
SPACE SYNTAX OBSERVATION MANUAL

This document is extracted from the Space Syntax software manuals and is meant to guide researchers in the standard methods used at the Space Syntax Laboratory for gathering data on how people use space. The Observation manual was written by Tad Grajewski in 1992 and rewritten by Laura Vaughan in 2001. If you wish to make any comments, please send an email to: <l.vaughan@ucl.ac.uk>.

OBSERVATION PROCEDURES

1	INTRODUCTION - WHY DO WE OBSERVE?	2
2	REPRESENTING THE EXISTING CONDITIONS - SURVEYS AND LAND-USE MAPS	2
3	THE GATE METHOD	3
4	STATIC SNAPSHOTS	7
5	PEOPLE FOLLOWING	9
6	DIRECTIONAL SPLITS	10
7	MOVEMENT TRACES	12
8	OTHER METHODS	14
9	OBSERVATION PROCEDURES - THE SPECIAL CASE OF BUILDINGS	15
10	INTERACTION ANALYSIS THROUGH QUESTIONNAIRES	15
11	MOVEMENT DENSITY	16
12	BUILDINGS AS SEARCH STRUCTURES	17
13	INTERPRETING THE RESULTS - URBAN AND BUILDING STUDIES	17
14	GENERAL COMMENTS ON OBSERVATIONS	18

1 INTRODUCTION - WHY DO WE OBSERVE?

We observe in order to see how much we can learn about the environment without taking account of people's intentions. If you ask each individual in the City of London about their pattern of movement, he or she is likely to give you an answer in terms of purposes of journeys. However, because cities are very large, dense and well-populated, the purposes of individuals moving about the urban landscape do not constitute the sum-total of activity contained within. Their collective activity gives rise to a pattern of use and movement that is independent of the intentions of individuals. In this kind of situation, if you observe what goes on you can retrieve something of the objective properties of the built environment.

2 REPRESENTING THE EXISTING CONDITIONS - SURVEYS AND LAND-USE MAPS

An important and valuable means of representing the prevailing conditions in an urban area is a survey of the physical make-up of the area in question. This is, in fact, a research tool long used across the disciplines that can be especially powerful for representing the intuitions of the researcher. The most common form of this type of representation is the land-use map. For example, in the City of London a long-held intuition on the part of many theoreticians and planners has been that the attractiveness of Leadenhall Market is due to the provision of retail facilities in the area. This intuition has been based on the directly observable characteristics of the area by these people and has often been presented as a 'given'. However, without objective evidence about the area it remains only an intuition, which is only subjectively verifiable by going there and observing for oneself the characteristics of the area. However, by surveying land use in the area and generating a graphical land use map of the area we can make this intuition more objective. We can easily verify that

Leadenhall Market does offer a density of retail facilities unique within its larger context. However, remember that these representations are tools for making a characteristic of an urban area objective and immediately verifiable – it is not an explanation of that characteristic.

3 THE GATE METHOD

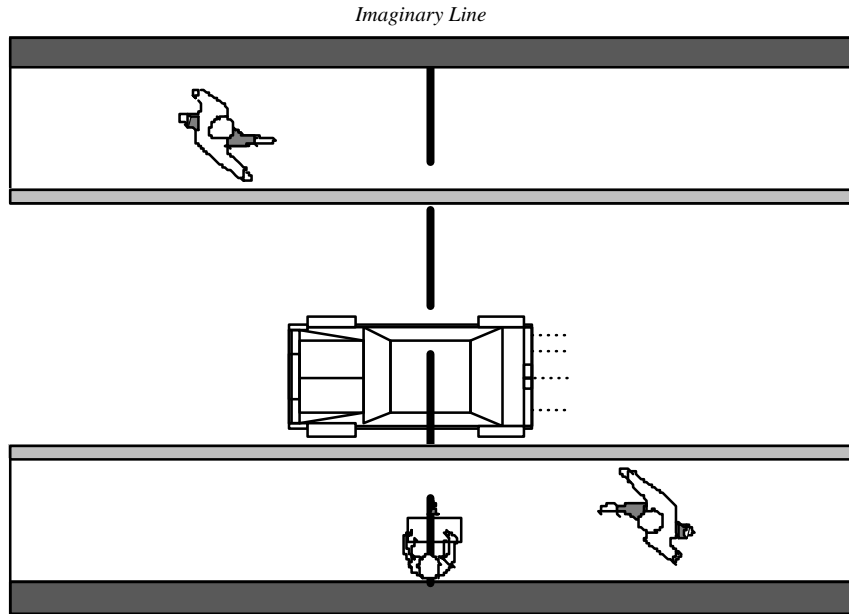
Applicability

The Gate Method is the workhorse of spatial observing techniques – it allows researchers to collect a great deal of data which can be represented graphically and statistically in a variety of ways, provided it is applied with rigour and consistency and at an abundance of locations. This method is suitable for recording observations of moving people or vehicles only. It is not suitable for recording stationary people or vehicles. It is normally used in urban situations, but it can equally be applied to the interior spaces of buildings.

