Chapter 9
Street Interaction and Social Inclusion

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I. Introduction

The Swedish history of massive post-war housing expansion has left a legacy of notoriously segregated suburbs. However, the situation is more complex with some suburbs suffering social problems much more than others. This chapter uses the case of Gothenburg, Sweden to illustrate how public spaces such as streets can become an important arena for interplay between incomers and local inhabitants in such suburbs. The research described here shows the role that spatial configuration plays in shaping the potential for social interaction. In particular, detailed analysis suggests that the design and configurational layout of public spaces such as streets, squares and parks contribute to day-to-day interaction and potentially to overcoming social exclusion. Urban form is thus found to play a critical role in such social processes.

The problems related to segregation and exclusion in Swedish cities are currently being discussed to an extent not experienced before. This is reflected in policy documents, municipal budgets and Comprehensive Development Plans, all of which have extensive formulations on social sustainability and social exclusion. More explicitly, the local government in Gothenburg has declared that segregation is to a large extent driven and reproduced by the unequal life chances found within the city. In particular, the relatively poorer conditions found in today's socially disadvantaged districts are of great concern, which is evident in their inclusion by the national government as part of the Urban Development Initiative (2008–14). In total, fifteen areas are included in the national initiative of which four are located in Gothenburg: Bergsjön, Hjällbo, Gårdsten and Norra Biskopsgården.

Architecture and urban design are seen in this debate as playing a central role for counteracting segregation, confirmed by formulations found
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in policy documents. The critique of suburbs that were built as part of the great urban expansion from around 1940, especially estates built under the One Million Homes Programme,² has been extensive and, as a consequence, new urban design discourses have emerged. Frequently used buzzwords found in policy documents are ‘densification’, ‘mixed use’, ‘social mix’, ‘fewer boundaries’, ‘public space as meeting place’, ‘connectivity’ and ‘permeability’. But how do we know that such urban design principles/postulates lead to less segregation or will support social inclusion? What configurative properties of urban space will enable social processes that are desirable in this regard? As Julienne Hanson (2000) claims, there is an obvious risk that in time we may discover that we have ‘got it wrong’ once again. This can only be avoided by increasing our understanding of how different morphological layouts in different parts of the city support or inhibit social processes that are favourable to social sustainability.

During the last four decades, Sweden has seen a number of anti-segregation initiatives carried out in suburbs defined as segregated or characterised by social exclusion. In spite of these far-reaching efforts, the situation remains highly problematic. The limited geographical focus of these initiatives, typically dealing with isolated areas where the population has the lowest income and the highest unemployment rates, and where many people are dependent on social welfare, is unfortunate. Urban research that focuses on how architecture and urban design can contribute to a less segregated city typically highlights the importance of the urban spaces that frame and support everyday life in the city – public spaces such as streets, squares, parks and so on – and is based on the idea that various social processes that are decisive for integration processes may take place here (Hanson 2000; Marcus and Legeby 2012). With whom we potentially share the street, it is argued, is of utmost importance for matters related to social exclusion, as are the resources, human and non-human, that are within easy access as we go about our daily routines. Thus, the street – along with other public urban spaces – becomes an important arena for interplay between citizens and for processes of recognition of ‘the other’. The varying size of groups of co-present people in public spaces in these studies is found to be associated with certain configurational properties that streets and public spaces hold. Most importantly, however, this research has demonstrated that these variations are primarily the result of the interrelation between local and city-wide spatial properties, that is, on the systemic level, and far less to local properties of the individual spaces, meaning that spatial relations at the city level are important for the properties of local spaces (Hillier and Hanson 1984; Hillier 1996).

This chapter will develop and try to support these ideas about the role of public space for day-to-day interaction, interplay and exchange of
information, which in extension may also contribute to the overcoming of social exclusion. The importance of the street and other urban public spaces is highlighted and it will be argued that many of the neighbourhoods studied have layouts with morphological properties that prove unfavourable from a social integration perspective, not only among those identified as characterised by exclusion. The street is thus not only seen as a transportation corridor but also as a potential social space and an arena for social interaction, provided that the urban layout is designed to support such processes. The empirical data from Gothenburg typically show how patterns of co-presence create unfavourable potential for social interaction in some of the squares and streets in its suburbs and that this is related to certain configurational properties of the urban layouts.

