POSITIONING ANALYSIS:
social structures in configurative modelling

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Abstract

The most common way to model space syntax is to use an even distribution of lines or isovists. In positioning analysis, an un-even distribution of isovists is used in order to integrate social structures into the spatial analysis. These models can be used to analyse spaces highly influenced by social or cultural organisations. In offices, organisational structures can produce a constant bias in patterns of, for example, face-to-face interaction. Furthermore, labelling space according to organisational structure has sometimes been found to be as powerful a barrier as physical walls. In this study, these 'constant biases' are treated as being more important as origins rather than as mere biases. Positioning analysis is based on examination of spatial configuration of selected positions that enable these biases to be turned into parts of the analytic model. The selected positions should represent the organised entity of interest and form a subset within the general integration model. This set of points can be analysed configurationally through their spatial relationships, which can then be used together with traditional space syntax models. Thus the subset is described both from internal and external relationships, a fruitful approach in many cases. Applying this methodology when analysing face-to-face interaction in offices has provided strong correlations, which have produced two interesting results: face-to-face interaction correlates both with subsets of spatial distribution and with the integration patterns within the subset. At the same time, our analyses of how department stores and libraries spatially organise commodities and categories provide further support for how an analysis of spatial positioning answers key spatial strategy questions. Brands, types, and other categories position themselves in relation to one another as well as to a general integration and control patterns using modulations of a small set of spatial relations. Basing the configurative models on spatial relations of categories rather than on general spatial relations of an evenly distributed grid provides remarkably clear information. These findings are used to argue for working with positioning analysis parallel to traditional space syntax analysis, especially regarding examining spaces that are highly influenced by social or cultural organisation, such as offices, department stores, libraries, and museums.

Introduction

This paper develops positioning analysis as a methodology to analyse spatial relationships between organisational subjects/objects distributed in space. The topic originates from studies of building

interiors strongly influenced by organisational and cultural features. Using space syntax analysis for correlation studies on these building interiors differs greatly from analysis of cities. This difference becomes very clear when it comes to face-to-face interaction and organisation of commodities in department stores. One reason for why we use social structures within the configurative modelling is that social groups in offices have a regular interplay between members and these groups tend to create specific identities to distinguish themselves (Giddens 1993). Another is because commodities in department stores construct identities for themselves by use of contexts; we examine these contexts as atmospheres and situations produced by spatial positioning of commodities and groups thereof (Baudrillard 1996, Buskirk 2005, Koch 2007). These identities and organizational strategies both help consumers navigate the stores and serve to produce specific and intentional milieus to encourage specific consumer actions. Furthermore, we have noticed how analysis combining organisational boundaries with spatial boundaries can be useful: management on different levels tends to use spatial features, such as visual centrality among related colleagues, to position themselves toward co-workers (Markhede & Steen 2006). By using spatial positioning of social groups and categories, we will build models that represent spatial distribution of social structures.

In correlation studies that examine face-to-face interactions in offices, this methodology and these models have provided strong correlations on many levels. Similarly, our analyses of how department stores and libraries spatially organise commodities and categories provide further support for how an analysis of spatial positioning answers key spatial strategy questions (Koch 2004, 2007). Brands, types, and other categories are positioned in relation to one another and to general integration and control patterns using modulations of a small set of spatial relations.

This study is organized into three sections: 1.) a brief background of the methodological problems and possibilities; 2.) a series of cases exemplifying the social-spatial phenomena possible to analyse with positioning analysis; and 3.) a discussion of the analysis, methodology, and possible future studies.

Spatial Analysis Through Positions and Intervisibility

Positioning analysis differs from regular space syntax analysis mainly in the distribution of spatial entities constituting the spatial representation or graph. The reason for this difference is partly found in the field of space syntax research: organisational structures and spatial structure both have an effect on use of spaces in offices (Hillier 1996; Hanson 1998). This has been especially clear when it comes to face-to-face interactions in offices (Grajevski 1993). Furthermore, labels of space used by the inhibiting organisation affects use of space. Julienne Hanson calls this "labelling transition" and argues that these transitions insulate spaces from one another and that social distances within transitions separate spaces just as walls do (Hanson 1998). Similar strong effects of labelling have been argued by Markus and Cameron (2002). Furthermore, Tomas Allen notes that organisational bonds put a constant bias on face-to-face interaction: in his studies, there is almost twice the number of face-to-face interactions within a group (Allen 1977) than between groups. Thus there are plenty of reasons to investigate possibilities to incorporate social structures when creating models representing spatial relations that are strongly influenced by organisational and cultural settings.

We distinguish between distribution of space and distribution in space (Koch 2004), where the former is space related to space and the latter are entities defined by an organisation related to space. Space related

to space is used when modelling within regular space syntax, although there are examples of other models in space syntax research. Organisation related through space has been used when building the Place Syntax Tool (PST) (Ståhle, Marcus & Karlström 2005). PST analyses these relations and calculates configurative relationships between organisational data distributed in a spatial network, processes that can uncover new relationships. For example, address points related to each other show spatial capacity within a spatial network (Marcus 2006). PST has proven very useful in urban studies. However, PST uses axial lines in the same fashion as regular space syntax analysis. The difference from existing models (including PST) proposed for positioning analysis lies in the uneven distribution of spatial entities. Similar models have been proposed to study e.g. wayfinding in terminals (Braaksma & Cooks 1980) or museum layouts and positioning (and facing) of sculptures to form narratives (Stavroulaki & Peponis 2003). In the former case, sightlines between different important destinations in an airport were used for the analysis; the data was then put in a matrix to uncover binary relations. The matrix made it possible to isolate subsystems and compare them to the total system. The main aim of this study was to develop a model that measures human orientation and evaluates new designs or existing designs. The evaluation of the model was made using one crude example, and they did not suggest any further development of the method. The latter of the above developed an understanding of how placing and facing of sculptures form a spatial narrative. The methodology suggested in this paper aims to use such a model in a broader context. In addition, we evaluate the methodology using data from observations partly concerned with other phenomena than orientation or narratives.