Method

Choose a number of street locations. These should cover a range of well-used, moderately-used and poorly-used spaces in and around the area of study. At a minimum there should be 25 'gate' positions. However, a more accurate picture of the pattern of movement will be obtained by observing as many gates as possible - if not all of the route segments - in the urban area or building.

Stand at each gate position and to draw an imaginary line crossing the street space (that is, at right angles to the direction of the street). Count people or vehicles crossing this line for a set period of time, usually 2.5 or 5 minutes (see diagram below). It is important that people or vehicles that are in the street space, but have not yet crossed the line, should not be counted. The time period should be as precise as possible down to the nearest second - it is therefore recommended to use a stopwatch and not to rely on an ordinary watch. In suburban areas or any area with low rates of movement, count five minutes per gate - in busy city streets you can take the counting time to as low as 2.5 minutes. Always ensure that the length of the time period is recorded, so that when times are multiplied up to arrive at rates per hour, no mistakes are made.



Observations should be recorded on a prepared table. It is best to do a tally count (putting down one stroke for each person or vehicle who has passed) rather than to keep a running total in your head, which is especially confusing when you are observing several different categories at once.

A number of different categories can be counted at the same time. Some common categories for people are:

- moving adults
- moving men, moving women, moving teenagers, moving children
- moving working people (or 'suits'), moving tourists

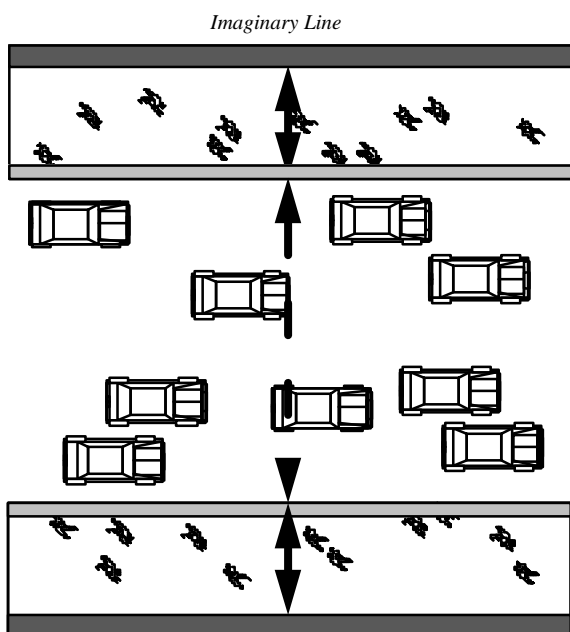
For vehicles, the categories might include:

- cars, buses, light and heavy goods vehicles, motorbikes, pedal bicycles

This is not intended to be an exhaustive list of categories, which should be tailored to the nature of the study being undertaken. For example it might be important to differentiate between walking people and people on bicycles in a study of Amsterdam, but this would not be a useful breakdown in the City of London, where there is little cycling and most people walk.

Gate Number	Time	Moving Men	Moving Women	Moving Teenagers	Moving Children
1	12:05	///	//	/	
2	12:12	/	\		//
3	12:17	/	//		
4	12:22	///	/// /	///	//

On lightly used streets it may be possible to count people and vehicles simultaneously. On busy streets it is better to count people and vehicles separately to avoid making errors. For example, do a 2.5-minute count of people first, immediately followed by a 2.5-minute count of vehicles. On exceptionally busy streets it may be necessary to do separate counts for each category, (e.g. men, followed by women and then children, or cars followed by goods vehicles and then buses, etc.). Alternatively, several categories may be observed simultaneously, but without differentiating between them. For example, moving adults would include both men and women, moving vehicles might include all vehicles. In a business area of the city, you may decide to ignore children altogether, or only count them if they are unaccompanied by adults. However, as a general rule it is best to observe as many separate categories as possible. These always can be compressed into more general categories at the data analysis stage, but it is not possible to do the reverse! A different strategy for busy streets (such as those found in North American cities) is to observe the pavement on each side of the street separately, and then the roadway, as can be seen in the following diagram:



In contrast, on lightly used streets it may be possible to observe several adjacent gates simultaneously - for example, where they cover different streets intersecting at a corner. In this case it may be helpful to draw the imaginary line through an object such as a lamppost or post-box to make it easier to identify who has crossed or not crossed the line on each street. Where there are two adjacent gates and a person walks through one gate and then the next, they should be counted in both.