More specifically, two central aspects of the segregation debate will be highlighted. First, access to co-presence is analysed in order to establish what these neighbourhoods afford its users in terms of social interaction by measuring, on the one hand, the intensity and, on the other, the constitution of co-present people in public space, which, as we shall see, is deemed highly important for day-to-day interaction that may support social inclusion. Second, the level of access to various urban amenities and resources is analysed with the aim of carefully mapping their spatial distribution since, again, this is found to be decisive for matters of segregation and exclusion. As a background to this we will start with a brief account of recent developments in urban morphology and spatial analysis in regard to these issues, especially earlier work in space syntax. This will be followed with a report and brief review on work done in sociology and human geography in relation to the same issues, especially when it comes to understanding the role of co-presence for social processes. Following this we describe a relevant empirical study in Stockholm concerning the relation between urban form and segregation and present the approach and method chosen for the Gothenburg study, especially the approach to evaluating the relation between urban form and co-presence, on the one hand, and between urban form and urban amenities, on the other. The chapter will then present the results of the study and end with a discussion from the more general perspective of justice in regard to how human (co-presence) and material (amenities) resources are distributed in the urban landscape and how this conditions life opportunities.

II. Urban life and co-presence

In order to better understand social processes in urban space we will here start to discuss the critical role of spatial configuration and co-presence and
the correspondence between these two aspects. Research in architecture within the field of space syntax points out that the design of many housing estates prone to poverty and exclusion poses an obstacle to integration processes in itself (Hanson and Hillier 1987; Hanson 2000; Vaughan 2005; Legeby 2010, 2013). Within space syntax theory, space is not seen as a neutral background for social and cultural processes; rather the opposite is argued and urban space is assumed to have an inherent social logic. According to Hillier and Hanson (1984), the spatial configuration of buildings and cities has a very direct influence on social life:

By giving shape and form to our material world, architecture structures the system of space in which we live and move. In that it does so, it has a direct relation – rather than a merely symbolic one – to social life, since it provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realisation – as well as sometimes the generator – of social relations. In this sense, architecture pervades our everyday experience far more than a preoccupation with its visual properties would suggest. (Hillier and Hanson 1984: ix)

Co-presence as well as random encounters and awareness of others are here seen as fundamental for many social processes, but even if space has an inherent social logic of this kind it is stressed that this does not mean that there is something like a ‘spatial determinism’ in a ‘cause and effect’ sense (Hillier 2013: 75).

The design of many post-war urban layouts has been found to have an impact on behaviour that is disadvantageous for social life and cohesion: there is a ruptured interface between locals and non-locals, and hence, public space does not offer the potential for unplanned interactions such as bumping into people, dropping in or popping round (Hanson 2000; Hanson and Zako 2007). This means that casual and informal social arrangements are not supported through the spatial layout of the area but instead need to be replaced by pre-planned and formal arrangements. Furthermore – and highly relevant for the Swedish context – public space as an arena for the exchange of information is altered, in that the opportunity of personal experiences of other parts of the city, and hence other social groups, is limited on your home turf. Consequently, knowledge and opinions to a larger extent are shaped by media (Hanson 2000: 114–15).

Hanson has found that the lack of opportunity to participate in urban life was the result of changed properties in twentieth-century urban layouts, particularly in many post-war urban layouts, which were designed to
minimise social contact, especially with ‘strangers’, which had the greatest effect on the people who are weakest and least powerful in social terms (Hanson 2000: 116–17). The typical pre-twentieth-century street-based ‘all-neighbour’ layout was replaced by the estate or what Hanson calls the ‘no-neighbour’ layout, a layout that does not encourage having ‘strangers by the door’ or a mix of locals and non-locals within the area. Hanson and Zako (2007) illustrate how varied housing morphologies of different historical periods give material form to different conceptions of movement, co-presence and surveillance. Their findings regarding how spatial configuration is associated with co-presence (including anti-social behaviour) are highly relevant for segregation, and they conclude that the community of the street is made up of a complex layering of anonymity, intimacy and social encounter.

Research has shown that urban safety is maintained by the co-presence of locals and strangers on the street, the interface between local residents and passers-by on the doorstep and the informal surveillance of residents over street space from the privacy of their front window (Hanson and Zako 2007: 20). They argue that the panoptic models of modernism, the inward-facing housing groups, ruptured this spatial interface between inhabitants and passers-by. However, the degree to which such an interface among residents and between residents and passers-by will develop is dependent on the emergence and distribution of movement flows, which in turn depend to a large degree on the configurational properties of space, that is, the degree to which a specific place – a street or a square – is related to other places even at great distances away (Hanson and Zako 2007: 15; Hillier 1996: 171). This is something that is also referred to as being part of the foreground network, which according to Hillier (2009) is characterised by high accessibility and therefore captures movement flows from large parts of the city, which in extension facilitates socio-economic exchange and renewal through the co-presence of a variety of social groups. The background network in contrast is constituted by the parts of the street network that are least accessible from the system as a whole, and therefore capture distinctly less movement from other parts of the city.

