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#119

FIGHT FOR FRONTAGE

A Shopping Mall On A High Street

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ABSTRACT

Natural movement is defined as the pedestrian movement potentially generated by the configuration of the street network irrespective of any other factors (Hillier et al 1993). The structure of the urban fabric is considered to be the primary generator of movement, although attractors such as specific 'land uses' for example, might also act as factors in generating additional movement. Traditional shops along a high street build upon the potential provided by natural movement. Conversely, the concept of shopping malls is to create attraction through concentrated land-uses (retail density) allied to car accessibility (regardless of pedestrian accessibility). The spatial juxtaposition of these two retail models therefore challenges the way the syntactic structure of the street operates, resulting in multiple frontages and points of access that may pose conflicting demands and a sense of disorientation.

The case study is a shopping mall located in the Newcastle City Centre, bordered on one side by the high street and on another by one of the main city squares. This 'hybrid' building has developed its own circulation system: it is publicly accessible but privately owned, which implies restricted accessibility over the course of the day and week. As such, accessibility is re-evaluated depending upon the nature of the internal open space (privately owned but, at times, publically accessible). Accessibility is measured at the city scale, and the neighbourhood scale inclusive and exclusive of the internal open space. It is also assessed by the volume of shoppers entering the shopping mall's 20 separate entrances and is linked back to the syntactic structure of the streets. Finally, the impact of movement generated by street structure on retail located in the shopping mall is analysed through the layout of a department store that fronts both the shopping mall (internal frontage) while having also maintained its traditional frontage onto the high street (external frontage).

KEYWORDS

frontage, retail, shopping centre, high street, natural movement

1. INTRODUCTION

Frontage is the place where public and private domains meet. It participates in both the definition of a building façade and the definition of a street elevation. It creates potential exposure of a privately own space to the public at large and it is used by real estate agencies to assess the value of land (commercial in particular, taxation). It is where one accesses a property. Some urban forms have dematerialised the frontage (suburban setbacks or modernist housing estate) and even in certain cases privatised and internalized it (shopping mall).

This paper will look at the implications of internalised frontages in a traditional urban fabric, more specifically, their impact on movement. In the case of retail, the internalisation of frontages within a shopping centre model fully disregards the external frontage of the building. This internalisation is made explicit in the dumb-bell configuration pioneered by architect-planner Victor Gruen (1960). The dumb-bell plan is designed to minimize the distance between anchor stores (Maitland 1990), to maximize and evenly distribute movement, therefore exposure to all the shops (Jewell 2001). It is based on the principle of the high street with shops on each side of the street capped with an anchor store at each end (figure 01-c). By terminating the main thoroughfare at major shops, the model concentrates all its circulation to the centre and minimizes pedestrian traffic on the periphery. The location of attractors such as anchor stores in the layout of a shopping centre plays a strong role in equalizing pedestrian traffic throughout its main central circulation (Fong 2003). As an introverted building type, the shopping mall doesn't relate to its site, but capitalizes on the parking areas and access to arterial roads and motorways. The entrances of a traditional shopping centre are generally not highly visible and often through the entrances of the anchor stores.

On the opposite spectrum of the retail model, the 'live centres' of cities are the places where activities, exchanges and interactions take place in a more intense manner. It is characterised by a higher density of people and frequency of movement. The High street (figure 01-a) is often the focus of live centres with a high concentration of shops, activities and entertainment that benefit from its central location within the city fabric (Hillier 1999, Scoppa and Peponis 2015). In other words, there is a natural exchange of benefits between the economic activities and the configuration of the street network. However, the street network both generates and restricts its potential for traffic through its sole spatial configuration (depending on how availability of streets and connections). The High street generates through movement and exemplifies the 'movement economy' within cities which is "*the reciprocal effect of space and movement onto each other to which is added the multiplier effect of land-use and building density*" (Hillier 1996).

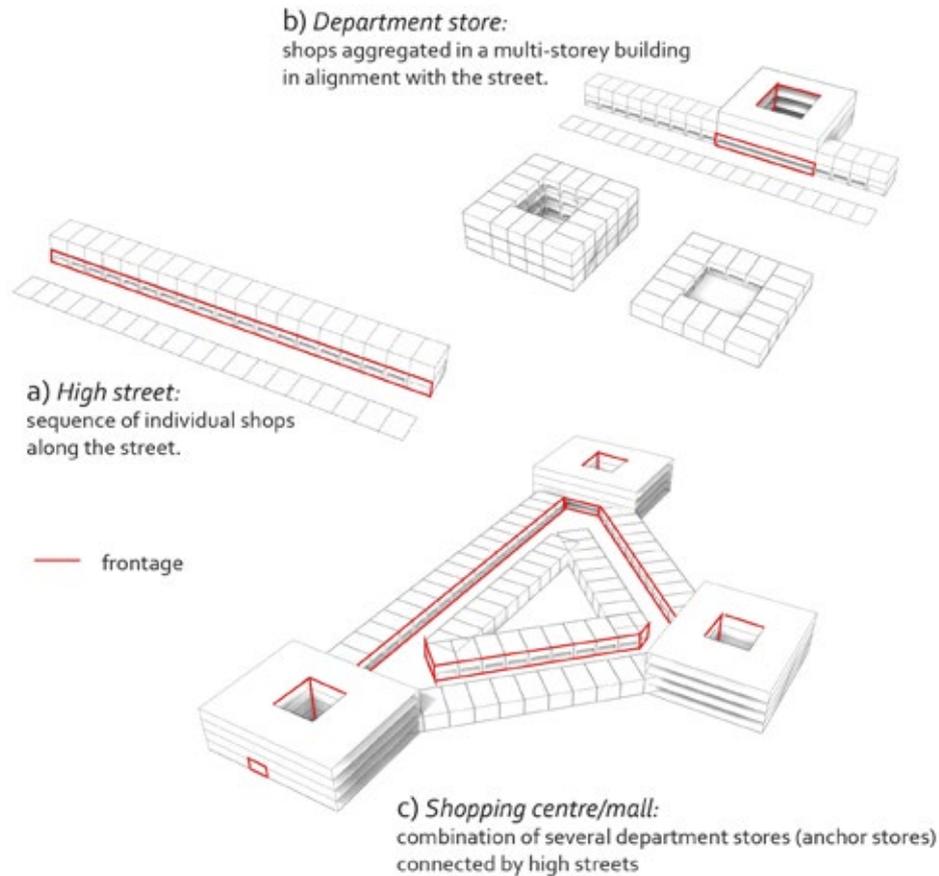


Figure 1 - different types of retail: shops on a high street building on natural movement with external frontage only (a) – a department store on a high street internalizing part of its frontage around a central atrium/vertical circulation (b) – a dumb-bell type shopping centre using anchor stores and maximizing circulation with internal frontage only (c).

