

# Suburban Squares:

How come they are not all empty

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## Abstract

Today many of the centres of the post war housing suburbs suffer from deterioration. However, there are also places that in spite of seemingly similar conditions actually manage to attract people.

The aim of this study has been to investigate if differences in patterns of streets and walkways in the areas can explain why some of the local centres attract few visitors, while others are well used. The study has been carried out in 14 suburbs of Goteborg, Sweden. The choice of squares was given by a survey made by management companies in these particular areas, in order to estimate the popularity of the local centres.

The hypothesis was that squares that are well integrated in the axial maps, for both the vehicular and the pedestrian structure, would naturally attract more people. The study seems to show that there is no such correlation. But the study may also suggest that for other purposes than shopping there may be a correlation between the number of people visiting their local square and the square's position in the pedestrian integration structure.

**Keywords:** urban square, housing, vehicular, pedestrian, behaviour

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## Suburban squares

### How come they are not all empty?

Swedish housing estate suburbs of the sixties and seventies have long suffered from a bad reputation, and as a part of the problem some of the local centres in these areas have fallen into decay. But there are also places that seem to thrive, places where for example small markets spontaneously have emerged and where you see people hang around when you visit the square.

The obvious differences in the use of these places, in spite of similar physical appearance, raised the question if a square is 'more than a local element' (Hillier, 1996:131) even in this open plan suburban type of configuration. At hands was a survey carried out by big housing and facilities management companies in Goteborg, Sweden. In the survey, which covered around 17 000 households, people were asked for instance how often they visited their local centre and for what purpose. These data were correlated to the syntactic properties of the neighbourhoods, to see if the most integrated squares were the ones most visited by the inhabitants of each area.

### **The Housing Estate Suburb and its Local Square**

The sixties' and early seventies' boom in the Swedish economy coincided with an urgent need to improve the housing standard, and also to cover a shortage of apartments, which had become an embarrassment for the Social Democratic government. The political project was named the Million Programme from the ambition to build 100 000 apartments per year for a ten year period - a big undertaking for a small albeit rich country. The enormous rush was supported by an overall positive attitude towards large scale and highly standardised building projects. The planning was efficient and so was the realization of it, but while the Million Programme was still under construction there were enormous complaints about the accomplishments. Despite all the conveniences in the apartments, the result in general turned out to be less appreciated. The landscape, during the first decades after the war carefully saved between the buildings, was treated with less care as standardisation was driven further the following decades. The stage set was eventually neither town nor country; it was no longer buildings in parks, the Le Corbusier style, but buildings on parking lots, the rational style. Furthermore, the mix of functions of the traditional city was badly missing in the new suburbs. Although there were supporting institutions like schools, community centres and small supermarkets, the new suburbs were more or less monofunctional - neighbourhood units planned for living only.

The centres of the neighbourhood units were built as public squares, designed in various styles over the years.<sup>1</sup> The early ones were mainly given the properties of traditional city squares: enclosed spaces with streets passing through them. Later the squares turned their backsides to the traffic, and became spaces for pedestrians only with parking lots outside. By time the squares tended to be less enclosed, and gradually also less defined as spaces, but the principle was roughly the same over the years: the local centre was a place planned to host commercial and communal services near a stop for public transport.

### **The Study of 14 Suburban Squares**

Goteborg is Sweden's second biggest town with its about 460 000 inhabitants. The city covers an area of roughly 20 times 15 square kilometres, which makes it comparatively spread out and not very densely populated. Most of the Million Programme housing areas lie in the outskirts of the town, far from the city centre, but also badly connected to each other, mainly due to the topography, but also to the treelike structure of the public transport network.

### **Hypothesis and Methods**

The differences in use of the suburban local centres led to the hypothesis that the most used centres were also the most integrated ones in the movement networks of the local areas. To highlight this issue three definitions had to be made: firstly how to define the values of integration for the local squares, secondly what was meant by a 'well used' or 'good working' square, and thirdly the delimitation of the local areas.