The disabling effects of the urban transformation identified by Hanson (2000) have been highlighted in a Swedish context (e.g. Klasander 2003, 2005; Schulz et al. 2004; Olsson and Törnquist 2009; Legeby 2010, 2013), as well as in an international context (e.g. Hillier and Hanson 1984; Vaughan 2005, 2007; Vaughan and Arbaci 2011). In these studies it has been clearly demonstrated that the configuration of urban space can create either closeness or distance between citizens and between resources in a city. Public space is therefore seen to play a key role in the matter of segregation.
because it can be designed either to optimise processes that bring people together, supporting movement and co-presence, or to inhibit such processes (Legeby and Marcus 2011). In the Swedish context, the influence of architecture has been discussed in relation to anti-segregation initiatives and Shultz et al. (2004) argue that such unfavourable conditions have to do with the scale of the Swedish post-war estates, their profound enclave structure and differentiated traffic system, as well as land use zoning. Taken together, the spatial properties of the layouts in these areas cause many disadvantages for the local inhabitants, for example poor legibility and depopulation of public space. More specifically Klasander (2001, 2003) highlights the disrupted interface between buildings and streets/paths and argues that few entrances along public pathways (i.e. a weak constitution of the street in space syntax terms) is unfortunate. Schulz et al.’s evaluation report from 2004 called for urban design interventions such as increased density, in-fill development along strategic paths or streets that are desolate and unconstituted (namely, with blank walls, rather than doorways and windows), as well as better spatial integration with the surroundings and with the city as a whole (Schulz et al. 2004: 208–9).

Vaughan’s extensive studies of morphological influences on poverty, deprivation and social exclusion find that spatial form can itself be considered a factor in the geography of poverty (Vaughan 2005: 409). There is a relationship between physical segregation and social marginalisation and some urban areas are especially prone to settlement by impoverished immigrants. Vaughan (2005) suggests that the physical separation of poverty-prone areas from the economic life of the city implies a lack of potential for the economically marginalised to integrate into society. By studying the relationship between spatial segregation and socio-economic segregation, Vaughan concludes that immigrant quarters have spatial attributes that make them more prone to poverty, for example spatially segregated from the rest of the city, London in her particular study, and that poverty persists over time (Vaughan et al. 2005: 403). Spatial segmentation is found to have a detrimental effect on the most vulnerable populations, especially those who are restricted to only local movement on a daily basis, which severely limits their opportunities for social exchange (Vaughan 2007: 248).

Empirical studies of the constitution of co-present people, meaning the social mix of these groupings, at squares in different neighbourhoods in Södertälje and Stockholm have found a correspondence between the inflow of non-locals and configurational properties of space (Legeby 2010, 2013). Many public spaces lacked spatial conditions that encouraged inter-accessibility or circulation between neighbourhoods and have instead kept
its inhabitants apart (Legeby 2013). Hence, an arena where local inhabitants can encounter or simply share space with non-locals has not been created. The configurational properties associated with such disadvantageous outcomes are a ruptured interface between local and global accessibility, weak spatial relations to neighbouring areas as well as a lack of good city-wide connections that intersect with symbolically weighted meeting places such as neighbourhood squares or local main streets/paths. Streets (or paths) that link an area (typically by way of its high spatial accessibility) to its surrounding areas are of special importance in these neighbourhoods, thereby performing a function similar to that of the typical British ‘high street’.

Vaughan et al. (2010b) indeed conclude that the configurational characteristics of suburban centres are bound up in how they have been shaped to take advantage of differing scales of movement and encounter over time and typically their high streets are very well connected to the wider city network. They found that the streets that are ‘most effective’ in capturing journeys of different lengths are those that are spatially integrated both locally and city-wide, and empirical evidence finds that these streets and their immediate surroundings are associated with large variations in non-residential activities (Vaughan et al. 2010b). Most critically, such streets (or paths) between areas in many Swedish suburban landscapes are not constituted by buildings.

If we turn to sociological research in this domain, it has been shown that everyday activities that take place in public spaces are a key factor for countering urban segregation. Franzén (2009) suggests that to better understand urban segregation, research needs to look beyond residential segregation and see if there are segregation patterns in the people's lives in a broader sense; a highly relevant question that is less studied is this: is life in the city being lived in parallel social worlds or not? (Franzén 2009: 1). How the city is used in everyday activities (not necessarily bound to where people live and become co-present) is here seen as an important prerequisite for a range of societal functions, that is, the development of social solidarity (Giddens 1984; Collins 2004), the development of weak or strong ties (Granovetter 1973, 1983), the potential to create spatial as well as transpatial solidarities (Hanson and Hillier 1987) or for different types of bridging or bonding processes (Putnam 2000). The structure and configuration of urban space furthermore directly influence the distribution of, and access to, human and material public and private resources.

Certain properties are associated with a greater diversity of groups in society sharing space, that is, they enable the experience of ‘the other’ in a daily situation as well as allowing for the participation in the formation of
public culture (Zukin 1995). This may lead to an increased recognition of different groups in society that can trigger processes of solidarity (Collins 2004) or at least a ‘civility of indifference’ (Amin 2012). Co-presence, as a result of the routines of day-to-day life, is in this context argued to be fundamental to even the most elaborate forms of societal organisation (Giddens 1984: 64).

