Architecture as Curatorial Device
Space, Views and Narrative in the Galleries of the High Museum of Art

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Abstract
This paper addresses the interaction between architectural and curatorial design strategies in museums and the ways in which they constitute the spatial dimension of galleries. Against the background of a rich and coherent body of literature on the syntactical analysis of museums, the paper relates the transmission of the exhibition curatorial and pedagogical message to the architectural properties of the display layout. As a case, the study focuses on the internal transformation of the second floor galleries at the High Museum of Art, Atlanta, designed by Richard Meier, over three periods of time in 1983, 1997 and 2003. The study relies on the comparative examination of the syntactic and configurational properties parallel to narrative strategies of three layout stages. Tracking the extent to which the pattern of connections among components of space have been limited or enhanced over the years, the paper shows how the dramatic changes from the layout properties of the 1983 to the 1997 galleries could provide the tangible clues about the interaction between architectural design and curatorial intentions.

1. How significant changes in the spatial organization coincide with curatorial narratives
The spatial history of the second floor of the High Museum of Art (HMA) has been previously documented at three critical points in time: 1983, 1997 and 2003 (Zamani and Peponis 2006). The analysis of those changes supports the conclusion that the history of the HMA involves radical discontinuities in the principles that govern exhibition layout and the associated kinesthetic experiences of viewers. But how do the major changes in the spatial properties of a display layout interact with its curatorial narratives and exhibition messages? In this paper this question will be approached by examining the curatorial and configurational properties of the display layout.

1.1 Display Narratives
One way to approach the question is to look at the relationship between the break-up and relational structure of space, and the conceptual organization of the exhibitions. Figure 1 maps the main curatorial classificatory categories announced through inscriptions on the museum walls or through the organization of corresponding exhibition catalogues based on the HMA archival materials. In 1983, the second floor was mostly, but not entirely, devoted to the Decorative Arts exhibition which contained objects displayed in a chronological order within 19 different labels (Figure 1). Even a superficial perusal of these labels suggests not only a multiplicity of contents but also a multiplicity of classificatory criteria. In 1997, there is a clear transition to a thematic classification of objects under 21 detailed labels which are organized under 7 major headings (Figure 1). In 2003, there is a return to the chronological installation but this time, there are only 9 labels under 2 major headings as shown in the Figure 1.

Prior to examining at the relationship between categorical distinctions and spatial layout, one can, therefore, draw a tentative conclusion. Curatorial philosophies have significantly changed. In 1983...
the visitor was confronted with a juxtaposition of classificatory emphases, presumably in order to be encouraged to look at contents from a variety of perspectives. In 1997, the visitor was confronted by a more systematic didactic narrative developed so as to absorb pre-existing classifications by donor as yet another indication that art can be seen from multiple points of view. In 2003, the visitor is confronted with a much simplified classificatory scheme to allow attention to focus on the individual work of art.

FIGURE 1
1.2 Spatial Properties of Display Layouts

Following the above introduction of the museum galleries and the underlying curatorial strategies, the galleries are analyzed according to convex space and axial analysis in order to understand the patterns of spatial organization. The convex layer of analysis \(^1\) takes into account the space broken up into non-overlapping convex entities which create an interconnected continuous system. As shown in Figure 2a, a heuristic examination of the size, shape and distribution of convex spaces shows that 1983 is composed of a rhythmic blend of two distinct kinds of spaces: large and elongated convex spaces which coincide with the main cross-shaped circulation, and much smaller spaces covering the bulk of galleries. In a stark contrast, the 1997 shows a complete reversal of that order in three ways: First, the cross-shaped circulation no longer maintains its lead with elongated and large convex spaces - it is broken down in several smaller entities; Second, there is less differentiation between the two extremes of rather large and much smaller space components - a smooth gradation from small to large takes place instead; Third, not all galleries are composed of numerous small components - the southwest corner emerges with larger chunks while the rest maintains the dense fragmentation character. The recent 2003 refurbishment completely changes the order of 1997. In addition, as compared to the original design, elongated convex spaces reappear over the main circulation, hence reversing to a situation most similar to 1983, while the polarization between smaller and larger spaces becomes a feature that characterizes even the interior of the corner square galleries, hence differing greatly with 1983.