#### *Integration Values of the Local Squares*

To use space syntax analysis in the open plan layouts of this study raised a few questions on how to draw and interpret the lines of the axial maps. In many cases of the open plan layout there is only a weak coherence between the visual field limited by buildings or vegetation, which normally make up convex space, and the actual movement patterns. The decision was made to concentrate on the actual movement networks and not on convex space.

The everyday use of the local square was assumed to be based less on the use of cars to get there than to walk or ride a bicycle. Cars are often used for weekly shopping though, why the movement pattern for vehicles had to be considered important too. The differences between possible routes are sometimes enormous when the movement pattern is treelike for vehicles and gridlike for pedestrians. There was a need then to make separate maps for vehicular and pedestrian movement.

Most neighbourhoods of the 14 squares have been visited, but all together they cover big areas and it has been necessary to make some simplifications. Presumptions have then been based upon knowledge from other areas.

#### *Definitions of a Well Used Square*

The estates of the 14 squares in this study are all managed by the same estate management company. In 1999 the company carried out a survey in the neighbourhoods of 20 local squares<sup>2</sup>. Households in the surrounding blocks of housing were asked questions about for instance how often they visited their local centre and for what purpose. Around 17 000 respondents handed back the questionnaire of this so-called 'Satisfied Customer Survey' (Temaplan AB, 1999). Although the conduction of the survey needs a further discussion, concerning for instance how the questions could be interpreted and hence the reliability of the answers, the material has here been used to make preliminary definitions of what a 'well used' or 'well working' local square could mean. Questions of interest were for instance the average number of visits; for what purpose people visited their local square; if they mainly went to their local square, to a large shopping centre or to another local square to buy everyday things; and the ratings the food markets at the local squares got from the respondents.

A well used local centre is in this study understood as a square with a high average number of visits per week, and also a square that people prefer to other local squares or to bigger shopping centres. To get a better understanding of the whole picture the answers have been correlated to for example the number of car owners in each area, the overall number of households and inhabitants, and the number of shops and non-commercial services in each square.

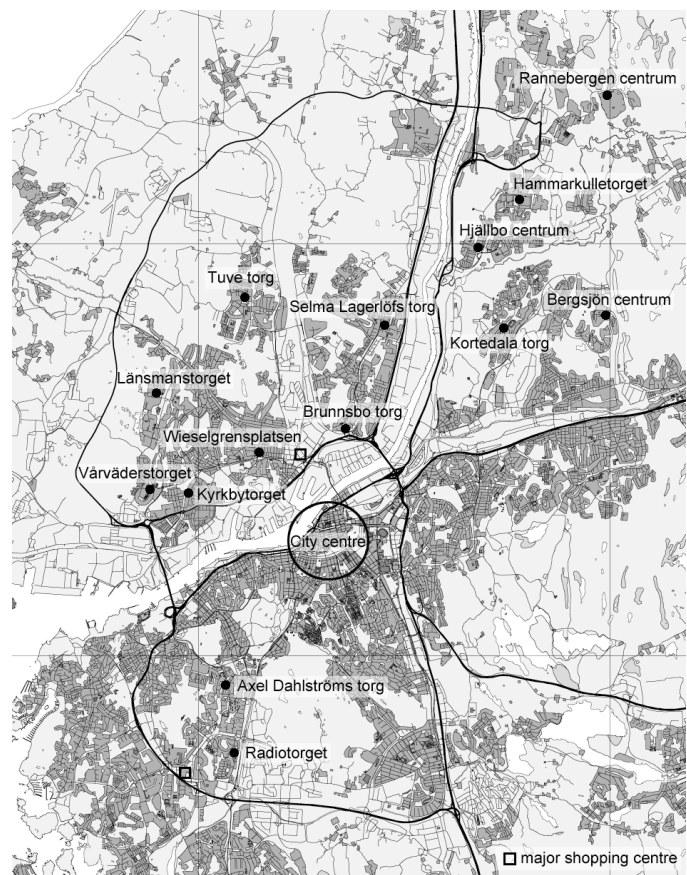
An interesting aspect would have been also to quantify the number of people in each square at different times of the day, but this could not be done within the frame of this study.

