inquiries*. Chalmers 2008.

- Marcus, Lars. 2007. Social housing and segregation in Sweden – from residential segregation to social integration in public space, in Vaughan, Laura, "The spatial syntax of urban segregation" in *Progress in Planning* No. 67 205-294.
- Marcus, Lars. 2008. Urban form and sustainable cities – the need for analytical tools. *Working paper*.
- RTK. 2006. *Planering för minskad boendesegregation*. Stockholm: Regionplane- och trafikkontoret (RTK).
- SOU 1998:25, Storstadskommittén. 1998. *Tre städer: en storstadspolitik för hela landet*. Stockholm: Fritze.
- SOU 2000:37. 2000. Fritzell, J. & Andersson, R. (red.) *Välfärdens förutsättningar: arbetsmarknad, demografi och segregation: antologi från Kommittén Välfärdsbokslut*. Stockholm: Fritzes offentliga publikationer.
- SOU 2005:29. 2005. *Utredningen om utvärdering av lokala utvecklingsavtal. Storstad i rörelse: kunskapsöversikt över utvärderingar av storstadspolitikens lokala utvecklingsavtal: slutbetänkande*. Stockholm: Fritze.
- SOU 2007:104. 2007. *Samverkan för lokal utveckling: betänkande*. Stockholm: Fritze.
- Stockholms Stads Utrednings- och Statistikkontor AB (USK) [www.usk.stockholm.se](http://www.usk.stockholm.se).
- Ståhle, Alexander, Lars Marcus and Anders Karlström. 2005. Place Syntax – Geographic Accessibility with Axial Lines in GIS. In *Proceedings to the 5th International Space Syntax Symposium*.
- Södertälje kommun. 2004. *Comprehensive Plan for Södertälje Municipality 2004*. (Översiktsplan 2004 för Södertälje kommun). Södertälje. Also found at [www.sodertalje.se](http://www.sodertalje.se).
- Södertälje kommun 2007a. *Urbant lokalt utvecklingsarbete (utkast), Strategiskt utvecklingsprogram för stadsdelarna Fornhöjden, Hovsjö, Geneta och Fornhöjden*. Södertälje kommun.
- Södertälje kommun. 2007b. *Oktoberreporten lokalt utvecklingsarbete i Fornhöjden, Hovsjö, Geneta och Ronna 2006-07-01-2007-06-30*. Södertälje kommun.
- Varidy, David P. 2005. *Desegregating the city. Ghettos, Enclaves, and Inequality*. State University of New York Press, Albany.
- Vaughan, Laura. 2005 "The relationship between physical segregation and social marginalisation in the urban environment", *World Architecture*.
- Vaughan, Laura, David L. Chatford Clark, Ozlem Sahbaz, and Mordechai (Muki) Haklay. 2005. Space and Exclusion: Does urban morphology play a part in social deprivation?. *Area* 37.4, 402-412.
- Vaughan, Laura. 2007. "The spatial form of poverty in Charles Booth's London" in Vaughan, Laura, The spatial syntax of urban segregation. *Progress in Planning* No. 67 205-294.
- Öresjö, Eva. 1997. "Neighbourhood Integration and Mobilization". In *Swedish Planning Towards Sustainable Development*, eds. Claes Göran Guinchard and Göran Cars. Swedish Society for Town and Country Planning. Gävle.
- Öresjö, Eva. 2006. *Konsten att dra åt samma håll: en rapport om Råslätt i Jönköping*. Stockholm: SABO.