2. INTU ELDON SQUARE: A SHOPPING MALL ON A HIGH STREET

The construction of a shopping centre next to the traditional High street intensifies the density of movement whilst establishing a tension between shops located within the shopping centre and those located along the High street. Since the space allocated to parking is minimised, alternative sources for shoppers are sought. A previous study looked at an enclosed shopping mall in a Downtown area in the US and questioned the benefits the shopping centre brought to the surrounding conventional shopping streets, finding the internal frontages to be more successful in attaining pedestrian numbers whilst limiting the spread to the outside (Lorch & Smith 93).

Both models follow opposed modes of operation: the high street provides natural movement via its central and integrated location within the city centre upon which retail builds, while the shopping centre is designed to attract shoppers with ease of access (car + parking) and then to contain all movement within its precincts. By locating a shopping centre within a city centre, the shopping centre loses ease of access and attempts to capitalise upon the potential created by the natural movement of city centres.

Shopping centre embedded within the urban fabric of a city centre is a fairly common one in the UK. With the exception of Sheffield, which boasts an open air shopping area (*Orchard centre*), each major city in the UK now has an enclosed shopping centre within its centre. Out of the 40 largest shopping centres in the UK, 15 are located within the city centre, 10 are fully

suburban (i.e. out of town and surrounding by parking areas) and 15 can be considered as mixed (with a looser fabric, often creating new cities). They could be described respectively as the 'Major Urban Centre' type, the 'Regional'¹ type and the 'Urban Centre' type. This paper uses the example of *Intu Eldon Square*, a shopping centre embedded within the city centre of Newcastle, which falls in the category of 'Major Urban Centre'. It ranks 13th in terms of size in the UK and is located less than 5 miles away from the largest shopping centre in the UK – the Regional *Metrocentre* in Gateshead. Intu Eldon Square has been constructed in multiple stages using two existing anchor stores (flagship stores) located on the high street and the relocation of another. It opened in 1977 and is owned by joint venture by Newcastle City Council (40%) and Intu (60%). A later phase added another shopping centre 'Eldon Garden' onto the west side, thus expanding its total footprint. The latest development was the addition of an anchor store on its southern part in 2004 (figure 02-c) and the refurbishment of a new food court near Monument in 2016. The development destroyed a major part of the city centre and redesigned parts of a main square renamed '*Old Eldon Square*' (figure 02-a). According to Maitland's main categorisation of shopping mall layouts, it can be assimilated to the L shaped type (Maitland 1985).

The introduction of the shopping centre into the city fabric and the destruction (or internalisation) of existing streets is assessed by evaluating the impact at differing scales. The relationship of the high street and the shopping centre is looked at the scale of the city, the shopping centre and the shop. Firstly, and at the city scale, the paper concentrates on the effect of the assimilation of internal circulation to the public space and street network (global properties of the grid). It compares the syntactical core of the high street model with that of the shopping centre, as two independent systems, and their affect upon each other when combined into a single system. Based on this observation, the corridor and High street systems are compared. The second part focuses on the accessibility of the shopping centre itself and how it relates to the surrounding street and in particular, the High street. Accessibility is assessed as the volume of shoppers, or footfall, passing through the various entrances of the shopping centre and the location of these entrances is evaluated against the surrounding streets, with emerging configurations highlighted. Finally, to clarify and distinguish the impact of both models, the paper examines the anchor stores of the shopping centre, with each having a different relationship to the internal corridor and the external street: one has an internal frontage only and is fully dependent on the shopping centre and its carpark, the second is equally accessible from the street and from the internal corridor of the shopping centre, and finally a traditional department store on the High street with internal access to the shopping centre as well as multiple accesses and frontages on other streets. This last model also clarifies the distribution of movement at the level of frontage for a single shop.

1 As defined by Costar.UK: 'Major urban centre': Shopping Centres in large towns and cities. 'Regional': *Large, dominant regional shopping centres in out of town locations, covering a large catchment and which are the leading shopping destinations for those with cars.* 'Urban Centre': *Shopping Centres in smaller towns and suburbs.*

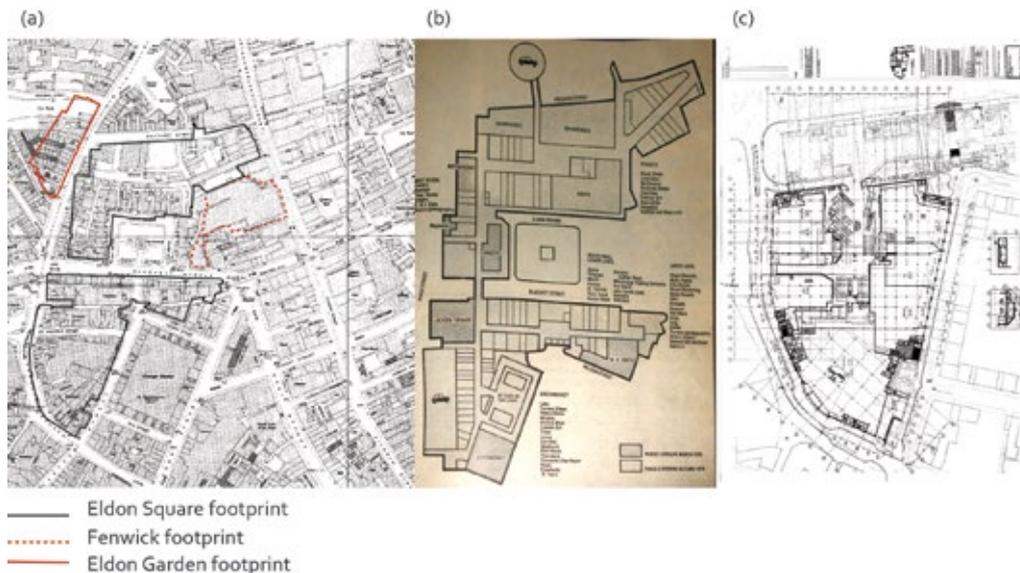


Figure 2 - Newcastle city centre in 1951 before the construction of the shopping centre (a) – the proposed project of the shopping centre in 1976 (b) – modification of the southern part with the establishment of Debenhams in 2007 (c)

3. INTERNALIZING PUBLIC SPACE

How does the internal circulations of a shopping centre impact upon its surrounding streets and most importantly the existing High street? Is there a shift from an outdoor core to an indoor core by adding more streets to the system? Is there an increased or decreased integration?

In order to understand the impact of internal circulation on the natural movement of the city centre, three axial maps are drawn to represent: the city centre, the shopping centre and its peripheral streets and finally the city centre with the internal circulation of the shopping centre. The city centre axial map (figure 03-b) is drawn from a pedestrian point of view, and as such includes elevated pathways, reminiscent of the 1960s urbanism and pedestrian paths through the two university campuses. The limits of the map follow existing boundaries that prohibit or make walking connections uneasy: on the north, the motorway and the town moor; on the east, the motorway; on the south, the topography and the railway; and on the west, the stadium and boulevards. The city centre has been greatly pedestrianised and restricted access has been given to bus and taxi traffic; the city established a shared surface system.