#### *The Delimitation of the Local Areas*

The areas of the axial maps needed to correlate to the neighbourhood areas of each local square as they were defined in the survey. Some limits of the customer survey areas were however placed with regard to neither topography nor other barriers in the physical environment, actually distance being one. In the doubtful cases two sets of axial maps were made: one that covered the survey area and one that placed presumed customers within more natural demarcation lines.

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**Fig. 1. The 14 local squares in the Goteborg context.**



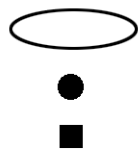
In this study the local squares have been investigated in their neighbourhood context only. Explanations to the questions at hand may be found in the squares' positions within the global context of Goteborg, and in forthcoming studies those relations will be investigated.

### Integration and Use in the Suburban Squares

Correlation between layouts of movement networks and the use of the local squares cannot easily be detected in the 14 areas of this study. Many of the well-integrated squares have a high average number of visits, but so do some of the more segregated squares too. Although there may be correlations not yet observed, a few examples will suffice to point out contradictions concerning space and use in the material. Facts and figures for each square can be found in tables 1 and 2.

*Wieselgrensplatsen: highly integrated, well used*

The outstanding square in any aspect is Wieselgrensplatsen. It is the square with by far the most shops and non-commercial services. The great number of shops could be explained by the non-spatial fact that the supporting area is bigger than the survey area. Still the syntactical properties of the square seem to confirm space syntax theory in a convincing way. The neighbourhood area as a whole has the highest mean integration value as well as the highest mean integration (3) value, and this goes for vehicles and pedestrians alike. Furthermore the most integrated line of the area goes through the square, again both for cars and pedestrians. In a highly integrated system, the square is spot on the integration core. It is to no surprise among the top five most visited squares, and 84 percent of the people in the area do their shopping of everyday needs at Wieselgrensplatsen.

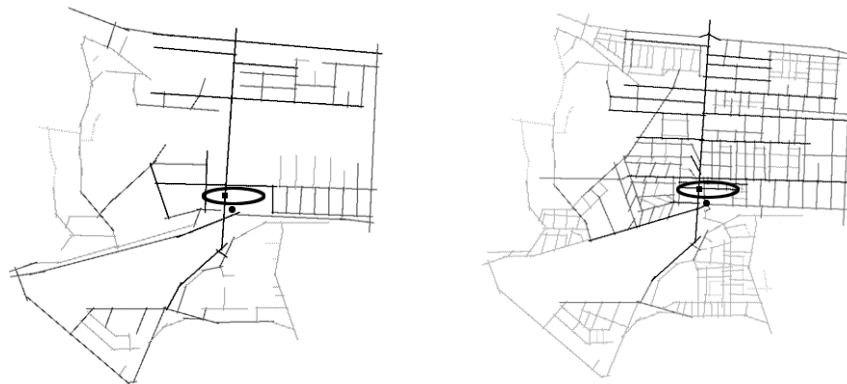


**Fig. 2. Legend**

location of the square

tram stop

bus stop



**Fig. 3 and 4.**  
**Wieselgrensplatsen.**  
**3.6 visits. 44**  
**commercial and**  
**non-commercial**  
**services in total.**  
**Bus. Tram. 84%**  
**'loyalty'. 30%**  
**other purpose**  
**visits.**

*Brunnsbo Torg: segregated, well used*

In spatial contrast to Wieselgrensplatsen stands Brunnsbo Torg. It scored a top 4.4 visits per week, and 78 percent prefer it to shopping centres or other local squares for the shopping of everyday needs. Neither non-spatial nor spatial features seem to support this high level of use by people in the neighbourhood. The square is not near the integration core of the area, but located six syntactical steps from the most integrated line in both the vehicular and pedestrian movement networks, which makes it one of the two least integrated squares in that sense. The neighbourhood area as a whole is only average in the study concerning mean integration of the vehicular network, and one of the least integrated concerning the pedestrian network. For mean integration (3) it has the third highest value in the study concerning vehicles and again one of lowest concerning pedestrians. Non-spatial explanations do not support the high number of visits either: there are only eight services in the square, none of which can be considered an attractor of magnitude. The public transport consists of a bus

stop, and the square is not served by tram. Still Brunnsbo Torg is one of the most visited and most appreciated squares of the study, despite the spatial properties and other facts like the second highest rate of car owners of the areas in the study and that the square is close to one of the biggest shopping centres in Goteborg.