By being co-present in public streets, squares and parks we have, according to Zukin, the possibility of gaining insight into other people’s life conditions. The street becomes a place for a constant ongoing process of creating different group solidarities and identities among those who share space, identities that may be further integrated into society at large (Zukin 1995: 11, 253). In a similar way Sennett (1992) contends that urban public life, the street life, is important in forming the unwritten rules of society and access to information. Olsson (1998) asserts that the interplay that occurs in public space is important for understanding ‘the other’, whilst Grannis (1998) emphasises the significance of who it is that shares public space, pointing out that the local street network affects the potential for neighbourly interaction not only among close neighbours but also between people who live further apart as a result of face-to-face interactions in the street.

The street structure can be changed and along connecting streets neighbourly relations are likely to increase; it is argued that micro-level phenomena produce macro-level outcomes (Grannis 1998: 1560). The mix of local inhabitants and non-locals is important since the information and knowledge that incomers may bring to an area are different from ‘provincial news and views’. Such information from elsewhere is believed to be important, for example, in obtaining a job, which in the debate of social integration and exclusion is a critical issue (Granovetter 1983).

Giddens (1984) points out how patterns of co-presence in an urban environment are commonly the result of everyday practices that are highly routinised. Following Hägerstrand (2009), Giddens stresses how the trajectories of individuals to a large extent follow similar daily procedures, and how these trajectories may overlap or be superimposed – completely or in certain sequences – and cannot be characterised as completely random. This insight leads us to focus on the places where such everyday activities occur, namely in public space. The effect a street layout may have on keeping people apart, keeping strangers out of an area or enabling and allowing for inter-accessibility between people, will thus create conditions influencing the kind of social interaction that may take place in different locations. We therefore find substantial support for the contention that urban social processes can be influenced through various architectural design components, here expressed in space syntax terms, such as increased spatial integration,
increased constitution, a densification of strategic public paths in terms of activities and entrances, and so on.

So how are configuration and co-presence interrelated, and what correspondences can be established? A study in Stockholm, based on extensive empirical data and space syntax methodology, has suggested a shift in focus in studies of urban segregation from residential segregation to segregation in public space, opening the way for anti-segregation initiatives to address the problem from the perspective of architecture and urban design in a new and theoretically solid way (Marcus 2007; Legeby 2013). The basis for this claim is that public spaces – streets, parks, squares – are shown to be extremely vital places for facilitating certain social processes, depending on their particular structure and configuration both locally and at the city level, and their subsequent influence on movement distributions and patterns of co-presence. Much empirical space syntax research highlights the particular correlation between spatial configuration and movement, but we want to point out that the essential thing here is how movement works as a mediator of co-presence and its critical role in social processes in cities (Marcus and Legeby 2012). This aligns closely with ideas originally set out in space syntax theory about the relation between spatial form and social processes (Hillier and Hanson 1984) and also is supported by the theories of Anthony Giddens (1984) and Erving Goffman (1966), as discussed above.

Apart from focusing on the relation between spatial configuration and co-presence (Legeby 2010, 2013; Marcus and Legeby 2012), our research also demonstrates how inequalities in terms of access to various urban amenities and resources may be analysed with great precision by the use of the Place Syntax Tool (Ståhle et al. 2005), which provides an opportunity to add geographical and social data to space syntax analysis, such as the location of urban services and amenities. This elucidates how urban form distributes the access to these resources in an uneven manner and how this, in extension, further contributes to the segregation of particular groups from society. More generally this approach makes use of the contribution of space syntax to new and original analyses of space, by extending traditional spatial analysis of distributions in space to analysis of distributions through space (see e.g. Koch 2004, 2007).

Concerning co-presence, research in this direction has more specifically looked into not only the relation between urban form and the distribution of co-present people in urban space, but also what, in this research, is called the intensity and constitution of co-presence. ‘Intensity’ refers to the size of the group of co-present people, whilst ‘constitution’ refers to the mix of people that comprise co-presence groups. In the Stockholm study
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Legeby (2013) the intensity of co-presence was measured through repeated observations and constitution through questionnaires (n = 2,224). This established a study consisting of eighteen places in Stockholm with close descriptions of the typical character of co-presence in these places. These characteristics were shown to correlate with the particular configurational properties of these places. Of special relevance here were spatial centrality (integration), integration interface (high integration both locally and city-wide) and access to people (access to both inhabitants and working population).

A reasonably strong correlation was found between the integration interface and the degree of inflow of non-locals to the spaces (R = 0.577), though this included two outliers where major shopping mall increase the natural inflow of non-locals (Skärholmen and Farsta). Without these outliers the correlation rises to R = 0.778 (Figure 9.1).