All of the gates in an observation route should be counted one after the other. Several rounds of observation should be undertaken to cover different times of the day. The normal observation periods are from:

8 am - 10 am	(morning rush-hour)
10 am - 12 noon	(mid-morning period)
12 noon - 2 pm	(lunch-time peak)
2 pm - 4 pm	(mid-afternoon period)
4 pm - 6 pm	(evening rush-hour)

Additionally, observations may be undertaken in the evening, covering:

6 pm - 8 pm	(early evening)
8 pm - 10 pm	(late evening)

Again, this is not intended to be an exhaustive list of time periods, which should be adjusted to the area being investigated. In some instances, it is sufficient to count only the rush hour and lunchtime periods, or even only the evening period, in order to attain a picture of the patterns of movement. To cover the number of gates you have allocated for the study area (at least twice for each time period) you may be required to observe over more than one day. As a general rule, and for consistency, you should plan that observations occur on the 'same type' of days, i.e. days with the same characteristic of use. This means observations generally, but not always, should fall on the following days:

- Monday, Tuesday, Wednesday and Thursday
- Friday (being the weekend 'eve', Fridays tend to have a different pattern of movement)
- Saturday and Sunday

It is normal to carry out most observations during working days. However, some research questions (for example an investigation of the South Bank cultural centre) would require Saturday and Sunday observations as well. This is totally dependent on what you are studying and also sometimes where you are studying: for example, in another country like Iran, the rest day would be a Friday, whereas in a English shopping mall it would make more sense to observe the days of highest use - Friday and Saturday. The point again is to design the study so it is specific to its subject. If your area or an area similar to it has already been analysed one, it may be worthwhile to repeat the methods of the previous study so that you can compare the two. Remember to note the precise time, date and general time period each gate was observed.

The minimum level of observation should be two rounds in each time period. Obviously, the more rounds carried out, the more reliable the count in each time period. Furthermore, within each time period, alternate rounds should be carried out in reverse directions. For example, if the first round covered the gates in the sequence 1 to 25, the next round should go 25 to 1. This will even out the effects of time within a single period. For example, different rates may be experienced in the early part as opposed to the late part of the lunch time period.

The gates should be arranged in such a way that a single round can be completed within a single time period. Remember to include walking time between gates when calculating this. As a general rule, a single person can cover 16-18 gates in a time period when observing for 2.5 minutes each or 8-10 gates for 5 minutes observation (assuming they are not too far apart). If there are too many gates to comfortably fit into a single time period, then these should be broken down into a number of separate rounds within a limited geographical area, i.e. all gates in the city centre would constitute one round, to the north a second, to the south a third, to the west a fourth, and so on. This will require one person to observe over several days or several people for a day or two.

Ideally, different people should be employed to carry out the observations, as this will minimise the risks of errors being repeated by a single person. Furthermore, this will give greater accuracy, since the observations made by one person can be checked against others. Again, this will make the data less prone to error and it will also make it less boring for the observers, since they are not looking at the same places all the time. On the other hand, if you have a very complex route, you may prefer to use the same observer for the same route throughout because inconsistencies can build up between different observers.

4 STATIC SNAPSHOTS

Applicability

This method is especially relevant to recording the use pattern of spaces within buildings. However, it can also be applied to the observation of public squares and spaces. The method can be used for recording both stationary and moving activities, and it is useful when a direct comparison is being made between the two types of space use. Also, in a high use area it may be sufficient to create a movement 'snapshot' representation during only a crucial time period - lunchtime, for example - but this is varied from case to case. The power of this is that it makes the patterns of space use in an urban area instantly apparent to a reader or client. This method is not suitable for observing moving vehicles, although it can be used to record parked vehicles.