The shopping centre axial map (figure 03-a) includes the internal circulation that is accessible directly from the street or public space. Circulation is distributed on three floors; the main floor which is at the entrance level on the High street (Northumberland Street); the lower floor which is at the level of Old Eldon Square Garden and the Upper floor, which is not directly accessible from the outside with limited circulation (Eldon Garden) and has been omitted from the map for legibility. Vertical circulation is included in the axial map through either a sets of lines (stairs) or a single line (escalators) and elevators are excluded. Finally, the streets surrounding the shopping centre are included since they participate in the accessibility of the shopping centre and support its street frontage. They are extracted from the city centre axial map.

The third map is the combination of the city centre and shopping centre maps into a single study (figure 03-c). Each of these maps represent a different perception of the city. The movement throughout the city when all shops are closed is represented in the city centre map. During opening hours, all accessible spaces are represented through the combination of the shopping centre and city maps. The shopping centre map is a proxy for the shopping experience as though the building was located within a suburban environment surrounded by parking lots; while the addition of the city centre streets represents its urban condition.

The analysis of the map using depthmapX computes the integration [HH] values for each line. The mean integration values for each map is reported in Table 02. It shows that the shopping centre as an independent system has the overall higher integration, indicating that all spaces are in close proximity to each other. The design of the shopping centre aims to maximise its central circulation and to limit circulation at its periphery. On the other hand, the city centre benefits from the shopping centre that increases its overall integration by 5.5 percent (from (b) to (c)). When embedded into the city centre fabric, the shopping centre loses in overall integration by -5.6 percent (from (a) to (b)).

	n	Mean Integration	Diff.		n	Mean integration (isolated)	Mean integration (embedded)	Diff.
Shopping centre (a)	110	1.404	-5.6% from (c)	Integration core (Top 5%)	5	1.99	1.54	-22.78%
City centre (b)	375	1.256			18	1.92	2.04	+6.01%
City centre + shopping centre (c)	467	1.325	+5.5% from (b)		23	1.99	1.99	N/A

Table 2 - mean integration values for each axial map, and for the integration cores (top 5%). The increase and decrease of mean value when the shopping centre is embedded in the city centre.

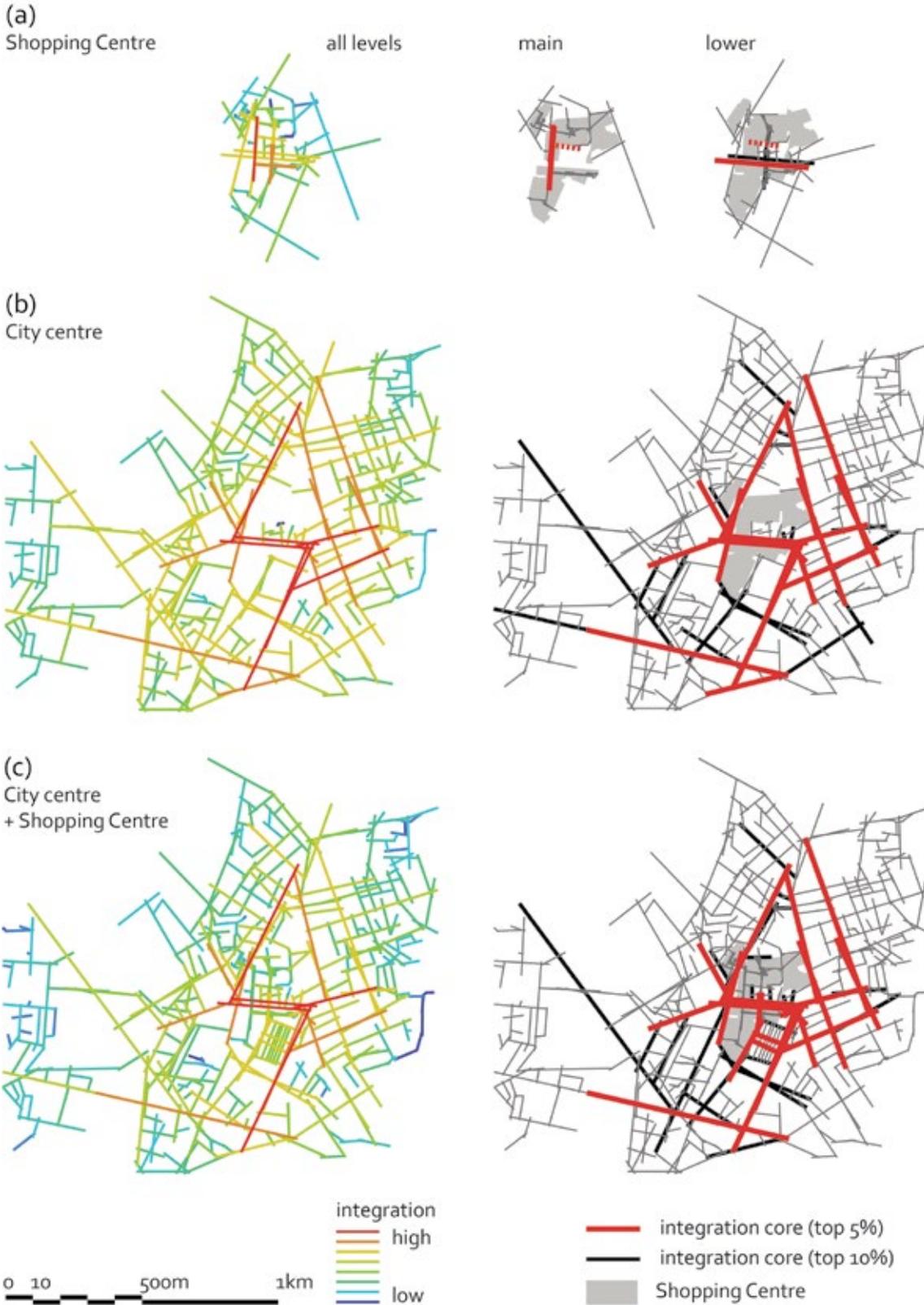


Figure 3 - on the left: axial maps of Integration [HH]: red for the most integrated and blue for the least integrated values. On the right: the integration cores (top 5% and 10%) for the shopping centre and the peripheral streets (a) the city centre without the shopping centre (b) and with the shopping centre (c).

Looking at the integration cores (Hillier and Hanson, 1984), the same set of axial lines that form the integration core (top 5%) of the shopping mall decreases by almost a quarter of its value (- 23%) when embedded into the city centre street network. By opposition the set of axial lines that forms the integration core of the city centre without the shopping centre increases by 6 percent when it is included.

The syntactic core of the city centre doesn't shift with the introduction of the shopping centre but benefits from the internal circulation that increases its integration core by 6 percent, and the city centre overall by 5.5 percent. When thought of as an independent system that is disconnected from the larger context but includes the streets that run along its periphery, the shopping centre has its integration core located upon the upper level corridor linking two anchor stores and expands to its lower level and onto a major street. That major street running east-west, Blackett street, is common to all the integration cores with the 3 maps.