**III. Co-presence and interaction**

The Gothenburg study builds on these findings, but aims to widen them to also include the unequal spatial distribution of urban resources as an important aspect of the discussion on segregation. Co-presence in this context can be seen as a resource for potential interaction and inclusion depending on its intensity and constitution that, as we have seen in the Stockholm study, is unequally distributed and typically found far less in socially disadvantaged areas.
The four neighbourhoods that are the focus of the study are part of a national initiative called *Urban Development* designed to address problems related to social exclusion: Bergsjön, Hjällbo, Gårdsten and Norra Biskopsgården (Swedish Government 2007, 2009). The aim of the national initiative is to improve living conditions in areas characterised by exclusion and decrease socio-economic differences within cities and regions. These areas were constructed in a period characterised by extensive urban expansion (1945–75) and were part of a Swedish welfare-state initiative to meet the serious housing shortage at the time. Norra Biskopsgården was developed between 1956 and 1963, while the other three areas were part of the Million Homes Programme: Bergsjön between 1965 and 1972, Hjällbo between 1967 and 1969, and Gårdsten between 1969 and 1972. The design principles of these areas were strongly influenced by a Swedish interpretation of the neighbourhood-unit planning ideals (Klasander 2003). This means that these areas are organised as spatially demarcated enclaves dominated by housing and with differentiated traffic systems, that is, walking and cycling routes are in principle separated from those used by cars, and in some cases the tram system is also separated from streets and pedestrian paths. Traditional urban streets that unite the function of both circulation and public space and include built frontages with direct access to buildings are typically absent (Marshall 2005: 6). Besides these four neighbourhoods, three reference neighbourhoods were also included in the study: Högsbotorp, built 1949–52; Kyrkbyn, built 1950–5; and Björkekärr, built at the end of the 1950s (Figure 9.2).

Empirical data on co-presence was collected through observations in combination with a questionnaire in nine important squares located in the seven identified areas. The observations were made in April on a rather cold day (about 10 degrees) so few people were ‘hanging out’. The intensity at the squares was measured as the total number of co-present people in the squares observed simultaneously at each square between nineteen and twenty-one times during a weekday. The mix of co-present people was assessed by asking randomly chosen people in the squares for their residential address. These two straightforward approaches gave a distinct image of the essential character of co-presence in public space in the different neighbourhoods. Of special interest here was the degree to which these spaces were dominated by locals or whether there was also an inflow of non-locals. The assumption was that depending on the mix of locals and non-locals, different settings are created in respect of potential social processes.

As explained earlier, integration is a measure of spatial centrality, which broadly speaking can be said to describe accessibility in the street network. Extensive research has repeatedly demonstrated how higher integration
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typically captures pedestrian and vehicular movement (Hillier et al. 1993; Hillier and Iida 2005), that is, a strong correlation between urban form and human behaviour. By extension, this strongly influences the distribution of co-presence in public space, which is why in our current context it also represents a powerful tool for detecting variations of social potential in public space and forms an essential part of the interpretation of our results. Access to various urban resources that are found to be relevant in relation to segregation and exclusion was analysed for the studied areas in Gothenburg by means of various spatial analyses using the Place Syntax Tool (Ståhle et al. 2005; Marcus 2010), which combines traditional space syntax analysis with a measure of access to resources from individual plots. The analyses highlight those conditions that are argued to be central from a social perspective. Results of the spatial analyses are presented using graphics particularly developed for the project with the aim of facilitating communication with non-professionals, for instance, polar diagrams, thematic maps, combined thematic maps and what we call a line analysis.

Figure 9.2
The location of the studied neighbourhoods and squares in Gothenburg
Based on maps provided by the City of Gothenburg, City Planning Authority, with permission.
IV. Segregation from urban life

The spatial analysis of the areas reveals that only one out of nine squares is located in a neighbourhood that is highly integrated city-wide. Three neighbourhoods are, on the whole, spatially segregated on a city scale and only one square, Hjällbo torg, is more integrated than the neighbourhood for which it acts as a retail and service centre. The analysis shows further that, at a local level, most squares are integrated to a similar degree as their local context. Only three are more integrated compared to their surroundings – Gårdsten centre, Hjällbo torg and Rymdtorget in Bergsjön – which is why according to space syntax research they would be expected to attract more movement than their surroundings (Figure 9.3).

When analysing to what extent local integration in an area correlates with integration city-wide (something that was found to correspond to the
inflow of non-locals in the Stockholm study), we see that three squares – Axel Dahlströms torg (Högsbotorp), Hjällbo torg and Rymdtorget (Bergsjön) – have such correlations while the others do not. Hence, only three places out of nine have, in this respect, favourable configurational conditions for an inflow of non-locals.