The models for this form of analysis are built from a selection of positions related to the organisation's structure and its distributions in space. This is uncommon in space syntax as a practice, even if we argue it is in line with space syntax theory: Hillier notes that a spatial model must be based on the function that is to be examined (Hillier 1996). Furthermore, it has been argued that space syntax analysis should use a multiple combination of representations of the spatial system to make a spatial model suited for the function to be examined (Hillier 1996). Finally, creating relevant maps for correlation studies is many times a process of combining different scales, sections and measures. That is, combining representations in new ways may lead to discovering new socio-spatial relationships. Therefore, we suggest using a model that examines (or represents) selected positions relative to one another. By using both spatial and organisational structure, we created models that show spatial distribution of social structures.

In addition, the difference between the distribution of space and distribution in space can describe the difference between the two models. The space syntax model shows distribution of space through visual accessibility. The positioning model analyses distribution in space through spatial positions defined by certain social or cultural organisations by study of primarily visual relations. The two models complement each other as the space syntax model gives the potential for the distribution in space and the spatial positioning model gives a formal realization of this potential through distribution of people, functions, or things. In this case, the realization consists of how an (formal or informal) organisation uses spatial strategies to position its subjects or objects in spatial relations, which depend on the potential defined from the built space itself.

In this paper, we use isovists to represent space because the phenomena studied here are related to visibility. Having its origins in

the analysis of sightlines, an isovist represents what can be seen from one position or area in space in a 360-degree orientation as represented by a plane in two dimensions (Benedikt 1979). In as far as such an element represents visibility, everything included in such an isovist and everything that demarcates it is co-present with the original point. However, it is not only the point of origin and its connections that we find interesting: in the spatial models used for positioning analysis, both the origin of the isovist as well as the field are parts of the analysis, both together and on their own. To explain this, the approach to the isovist itself must be refined; the isovist on its own can be interpreted in different ways: as a position, internalised to a seeing subject (interpreted as what is seen from one position) or externalised as a field encompassing that which sees the point of origin of the isovist. This double relationship is about who or what is exposed and who or what this is exposed to – relations of seeing and being seen. We use the concepts "positioning" and "situation": "positioning" relates to the origin of the isovist and its visibility and "situation" relates to the intervisibilty created by the isovists. The interplay between these says something about the role of that which is positioned, how it relates to others, and how this relation is produced both as distance and proximities and as visual connections between that which is positioned in space, be it people, things, or functions. "Positioning" is an active process controlled by whom or what governs position – either the elements themselves or a person who has the power to make decisions for them. "Positioning" tells us something about the spatial strategies used to form and reform social relations through space. "Positioning" analysis will be evaluated using observation data and spatial strategies used by organisations.

Case Studies

One of the cases presented below derive from open space office studies and one from department stores. We will discuss these cases through the realization of positions and situations to show how the positioning analysis can help explain spatial strategies. The cases will serve as examples of how the methodology can be used and as ways to develop the theoretical assumptions discussed in the conclusion. The first case focuses on labour division and face-to-face interactions. The second case focuses on how department stores position commodities relative to one another to suggest categories and their subsequent use.

Case 1: Face-to-Face Interaction and Labour Division

In this case, data from a survey regarding face-to-face interaction will be correlated to a positioning model. We use labour divisions and the positioning of workstations as origins for the isovists because the question at hand is how spatial distribution of an office organisation affects face-to-face interaction. This is further supported by earlier findings showing that employees generally spend more than half their day at their desks (Steen 2001 and Steen, Blombergsson & Wiklander 2003), making the desk their reference place within the open office. Furthermore, the position of the desk is often attached to ideas of status at the work place (Gorawara-Bhat 2000, Markhede & Steen, 2006), and the position of a desk dictates conditions for with whom one interacts with during the workday. Finally, while correlations between spatial integration and movement rates have been found earlier (Grajewski 1993) as well as in the studied office this has not been found to correlate significantly to face-to-face interactions.

The survey is carried out at Swedish Posten HQ in Stockholm. Using plans from an international design competition, the office building was built three years ago. The area used for office work is as open as possible to stimulate interaction between co-workers. In our study a

survey was given to 600 employees during two days. Each morning we handed out an A3 paper with their floor plan and instructions to map where they were located when they interacted face-to-face with co-workers. The data does not tell us anything about the length or the quality of the interaction and nothing about interaction on other floor plans in the building. Their workplace was marked with a red dot and they marked the interaction with a blue circle. The answer frequency was high and the quality of the answers was even. While the result is displayed according to organisational belonging, the original data file is organised by individual answers. This makes it possible to have a detailed look at discrepancies originating from a single person or smaller groups to avoid interpretation mistakes.

Because the division of labour significantly structures the organization, the data is related to labour divisions and displayed on floor plans (Figure 1). Using this mapped survey, we can see patterns of interaction and how they relate to space and organisation. Figure 1 shows one of the three floor plans used in the survey; the floor plans differ in floor area and the amount of workstations, but they all have a similar open plan layout.

