

# The Spatialization of Knowledge and Social Relationships

A study on the spatial types of the modern museum

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## Abstract

Recent literature on museums has covered both changing social concepts which lie behind the way in which we design museums, and the spatial layout of museums themselves. Few texts, however, have attempted to bring these two aspects of debate together into a single theoretical framework. One reason for this has been the lack of techniques by which the different properties of layout may be rigorously described. This paper seeks to take the first steps towards such a synthesis. First, a series of authors who have written about the museum as a changing social entity will be reviewed, and an attempt made to extract the key ideas which may have implications for real spatial layouts. An attempt is then made to bring these concepts together into a model of museum spatial layouts. Space syntax techniques are then used to analyse a set of museums taken from different time periods and through this to try to show how those concepts are realised in spatial form. The conclusion is that there is an underlying genotypical conflict in the modern museum between the need to congregate people and the need to organise their movement. This genotypical conflict it is suggested can provide the basis for a typology which can be linked to the syntactic analysis.

## Keywords

random encounter,  
movement, scopic  
regime, visibility,  
museum genotypes

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## Introduction: the spatial implications of social concepts of the museum

Over the past two decades, a rich literature has emerged on the museum as a distinctive social phenomenon in modern society. Seen at its broadest, the relevant literature includes:

- social theorists like Foucault and Bourdieu whose writings have been highly influential in museum studies.
- writer like Bennett, Hooper-Greenhill and Duncan who have tried to focus on the social functions of the changing design of museums
- writer like Markus, Peponis and Choi which have focused in much more detail on the structure of spatial layouts and sought to relate this to either to the changing discourse or the detailed observation of layout at work.

The most influential social theorist has probably been Michel Foucault. One of his most critical concepts has been the discontinuity of knowledge. According to this concept, the modern episteme emerged at about the end of eighteenth century, that was also the time museums became public. In the modern episteme, it is the 'Thistoricity' within which man is involved which became the principal rule used to organise the order of things. Knowledge was transferred from the visible to the invisible. To know something now means to know things in their context of time and function<sup>1</sup>.

Foucault's idea about this discontinuity has great influence on Hooper-Greenhill's study on the space of museum. In her study *Museums and the Shaping of Knowledge* in 1992, through the idea of the epistemes provided by Foucault's concept of discontinuity she has analysed several European museums, looking at the way they have shaped knowledge. According to her study on the Medici Palace which has been regarded by other scholars as the first museum in Europe, there was a 'general epistemic field' functioning to articulate the different discourses on private domestic space, material things, wealth — and so on. The general epistemic field included older practices - such as the medieval cosmology, and the newer practices such as mercantilism. She argued that the articulation of different discourses made the space of the Medici Palace the identity and symbol of the social hierarchy of a feudal society (Hooper-Greenhill 92:47-77). Therefore from Hooper-Greenhill's point of view, the architectural space of museum is an embodiment of the meanings of the objects that were arranged and interpreted in their relations to the epistemes.

The shaping of knowledge that Hooper-Greenhill was focusing on, can be readily identified as closely related to Foucault's *The Order of Things*. The other Foucaultian scholar Bennett, on the other hand, has mainly used the concepts drawn from Foucault's *Discipline and Punish* to deal with the problem of the space of modern museum. According to Bennett's *The Birth of the Museum*, his arguments about the spatial functions of museums in the nineteenth century mainly involve two different, but inter-linked ideas. The first is that, through the ideal of 'scopic reciprocity', museums as well as international exhibitions and modern fairs had been playing a role in 'regulating the conduct of their visitors'. The ideal of scopic reciprocity was a space apparatus which allowed the visitors to inspect each other<sup>2</sup> as well as 'a means of celebrating the citizenry's co-presence'. Quoting from Ozouf's study on the festival celebrating the French Revolution, the spatial function of museums in the nineteenth century is for Bennett just like the festival: "the new social bond was to be made manifest, eternal, and untouchable in allowing the members of society to be rendered visually co-present to and with one another." (Bennett 1995:50).

The space of museums in the nineteenth century therefore, for Bennett, is implicating the apparatus of government<sup>3</sup> and the construction of a social network of visibility. A new spatial form was devised to mix a public, which used to be differentiated, when the museums were reconceptualized as a public cultural resource in the nineteenth century. In its openness, this new spatial form was actually an exemplary space in which "the rough and raucous might learn to civilise themselves by modelling their conduct on the middle-class codes of behaviour to which museum attendance would expose them." (Bennett 1995:28). Consequently the museums, for Bennett, were like a nineteenth century version of the Panopticon - the architectural configuration of the new mechanism of power<sup>4</sup>. Through the vision of surveillance which was provided by space the possible field of action was structured and society was rendered transparent.