The intensity of co-presence is, as already stated, highly dependent on different measures of centrality. However, when density and land-uses are very unevenly distributed, and this is typical for the Swedish suburban landscape, the correlation between spatial configuration and movement drops (Ståhle 2005). When geographical data such as residential and working populations are added to the analysis, the correlations have proven to be more robust (Ståhle 2005). In the current study we have therefore used, in addition to measures of centrality, accessibility to residential and working populations within a walking distance of 1000m from each square. Table 9.1 shows the results of this analysis. Axel Dahlströms torg and Friskväderstorget (Norra Biskopsgården) have the highest access to the population, while Stabbetorget (Björkekärr) has less than half of that amount. The other areas are rather similar in this respect.

When it comes to the constitution of co-presence, the questionnaires tell us that the share of people living within a walking distance of 1000m from each square ranges from 44 to 72 per cent. The lowest share of locals, 44 per cent, is found at Hjällbo torg, while at Friskväderstorget 72 per cent live within 1km. The 50 percentile reveals that the distance to the home addresses of co-present people is less than 1000m at eight out of nine squares (Figure 9.4 and Table 9.2). When this distance is compared with the number of axial turns, the squares located in Bergsjön stand out in comparison with the other squares: Komettorget, Gårdstås torg and Rymdtorget. The axial lines are much shorter in the proximity of these three squares in comparison to other squares within the sample: more turns are needed in urban space to walk the same actual distance.

Observations of intensity (Table 9.2) show that there are not many people on the move in public spaces adjacent to the squares, Hjällbo torg being the exception. However, this is a very large square, so even if it reaches its highest capacity it is far from being crowded. Knowing that the squares are places that belong to the more populated public spaces within their neighbourhoods (apart from schools) demonstrates the degree to which public space is used and this, as we know, affects not only potential exchange between people, but also the degree of retail and services that can be supported.

To clarify how people who visit different squares are distributed across the city, their home addresses were marked on a map (Figure 9.5).


<table>
<thead>
<tr>
<th>Place/Square</th>
<th>Integration of neighbourhood (R50)</th>
<th>Integration: context vs. neighbourhood (R50)</th>
<th>Local integration of place/square</th>
<th>Integration interface (local–city-wide)</th>
<th>Access to population 1000m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gårdenstein</td>
<td>Low</td>
<td>Integrated as context</td>
<td>High integration</td>
<td>Strong mismatch</td>
<td>8 884</td>
</tr>
<tr>
<td>Hjällbo torg</td>
<td>Medium</td>
<td>More integrated than context</td>
<td>High integration</td>
<td>Mismatch</td>
<td>8 437</td>
</tr>
<tr>
<td>Rymdtorget</td>
<td>Medium</td>
<td>More integrated than context</td>
<td>Stronger than context</td>
<td>Match</td>
<td>9 848</td>
</tr>
<tr>
<td>Komettorget</td>
<td>Low</td>
<td>Segregated from context</td>
<td>Medium integration</td>
<td>-</td>
<td>7 717</td>
</tr>
<tr>
<td>Gärdsås torg</td>
<td>Medium</td>
<td>Integrated as context</td>
<td>High integration</td>
<td>Strong mismatch</td>
<td>8 693</td>
</tr>
<tr>
<td>Friskväderstorget</td>
<td>Medium</td>
<td>Integrated as context</td>
<td>High integration</td>
<td>Strong mismatch</td>
<td>12 833</td>
</tr>
<tr>
<td>A Dahlströms torg (R)</td>
<td>High</td>
<td>Integrated as context</td>
<td>High integration</td>
<td>Match</td>
<td>13 766</td>
</tr>
<tr>
<td>Kyrkytorget (R)</td>
<td>High</td>
<td>Integrated as context</td>
<td>High integration</td>
<td>Strong mismatch</td>
<td>8 054</td>
</tr>
<tr>
<td>Stabbetorget (R)</td>
<td>Low</td>
<td>Segregated from context</td>
<td>Medium integration</td>
<td>Match</td>
<td>5 993</td>
</tr>
</tbody>
</table>
The resulting pattern illustrates the origins of visitors to each square and reveals who is contributing to the local everyday life at each square: whether they are from the locality or from a wider catchment area across the city. Figure 9.5 effectively illustrates each square’s social catchment area. The non-concentric shape of each catchment area indicates the uneven socio-spatial relationship between each square and its surroundings. In addition, the river is shown to constitute a barrier in several cases and indeed in one case none of the interviewed visitors to the square reported living on the opposite side of the river.
Three squares, Rymdtorget, Gärdsåstorg and Komettorget, within the same neighbourhood, Bergsjön, provide very different opportunities for social interaction as a result of their configurational properties. The co-presence study confirms this: at Rymdtorget 52 per cent live within 1000m, at Gärdsåstorg 64 per cent and in Komettorget as many as 69 per cent. Hence, the inflow of non-locals is highest at Rymdtorget and lowest at Komettorget and this corresponds to their spatial potential described above. The intensity of people co-present, however, was found to be high at Komettorget (Table 9.2), but this was primarily the result of trams (or buses) arriving during the