Method

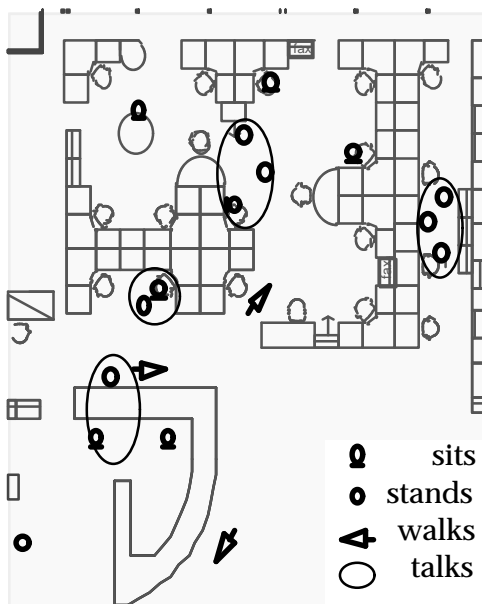
This method is based on having large-scale (1:50 minimum) plans of the area under observation. In some cases plans provided by building users may be out-of-date - especially in the case of the location of furniture. It is always preferable to make a preliminary tour of buildings to be observed in order to verify the accuracy of plans and to correct them as necessary. In this method the precise location (and if of interest activity) is

recorded on the plan. The procedure is to work out a route that takes in all of the spaces to be observed. Spaces that cannot be observed as a whole (due to size or their being broken up by tall furniture) should be broken up accordingly. Using the rules of convex break-up to segment space into smaller parts assists in applying the data later on during the spatial analysis.

Note that in an extremely busy area, it is likely that the observer will have to walk through the space at a constant rate, noting people on the plan as they pass them. In situations such as these it is not important, nor possible, to have 100% accuracy but simply to note as many people as possible (perhaps 75%). The reason for this is that use in spaces like these will be so dense in comparison to less well-used spaces (where 100% accuracy is achieved) that the strength of the representation will not be compromised.

The observer walks from space to space and takes a mental snapshot of the activity precisely at the moment at which the space was observed. It is important not to count people who have entered the space after you have taken your mental photograph, or those who are standing behind you. The snapshot is then recorded on the plan, with coding according to activity. Standard categories are: sitting, standing and walking. In addition, note groups of people talking (whether they are sitting, standing or walking) by drawing a circle around them.

The convention for each category is indicated in the diagram below. Moving people are recorded by an arrow pointing in the direction of their movement. Sitting people are noted as a circle with a line underneath, and standing people as a plain circle. In office buildings, the observers may be additionally required to record 'recruitment', i.e. where a walking person is invited into a conversation with a seated person. In cases of recruitment, the talking person's circle should be marked in a different colour.



This diagram shows a single round of observations.

In other instances, further categories may be of interest, such as in laboratories, where writing-up as opposed to laboratory activities may be distinguished. In shops, appropriate categories might include male and female customers, and staff; whilst in a hospital, you may wish to distinguish between doctors, nurses, visitors,

patients and so on. In all these instances, each category (which might be coded by a letter) would also show the activity of the person in question. For instance, a walking doctor would be noted as a capital D, attached to an arrow. It is important to design the categories in such a way that they are easily recognisable, and not confused with each other.

Within buildings, as much of the interior space as possible should be observed. Obviously it is inappropriate to observe some spaces like plant rooms or storage cupboards and WC's, and permission may be denied to enter other spaces (such as the personnel or financial departments of some organisations, which hold sensitive records, or operating rooms in hospitals). It is usually possible to observe the interior of office rooms from outside - people normally leave their doors open, and in many cases have either glass doors, or adjacent windows through which they can be seen. However, it may be necessary to walk through large rooms (unless the open space is observable from an atrium or other vantage point). Rooms that are locked and cannot be observed should be marked with a cross (and removed from the statistical analysis). In some cases the route will take in certain spaces twice, such as the space before a dead-end corridor. In these cases it is important that such spaces are only observed once on each round.

A separate and blank plan should be used for each observation round, and separate plans might have to be used for each floor of the building. It is a good idea to staple a complete set of plans for one round together to avoid confusion afterwards. Buildings observations should be undertaken throughout the whole of a working day, including breaks; however, in many cases it is not necessary to observe the lunchtime period. In general, two snapshots per time period should be made, over at least two different working days. Make sure that in office buildings the observations do not take place during a major absence of staff (such as team training). It is normally necessary to use at least four observers to cover a building, but sometimes fewer are required in city squares. The question of whether to switch people around routes or not stands the same as for gate observations.

A similar procedure applies to the observation of urban spaces. A route needs to be devised which covers all of the spaces to be observed. This might include either the different parts of a public square, or a selection of different streets. The main advantage of this method over the gate method is that it allows for the recording of stationary people and vehicles. However, its main disadvantage is the inability to cope with high flows of many different categories simultaneously. In addition, due to the high volume of static occupation in many public squares, this method is most useful for noting the pattern of density rather than for precise recording of numbers. This is generally not a problem in buildings, where flow rates tend to be small. In general, if precise movement rates are imperative, then the gate method is to be preferred.