Another aspect of Bennett's idea of the spatial functions of museum was concerned with the representation of space. The museum, it was argued by Bennett, "also constructs man in a relation of both subject and object to the knowledge it organises". "Its space of representation posits man - the outcome of evolution - as the object of knowledge. At the same time, this mode of representation constructs for the visitor a position of achieved humanity, situated at the end of evolutionary development, from which man's development, and the subsidiary evolutionary series it subsumes, can be rendered intelligible." (Bennett

1995:7). Bennett's argument here can also be referred to Foucault's study on the modern episteme. This study is mainly about the invention of the modern history (total history), about how historicity became the very important rule for human to "know themselves". What Foucault suggests is that the modern history constructs human being as the object in the regularity of history, and at the same time the subject to construct this regularity. In other words, human being is the 'subject' that 'subject to' the self-knowledge and consciousness which are provided by the knowledge of modern history.

The move to constitute every individual into a subject in the Foucaultian double sense not surprisingly involved shaping the spatial layouts of the museums since the representation of the order of things is being characterised as 'historicity' in the modern epoch, and to manifest the 'historicity' inevitably employed a certain kind of spatial form. For Bennett, this form has been the linear path of organised walking: The marking out of time into a series of stages comprising a linear path of evolution; the organisation of these stages into an itinerary that visitor's route retraces; the projection of the future as a course of limitless development: in all these ways the museum echoes and resonate with those new institutions of discipline and training through which, via the construction of a series of stages that were to be passed through by means of the successful acquisition of the appropriate skills, individuals were encouraged to relate to themselves as beings in incessant need of progressive development. (Bennett 1995:46)

Besides Foucault, another social theorist who have been influential is Pierre Bourdieu. Bourdieu's study on art museums is typical in taking the museum as a site to reproduce the class relationships in societies. According to his field studies on museum visitors, Bourdieu observed that "It is not infrequent that working-class visitors explicitly express the feeling of exclusion which, in any case, is evident in their whole behaviour"<sup>5</sup> (Bourdieu 1993:298). Through aspects of facilitation, for example the signs of arrows and exhibit labels, as well as the representation, the museums actually function to distinguish 'culture' from the daily life of the working class. What Bourdieu is trying to indicate is that, the poor condition of the working-class's symbolic power has made them powerless in world-making and culture-shaping. Symbolic power is based on the possession of symbolic capital. The unequal distribution of symbolic capital in social space in fact is structurally reproduced in the museum experience of the working-class.

The museum's true function, consequently, for Bourdieu, is "to strengthen the feeling of belonging in some and the feeling of exclusion in others" (Bourdieu 1990:112, 1993:236). We have to note, however, that to make the working-class feel excluded does not mean museums must try to expel the working-class. On the contrary, museums after the 19th century have been endeavouring to mix the classes<sup>6</sup>. It is part of their intention to manifest the social relationship between the working-class and the dominant classes. Through the sanctions of a certain type of 'cultivated person', the working-class is being unconsciously forced to imitate the dominant classes - their clothing, body gesture, language, etc. - in the public museums. A museum according to Bourdieu, is actually a social space in which the working-class could be exposed to the improving influence of the dominant classes. The behaviour of imitation, from Bourdieu's point of view, not only operates as a symbol of recognition, but also as a symbol with social function - it forms parts of the symbolic system which legitimates the domination of class.

Bourdieu's view of space in museums, however, is rather more reliant upon studies of representation than of spatial organisation. It is not until his followers - such as Carol Duncan - that the aspect of spatial layout has been a little more noticed in the sociological studies of museums. Besides this, Bourdieu's criticism of the museum's role as very dependent on the class structure has led to him being criticised as an 'Essentialist' in his accounts of museums<sup>7</sup>. The recent development of sociological studies of museums has placed more and more emphasis on mobility rather than on the essence of the social function of museums<sup>8</sup>.

Duncan and Wallach, in their analysis of the Louvre, had provided us an example of a revision of Bourdieu's thought. In their study 'The Universal Survey Museum', they claimed that the experience of a museum visit was exactly like a 'ritual walk'. Through the layout of rooms and the sequence of collections, the museum was, they claimed, in fact creating an experience that resembles traditional religious experience. In the case of the Louvre, the ritual walk was organised through the spatial layout of the 'three great classical moments - Greece, Rome and the Renaissance'. This ritual walk, for Duncan and Wallach, as a result served to illustrate France as the true heir of classical civilisation, through which the national community and the citizenship of France were able to be built and promoted (Duncan and Wallach 1980).

The idea of the national community and citizenship were recognised by Duncan and Wallach as the ideology of the nation state. They were reinforced through the ritual walk in the public art museums which were born at the same time with nation state. The ideology of nation state, for Duncan and Wallach, is after all an illusion of a classless society. The function of the museum is to 'promote the visitor to identify with an elite culture at the same time to spell out his place in the social hierarchy' (Duncan and Wallach 1980:457). The ritual walk that Duncan and Wallach have recognised, seems therefore close related to the function of museum that was recognised by Bourdieu<sup>9</sup>.