Figure 9.5
Catchment area of the squares: the home addresses of co-present people
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period of data capture. In between the arrivals of trams and buses, the place was quiet; people arriving by tram or bus populated the place for only a short time, before dispersing. At Gärdsåstorg and at Rymdتورget the intensity is, in comparison, much lower. At Rymdتورget, however, there is an indoor structure with shops that attract a lot of visitors at the expense of the outdoor public space. Moreover, the 50 percentile reveals that the catchment area of Kometتورget is very limited, only 345m (or 5 axial turns). In other words, half of the people observed live within a distance of 345m from Kometتورget. The catchment area of Gärdsåstorg is a little larger at this level, namely 516m, while Rymdتورget has a larger catchment area of 953m. This indicates that the urban life at Kometتورget and Gärdsåstorg has a more local character than at Rymdتورget, meaning that the potential for there to be citizens from other parts of Gothenburg is higher at Rymdتورget. Moreover, the length of the axial lines says something about orientation and visibility: on average each axial line adjacent to Kometتورget is 69m long, to Gärdsåstorg 74m and to Rymdتورget 87m. This indicates that people moving to and from these places are not within sight of others for a particularly long time.

We can conclude that Kometتورget is a square for locals to reach out to other areas: they come and go using the tram, but not many people stay in the square and few visitors come here. In other words, it is a ‘square for departures’. Rymdتورget, on the other hand, is less populated (although we know more people are in the indoor shopping mall), but the inflow of non-locals is higher. Hence, this square has the character of a ‘square of arrivals’.

V. Segregation from urban functions

A comparison of all nine analysed areas illustrates that they have similar access on an aggregated level to the most important daily services, such as elementary schools, grocery stores and medical care. Hence a kind of minimal level of service is provided: all have at least one school, one grocery store and one healthcare centre in relative proximity. However, the areas show considerable differences in terms of access to diversified urban resources, that is, how many shops and restaurants are accessible within a certain distance threshold (Figure 9.6). Hence, the neighbourhood planning ideals of satisfying so-called primary functions stand out in this respect, for example each neighbourhood was planned with certain basic services but not designed to favour secondary benefits that need a concentration of people to encourage urban life and provide access to information gained from other citizens’ behaviour, or provide an arena for social interaction.
Figure 9.6 Minimum distance to urban amenities, access to urban amenities and aspects important for opportunities in the labour market

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Besides the differences in access to diversified urban resources, the conditions important for opportunities in the labour market are unevenly distributed in the studied neighbourhoods, for example access to workplaces and access to non-locals in urban public spaces. Bergsjön, for instance, has low access to workplaces on all scales and proportionally poor access to the city centre by public transport. The situation in the three reference neighbourhoods is essentially more favourable. From the observation study we found that at least two of the three squares in Bergsjön had a low inflow of inhabitants from other parts of Gothenburg that could potentially contribute with another kind of information to that found locally. It is of great concern that the poorest conditions in terms of diversified urban resources, opportunities in the labour market and co-presence are found in those neighbourhoods where the residents are socio-economically most disadvantaged and where unemployment rates are high.

As part of the Gothenburg study we also made an in-depth study of Bergsjön in greater detail in order to understand how the spatial configuration contributes to unequal living conditions. The poor connection between the western and eastern parts of Bergsjön was studied in order to identify where the spatial interfaces were ruptured. The sequence of street segments that connects two of the main squares was analysed: Gärdsås torg in the west and Rymdtorget in the east. This connection proved to have the highest potential to be a ‘main link’ and improve internal relations, but orientation and constitution were generally very poor. The analysis was used to identify ‘gaps’ along this sequence of segments and the line analysis revealed a large variation from segment to segment for all four variables considered: variations in terrain (height), centrality (measured as betweenness), constitution, and the mix between night and day populations (Figure 9.7). By adding new connections, and buildings/address points in strategic locations,
we wanted to test whether this could improve the continuity of the strip and heal gaps so that orientation and the potential for social interaction would improve.