The results of the convex space connectivity analysis are tabulated in Table1 and shown in figure 2b. In the 1983 layout, the transition from a cluster of smaller convex spaces to other clusters frequently involves several intermediate steps. With regard to gallery spaces, this produces a repetitive and nucleated distribution of connectivity localized around a few distinct hubs which are separated from each other. As an observer walks past galleries she is presented with an alternation from chain-like spaces to nodes with high connectivity that offer choices for the subsequent direction of movement. In the main circulation, however, highly connected spaces join each other and create a larger elongated connectivity core covering most of the cross-shaped circulation. The rather high positive value 1.562 of this right-skewed distribution points to the fact that a few highly connected spaces stand out in comparison to a much less connected remainder of spaces. In 1997, the sequence through spaces connected in chains becomes even more frequent; however, the highly connected spaces interspersed through galleries disappear. This lack of differentiation to the benefit of a majority of poorly connected spaces is reinforced also by a lower value of skewness of distribution at 0.855 (Table 1). The most connected hub in 1997 is a single space at the entrance, and the overall connectivity at 2.317 is the lowest for the three periods. There are secondary connectivity hubs, but these form neither a recognizable rhythm nor an overall global structure. The 2003 design resembles the original design of 1983 with regard to the reappearance of a highly connected cross-shaped circulation. The connectivity of galleries has spread consistently and reaches to a high concentrated connectivity in the 204 gallery. In fact, the gallery 201 and 207 hold the highest amount of depth which indicates a clear contrast with balcony galleries with less depth and highest connectivity.

As an overall comparison, for a visitor, the 1983 exhibition journey begins from the less deep space of balcony galleries which suddenly turns into the deep space of the gallery 201. While in 1997 and 2003 this introduction and transition through exhibitions were with more gradual changes. In terms of connectivity, fragmentation was reduced in 1997 then increased in 2003 as it was in 1983. The cluster of the most connected spaces, shown in red, changes from one layout to the other. In 1983, it covers the cross-shaped form of balcony galleries; it is reduced into a smaller linear zone stretching mostly east-west in the balcony galleries; whereas in 2003, its area increases back to the original 1983 shape to reach the entire balcony galleries.

Thus far, the analysis has looked at the manner in which spaces are related to their immediate neighbors and at the local properties of connectivity. The next step is to look at the overall experience of the layout, as captured by integration. The results of the analysis are tabulated in Table 1 and shown in figure 2c. There is a great resemblance of the integration core in 1983.
and 2003 which consists of the cross-shaped circulation and the adjacent galleries in the east and west. The three extremities of the galleries in northeast, northwest and southwest of the floor result segregated for both periods of 1983 and 2003. While the segregated area remains rather unchanged in 1997, the integration core is reduced to the east-west segment of the circulation loosing its south fragmented extreme. Compared across three periods, the mean integration drops from 1983 to 1997 and increases at its original level in 2003; having respective values of 0.682, 0.454 and 0.678. Similar to changes in connectivity over the years, the differentiation of integration, measured by the skewness of distribution, changes from 0.793 to 0.380 to 0.595, hence being the lowest in 1997 (Table 1). The analysis, thus, shows that in 1997, there was a fundamental shift regarding the principles of layout design. Larger spaces were linked into longer sequences, without any evident attempt to define a global structure. The overall sense of accessibility of the space was reduced as a result.

Figure 2
b) connectivity c) integration.
Convex spaces are shown with framed boxes in plan and circular nodes or vertices in graphs. Connections, i.e. adjacency relations among neighboring convex spaces, are displayed with dark stitches in plan and line links in graphs. The graphic scale ranges from red-high to blue-low: most connected spaces are shown in red, while dead-ends with one connection are shown in dark blue. With the similar logic, most integrated spaces are shown in red, while the segregates spaces are shown in blue.
Convex analysis has shown that the 1983 provide alternative ways of moving around the galleries, both locally (choices of circulation within the corner square pavilions) and globally (alternative entries from the balcony galleries to the more highly subdivided areas in the periphery of the building). One could return to any starting point without having to back on her step. It would seem that the circulation rings bring spaces closer to each other despite the overall fragmentation of the layout and the intermediate transitions involved. In 1997 there were much fewer circulation choices and much longer imposed sequences of movement. Circulation choices came back in 2003 but the simpler pattern of subdivision is associated with fewer circulation choices than there were in 1983.