The spatial function of organised walking has been studied also in another approach. Kevin Walsh, in his book *The Representation of the Past*, has examined the organised walking through the idea of 'modernity'<sup>10</sup>. Instead of as an experience of nation state, Walsh analysed the emergence of the museum as a part of the experience of modernity. Through the representation of the past, it is part of museum's function to construct the new experience of time and space of modern society. The new experience of time is, according to Walsh, "the capitalist time - a precise time, a time that flowed in linear progression." (Walsh 1992:33). The time of linear progression is somehow a way to integrate large groups of people who are actually dispersed in terms of space. In seeing 'modernity' as an ideology and a systematic world view, the development of time as linear progression is consequently regarded by Walsh, as a false consciousness of history which serves as a disembedding force to promote the interests of capitalism at the cost of distancing people from 'place'. "Such representation implied a control over the past through an emphasis on the linear, didactic narrative, supported by the use of object, which had been appropriated and placed in an artificial context of the curator's choosing." (Walsh 1992:31).

To conclude the brief literature review above, there are two different kinds of thought which could be recognised as embedded in their ideas about the spatial functions of the museum. The first one is mainly employing the analysis of ideology as the tool to realise the society. This method implies a 'subject' whether a person like the curator or an institution

such as the museum or government controls the system of power so as to be able to seize power to benefit certain social groups. The spatial function of museum that this method can observe is mostly focused on the 'organised movement' which is regarded as an important function of space to allow the ideology of dominant group to be manifested. The second type of thought mainly uses Foucault's idea of power to explain the existence of contemporary society. Its tool is the diagram of Panopticon which allows no subject to emerge from the exercise of power. From the perspective of Foucaultian thought, what matters in creating the possibility of contemporary society is the mechanism of the exercise of power in which everyone is involved. The spatial function of the museum is mainly focused on the 'reciprocal surveillance' which is regarded as the effect of spatial form. These two kinds of thought, ultimately define what they can observe in the spatial form of modern museum<sup>11</sup>. The need to synthesise these two thoughts into spatial form has therefore required this paper to move on to a discussion of Markus and Hillier's works.

In his studies of buildings, Markus distinguished 'solidarity' from 'power' which in his context refers to the distribution of finite resources. According to his arguments, both power and solidarity relationships are made concrete through bodies in space. He said that, "Space can be so linked that communication is free and frequent, making possible dense encounters between classes, groups and individuals. These are the basis for community, friendship and solidarity." Power relationships, in contrast, are achieved mainly through "movement control and surveillance" (Markus 1993:21-5). Communication for Markus is built on the basis of body encounter - the body through which solidarity is formed, the body by which the 'lifeworld' could possibly be experienced. By employing this ideal situation of communication which is very pre-conditioned by space, Markus is in fact suggesting the body as the strategy for flight from the censorship of knowledge in museums.

Instead of this strategy of distinguishing social relations into power and bonds, Hillier has approached the question of the social function of space by asking how spatial form could be recognised as a model. Rejecting the idea proposed by Levi-Strauss, that regards the projections of mental process as the basis of discovering the rules of a spatial model, he recognises that the rule of a spatial model is about the restriction on an otherwise random generative process. This idea had already been developed in his early work with Hanson 'The Social Logic of Space'. In his latter work *Space is the Machine* in 1996, he used this idea to develop two different kinds of spatial model: the 'long model' and 'short model'. The difference between 'long' and 'short' here is about the number of rules that can be imposed on the movement of body through the spatial configuration. While the long model referred to the routine, ritual-like movement imposed by space; the short model describes the maximising of the random encounter of body by space. For example, a court and a church would most likely be a 'long model' space with many rules to constrain movement; a party would normally be a 'short model' space which encouraged the encounter of body.

The spectrum of the model Hillier provides in his work, present us with ideas about the description of the spatial form of the museum; ideas about how the description of space can incorporate the discourse of space. The social implication of space, the reciprocal surveillance and the construction of the knowledge of history all take spatial form in order to be manifested. In other words, they could be described through a formal analysis: while the reciprocal surveillance is caught up by the short model, the construction of history is seized by the long model. Through Hillier's idea of the restriction on movement we therefore have a model for

the description of the museum space. This model is made of two principles extracted from the long model and short model. One is concerned with the integration core where the co-presence of body is maximised. The other one is the strength of sequence where the movement of body is constrained. The integration core and the strength of sequence, therefore, are the fields that the formal analysis of museum space should focus on.

### **The conceptual framework and the spatial types of the modern museums**

The spatial layouts of the modern museum, according to the brief review above, are designed to organise visitors' walking so as to embody knowledge and, at the same time, to physically or virtually congregate visitors in order to form social relationships. These two different kinds of functions constitute the basis of the spatial types of the modern museum. In other words, the spatial types of museum are the result of the relations between visitor and object and between visitor and visitor. There are two key themes emerge from the literature review:

(1) Organised walking: Buildings as classifying devices, including the spatial layouts of modern museums, became the mapping of knowledge. Through regulating visitors' movement, 'historicity' could be manifested. The single-sequence movement could be organised to illustrate historicity by applying specific spatial arrangements. By such organisation, the visitors' movements are controlled by the spatial organisation.