*Kortedala torg: segregated, well equipped, not well used*

Kortedala torg makes an interesting comparison. It has got almost the same spatial properties as Brunnsbo Torg, concerning integration and integration (3) values for the areas, as well as the values of the line crossing the square. They are in the bottom third of the study in almost all spatial aspects of the pedestrian network. Kortedala torg is on the whole closer to the integration core of its area, still it gets only about half as many visits as Brunnsbo Torg. There are also non-spatial factors here that would seem to support a higher number of visits: Kortedala has got nearly four times as many functions as Brunnsbo Torg, including attractors like pharmacy, post office, banks, public library and liquor store,

*Hammarkulletorget: segregated, integrated, well used*

Hammarkulletorget is one of the most visited squares of the study, with 4.2 visits per week. The spatial features are quite noticeable. The mean integration and mean integration (3) values for the vehicular network are low, and the square is located five steps from the most integrated line. In the pedestrian network, on the other hand, the most integrated line goes through the square. What's different with Hammarkulletorget to the other well-visited squares of the investigation is the low score of appreciation of the service at the square. Furthermore there are only eight functions at the square, non of which can be considered an attractor, and as many as 80 percent of the respondents prefer to go somewhere else to do their day to day shopping. What then brings people to the square? According to the survey as many as one third of the visitors come for "other purposes" when they visit Hammarkulletorget; "other purposes" being the alternative left after shopping (in the food market and other shops respectively), using non-commercial service, and eating.

*"Other purposes": the spatial impact on the use of the square?*

Could the position of Hammarkulletorget spot on the most integrated line explain the high number of unspecified visits? That is, is there a possible correlation between high pedestrian integration values on one hand, and visits for other purposes than shopping, eating or using non-commercial services on the other?



**Fig. 5 and 6.**  
**Brunnsbo torg.**  
**4.4 visits. 11**  
**services in total.**  
**Bus. 78%**  
**'loyalty'. 19%**  
**other purpose**  
**visits.**

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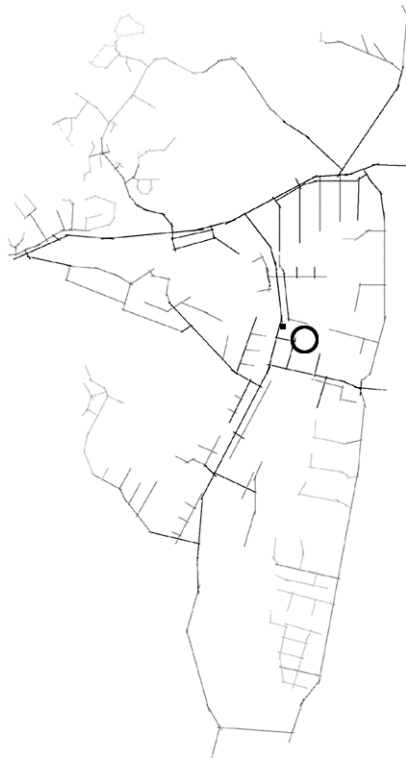
**Fig. 7 and 8.**  
**Kortedala torg.**  
**2.2 visits. 40**  
**services in total.**  
**Tram. 46%**  
**'loyalty'. 23%**  
**other purpose**  
**visits.**

61.6

**Fig. 9 and 10.**  
**Hammarkulleorget.**  
 4.2 visits. 8  
 services in total.  
 Tram. 40%  
 'loyalty'. 34%  
 other purpose  
 visits.