Access to workplaces is important for the intensity of urban life, with a correspondence between people visible in public spaces and access to workplaces locally. Urban design interventions that improved the east–west connection in Bergsjön, in combination with new links between surrounding neighbourhoods and areas further away, were tested during the in-depth study (Figure 9.8). Rymdtorget in the eastern part of Bergsjön increased its access to workplaces by as much as 24 per cent, and accessibility from Gärdshäst torg increased by 17 per cent, while Komettorget only increased by 5 per cent (Figure 9.9). However, we must also conclude that, in comparison to the reference neighbourhoods, these improvements represent only moderate advances when comparing absolute numbers. Axel Dahlströms torg has, for instance, more than three times as many workplaces within a walking distance of 1km than the western part of Bergsjön. In other words, the spatial conditions in Bergsjön would, in spite of interventions, be much poorer than those found in the reference areas. It is important

Figure 9.8
Proposed interventions in Bergsjön
Based on maps provided by the City of Gothenburg, City Planning Authority, with permission.
to stress that in the analysis no new workplaces or inhabitants have been added, so the change captured is solely due to a change in access to existing workplaces. This points to the principal finding that an increase in the resources in these areas can be created by adding new resources but also by increasing accessibility to the resources already present in the vicinity.

**VI. Conclusion**

From an architectural perspective, we can identify public space as a key variable for facilitating important social processes in cities that can support long-term social inclusion. We furthermore conclude that it is especially important to investigate the configurational dimension of urban space, due to its proven ability to distribute movement and, in addition, to create a variety of situations of co-presence in public space – according to extensive sociological theory, this is critical to the development and maintenance of social inclusion and cohesion. We believe the Gothenburg study contributes to earlier research concerning the relation between spatial configuration and the intensity of co-presence. It continues earlier research in Stockholm which also considered the relation between spatial configuration and what has been called the constitution of co-presence, that is, the social mix of co-present people, in this case represented by the mix of locals and non-locals. Finally, it also contributes to a better understanding of how spatial configuration distributes urban amenities and resources by creating varying
degrees of accessibility to these. Naturally this accessibility depends on the location of such amenities but, by applying the place syntax approach, it can be clearly demonstrated the extent to which this also depends on the spatial configuration itself, increasing the toolbox of urban planning and design.

More specifically, we conclude that what is missing in many of these areas is a dense network, or web, of high-centrality spaces; a high street or something that performs in a similar way, that is, spaces that have the ability to distribute amenities through space in an efficient way and to connect the neighbourhood to its surrounding areas and to the city as a whole so that, on the larger scale, these neighbourhoods become part of or at least better connected to what Hillier calls the foreground network of the city. Many of the areas studied can be characterised as islands located in the background network (separated from the high-street network), most clearly in the cases of Gårdsten, Komettorget and Stabbetorget. Consequently, as the co-presence study shows, the intensity of co-presence is low in many of the areas while a few squares present a mix of locals and non-locals to a degree that is argued to create opportunities for broadening social interaction even though intensity is low. There is, furthermore, comparatively poor access to public institutions in many areas. Hence, ‘society’ is only visible (and thus represented) to a limited extent in the public space of these areas. This is a matter of great concern and reinforces the character of exclusion from the rest of society. Hence, our analyses show, in many respects, that the public space in many of these areas does not afford residents the conditions and opportunities central for a positive integration process, and that this is at least partly the result of the urban design of the areas as well as of their location in the urban network as a whole.

The analysis of access to urban resources is important for two reasons: first, the analysis establishes that there is an unequal distribution of resources in the city and that urban form plays an important role therein; second, the analysis has highlighted that there is, first and foremost, limited diversity of urban amenities that may be criticised in relation to the urban design ideals of which they are the product. The principles of neighbourhood unit planning included the provision of a high level of service for its inhabitants but not for a greater ‘audience’, meaning that non-locals and other ‘strangers’ were not encouraged to pass through or visit the area. Businesses and other activities and services established in many of these areas are often operating with very narrow margins. Hence, time has shown that this strategy has left many of these areas in a situation with very little development; the areas are prone to a kind of development impasse (except for publicly funded initiatives) and remain in a disadvantageous situation that risks aggravating the segregation problem.
The empirical data from the co-presence study confirms that in most of the squares a large share of those co-present live very close to the square, and thus the inflow of people living elsewhere is low. The established inequalities in terms of living conditions are highly problematic, especially when people with fewer resources are affected. However, urban design interventions can change the configurational properties that affect the conditions for social interaction in areas where the spatial properties are found to be unfavourable. In such areas, access to resources may increase as a result of urban design interventions, creating easier access in terms of both human and material resources. The urban design interventions analysed in this study supported, on the one hand, the distribution of resources more effectively in space, increasing their likelihood of improving life chances locally. On the other hand, the analysis shows that more comprehensive urban design interventions are needed in order to actually achieve what may be defined as equal living conditions across the city and its suburbs.

Notes

1  The criteria are an employment rate less than 52%, more than 4.8% of the population living on social allowances (long-time dependency) and a qualification rate for secondary school lower than 70%. In addition to this, there must be a population of 4,000 people or more.

2  The Million Homes Programme was an initiative to construct one million housing units within ten years between 1965 and 1974 in order to meet the extreme housing shortage that resulted from rapid urbanisation in Sweden.