(2) The congregation of visitors: The spatial layouts of museums have a function in bringing visitors together. There is an 'integration core' which serves as the locus of the exercise of power and the formation of bonds. Through maximising visitors' encounter physically or virtually, different kinds of social relationships could be possibly constructed and inscribed on bodies.

The two key themes above are in fact concerned with the spatialization of the characteristics of the modern museum that were purpose-built since the nineteenth century. The term 'modern museums' refers not only to their public nature, but also the different forms of historicity which are inscribed on their spatial layouts. Their spaces were therefore recognised as 'structured' by the interfaces between visitor and object and between visitor and visitor. The spatial types of museum are recognised as the resolutions of the two different kinds of spatial functions surveyed above: congregation and organised walking. These two functions are respectively related to the integration core and the spatial sequence. Based on this idea, this paper will now seek to constitute a two-dimensional perspective of the question of spatial types.

The integration core theoretically is the convex spaces where the congregation happens. However, according to Hillier's arguments and Choi's studies on the core, the function of maximising random encounter could be 'virtualised' and 'visualised' through the increasing depth of the core. Choi has pointed out in his work that "the presence of people in the different museum spaces is not consistently related to the configurational properties of layouts. — The number of people visible from a space, however, is very strongly and consistently correlated with the degree of integration of the space." (Choi 1991:245). In other words, what he found is that the integration core is not the space where the maximum number of people are present, but rather the space where the maximum number of people could be seen. According to his findings, visibility is in fact replacing permeability and becoming the primary property of spatial integration. The integration core is not any longer the space maximising the random encounter, but the space maximising the visual co-presence.

However Hillier has suggested that this phenomena is due to the movement of the integration core. The integration core has become deeper and thus 'defunctionalised'. The 'virtualised' integration core, from his point of view, is actually the concomitant of the growing depth of the integration core.

Hillier's inference about the relation between the depth of integration core and the phenomena of virtualisation could be supported by a brief review of Choi's empirical study. Among the 8 cases Choi has selected, there are 7 cases which were considered by him as significant in the correlation of the total number of people visible from each convex space with the integration value. According to the convex map of the integration core, there are 5 out of these 7 cases could be judged as the type of 'deep integration core'. These 5 cases also show no correlation between the number of people observed in each convex and the integration value. The depth of the integration core, therefore, marks the different degree and characteristics of co-presence, while the shallow core means the maximum of body encounter through movement, the deep core means the maximum of virtual encounter through visibility.

The different characteristics shaped by the core also indicate different ways of social formation since the physical and the virtual encounter of bodies differ from each other in their creation of the mood through which the social relationships could be constructed. This point of view could be manifested through several scholars' arguments. According to Giddens' idea, co-presence is 'being with others' which implies the face-to-face encounter, the communication by body. The situation of co-presence exists where people have their current behaviour shaped through the encounter of bodies. Hillier has further referred the 'co-presence' to the visual dimension. The visual co-presence was considered by him as constructing the 'virtual community'. It concerns our awareness of others and communities. According to his arguments, the pattern of co-presence and co-awareness are affected by the pattern of space (Hillier 1996:187,378-9). It is from these points of view, this paper considers, that the formation of social relationships is related to the different ways of encounter in the integration core which, interestingly, could imply different bodies.

The second dimension of the spatial types of the modern museum is in regard to organised walking - the strength of the single sequence. The basic spatial logic of the single sequence, for the convex space unit, is that of 'one way in, one way out'. Visitor movement is constrained in the convex spaces of single sequence without an alternative. To measure the strength of the single sequence, this paper's proposal is simply to calculate the proportion of the 'two-entry' convex spaces in the spatial system<sup>12</sup>. Due to the fact that the 'one-entry' convex normally functions as an 'attachment' of the convex space which is connected to it, when calculating the proportion of the two-entry convex the 'one-entry' convex should be ignored. The proportion of the 'two-entry' convex, which indicates the strength of the organised walking, thus constitutes the second dimension of the spatial types of modern museums.

These two dimensions constitute the two-dimensional model of the distribution of the spatial types of modern museums. The spatial types of modern museums, based on the arguments above, are distributed in the quadrants of integration core and sequence. The different spatial types of modern museums can be regarded as the resolutions of the 'genotypical conflict' which derives from the different functions of the museum. It is a 'genotypical conflict' for the following reason. To physically congregate people a museum needs a shallow

integration core which means a 'symmetric spatial system' is needed. In contrast, to represent 'historicity' there is a need to organise visitors' movement in a strong sequential plan which means an 'asymmetric spatial system' is needed. How best to deal with these two different and conflicting functions has deeply structured the spatial design of museums. Attempts to incorporate these two kinds of functions, consequently, characterise the history of the space of museums.