To visualize key morphological properties of layouts including depth, the extent of rings and the degree of choice, graphs of convex partitioning for three stages have been justified from the same space at the floor entrance near the elevator. In 1983, the circulation spaces K occupy crucial gate-keeper positions commanding the access to other spaces. They are located shallow and near the floor entrance (Figure 3). Three main galleries, C, F and J are located a few steps deeper, ranging between levels 4 and 10, while spaces F are slightly less differentiated among themselves ranging at depth levels between 5 and 8. Due to the numerous rings, demonstrated by the ringiness at 16.585, the visitor has the choice to skip certain galleries and direct her exploration accordingly. Similarly, the 2003 layout reverses to the original 1983 arrangement by increasing the ringiness at 12.429, and reinstating the shallow structure of the plan (Figure 4). On the contrary, the situation in 1997 changes drastically (Figures 5a, b). The layout is much deeper, peaking at a depth level of 23. It is organized along two main rings: first, a shallow one consisting of the balcony circulation K and the ramp A; second, a much deeper one containing all the galleries. Compared to 1983, the ringiness has dropped to 8.176. There are few small branches and secondary rings along this very deep space. While galleries 201 C and 207 J are positioned between depth levels of 6 and 12, gallery 205 F occupies the deepest space at levels 17 to 23. Unlike 1983 layout, the galleries 205 F are entirely detached from the balcony circulation and are accessible only via intermediate galleries. The movement of a visitor is directed from one space to another with no choice on how the galleries can be explored. A more subtle change is revealed when one especially takes into account the analysis which does not consider the fire exit allowed between exhibition spaces and exhibition balconies, an exit which is certainly architectural understated. This shift accentuates the fact that the pedagogical space of the exhibition becomes severed from the experience of the atrium as the fulcrum of architecture. The layout has become much deeper as is further confirmed by the justified graph from the entrance (Figures 5c, d). The analysis, thus, suggests that the whole process works from more fragmented to larger spaces and from various abstract themes to the depiction of the body situated inside the grander space. In short, the handling of space lends deliberate progression and drama to the narrative, taking it to a climax.

Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Spaces</th>
<th>Number of Lifts</th>
<th>Number of Rings</th>
<th>Convexity</th>
<th>Depth</th>
<th>Adjacency</th>
<th>Ringiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>109</td>
<td>136</td>
<td>34</td>
<td>mean skew 2.571, 1.952</td>
<td>mean skew 7.406, 0.026</td>
<td>mean skew 0.982, 0.792</td>
<td>16.585</td>
</tr>
<tr>
<td>1997</td>
<td>82</td>
<td>54</td>
<td>13</td>
<td>mean skew 2.317, 0.855</td>
<td>mean skew 9.778, 0.113</td>
<td>mean skew 0.454, 0.380</td>
<td>8.176</td>
</tr>
<tr>
<td>2003</td>
<td>91</td>
<td>112</td>
<td>22</td>
<td>mean skew 2.418, 1.448</td>
<td>mean skew 7.188, 0.357</td>
<td>mean skew 0.678, 0.595</td>
<td>12.429</td>
</tr>
</tbody>
</table>
Figure 3
Convex analysis of the HMA second floor in 1983
a) convex partitioning  b) justified graph examination from the floor entrance

Nodes have been numbered according to the gallery in which they belong, according the legend shown in figure 1. For example, spaces of the gallery 204 in 1983 have been numbered F1 to F13. Spaces belonging to the balcony circulation are numbered with K, those in gallery 201 with C, while those in gallery 207 with J [the spaces of gallery 204, as an instance, are shown with dark fill to trace the dramatic transformation of galleries].