5 PEOPLE FOLLOWING

Applicability

This is an increasingly important technique for observing movement that disperses from a specific 'movement

distributor' – for example, a train station or a shopping mall. It can be used to investigate three specific issues:

1. the pattern of movement from a specific location,
2. the relationship of a route to other routes in the area, and
3. the average distance people walk from the specific location (this can help determine the pedestrian catchment area of a retail facility or public square).

Method

The method is to simply have a plan of the area – with the specific location from which you are 'picking up' people approximately at the centre – and to trace the routes people are taking as you follow them. It is important to be discreet when doing this and not to follow so closely that people become aware of your presence and hence uncomfortable. With regards to numbers, it is best to follow about 25 - 50 people for each time period with a good mix of types of people, i.e. young, old, male, female, etc.

People-following observations can be a useful way to observe the pattern of movement from a specific distributor of movement in a building: for example, the first ten minutes of movement in a museum upon entering. This type of observation is also useful for understanding how people are using a specific shop in a shopping complex. The methods for observations are the same for people following in urban space. The added advantage of people following observations is that directional splits maps can often be generated from them, provided the number of people followed is quite high.

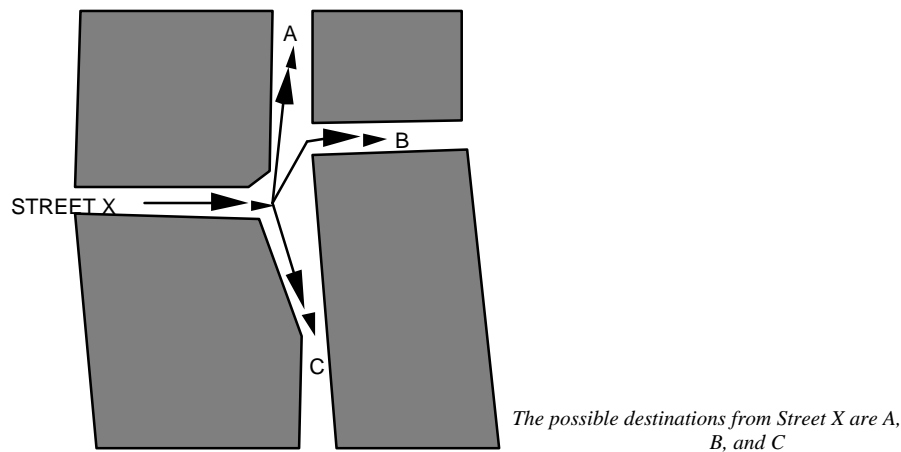
6 DIRECTIONAL SPLITS

Applicability

This method is suitable for recording observations of moving people or vehicles only. It is normally used in urban situations, but it can equally be applied to the interior of spaces or buildings.

Method

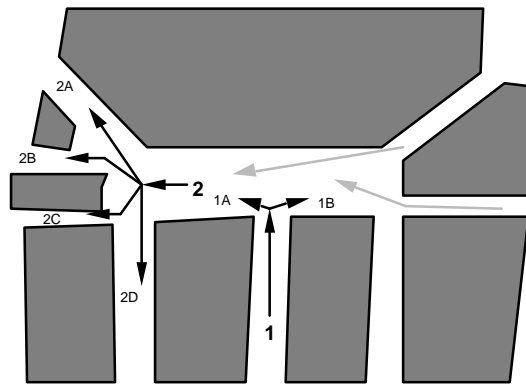
The aim of this method is to record the split (in absolute numbers and percentages) of movement flows at a junction. This might include the way in which pedestrian or vehicular movement diverges at a street junction, or the split of people when they come out of a station. The method involves taking a plan of the junction and working out all of the possible directions that the movement may split. These should be labelled up as A, B C, etc. As far as possible a person or vehicle should be chosen at random from those approaching the junction, and followed until it is obvious which of the possible destinations they are headed for. The number of people or vehicles entering a destination space can be marked on a tally sheet; or even better (to minimise mistakes) directly onto an enlarged plan, with a separate square for each split point.



It is best to choose a person or vehicle some distance away from the junction, to avoid building a bias into the observations. For example, the majority of people coming out of the left hand side of some station exits are likely to subsequently turn left. Therefore choose people before it is obvious whether they are headed for the left or the right hand side. At least 100 people or vehicles should be followed through the junction. If separate categories are being observed (for example men and women or tourists and 'suits') then 100 people in each category should be followed. At the start and the end of the observations, a normal count using the gate method should be made of the numbers of people passing through the junction, with a separate count being made for the people coming out of the junction, and one for those coming in.