As for an initial study of the space of modern museum, this paper selected 14 museums for the analysis of genotypes. The cases are selected according to several principles. Firstly, most of the cases are purpose-built museums and have close relationships with the state. Secondly, their scale is relative large compared with privately founded museums. Thirdly, they are picked from different times and countries to represent as widely as possible the genotypes of 'public museums' in various cultures. These 14 cases are: the British museum in London, 1827; the Crystal Palace in London, 1851; the Natural History Museum in London, 1871; the National Museum of Natural History in Washington D. C., c.1900; the Field Museum in Chicago, c.1890; the National Gallery of Art in Washington D. C., 1937; the Air & Space Museum in Washington D. C., 1975; the National Museum of Modern Art in Paris, 1985; the National Museum of Natural Science in Taichung, 1993; the Altes Museum in Berlin, 1823; the Guildhall Museum in London, 1872; the Museum of London in London, 1970; the Durand's project in France, 1803; and the Alte Pinakothek in Munich, 1826.

The analysis of these cases is partly based on the use of the 'pesh'. The pesh is the computer's calculation of the degree of integration of the convex spaces and axes within the spatial system, which is based on the method of space syntax developed by Bill Hillier, Julianne Hanson and their colleague. According to the different degree of integration, the convex spaces and axes in a spatial system are ranked as seven different bands which are respectively represented by different colors as in figure 3. The red areas indicate the most integrated spaces and axes then, passing through orange, yellow, green, blue, indigo, to the purple color, the pesh indicates progressively more segregated areas.

The pesh is the most efficient way to identify the depth of the integration core which is one of the dimensions of the genotypes of museum. In this paper the pesh diagram provides us with a 'sketch' of the spatial organisation of selected museums. As referred to in this paper, the integration core is theoretically recognised as the most frequently used spaces and axes in terms of visitor movements within the museum. It is represented by the red-colored spaces and axes in the pesh diagram.

The pesh software must calculate both the convex spaces and axes at the same time. The integration core of the pesh diagram therefore could include both of them. However, the axes are treated in the same way as the convex spaces when calculated by pesh, thus they would overlap with the convex spaces where the axes pass through. In order to find the accurate integration core, which is considered by this paper as created by the arrangement and connectivity of the convex spaces, the axes in the pesh diagram will be ignored here. The integration core, therefore, in this thesis only refers to the most integrated convex spaces in a spatial system. After eliminating the axes, we can roughly identify the most integrated convex spaces by their colors and then have the diagram of the position of the integration core as shown in figure 1.



The depth of the integration core as discussed below means the relative length of the entrance to the 'centre of gravity of the integration core' (CGC) in a spatial system. The depth of the core could be measured by the distance between the CGC and the entrance divided by the area of the whole spatial system. As far as this paper is concerned, the depth of the core and the distance between CGC and the entrance can be measured visually.

In order to compare the depth of the integration core, figure 1\* is the sketch of pesh which shows the order of the selected 14 cases in terms of their depth. Excluding the 5 museums in mainland Europe and Taiwan, the integration cores of the nine museums in Britain and the United States generally became deeper as time went on. For the selected cases, there was a trend of 'outside-in' movement of the core. The integration cores were more and more enclosed by the other exhibition space in museums.

In these circumstances, due to the fact that the function of congregation is weakened by the increasing depth of the core, we could infer a phenomenon of 'de-centralisation' in terms of movement in the museums with a deep core. At the same time, due to the power of encounter being replaced by the power of visibility in the deep core, the phenomenon of 'transparency' could appear in terms of visibility in the core. As Rowe has pointed out, 'de-centralisation' and 'transparency' are important properties in Le Corbusier's works (Rowe 1976, Rowe and Slutzky 1976, Frampton 1980: 157-8). According to figure 1, the selected museums in Britain and the United States were also involved with these two kinds of properties during the twentieth century. In this respect we can therefore infer that, for the selected cases of the museums in Britain and the United States, the spatial constraint on bodies has been transformed from encounter to scopic regime by the beginning of the twentieth century.

Concerning the strength of the organised walking, figure 2 shows the j-graphs of MOL, NHM, and Durand's museum project. By using this method of calculating the proportion of the 'two-entry' convex, the strength of these three museums are respectively 0.740, 0.735, and 0.356. According to the same method, we can see in figure 3 the order of the strength of sequence for all the 14 museums.

According to figure 3, 4 out of 5 Britain's museums are listed in the top 4, which means they are very strongly sequenced. The remaining one is the Guildhall museum which is relatively small. For all the 14 cases, in terms of time there seems no regularity in the global scale. In every period of time people built museums with a different strength of sequence. However in terms of country, compared to the others, British museums seem to have the culture to build museums with strong sequence.

The depth of the integration core and the strength of sequence constitute the two-dimensional grid of museum genotypes. Data from figure 1 and figure 3 could therefore be expressed by a grid such as appears in figure 4. With the time dimension added, there could be a three-dimensional model made of the distribution of museum genotypes.