4. CORRIDOR AND HIGH STREET

Can the internal circulation be assimilated to a high street? As a closed system, the shopping centre has a more integrated system overall with its most integrated street being the corridor that links the two main anchors. The high street is located on the opposite side of the most integrated corridor. They are however on the same grade and are at least 4 steps away from each other. The high street, syntactically defined by Hillier (1999), has a very particular form and tends to produce a local intensification of the grid. In this case, the size of the shopping centre itself denies any fragmentation on the west side of the High street. The number of intersecting streets on the west of the upper part of the high street (Northumberland street) is very low compared to its lower part (Pilgrim street). As illustrated in figure 01, the surface taken by the shopping mall has removed all the existing lanes and back alleys that made this part of the city more connected (House and Fullerton 1955). Furthermore, the intensification of the grid is prevented by the syntactic structure of the shopping centre which minimises connections at the periphery. Figure 04 shows the difference between the High street and the most integrated corridor of the shopping centre in terms of available spaces that are located one step (red) and two steps (black) away from the corridor. The 2 steps away structure considers the High street and the main corridor as points of departure and shows the amount of space available when changing direction twice.

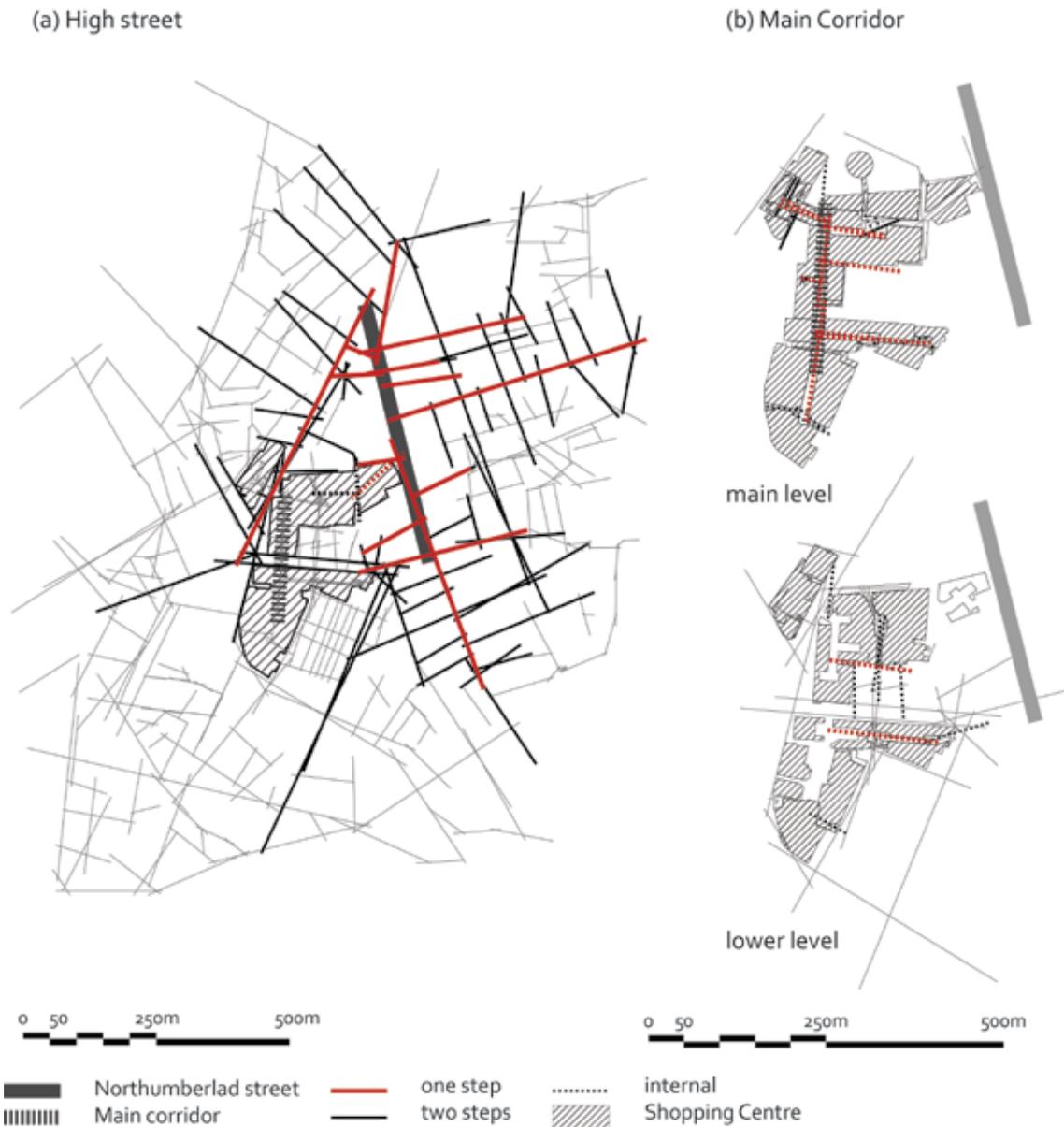


Figure 4 - the 2 steps away structure of the High street (a) and of the most integrated corridor of the shopping mall (b).

Only one direct connection is made between the high street and the shopping centre. Within the 2 steps away structure only two others spaces are picked forming a Y shape inside the shopping centre (figure 4-a – dotted lines). These three segments are not penetrating deep inside the shopping mall and remains very much at its periphery. Similarly, the structure of the shopping centre, from the most integrated corridor, shows that its location is deep inside the building (figure 03-b) with one connection to the outside linking it to a public square (*Old Eldon Square*), off the main road (*Blackett street*).

Similar disconnections to the surrounding main roads were observed in a Dutch shopping mall (Teklenburg, Borgers et al. 1994). The weakness of the relationship between the High street and the shopping mall is already present in the design of the shopping centre, as first implemented in 1976. Interestingly the connection is not perpendicular to the High street but in the diagonal. There is a double connection that is perpendicular to the high street, following the existing lane (*Prudhoe chare*), but the door is located at its terminal rather than aligned with the High street, creating a corner condition for the diagonal entrance. It could be hypothesized that the high

street acts as an anchor store and caps the north-east end of the shopping centre. As such, the diagonal is designed to minimize the distance between the anchor stores internal entrances and the anchor 'high street' entrance.

5. ACCESS STRATEGIES

Syntactically it has been observed that the High street and the shopping centre follow two distinctive configurations and that their adjacency doesn't necessarily mean that they are well connected. The impact of their spatial proximity with minimum connections is tested through examination of the 'popularity' of the shopping mall entrances. Despite their minimal direct connection, does the shopping centre depend or profit from the natural movement generated by the High street? What are the alternatives for the shopping centre?