**Fig. 11 and 12.**  
**Selma**  
**Lagerlofs torg.**  
 2.9 visits. 30  
 services in  
 total. bus. 56%  
 'loyalty'. 27%  
 other purpose  
 visits.



**Fig. 13 and 14.**  
**Hjällbo centrum.**  
 3.4 visits. 13  
 services in total.  
 Tram. Bus. 46%  
 'loyalty'. 23%  
 other purpose  
 visits.



centre	steps from c-line to most integ. line	average visits per respondent	number of functions	mean integration value for the area	integration value for c-line	mean integration(3) for the area	integration(3) for c-line	'loyalty'	car owners in the area (percentage)	farmacy	bank	post office	library	liquor store	tram	bus	inhabitants (31-12-98)	households (31-12-98)
Wieselgrensplatsen	0	3.6	44	0.7316	1.2436	1.6359	3.25	84	31	*	*	*		*	*	*	12500	7745
Kortedala torg	1	2.3	40	0.4066	0.5439	1.3537	1.2737	46	39	*	*	*	*	*	*		20433	11939
Varvaderstorget	1	3.3	30	0.44	0.6993	1.1386	1.1386	53	39	*	*	*	*	*	*		6560	3631
Lansmanstorget	2	2.7	9	0.616	0.8242	1.3029	1.7741	52	52	*				*			7999	4165
Rannebergen centrum	2	2.9	9	0.4025	0.4737	1.1961	10.000	33	48							*	4352	2008
Bergsjon centrum	3	3.8	11	0.4187	0.5158	1.1185	1.1634	56	32	*			*		*	*	6702	3574
Kyrkbytorget	3	3.5	18	0.7012	0.8347	1.764	1.3792	34	49	*	*	*	*			*	7321	4475
Radiotorget	4	2.2	18	0.4669	0.6321	1.3925	1.3791	24	56							*	3310	1925
Hammarkulletorget	5	4.2	8	0.4067	0.4771	1.1504	0.7047	40	29	*		*	*		*		7085	2816
Hjallbo centrum	5	3.4	13	0.3861	0.4321	1.221	1.1634	46	36	*	*	*	*		*	*	4948	1813
Selma Lagerlofs torg	5	2.9	30	0.437	0.5815	1.3096	1.1634	56	45	*	*	*	*	*		*	15899	7629
Axel Dahlstroms torg	6	2.6	18	0.5185	0.5387	1.5028	3.1338	45	41	*	*		*			*	19034	11981
Brunnsbo torg	6	4.4	11	0.4643	0.5392	1.3948	1.7741	78	52	*		*				*	5991	2875
Tuve torg	8	4.4	17	0.4032	0.4907	1.3143	1.1634	84	45	*	*	*	*			*	8934	3922

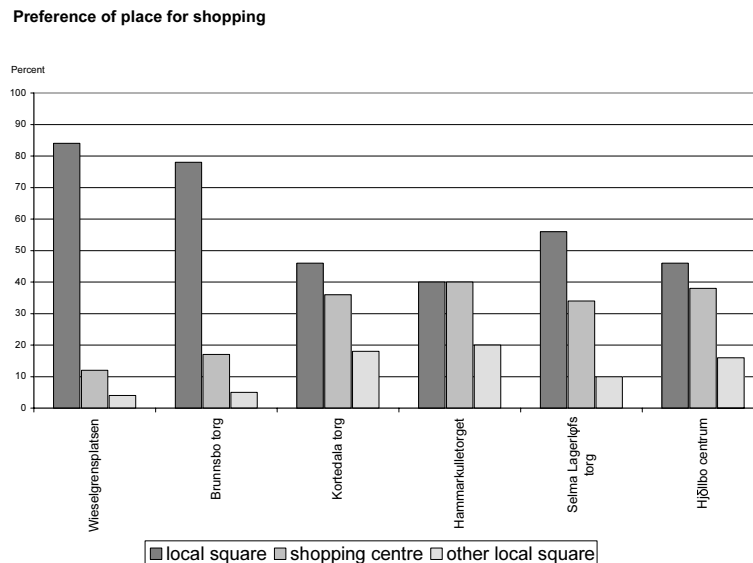
**Table 1. Vehicular integration values. Facts about the areas and the local centres. c-line is the most integrated line reaching or crossing the centre. 'loyalty' means % of households in the area who buy most of their everyday goods at the local centre.**