As a specific kind of museum, the modern museum could employ different genotypes which have been distributed in different times and spaces. According to figure 4, there is a phenomenon of 'uneven development' of modern museums around the world. This 'uneven development' not only refers to the uneven distribution of genotypes in terms of time and places, but also indicates the different ways of design that are the results of dealing with the 'genotypical conflict'. As this paper has mentioned above: to congregate people needs the

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• Editors's note: All the figures are printed in the Appendix at the end of the paper.

symmetric spatial system, to organise movement needs the asymmetric spatial system. The conflict between symmetric and asymmetric is mainly caused by the control of permeability that affects the spatial system. How to deal with this underlying conflict, to control or not to control - eventually marks the spatial types of the modern museum. Through this idea and the space syntax method, this paper can therefore construct a model of genotype which is able to describe the spatial form of the modern museum.

### **Conclusion: the future research of the modern museum**

As this paper has suggested above, the modern museum function as a sort of narrative machine through which the concept of a great temporal current is provided, and as a social machine through which specific social relationships are constructed. The machines, however, are not operated just in the abstract. It is through the materiality of body and museum's spatial layouts, the visitors' movements are organised to offer a knowledge of time, and the visitors are brought together to reinforce specific social relations and interests. Through the spatial layouts and body, the spatial implications are therefore could be embodied and summed up into the spatial types of modern museum. The spatial types of modern museum, therefore, could be regarded as the medium and result of the spatialization of knowledge and social relationships.

As a formal analysis based on the movement of body, the genotypes of modern museum attempt to encompass the diverse implications of the discourses about spatial functions. However, the links between the different ways of organising bodies that are embedded in the formal analysis, and the social functions of modern museum is still a field of debate that must be further examined. The relations between, for examples, organised walking and historicity, the co-presence and the 'specific' social relationships, all call for a further study to be clarified. This question indicates the future research which, the author believes, must be based on more local and historical studies on the cases of the modern museum. By this opinion the author means that spatial types are used by people with intentions to construct social life and therefore, social relationships in different times and places. As Hillier has claimed, space is actually the machine. It supports people's intention to form specific social relationships and societies. In this aspect his analogy is true, since a machine may only function when people are willing to operate it.

### **Endnotes**

- 1 Foucault argued that it was Cuvier's 'fixism' that gave rise to the modern episteme. He said that from, "Cuvier onward, function is to serve as a constant middle term and to make it possible to relate together totalities of elements without the slightest visible identity" (Foucault 1973:265). Quite opposite to Lamarck's idea of the Tcontinuity of being', Foucault considered Cuvier had introduced a radical Tdiscontinuity of living form' which made it possible to conceive of a Tgreat temporal current' and to Treveal a historicity proper to life itself'. Cuvier's 'fixism', for Foucault, "was the earliest mode of reflecting upon that historicity, when it first emerged in Western knowledge." (ibid., 275). Earlier than Foucault, Gillispie in his book *The Edge of Objectivity* has further pointed out that, "If one may anticipate for a moment the Darwinian theory of natural selection, it will begin to appear why it was Cuvier, rather than Lamarck, who set the stage for evolutionary biology." (Gillispie 1960:283-4).
- 2 According to Bennett's arguments, "In the museums that were custom built for their new public function, the same architectural principle recurs again and again. Relations of space and vision are organised not merely to allow a clear inspection of the objects exhibited but also to allow for the visitors to be the objects of each other's inspection." (Bennett 1995: 51-2).
- 3 'Government' here is related to Foucault's idea of power. Foucault treats power as a question of 'government'. According to him, government "designated the way in which the conduct of individuals or of groups might be directed — It covers the modes of action which are destined to act upon the possibilities of action of other people." "To govern, in this sense, is to structure the possible field of action of others." (Foucault 1982a:221). For Foucault, power is not clearly directed to class oppression. It is not just rooted in political and economic materiality,

but is exercised through a spatial technology which aims at a docile body. Therefore, from this perspective, Bennett's argument is in fact implying the spatial form of the modern museum as the apparatus of government.