The 'popularity' of these two modes of retail can be assessed by the volume of pedestrians that pass through the entrances (exits) of the shopping centre, its footfall. The location of these entrances will show which surrounding streets bring shoppers in and out of the shopping centre. The 20 entrances of the shopping centre can be classified into three types: 7 street level entrances (direct access from street), 10 elevated entrances (stairs or escalator linked to the street) and 3 internal entrances (from the inside of the shopping centre or connected to parking deck). Within this collection of data, entrances through shops are excluded (12 or more) as well as services entrances. All observed entrances are mapped in figure 05.

The volume of pedestrians is an average of multiple observations made over 2 Saturdays between 11h00 and 15h00, and one Thursday between 16h00 and 18h00. Observations were made by counting the number of pedestrians entering and exiting for 5 minutes at each entrance with a total number of people per minute being provided for each entrance². Table 03 shows that direct entrances from the street provide the largest volume of people, followed by the elevated entrances and the internal entrances linked to parking decks. The elevated entrances tend to be used more as exits rather than entrances, which can be easily explained by the effort required to ascend stairs to access the main floor from the street.

² Pedestrian counts were recorded with the help of Master and Phd Students: Yick Fong, Alex Furniss, YukTing Lee, Daniel Rush, Dr. Kyung Seo, Melissa Tang, and Agnieszka Wir-konas.

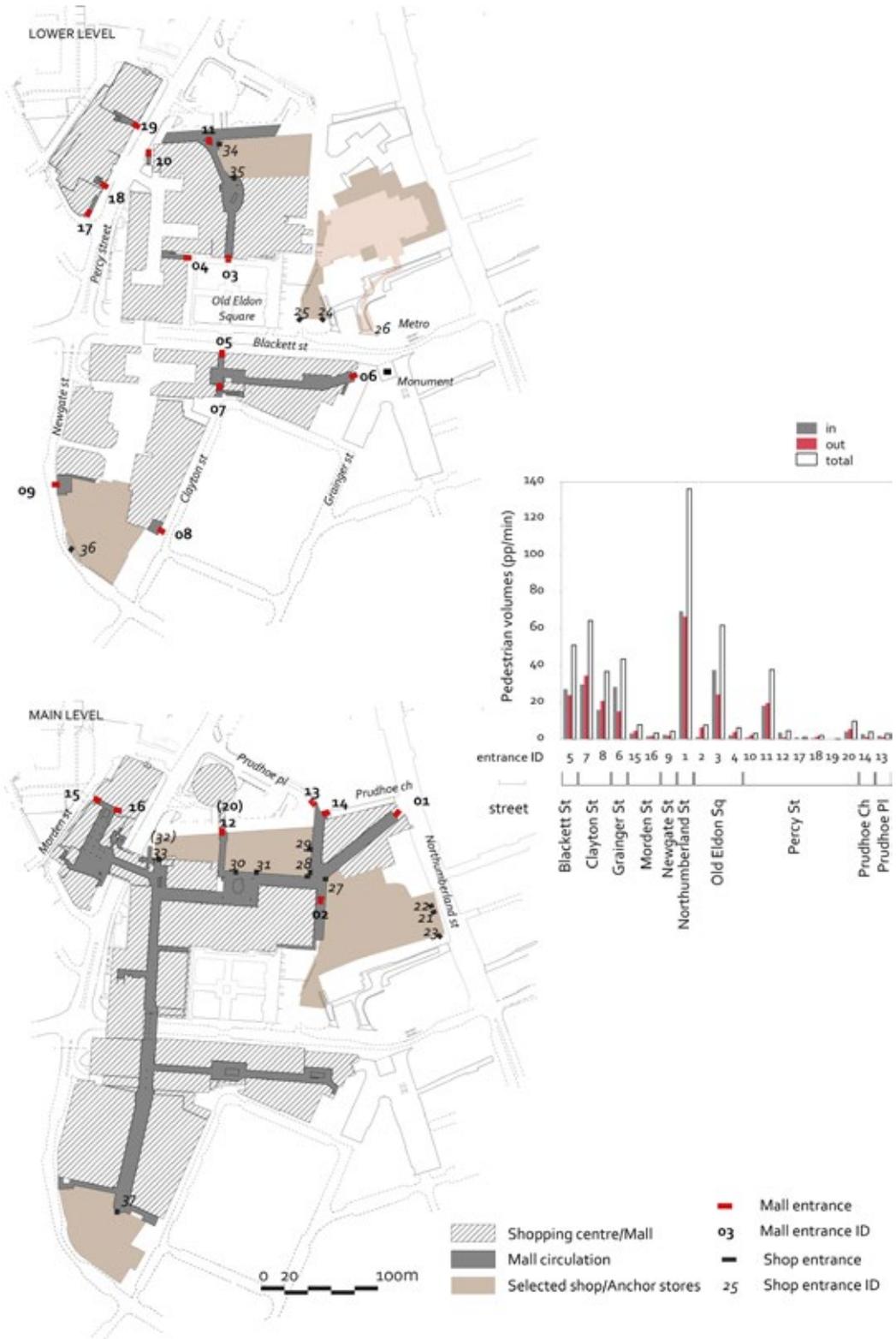


Figure 5 - location of entrances to the shopping centre, including access through the anchor stores (italic) – graph showing the volumes of shoppers passing through each entrance per minutes.

Type entrance	n	pp/min average	pp/min IN	pp/min OUT	pp/min TOTAL
1 – street level	7	57.03	213.6	185.6	399.2
2 – elevated	10	7.22	29.4	42.8	72.2
3 – internal	3	5.93	9.4	8.4	17.8
total			252.4	236.8	489.2
Street	n	pp/min average	pp/min IN	pp/min OUT	pp/min TOTAL
Northumberland Street	1	136.20	69.6	66.6	136.2
Clayton Street	2	50.60	45.8	55.4	101.2
Old Eldon Square	3	25.27	41	34.8	75.8
Percy Street	7	8.37	28.6	30	58.6
Blackett Street	1	51.2	27.2	24	51.2
Grainger Street	1	43.6	28.4	15.2	43.6
Morden Street	2	5.6	4.8	6.4	11.2
Newgate street	1	4.4	2.4	2	4.4
Prudhoe Chare	1	4	2.8	1.2	4
Prudhoe Place	1	3	1.8	1.2	3

Table 3 - volume of people per minutes entering and exiting the shopping centre per type of entrances.

Averaging observations, about 489.2 people per minute passed through the 20 entrances of the shopping centre, either entering (252.4/min) or exiting (236.8pp/min) and can be roughly split in half for each direction. When aggregated by street, the most used streets are *Northumberland street*, the high street; followed by *Clayton street* and *Old Eldon square*, both located on each side of *Blackett street*. *Percy street* comes in 4th position capitalising overall on its numerous entrances (7). The second entrance off the high street, on *Prudhoe Chare* is one of the least used.