	• Dep. 1		• Dep. 4
	• Dep. 2		• Dep. 5
	○ Dep. 3		
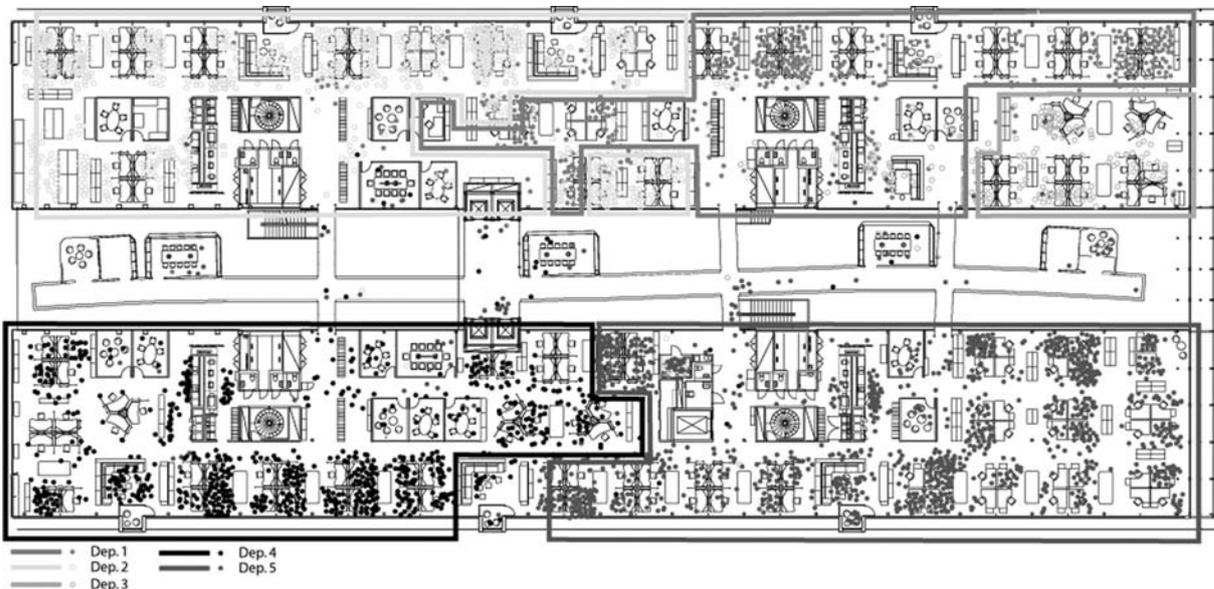
The floor is divided in two parts separated by a light shaft with bridges for pedestrian circulation, a division that occurs on all floors. Each of these parts is an open space only separated by functions, such as toilets and coffee bars. The organisational departments have direct and indirect relations to their neighbours. The indirect relations are across the shaft or with another group in between, making a visual connection but distance in accessibility. The direct are relations formed by the desks only meters from the other department but in the same open landscape without any material boundaries separating them from each other, equalising visual and accessible relations. One of the most striking findings from these data lies in the lack of mix regarding face-to-face interactions between different organisational departments. Most face-to-face interaction is carried out within units despite the open plan solution. In 10 of 13 departments there are no data of face-to-face interaction between indirect neighbouring departments and in the others there are 0.1%, 0.2, and 0.3% of the total departmental face-to-face interaction. With the direct neighbours is it much more common with inter-department face-to-face interaction; the data show that the average value is around 3.4% for face-to-face interaction between direct neighbours. This data concerns only interaction at another department's workstation, which ensures that it is an inter-department act.

Figure 1:

This diagram shows data from a survey concerning face-to-face interaction during two days at Swedish Posten HQ. The lines surround workstations belonging to the same organisational department. The colours of the dots show the organisational belonging of the employee who interacted
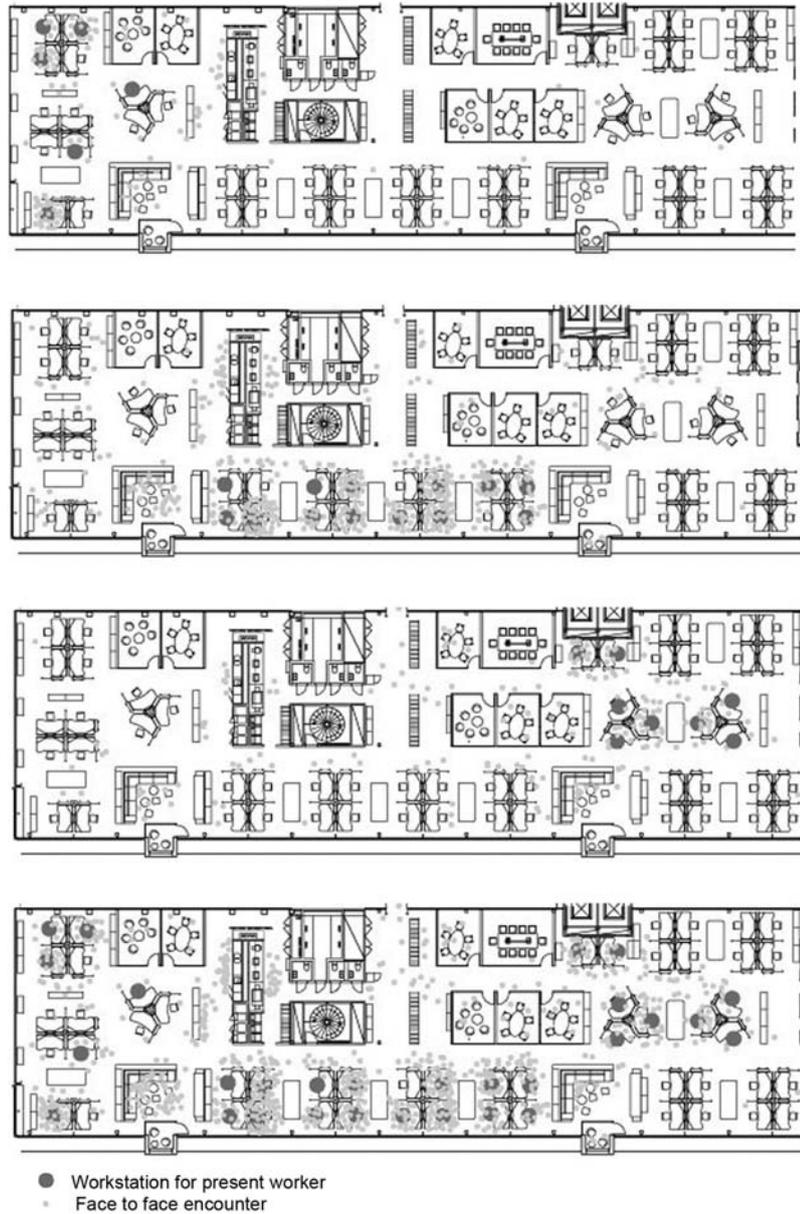
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Figure 2:

Example on distribution of face-to-face interaction within a department. The three pictures on top show only small samples and the lowest show all data together

● Workstation for present worker
· Face to face encounter

This behaviour is very interesting compared to the internal face-to-face interaction for the departments. Figure 2 shows a series of extractions from the department in the lower left part of Figure 1. The series illustrates how the face-to-face interaction is performed within the department.

This series of examples is representative for all divisions in the survey and an allowance is made for smaller variations. In every organisational group, the internal face-to-face interactions are spread over the whole division's domain. At the same time, face-to-face interactions across organisational borders are limited to the direct border area or related to management contacts. Workers can move long distances within their own domain, but they relatively seldom visit workers belonging to other division. As both Hillier and Hanson observed, organisational structures can have great affect on face-to-face interaction.

Positioning analysis effectively maps the above phenomena and clarifies some spatial properties. In this analysis, we focus on labour divisions, face-to-face interactions, and spatial positions. The positions that constitute the isovist model is selected through the

organisations' labour divisions and related to the individual workstations. The isovists are then layered on each other so that the darkest areas have the most isovist overlapping and the lighter areas have the fewest. Therefore, the intervisibility is higher in the darker areas. This can be compared to the pattern of face-to-face interactions (Figure 3). It proves that the map correlates well with the distribution of the face-to-face interactions. The darker central area has by far the most dots. As the colour fades, the dots become rarer. This correlation analysis has been repeated on 13 departments on 3 floor plans; all the analyses show the same pattern.
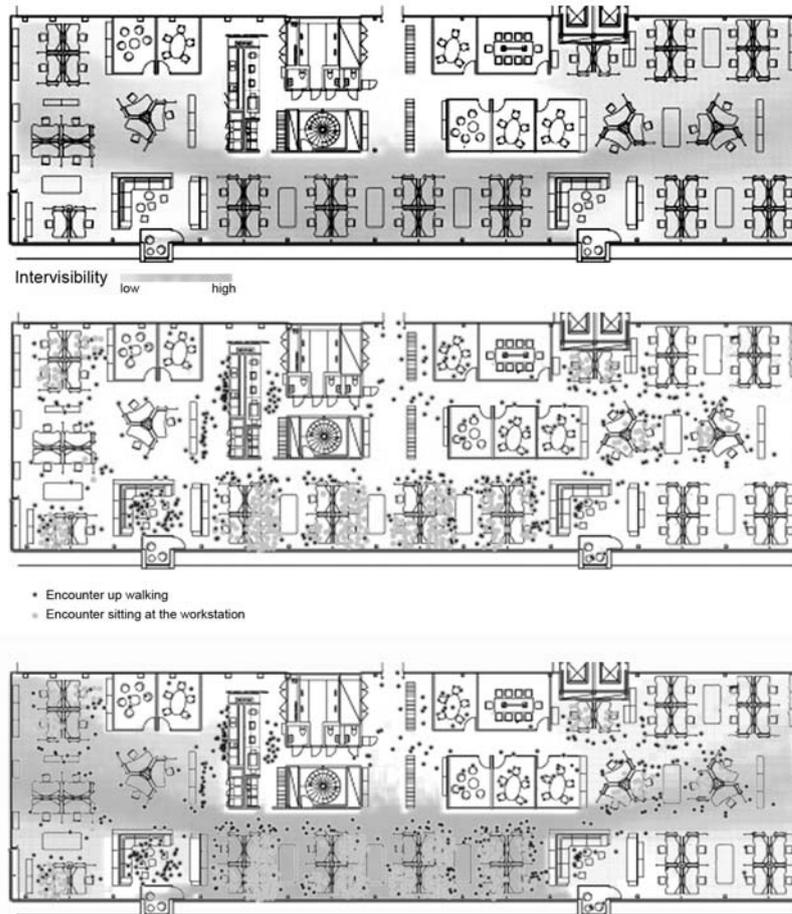
Intervisibility low   high