centre	steps from c-line to most integ. line	average visits per respondent	number of functions	mean integration value for the area	integration value for c-line	mean integration(3) for the area	integration(3) for c-line	'loyalty'	car owners in the area (percentage)	farmacy	bank	post office	library	liquor store	tram	bus	inhabitants (31-12-98)	households (31-12-98)
Hammarkulletorget	0	4.2	8	0.652	1.094	1.5695	4.378	40	29	*		*	*		*		7085	2816
Hjallbo centrum	0	3.4	13	0.9111	1.5466	2.0006	4.2603	46	36	*	*	*	*		*	*	4948	1813
Selma Lagerlofs torg	0	2.9	3	0.5363	0.8015	1.9371	3.7632	56	45	*	*	*	*	*		*	15899	7629
Wieselgrensplatsen	0	3.6	44	1.2162	2.3154	2.366	5.4781	84	31	*	*	*	*	*	*	*	12500	7745
Varvaderstorget	1	3.3	3	0.7322	1.0054	1.9458	2.3964	53	39	*	*	*	*	*	*		6560	3631
Bergsjon centrum	2	3.8	11	0.589	0.8115	1.7968	2.8702	56	32	*			*		*	*	6702	3574
Tuve torg	2	4.4	17	0.6194	0.881	2.0138	2.5	84	45	*	*	*	*			*	8934	3922
Axel Dahlstroms torg	3	2.6	18	0.5236	0.697	1.8098	3.669	45	41	*	*	*	*			*	19034	11981
Kortedala torg	3	2.3	40	0.4741	0.6082	1.7564	2.7808	46	39	*	*	*	*	*		*	20433	11939
Kyrkbytorget	3	3.5	18	0.92	1.1832	1.9804	3.862	34	49	*	*	*	*			*	7321	4475
Lansmanstorget	3	2.7	9	0.7444	1.0381	1.818	3.4531	52	52	*		*			*		7999	4165
Radiotorget	3	2.2	18	0.6491	0.8309	1.8043	3.5851	24	56							*	3310	1925
Rannebergen centrum	5	2.9	9	0.5126	0.3651	1.6167	2.1398	33	48							*	4352	2008
Brunnsbo torg	6	4.4	11	0.4579	0.5356	1.6597	2.566	78	52	*		*				*	5991	2875

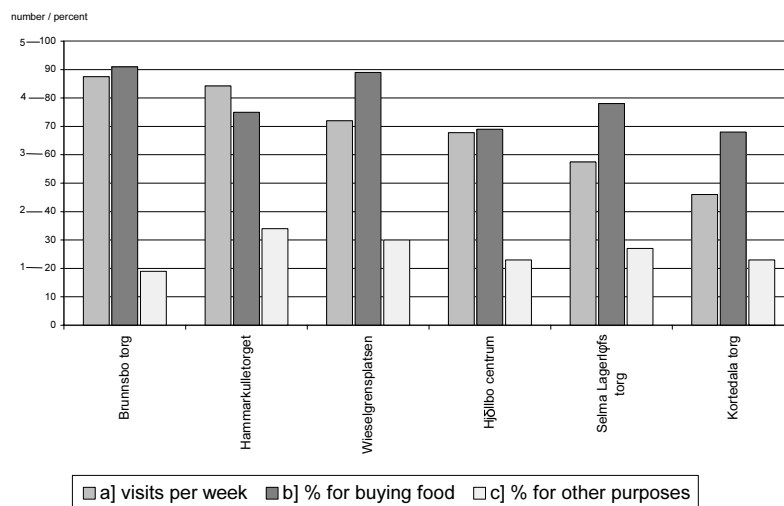
**Table 2. Pedestrian integration values. Facts about the areas and the local centres. c-line is the most integrated line reaching or crossing the centre. 'loyalty' means % of households in the area who buy most of their everyday goods at the local centre.**