- 4 In his discussion about the three principles of the exhibitionary architecture in nineteenth century, Bennett argues that these principles 'allowing the public to double as both the subject and object of a controlling look, the museum embodied what had been, for Bentham, a major aim of Panopticism: the democratic aspiration of a society rendered transparent to its own controlling gaze' (Bennett 1995:101).
- 5 This argument which appeared in Bourdieu's book published in English in 1993, in fact is based on his rather positivist study 'The Love of Art' in 1969 (English translation in 1990). In this study, through the investigation about the visitor's attitude toward the signs in the museums (arrows and explanatory panels, etc.), Bourdieu argued that working-class visitors' favour for indication actually is a reflection of their fears about being confronted with objects unfamiliar to them. For Bourdieu, indication is not really a tool to aid visitors to understand the exhibits, but a proclamation of the right not to know. Without this facilitation, the working-class would feel like they are facing a test which makes them feel being excluded.
- 6 Bennett's study on the history of the museum has also revealed this point of view. He thought, " — the museum - in its conception if not in all aspects of its practice - aimed not at the sequestration of populations but, precisely, at the mixing and intermingling of publics - elite and popular - which had hitherto tended towards separate forms of assembly" (Bennett 1995:93).
- 7 Gordon Fyfe's thesis 'A Trojan Horse at the Tate' is typical in attacking 'essentialism' in the sociological studies on museums. In his thesis, through the analysis of the Tate Gallery, Fyfe was mainly trying to argue that a museum is a relationship of cultural interdependence and not a creature of class power. He said that, "Neither the essence of art nor the needs of capitalism were the points of origin of the Tate; rather the early Tate produced its point of view as a museum of modern art through the contradictions of the cultural forces in which it was enmeshed" (Fyfe 1996:225). The 'essentialist', according to Fyfe, can therefore be referred to the view that sees the museum's social function as being fixed by the interests of a dominant class. The view of 'mobility', on the contrary, stresses the shifting, unstable and contingent character of museum's social function. According to the view of 'mobility', museum practices in the contemporary world are not consistent, rather, the shifting and unstable characters of museums has made the practice very idiosyncratic. Through the construction of new museum theories of mobility this kind of view has, in my opinion, created a social space which allows museum curators to regard themselves as a subject in the wider social action. It will be interesting to consider how this view had been integrated into the 'new museum movement' after 1980 which attempts to escape from the structural constraints of the modern museum.
- 8 For example, G. Fyfe considers museums as relations of cultural interdependence, they actually express the coincidences of an interweaving of power relations (Fyfe 1996:224). D. Sherman stresses the continuing transformation and construction of the museum and the ideology (Sherman 1987:54). Lavine and Karp in the 'Exhibiting Cultures', as well as Zolberg's studies on American art museums, focus on the idea that museums are a contested arena and forum, in which confrontation, experimentation, and debate take place (Lavine and Karp 1991, Zolberg 1981).
- 9 However in Duncan's later work *Civilizing Rituals* she made a claim that her works are different with Bourdieu's. She said: "I treat museums not only as socially distinguishing forms but also as structures with substantive cultural content, a content that is not always or not entirely subject to sociological or political description" (Duncan 1995:5).
- 10 Here I would like to quote Walsh's definition of 'modernity'. Walsh considered that, "An essential proposition of modern thought is an idea of progress, a belief which developed as a constituent part of Enlightenment thinking, and provided modern thinkers with a faith in the ability of humankind to manipulate and exploit their environments for the benefit of society. Such a society could escape from the debilitating elements of the past, and could move ever forward to new horizons. If modernity has a particular essence, it is a belief in rational advancement through increments of perpetual improvement." (Walsh 1992:7).
- 11 It is, however, not impossible to employ the two types of thought in one text. For example, Bennett's several works could be regarded as such an attempt to clarify and reorganise these two positions. See his discussions on the Gramsci's position and Foucault in *The Birth of the Museum* 1995 and 'The Exhibitionary Complex' 1996.
- 12 The strength of the single sequence, according to Pradinuk, could also be measured by the 'mean RRA value' of the spatial system. "The higher the mean RRA value - the deeper the system - the stronger it is framed." (Pradinuk 1986:16). This is basically because the higher the proportion of the 'two-entry' convex, the more asymmetric the spatial system becomes. These two methods of measuring would, in this thesis' opinion, both do the job of quantifying the strength of sequence.

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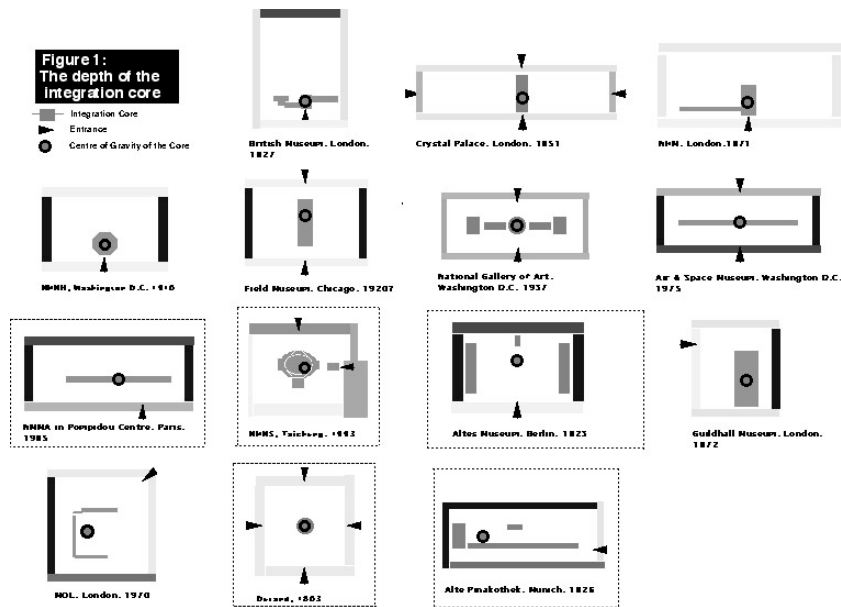