· Encounter up walking
· Encounter sitting at the workstation

Figure 3:

Example of how the data is stored and layered. On top is a manually constructed intervisibility graph, using positions given from workstations belonging to the present labour. In the middle is data from the survey, showing face-to-face interaction of two kinds. Encounters as a result up walking and encounters at a workstation. The lower picture show the other two layered upon each other

Face-to-face interactions can then further be divided into two categories: those resulting from a movement and those that are the result of an interaction sitting at the workstation. We have compared these data with the models more intervisible and less intervisible parts. In 11 of 13 departments, the total face-to-face interaction is higher in the more intervisible parts than in the less intervisible parts (Figure 4). The intersection value is 2.5 face-to-face interactions per present hour for the more intervisible, compared to 2.2 in the less intervisible parts. For interactions resulting from when a person is walking about, the intersection value for the more intervisible parts is 1.1 and for the less intervisible parts it is 1.2. The distribution of face-to-face interactions carried out by someone walking about is very evenly distributed within the different departments. The intersection value for face-to-face interaction carried out at the workstation is 1.5 in the more intervisible parts and 1.0 in the less intervisible areas. There is 50% more face-to-face interaction at the workstations in the more intervisible areas than those placed in the less intervisible areas. In the less intervisible areas, 10 of 13 cases show more face-to-face interaction from walking than

sitting at a workstation. This data are confirmed when we look in detail as well in the overview of the data.
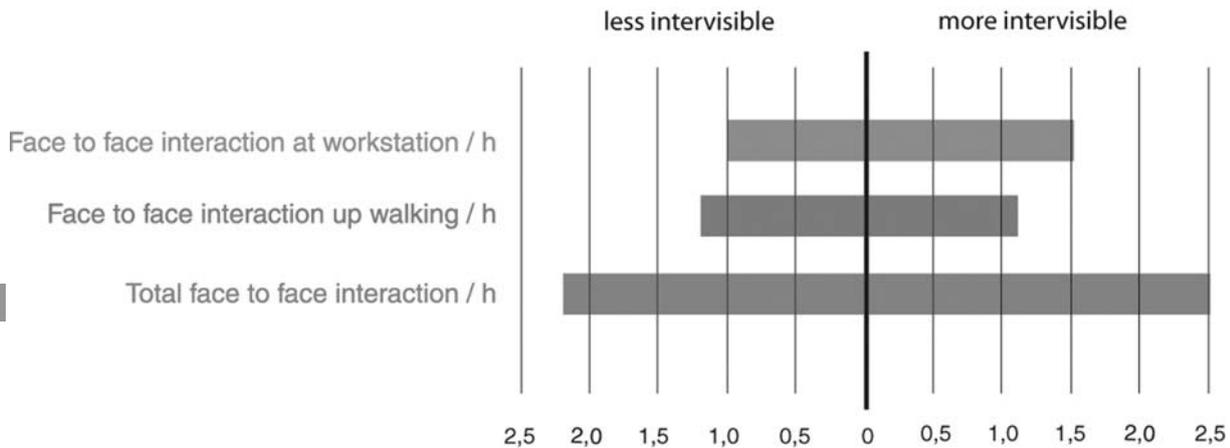

less intervisible   more intervisible

Face to face interaction at workstation / h

Face to face interaction up walking / h

Total face to face interaction / h

2,5 2,0 1,5 1,0 0,5 0 0,5 1,0 1,5 2,0 2,5

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Figure 4:

The diagram displays data form 13 groups on three different floor plans. Each group is divided into more intervisible and a less intervisible depending on the workstation's position according to the intervisibility graph. The "h" stands for total present hours of the present labor

The new model correlates with mainly three behaviours: 1.) only a tiny percent of face-to-face interaction is carried out between different departments despite the open plan solution – organisational boundaries work almost as strong as walls; 2.) face-to-face interaction resulting from workers walking is generally evenly distributed within departments; and 3.) there is significantly more interaction at workstations centrally placed according to the model.

Case 2: Department Stores

In the department stores, we have also found a strong correlation between movement rates and spatial integration (in Depthmap v5.12), as high as r-square values of 66% and 74%. However, movement rates did not transfer into browsing customers in the departments along the aisles and neither did it when considered together with "meters of exposed goods" (Penn 2005). Instead, there was a clear pattern of browsing being done in two positions: in endcaps and in origins of the most integrated paths. This phenomenon has been studied in depth elsewhere (Koch 2007) and will only be touched upon here.

However, movement rates and browsers answer only a part of what is distributed in the department stores, where another significant distribution is that of commodities. It has been claimed that this would follow formulas of attractors and impulse buys organised into roughly four kinds of zones (Penn 2005, Underhill 2000, Hosoya & Schaefer 2001). Another base for commodity distribution often presented is what is commonly called synergy effects of adjacencies (Underhill 2000, 2004). On closer scrutiny, however, these explanations are not enough since they are arbitrarily applicable to a great many different distributions and have nothing to say in the way of the construction of the distributions themselves. They are further based on assumptions of inherent identities of commodities, whereas works within semiotics (Baudrillard 1996, 1998, Eco 1997, Williamson 1985, 1995) and art-theory (Kwon 2002, Buskirk 2005) clearly show that these identities are worked out performatively and contextually (see also Miller et al. 1998). The same espresso coffee cup has different identities depending on where it is found. What this means can be illustrated by an example: Top Shop in Debenhams reorganises its goods everyday, producing new contexts for the products everyday. Although the simple interpretation is that this lets different commodities receive exposure each day, in fact this strategy of recontextualisation presents a new range of goods each day since the identity of every commodity is reworked by the construction of a new context (Koch 2007).