The four squares located on the most integrated line of the pedestrian structure all have among the highest number visits for unspecified purposes. They are: Hammarkulletorget, Wieselgrensplatsen, Selma Lagerlofs Torg - a square with roughly 30 functions, but only an average rate of visits per week, and Hjallbo Centrum - a square which has become famous for

**Graph 1. Preference of place for shopping everyday needs: the local square, a shopping centre or some other local square.**



**Number of visits and reasons for visits**



**Graph 2. a) Number of visits per week. b) Percent of respondents who came to buy food. c) Percent of respondents who came for other purposes than shopping, eating or using non-commercial services.**

its spontaneously emerged market. It is not possible with this small material to say that there is a correlation, but it is at least a weak tendency that will be interesting to take to further investigations.

### Discussion: Suburban Movement Patterns

The hypothesis that squares would benefit from a highly integrated position in the spatial structures for vehicles and pedestrians was proved to be wrong. At this stage of the investigation it has not been possible to detect any other strong relations between space and use, which makes it interesting instead to discuss possible reasons for the bias.

None of these local suburban centres have emerged naturally - on the contrary they were neatly planned at the same time as the rest of the buildings in the areas. Needless to say, this means that businesses have not naturally established in the more integrated parts of the (sub)urban structure, but where the facilities have been planned to be.

With the results of this study at hands, the well-known Hillier statement 'Places do not make cities. It is cities that make places' (Hillier, 1996:151), may at first seem invalid in monofunctional areas like the housing estate suburbs. That, however, would be to jump to conclusions.

The way to quantify the using-rate of the squares must of course be questioned. The survey was large but the questions vague and the answers uncertain. To count where people actually are may give a more accurate picture of the use of the squares.

One reason for the bias may be that this particular study of the suburbs has been carried out on a local level, and not on the level of the whole city. Another explanation can surely be found in the concepts of movement economy and by-product of movement (Hillier, 1996), applied to the functional and configurational characteristics of the investigated urban type.

In monofunctional suburbs the flows of movement are simply put not from everywhere to everywhere else, but rather from everywhere to the local square and back. This 'origin-destination system' (Hillier, 1996:178)<sup>3</sup> creates a pendulating sort of movement, and consequently also a difference between the natural movement of a multifunctional city, where origins and destinations are spread out, and the imposed movement of a planned suburb, where the origins are spread out, but the destination is more or less the same for everyone. Combined with the sparse layout of the suburban type, this imposed movement gives small opportunities for integrated locations to benefit from the by-product of movement. Too often the highly integrated lines pass through land where there are either no buildings near, or no buildings fit to accommodate neither retail nor other functions that would benefit from an integrated position.

These were some possible explanations of why some of the most visited squares in the survey were not the most integrated ones in the axial maps. The study raised many new questions to be dealt with in forthcoming investigations. One of the most interesting could be that of natural and imposed movement. The people who visit the local centre to do their shopping can be presumed to go to the square regardless of its configurational properties. A plausible correlation between space and use could be that the unspecified visits of the survey are a result of the natural movement produced by the spatial properties, as opposed to the imposed movement that is engineered by the planned locations of the centres. The local centres that happen to be located in or near the core of integration seem more likely to attract visitors in general, that is the ones who go to the square for 'other purposes'.

Finally the study of the 14 suburban squares in Goteborg raises questions also on what public space in the suburb is needed for - the social aspects of public space, and to the discussion on what spatial properties this public space needs to be attractive to its potential users.

## Notes

- 1 The centre was often actually named 'square' (torg) although in most cases it would be more appropriate to call it for instance a 'place', a 'mall' or a 'walk'.
- 2 Six of them were in the city centre and therefore not within my particular field of interest.
- 3 Hillier connects the concept to dispersion, but it may be useful to apply it to monofunctionality too.

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