This procedure might be repeated at several junction points surrounding the site of interest in order to build up a picture of how the movement splits at each subsequent junction. Because it takes a long time to cover a single junction, it is advisable to use several observers simultaneously positioned at different junction. This will enable the observations to be completed within a single time period. When a subsequent observation takes place in a different time period the behaviour of people might change. For example, direction splits might alter radically between the mid-afternoon period and the evening rush hour. One period would represent the background level of use, the second strong tendencies for movement to priorities spaces leading to stations or bus stops. If a single person has to carry out the observations, make sure that they all occur within the same time period. If a time period is overrun, carry on the next day at the same time.

In some situations it might be possible to select a single observation point from which the approach to the junction and all of the possible destination points are visible. In such a situation it is possible to carry out the observations whilst being stationary. However in some cases it will be necessary to follow a person on foot to ascertain their destination. For complex junctions where the possible destinations are some distance away from each other, it may be necessary to break down the procedure into several smaller junctions (see diagram below). However, the flow in each subsequent junction will be mixed by people or vehicles coming from other directions, and will not therefore give a true picture of the distribution from the original starting street.



In a complex situation, such as this entry point into a square, it might be necessary to have several split observation points. Two are shown here (1, 2). However the problem at position 2 is that it receives movement from streets other than the starting street 1, so it is no longer possible to get a true picture of the eventual distribution from the starting street.

Depending on the problem under investigation, this procedure might be carried out during a single time period (for example lunch time or the rush hours) or through all time periods. It is usually sufficient to observe a junction once during a single time period. However, repeating the procedure will give a more reliable picture. As with the other kinds of observation, it is a good idea to use different people for the subsequent rounds. This will enable cross checking to take place and reduce the boredom factor.

7 MOVEMENT TRACES

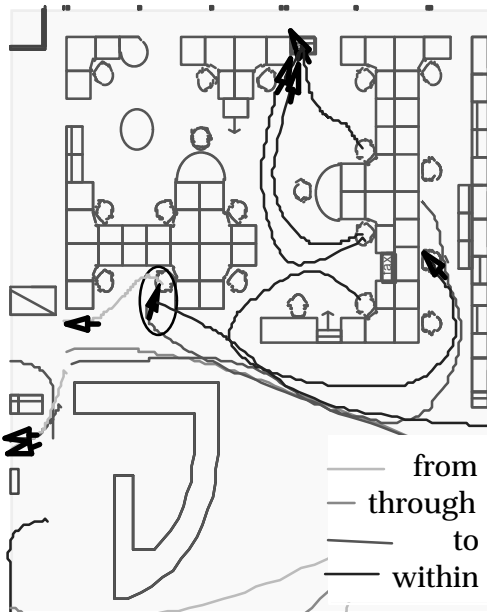
Applicability

This method is normally used in conjunction with the snapshot method, in order to record the precise route taken by people moving through a space. It can also be used in cases where, due to the complexity of the architecture, the number of gates would be too numerous to observe. Instead, the number of moving people through gates can be counted after the event, where lines are drawn at the key locations in which gates would have been placed. It is frequently used to study public squares and buildings.

Method

Normally only open space offices and corridors are observed, while enclosed office spaces are ignored. An identical route to the snapshots (besides the above exceptions) is taken through the building or public space. However, the observer stands for a set 3, 4 or 5-minute period and records all of the movement through the space observed, tracing with a pen, the precise route taken, and showing with an arrow the last point at which a person was seen. It is normally useful to define routes as: through, to, from and within. The observer can note these with a four-colour pen, which allows easy switching from one to another.

The diagram below shows an example of the recording of traces; in this case, recruitment was also noted (with a circle around the people in question).



This diagram shows a single round of observations.

If this method is combined with snapshots, it is normally undertaken at least twice for each time period for each individual room, before and after a snapshot, for a minimum of five and sometimes up to ten minutes. The observation time depends on the number of observers and how quickly the observations need to be carried out. Recent examples of this observation method include the Powergen Headquarters and the Tate Gallery, Millbank (where the locations of people when they stopped along their routes was also noted). It has also been employed by a PhD student who is analysing the use of public space in the City of London.