This suggests that understanding how these contexts are constructed as concrete material spaces is important for understanding what is going on in the department stores. While the analysis runs much deeper, this analysis will be presented in three examples.
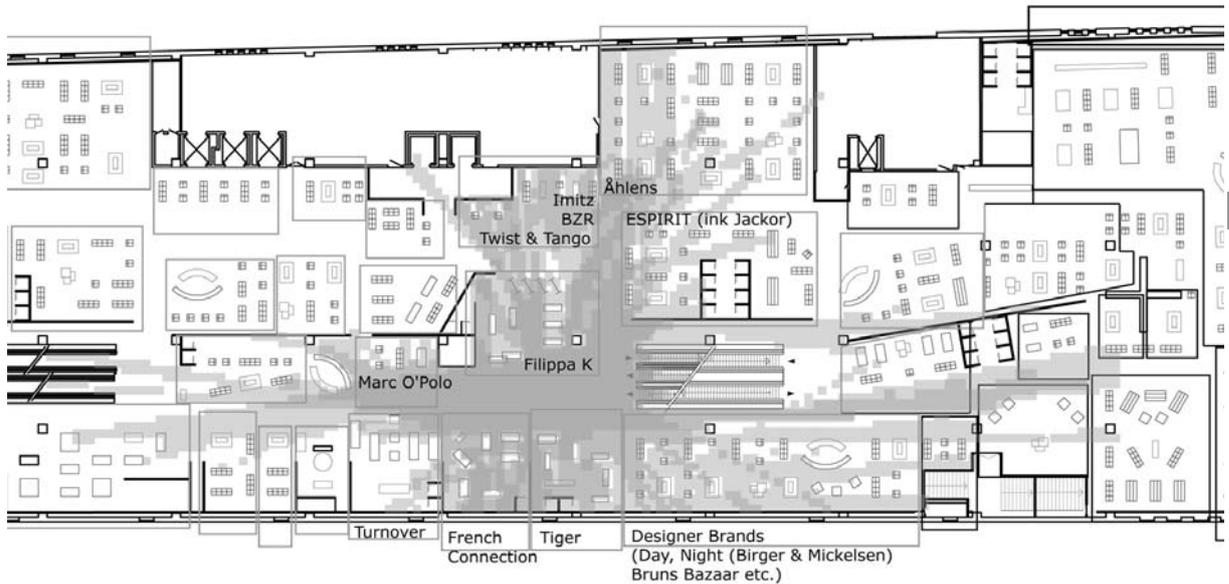
First, we can look at the simple case of co-presence as a means of describing co-belonging in a category and the degree of co-presence as further indicating the strength of this. By analysing the department stores by means of visual relations focused on the departments or brands instead of the aisles, it becomes clear how departments build up relations to one another and to the aisles. One way to do this is by using isovists drawn from the areas of the stores themselves where customers tend to browse the commodities (Figure 5). What we find is in what contexts departments and commodities are browsed. In Figure 5, we can say that Filippa K is browsed predominantly in the context of Tiger and French Connection, and this situation is mutual (and to some extent includes Marc O'Polo and Twist & Tango, although this connection is weaker). That is, Tiger is browsed mainly in context of Filippa K and French connection (and the row of Designers' clothes along the escalator). The strength of such mutual contextuality is very different, and clear patterns emerge according to what is close to what. Very similar sets of fashion brands form contexts for one another not only in Åhlens men's fashion and women's fashion, but also in other department stores and malls. This form of context construction is not traceable in the standard range of VGA analysis. It also constructs categories that follow other principles than the commonly assumed "brand" and "type" organisations.

Figure 5:

Overlapping isovists from Filippa K and Tiger show how much they (a) cover one another as departments and (b) cover the same areas

Figure 6:

The isovists covering the two ranges of suits and street fashion on the men's fashion floor of Åhlens, seen from the most exclusive suits department (Hugo Boss, left circle) and the most exclusive Denim band area (Diesel, right circle)
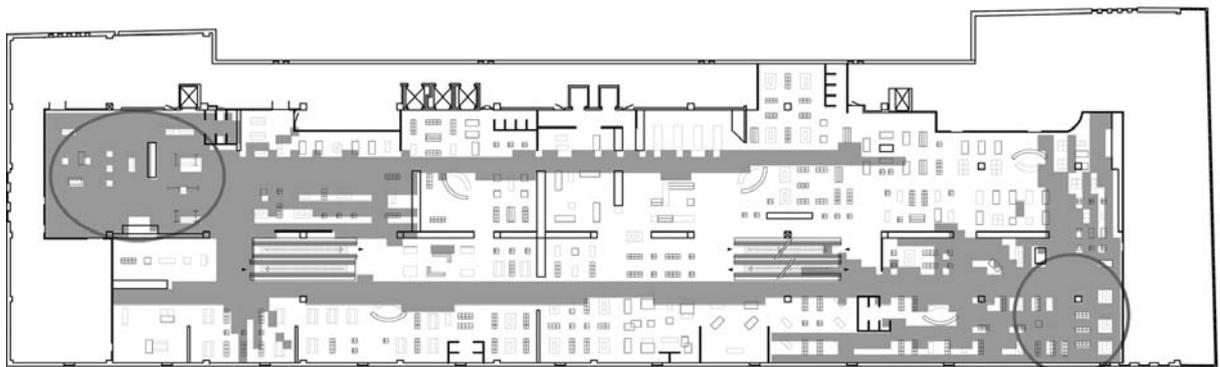
Second, we can look at the opposite strategy: there are things that constantly are put apart from one another. Most significantly, this goes for the traditional suits and street fashion on the men's fashion floor of Åhlens City. If we place isovists in the endcap departments of both the traditional branch (Hugo Boss) and the street branch (Nudie, Acne, and Diesel), we find that they almost do not cover each other at all (Figure 6). In fact, continuing this operation through the branches to the escalators, it is first when they actually reach the escalators that they start to overlap. Spatial separation is used to describe difference in kind and in target customer.
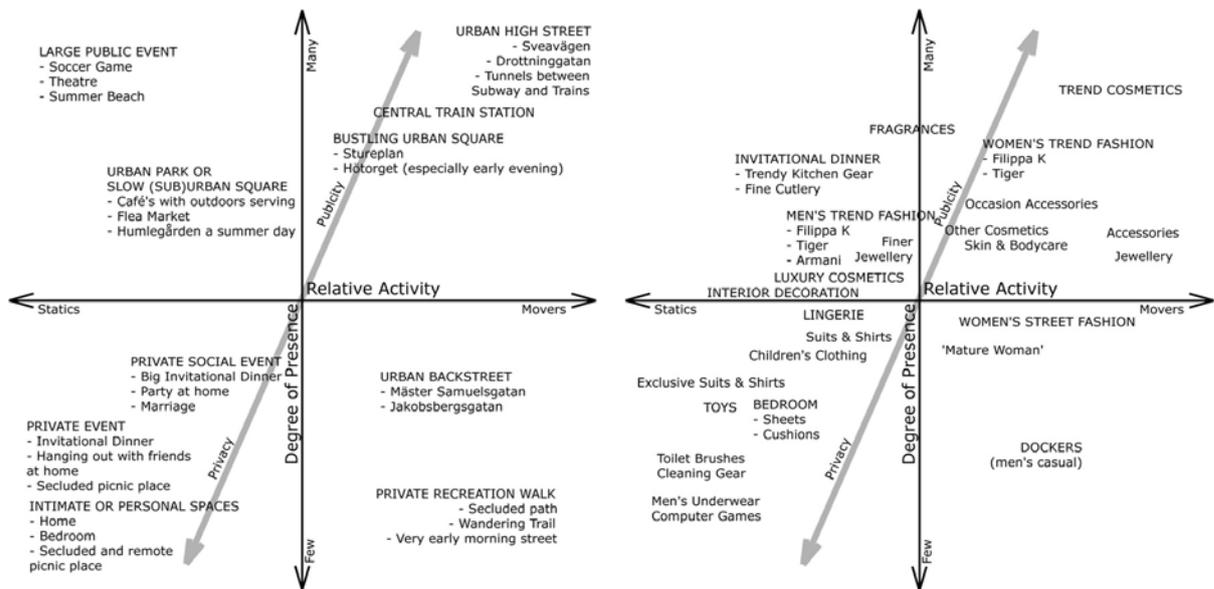
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Figure 7:

The Isovists from three positions of exclusive commodities (top: Jewellery, Watches and Luxury Cosmetics (Shisheido and Yves Saint Laurent) and from three low-status brands of cosmetics (below: Maxfactor, Revlon and Isadora). Note how little the two groups are able to see one another, and the heavy degree to which they are visible to one another within the groups

The third case to look at is the cosmetics department. The assumed category of cosmetics is often treated homogeneously (Underhill 2000, 2004). However, on closer scrutiny it becomes clear that the strategies of context construction and separation for all the department stores created different sets of cosmetics. Furthermore, these contexts were not all related to cosmetics (Figure 7). In both Åhlens and Debenhams, there is a primary division after status, where one group of brands is clearly and distinctly separated from the other: the cheaper and low status brands and the high-status or trendy brands. Second, the high-status brands are given more exposure and are also spatially closer tied to jewellery than the other groups of cosmetics. Roughly, this constructs spatial categorisations such as "luxury" (including jewellery and most often watches, and sometimes fragrances, silk stockings, or high status accessories), "trendy" (the most trendy cosmetics brands often tied to the most trendy accessories and loosely tied to the luxury category), and "mass" (often relatively unexposed and on the way somewhere else – always distinctly separated from the "luxury" category).