If each entrance is taken independently (figure 05-graph), the main entrance of the mall remains on *Northumberland street* [01] with a capacity of 136.2 pp/min, which is more than the double of the volumes for the 2nd entrance and the 3rd entrances. The other most used entrances, with a volume of pedestrian between 50-60 pp/min [03, 05, 07], create an axis perpendicular to *Blackett street* and crosses *Old Eldon Square*. *Eldon Garden shopping centre* doesn't perform well overall, with less than 10 pp/min at its busiest entrance [15].

Three strategies for the location of entrances emerge from these observations (figure 06): the first capitalizing on a prominent location i.e. the high street (figure 06-a); the second placing the accesses in a line forming another axis (figure 06-b) and finally another strategy is to multiply the number of entrances along a street on each side (figure 06-c). While these strategies show how the shopping centre relates to the street and capitalizes on pedestrian from the street rather than relying solely on carpark, how do the shops locate themselves towards these two conflicting models?

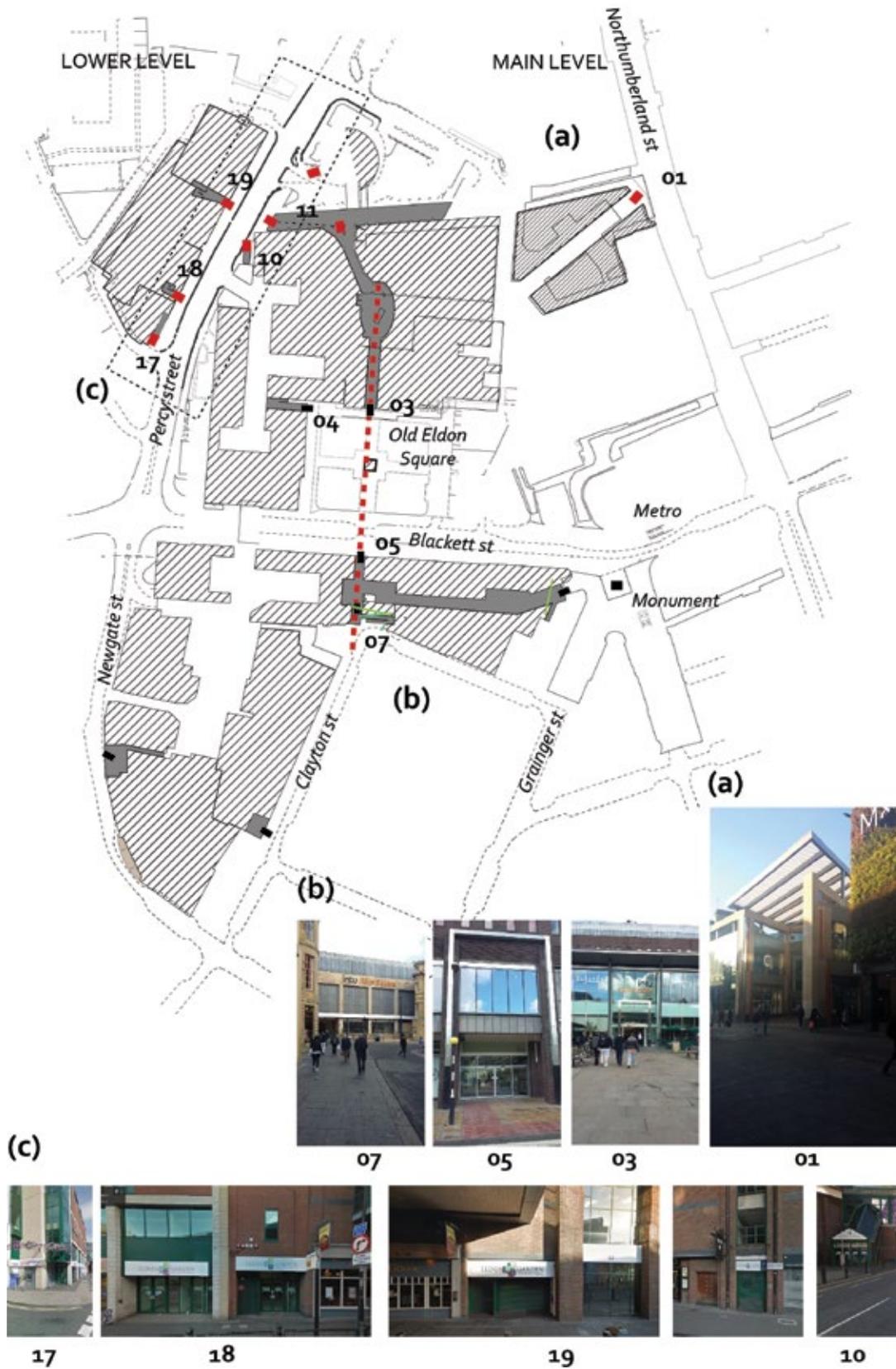


Figure 6 - Strategies to build upon the street network: high street entrance (a) – alignment of entrances to form an axis (b) and multiplication of entrances (c).

6. FRONTAGE STRATEGIES

The originality of *Intu Eldon Square* is its use of an existing department store as anchor store. From an urban point of view, the typology of the department store is commonly defined by buildings that occupied entire city blocks. This allowed stores to maximise their presence within the city and to exploit urban situations / street-networks that afforded approach from several different directions with multiple store entrances (Figure 01-b). *Fenwick* (FW) of Newcastle is something of a typological anomaly. Today the store occupies a city block, however this is a result of incremental growth over time rather than an initial statement of grand ambition. First only facing *Northumberland street*, it extended its linear facades on the high street, added a frontage on *Blackett street*, opened an access on the shopping centre and finally connected directly to the metro on its lower level. This building becomes an ideal candidate to understand how the dynamic of the high street cohabits with the dynamic of the shopping centre. It is compared with two other anchor stores: *John Lewis* (JL) which is located within the shopping centre without any street frontage, fully dependent then on internal pedestrian traffic and carpark access; *Debenhams* (DB) which is located on the opposite end of the shopping centre with a single entrance on *Newgate street* with some street frontage and a single entrance in the Shopping centre on the main level facing the main corridor.

These selected anchor stores have each a different relationship to street frontage and to internal frontage. One is very present on the High street, one is fully dependent on the shopping centre, and the last one has equal street and internal frontage opportunities. The volumes of pedestrians passing through their entrances are recorded in Table 04.

Entrances		Number of entrances		Average of people per minute	
IES		15		474.8	
EG		5		14.4	
Total shopping centre (street)		20		489.2	
DB		2		66.9	
street	indoor	1	1	25.3	41.6
FW		7		122.2	
street	indoor	6	1	73.0	49.2
JL		9		95.8	
street	indoor	1	8	7.6	88.2
Total anchor stores 18		18		284.9	
street	indoor	8	10	105.9	179

Table 4 - Volume of pedestrians per entrance per minute (footfall). Comparison between the shopping mall entrances and accesses through anchor stores.