There is one crucial drawback to this method, which has to do with the size of a room. In a building with vastly different room sizes the observer will be able to trace more routes in a smaller room than a larger room because of the relative quickness of people in moving through a smaller room and because of the limits of needing to see them enter and leave the room. In larger rooms, this necessitates taking fewer observations, especially in a building like a museum or gallery where movement is strongly related to viewing exhibits. In some cases, you may prefer to limit this technique to the access routes and open spaces of a building.

8 OTHER METHODS

Questionnaires and origins-destination studies

In these studies, researchers ask a sample of people specific and narrowly defined questions on where they are going and where they started their journey. These can tell you several things about the 'catchment' of spaces - do local people dominate, or does space feature on long through-routes, i.e. the shape of journeys through space. This technique was used in study of Camden Lock market, in order to reveal the proportion of locals, Londoners and tourists who used the market. Like with the above techniques, it is important that you are aware of the general patterns of use ahead of time - in Camden Lock, for example, the pattern of use during the week is sharply different from the weekend (when local use is diminished).

Time-lapse photography

This type of study, especially of public squares, can give you a picture of 'psychological' type behaviours as 'rational' spatial behaviour, i.e. which spaces people tend to go to when they first arrive are strategic in terms of the 'best' visual field of the system. The difficulty of time-lapse photography is finding a strategic location that provides a full picture of the space under observation and the 'irritation factors', such as trees and other people who get in the way of seeing what is occurring behind them. See Whyte, William: 'The Social Life of *City: Rediscovering the Centre*, for a full explanation of time-lapse techniques.

9 OBSERVATION PROCEDURES - THE SPECIAL CASE OF BUILDINGS

Despite the fact that most of the techniques described above are applicable to the analysis of buildings, it is important to note the distinctive nature of studying building activity. Whereas in the urban fabric, the population is generally a free mixture of types, buildings are systems of more or less bounded spaces which in turn create configurations that define categories of user in a more or less controlled way, and also give rise to the concepts of inhabitants and visitors, programmed and unprogrammed activity, and conservative and generative buildings. We therefore find that building studies concentrate much more on categories of people and behaviour. It should be noted, however, that some building types are quasi-public space. For instance, hospitals and railway stations, approximate urban space in the freedom with which the public can move enter them. (Although hospitals are growing more fearful of this phenomenon and tend to fence off more sensitive departments, such as maternity wards.)

The following techniques are generally only applied to building analysis.

10 INTERACTION ANALYSIS THROUGH QUESTIONNAIRES.

Applicability

This type of study is appropriate to office organisations and workplaces where groups are relatively stable, activities relatively predictable and work tasks tend to unite some people regularly but divide them from others – for example, in an organisation that is too large for everyone to know everyone else. Previous studies have found that recruitment to networks both within and between group activities is an important aspect of a building's work environment. Research has been conducted to learn how the building passively or actively participates in this process. This observation method involves using a precise and exhaustive questionnaire distributed to every member of the organisation incorporating citation and reverse citation about the frequency, duration and usefulness of contacts. Significantly, movement has been found to be a crucial key to recruitment and usefulness of colleagues and group activity in the workplace.

Method

Each member of staff is given a list of staff members. Next to each name is a set of five boxes, of which the respondent is asked to tick a box that notes the frequency he encounters that person. After the frequency question, the questionnaire asks whether each of the staff members is 'found useful' by the respondent.

The following is an example of a typical staff questionnaire. It is normally preceded by a short note explaining the nature of the project and is followed by directions on how to hand it in:

Please go through the list as quickly as possible and for each person listed:

1. place a tick on the score between 'daily' and 'never' (i.e., one of the five columns) for the amount of contact you have with the person; leave blank anyone you don't know and put a line through your own name.
2. tick the next box if you find contact with the person particularly useful to you in your work.
3. tick a box against people with whom you are involved in a project(s) or who are part of your regular work team.

		how often do you see him/her?					how often do you see him/her?				
		daily		never	useful?	work with?	daily		never	useful?	work with?
Jane Austen	_____										
Oliver Cromwell	_____										
Frank Lloyd-Wright	_____										
Edmund Allenby	_____										
Martin Gilbert	_____										
William Hill	_____										

It is imperative that staff members are made aware and are assured that the responses are strictly confidential. It sometimes helps if an observer rather than a staff member is responsible for collecting the questionnaires. Another point on confidentiality is that in some workplaces, such as laboratories, staff may feel insecure about their name appearing on a published staff list. It is therefore also important to reassure them on security measures being taken regarding the collection and protection of data. Finally, make sure that your staff list is 100% up to date - it can be extremely embarrassing if you include the former General Manager and do not show his replacement! You will normally find that the Facilities Management department in a building is the best source for staff lists as well as maps.