Figure 8:

The analysis of characters of commodities is built upon a mapping of their relative position compared to the factors of number of people present and the distribution between kinds of presence (movers and browser). This describes different social characters such as in the conceptual map based on urban milieus (left) that can be compared to the characters encountered in the department stores (right). (Figures from Koch 2007)

These strategies, which can be analysed using different forms of positioning analysis, can help one understand how the department stores (and libraries) construct categories as spatial contexts, how they relate these categories to one another, and how this is set in relation to movement flows and browsing patterns (as correlated to integration). In this way, we can see that the trendiest brands are put where they receive much exposure and high flows of customers passing by or through, the most exclusive commodities are placed in endcaps or behind glass walls, giving a lot of exposure but fewer passers-by, and a range of other commodities are placed in-between. Some commodities are also deliberately hidden and hard to reach. This is not as much about which commodity should sell best as of negotiating their place in the fashion system (Entwistle 2000, Kawamura 2005, Barthes 2006): it may be that low status brands sell better because there are other goods that are described as trendy; the choice of the first can then be seen as a thrifty (Miller 1998). Furthermore, the exclusivity of the exclusive brands can be enhanced not only by more exposure but also by the low number of customers actually browsing them. This allows more attention to be given to each customer by personnel, and also produces a sense of membership in a group of select people who share a taste that is rare. This has been argued for as a good retail strategy in some cases (Underhill 2004) and is a basic form of class construction (Bourdieu 1984). The formation of these categories and their social roles can be read through analysis of positioning and "traditional" spatial integration (Koch 2007). One way to do this is to map the degree and distribution of presence for different types of commodities as in Figure 8, which then needs to be complemented by e.g. analysis of degree of exposure to those not specifically present (such as Hugo Boss would be quite exposed to everyone walking the aisle leading towards it in figure 6). These characters have then been compared to how the categories are presented in fashion magazines qualitatively (expressed disposition in ads and fashion shots) as well as quantitatively (how many magazines and which) (Koch 2007).

Discussion and Conclusions

This paper presents and develops positioning analysis as a methodology. Using space syntax research and related research, we have conclude that both organisational and cultural structures have a strong impact on space use, which becomes very clear when analysing building interiors strongly influenced by organisational and

cultural structures. To understand this, we shift focus from distribution of space to distribution in space (Koch 2004). The positioning model is constructed from positions of the distributed subjects/objects. The isovists originate from each position, forming a model that shows the organised entities' spatial relations whereas traditional space syntax representation shows how spaces are organised in relation to each other. The analysis of the former provides powerful complementary information for the latter. In the two cases shown here, both the internal relation as well as the external is of interest for interpretation.

In part, this study is based on Hillier and Hanson's argument that when understanding buildings as artefacts, the main product is not the physical building itself but the transformation of space through artefacts (1984). Therefore, ordering of space is the main product of a building, which in turn constitutes the range of possible relations between people. In addition, this study is based on Latour's discussion on the relationship between humans and artefacts from an organisation perspective (1998). Although Latour never actually addresses any concept of space, he clearly brings forward ideas related to positioning analysis and stresses the need to understand organisations through their relations between humans and artefacts. Furthermore, although Latour's analysis is primarily philosophical and not in the same field as the quantitative studies on space syntax, an essential aspect of Latour's concept is the change of perspective from "principles of power" to "practice of power", changing from the deterministic description of formal organisation model to a more interpretative practice describing the relations and interactions between humans and artefacts. In addition to Latour, Goffman (1959) and Butler (1999, 2005) emphasise the importance of studying performance and interpret their study object as products of its performed relations. Although the definition of artefacts and the conception of space are not shared across the disciplines, we think that a co-interpretation of these different perspectives is interesting when using positioning analysis. As evident in the work of Stavroulaki and Peponis (2003) and Koch (2004, 2007), positioning analysis can also be used in qualitative investigations.

In the first case, the positioning model is related to labour division and position of workstations in an office designed to be as open as possible. The data reflect the office face-to-face interactions that take place during two days. When correlating the data with the positioning model, there are mainly two interesting findings: first, the relations between face-to-face interactions and organisational belonging – according to the data only 4 of 100 face-to-face interactions are carried out cross-departments; second, there are significantly more interactions at workstations centrally placed. Curiously, we also noted that face-to-face interactions as a result from workers walking are generally evenly distributed within each organisational department.

In the case of department stores, we find that strategies of constructing categories, identities, and representing positions in the fashion system (or other social or cultural structures) can be understood by a close analysis of spatial positioning and of spatial positioning together with regular space syntax measures such as visual integration. It is further possible to analyse questions of exposure and availability relative to the amount of customer flow and directionalities of their movements (Koch 2007). This becomes quite clear by such analysis and remains difficult to interpret using only one of the methodologies.

These findings imply that positioning analysis can internalise organisational and cultural structures into spatial analysis, a result that can develop within the space syntax community as well as related

fields such as organisation theory, retail management, material cultures studies, and social psychology. For example, many basic conceptions within symbolic interactionism, as initiated by Goffman (1959), can provide understanding of how and why these spatial strategies occur. In addition, positioning analysis can provide understanding of the spatial properties of such interaction, which is lacking in Goffman's work. Goffman sees interaction as the central binding of society, meaning that our definitions of reality, self, moral order, and surrounding social environment are tied to interaction, which has later been further refined by Giddens (1984) and Butler (1999, 2005). For Goffman, artefacts play an important role for how we present ourselves.

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To further evaluate the relevance of positioning analysis more research is needed, which includes both empirical studies and methodological development, where the latter includes development of software with the possibility to create visibility graph analysis from selection of positions within a plan layout. In this paper, the graphs and correlations have, unless otherwise stated, been produced manually in illustration software with help of basic Depthmap isovists. By use of positioning analysis, significant understanding of how organisational and cultural ideas are invested into how functions such as workplaces and objects such as commodities are distributed in space can be developed. Furthermore, such analysis correlates better with face-to-face interactions in open plan offices than regular space-syntax analysis, and describes comparisons between positioning analyses and more regular space syntax analyses in a more effective way, producing new and interesting results. Positioning analysis (analysis of distributions in space) is a powerful complementary approach to the more regular space syntax analysis (analysis of distribution of space).

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