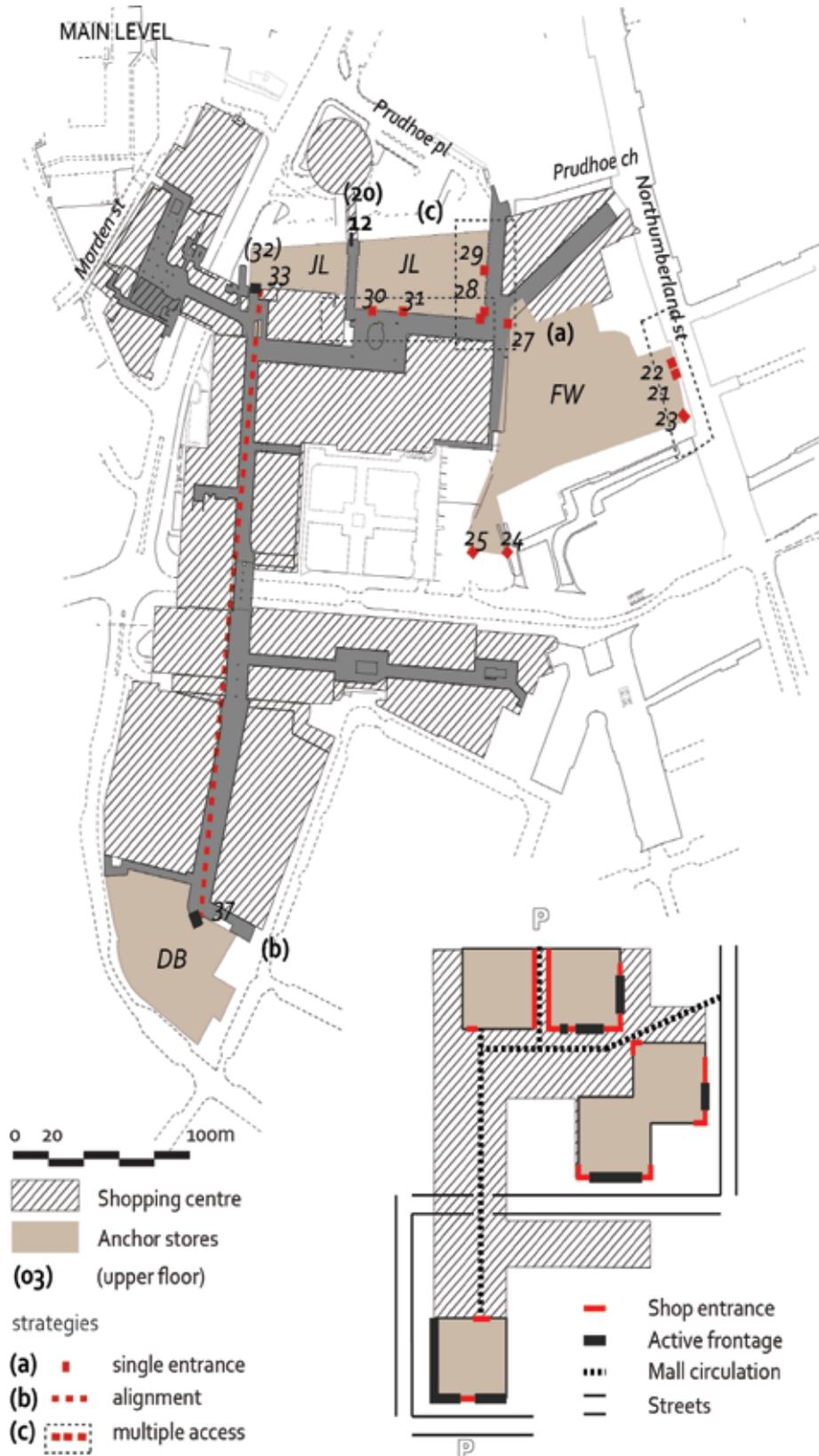


Figure 7 - Strategies to locate internal entrances: high visibility entrance (a) – alignment of entrances to form an axis (b) and multiplication of entrances (c). Lower right: diagram of entrances location and active frontage for the anchor stores.

The volume of people that uses in average the anchor stores to access and leave the premises of the shopping centre is around 100 people per minute (105.9pp/min). One person out of 6 entering the shopping centre uses an anchor store entrance³. From the three anchor stores, FW receives the more footfall at its entrances: 1.3 times more than JL and 1.8 times more than DB. Interestingly, JL which doesn't have an external entrance has a larger volume of shoppers passing through its doors than DB. The diagonal entrance of the shopping centre connects to the internal entrance of FW [27] and one of the main entrance of JL [28], both facing each other on opposite corners. From that same location, FW entrances receives 1.2 times more passage and both are slightly more used to exit the anchor store and enter the shopping centre.

One can observe that similar strategies used at the city scale to connect the shopping centre to its surroundings are applied to the location of entrances of shop internally (figure 07). FW capitalises on a single entrance located on a highly integrated space [27], JL multiplies the entrances to drain as much footfall as possible along the two corridors [28-29] & [28-31-30-33], DB and JL align their entrances creating a stronger axis [37-33-32].

Entrance ID	count	location	pp/min IN	pp/min OUT	pp/min TOTAL
27	2	Indoor	22.4	26.8	49.2
21	2	High street	12.6	17.2	29.8
24	2	Blackett st	11.8	7.5	19.3
23	2	High street	6	3.7	9.7
22	2	High street	2.2	3.1	5.3
25	2	Blackett st	3.2	1.9	5.1
26	2	Metro	1.2	2.6	3.8
total			59.4	62.8	122.2

Table 5 - volume of people per minutes entering and exiting the department/anchor store Fenwick. Summary of 2 observations on a Saturday midday (weekend peak time) and at 5.00pm on a Thursday (weekday peak time)

Looking at the footfall per entrance in a single shop (Table 05), the most used entrance is the one located inside the shopping centre (49.2 pp/min), which represents a little less than half the volume of all passages (122.2 pp/min). The aggregation of the 3 High street entrances provides a similar volume (44.8 pp/min). The 2 entrances on Blackett street combined accounts for half of the internal volume (24.4 pp/min). It seems that the department store relies equally on the high street and the shopping centre. From the 3 anchor stores, its connection to the high street seems to benefit the volume of shoppers passing through its doors.

7. FOOTFALL VERSUS NATURAL MOVEMENT

In the 'fight' for frontage, at the city scale, the High street wins over the shopping centre. When embedded into the surrounding fabric, the shopping centre has a lower integration value than when thought at its own system. The integration value of the High street and the street network overall benefit from the addition of the shopping centre circulation, with an increase of integration. At the accessibility level, the shopping mall is clearly building upon natural movement provided by the High street, and behaves like a traditional shop front. But it also

³ There is an overlap for entrance [12] which is the carpark that directly connects to the anchor store, and is counted in both totals.

develops alternative configurations to maximise accessibility from different fronts: alignment of accesses and multiplication of entrances. At the shop scale, the internal entrances tend to have more volume of shoppers passing through their doors, shopping mall slightly wins.