11 MOVEMENT DENSITY

Applicability

This type of study is appropriate to buildings where people occupying the space are constantly in movement, i.e. only occupying rooms temporarily like in a museum or generative office building.

Method

The observations gates are located at all the thresholds of all observed rooms in a building and people are counted in two columns on the tally sheet - one for entering that room and one for leaving that room. By summing the movement flows across all thresholds leading into a room and dividing this by two (because a person must enter and exit a room), a figure of the room density can be generated. The numerical data can then be used both to apply a range of colours for the graphical representation of movement density in the building, and to correlate against the spatial variables generated in the computer modelling of the building.

12 BUILDINGS AS SEARCH STRUCTURES.

Compiling data using these methods of observing buildings necessarily leads to a more rigorous and objective understanding of buildings as search structures - spatial configurations. It also leads to the idea of a search interface, that is people interrogating the layout and making choices in the light of the way the building configuration makes it more or less intelligible to its users - depth and rings. Observing can be crucial in research for understanding how the building unfolds the various categories of users, how its layout restricts route choice or controls access. This can have important theoretical implications in building design for facilitating those things which are considered the beneficial outcomes of a building programme - interaction, co-presence among workers - and the high-level social and economic outcomes such as in the profit margins of businesses, innovation in laboratories and efficiency in hospitals

13 INTERPRETING THE RESULTS - URBAN AND BUILDING STUDIES

Observations can be used to generate numerical data on space use and movement in urban areas and this data can be correlated with the spatial variables. The most important is between integration and encounters (observed use and movement). We can use the results of observation studies to research social variables: patterns of crime, the behaviour of adults and children. This is because integration is an independent measure - it is the integration value of a space that can produce the people (or the shops and other functional variable) but the presence of more people cannot make space more integrated. Having a rigorous way of describing space changes the form of questions that can be asked by controlling the architectural variable. We can use the results of observations to more objectively test and represent our intuitions as we form and seek to answer questions about space.

Does architecture affect human behaviour? We can say 'yes' to some things that we now know to be the case. First, the configuration of the grid gives rise to a stable structure of occupation and use, which can be dense or sparse, localised or global, or predictable or unpredictable from the pattern of spaces that mixes inhabitants and strangers together in different degrees. This it seems is what gives rise to cultural variation among towns. Cultural variation in spatial form is therefore a product of an underlying principle - that the pattern of movement and space use in a town is a function of its pattern of integration. The structure of the urban grid creates the encounter field. There is a natural background pattern of movement and space use that is created by the configuration of the urban grid and the disposition of the buildings within it. We know this from the sum total of applying research and observational methods in a way that provides us with an objective picture of the reality 'on the ground'. It is the theoretical/quantitative models of spatial analysis and observational representations, both graphical and statistical that have lead to the fundamental findings that will be presented to you through the course year.

14 GENERAL COMMENTS ON OBSERVATIONS

Remember that larger samples of counts lead to greater accuracy, since averages can be made for greater numbers. Also remember that accuracy and consistency in method are paramount. Make sure the observers understand what is required, and if necessary, allow them to either do a dry run of the route or site, or to do a sample round, which will enable them to familiarise themselves with its vagaries.

It is always a good idea to inform staff in buildings and enclosed public areas of the nature of the study, both so that staff do not disturb the observers by asking the purpose of their work (or fear they are there illegally) and so that staff know to ignore the fact that they are being observed. Moreover, if they know the nature of the study, people are more likely to be co-operative. Ensure that office workers do not think that a time and motion study is being conducted - this is their general assumption and fear!

Further on security: it is always recommended to furnish observers with a letter of permission, especially in enclosed spaces. In urban areas, ensure that they carry some form of ID (such as a student pass) and that they carry a letter of authorisation by the body carrying out, or commissioning the study. These elementary preparations make sure that observers are not involved in awkward situations.

In sensitive buildings, such as hospitals, make sure that observers are trained in basic etiquette, such as reporting to the ward nurse before they commence a round. In such sensitive cases, it is useful if observers have a name and extension number to contact if they are stopped and questioned.

Remember when planning observation routes to allow enough time for a rest once every one to two hours. It is useful to pre-arrange a meeting point for an observation team that is suitable for a rest as well - ideally, choose somewhere that has refreshments and a WC. The meeting point has two purposes: firstly, the observers can exchange ideas and solve problems that arise on site. Secondly, it makes the observation process less lonely.