Figure 1: The depth of the integration core

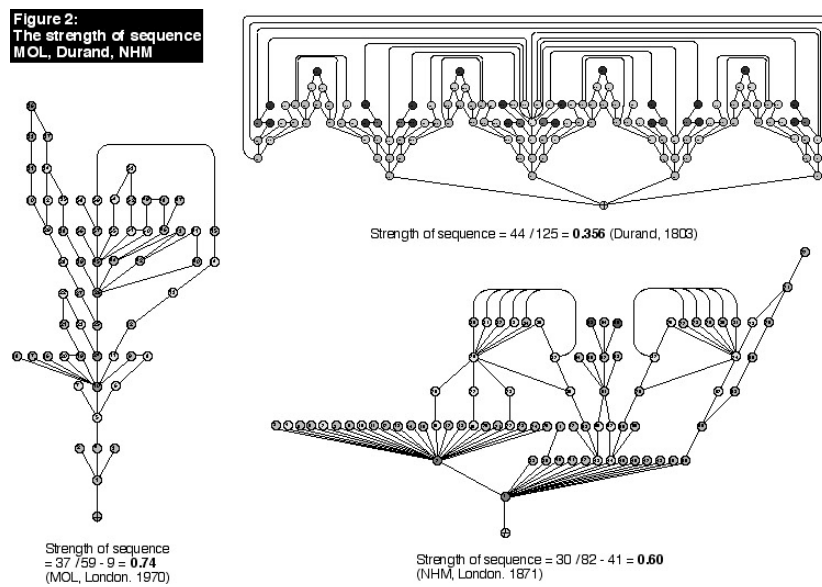


Figure 2: The strength of sequence (MOL, Durand, NHM)

43.13

**Figure 3: The strength of single sequence**

**Figure 4: The selected sample on a two-dimensional grid of museum genotypes**

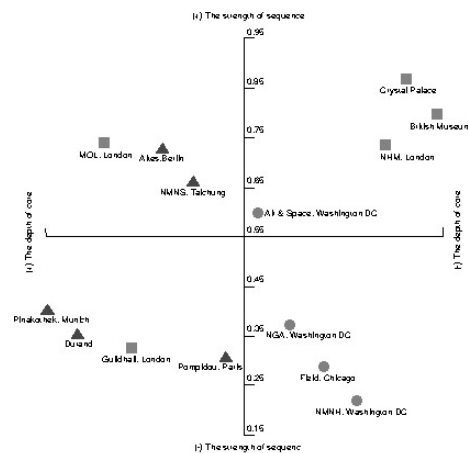
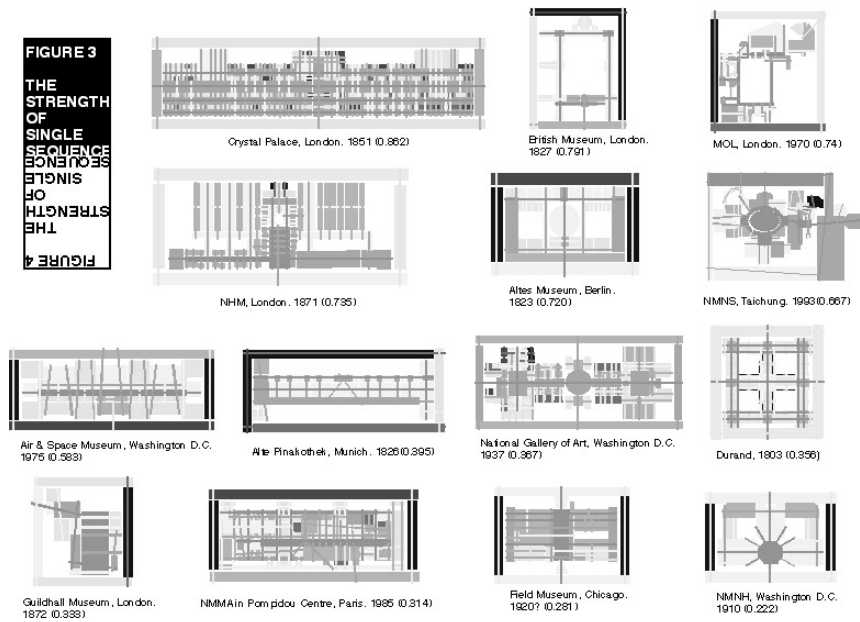


Figure 4: The selected sample on a two-dimensional grid of museum genotypes  
 ■: Museums In Britain ●: Museums In the United States ▲: Museums In Europe and elsewhere