One can observe that the local intensification of the grid that naturally occurs as a consequence of movement economies is replicated to some extent at the scale of the building. There is an intensification of access (1) that creates more interconnections, and inter-accessibility. The second type of configuration observed is the alignment of accesses (2) building on co-visibility at the city scale. At the level of the corridor, this co-visibility is dictated by the design (dumb-bell layout) which minimises the distance between two anchor stores. Following this principle, the high street can be seen as acting as anchor store (3) to the shopping centre which 'entrance' is directly linked to other anchor stores entrances (Figure 08).

Because of their proximity, the high street and the shopping mall tend to negotiate movement in a fairly complex way. Depending on the scale of observation, the shopping centre or the high street benefits differently from each other. Globally the high street gains by the addition of the shopping mall. The shopping centre either acts as a traditional shop that built upon the potential of the high street (generator), either considers the high street as another anchor store (attractor).

The distinction of generator versus attractor is legible in the way the two models of retail build on either natural movement or footfall. Both measure the presence of individuals but a distinction exists in the way they capture that presence. The success of a retail centre is measured by its footfall. Footfall embeds in its definition the notion of entrance and exit; it is linked to access points. Then the challenge of the shopping centre is to contain that footfall within its precincts. The first aim is to "attract" with in this instance a high density of retails within a single location and an ease of vehicular access; the second aim is to contain which is achieved by providing dining, entertainment, and shopping opportunities. But physically, the containment is achieved by creating an internal circulation loop and by placing the accesses to the exterior at the periphery, away and not visible from the main loop. The retails on the high street on the other hand are dependent on through-movement that is intensified by the presence of adjacent streets. The status of High street is often dependent on the presence of shops but the presence of these shops is primarily the result of its location within the overall city fabric.

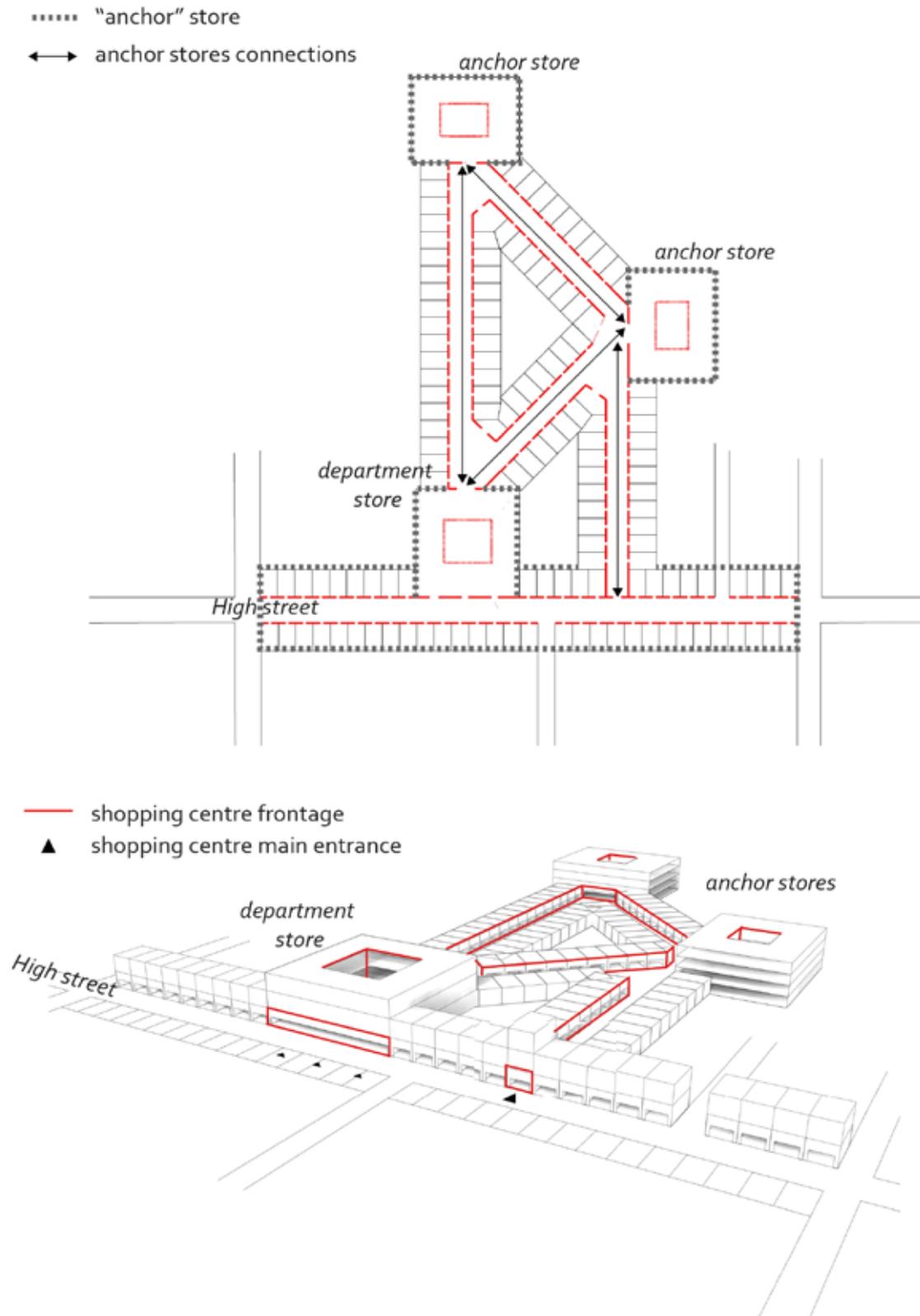


Figure 8 - The High street as anchor store. Combination of the three modes of retail in a single model.

The problem is that when the attractor fails to attract, the shopping centre has no alternative to provide footfall. It is designed for a single purpose and when this purpose can't be fulfilled anymore, it creates a space difficult to repurpose. In case of the High street, through movement will continue to exist without the presence of the attractors. The model of the shopping centre on the high street demonstrates how natural movement occurring on the high street contributes to the footfall of the shopping centre. In this case, the high street acts as anchor store of the shopping centre. It has shown that with providing the highest footfall, natural movement remains stronger than any attractor.

This study has aimed to clarify the role of natural movement within shopping malls when locate in traditional urban fabric. Secondly it has tried to understand accessibility and its impact on types of entrance and frontage. Future work is intended to provide a more comprehensive model for retail location, based on frontage and access with the implications of single or multiple frontages for retail unit value also being considered. A more in-depth and more exhaustive set of observation should then provide more clarification on how movement is generated. The observations were limited to thresholds and accesses and doesn't fully take into account the linear frontage along the street and corridor. Observations should be made at the level of the street or corridor segment for a better understanding of the two structures.

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