Thus, the HMA 1983 layout presents multiple and networks of contacts which demonstrate a non-hierarchal system within a free-flowing structure. In such dynamic organization, any component of the network can be connected to a number of other components. In contrast, the HMA 1997 layout presents a linear and hierarchialized chain which its structure is more determinate and rigid and connections among parts and their sequence are very strongly defined. As a spatial type, museum galleries have been generally described by "deep interconnected rings of space" within two extreme layout potentials (Hillier and Tzortzi 2006: 298). One is the layout with the form of a single
sequence of spaces in which every viewer is forced to go through "the same sequence of spaces in the same order", hence a single large ring of spaces; and another extreme is a layout with maximally connected grid of spaces which offers viewers so much choice without constraints that makes her a new but complex experience as is hard for her to understand and visit galleries in an orderly sequence. The mode in which spaces are connected to each other, therefore, is a crucial factor for the pedagogical and social function of the museum because it influences the pattern of visitors' movement in exhibitions hence the way in which they encounter to information and to each other.

Figure 4
Convex analysis of the HMA second floor in 2003
a) convex partitioning  b) justified graph from the floor entrance
Figure 5
Convex analysis of the HMA second floor in 1997
a) convex partitioning  b) justified graph from the floor entrance
the 1997 layout without considering the fire exit  c) convex partitioning d) justified graph
2. Patterns of Interaction: Spatial boundaries and categorical divisions

The first question to ask, in examining how categories are laid out in space, is whether a correspondence is established between physical boundaries and subdivisions and categorical distinctions. In 1983, there was not a strong correspondence between the boundaries of categories and the main spatial units of the museum. Looking more carefully at the layout in relation to the spatial analyses one note that African Art and the Chinese Collection cover the axial and convex integration cores, by the atrium (Figures 6a, b, c, d). Thus the viewer is not only confronted by the interplay between unfamiliar objects and a great space, but also with the most pronounced contrast of scale, ranging between the scale of the atrium and the scale of the porcelain vase. As one proceeds from the balcony galleries into the main body of the exhibition the pace of exploration is slowed down by axial fragmentation, and the range of experience is framed more deliberately by the exhibition space break up (Figure 6d). The visitor is invited to look more carefully at distinct views, encompassing parts of the collection. At the same time, the same individual objects are likely to be seen multiple times and from multiple points of view as visitors’ paths meander through the exhibition and circle free standing display cases or boundaries. In this context, it is very significant that the visual integration core cuts right through the northern and western sequences of galleries. The layout offers cross views across many layers of distance and many categorical labels. This is the clearest evidence that viewers are invited to make their own comparisons and to treat local arrangements as only one of the ways in which objects can be appreciated and understood. The interaction, and tension, between the categorical break up of space and global cross visibility is captured more diagrammatically in Figure 7a.

FIGURE 6
Overlapping of the curatorial organization of exhibitions with the spatial organization for three periods: 1983, 1997, 2003: a) the curatorial organization of the exhibitions narratives b) convex connectivity c) convex integration d) axial lines
In 1997, there is a greater correspondence between categorical and spatial boundaries which complements the containment of visual fields and the fragmentation and lines of movement (Figures 6a, b, c, d). Overall, the aim is no longer to suggest multiple comparisons but to help communicate precise messages and ensure that viewers’ experience is entirely geared to the reception of these messages. The tension between the curatorial categorical break up of space and global cross visibility is captured more diagrammatically in Figure 7b. The underlying logic of the original design is thereby fundamentally transformed, even though the building shell remains essentially unaffected.

The 2003 exhibition retains the notion of correspondence between categorical boundaries and the main units of the museum architecture (Figures 6a, b, c, d). The dominance of linear narrative of 1997 however is dropped. The exhibition returns to the older principle of juxtaposition of categories. The axial integration core is distributed in a way similar to 1983. From the point of view of visibility this means that there are strategic cross-views that link across the various categories of European Art in the northern sequence and American Art on the southern. Viewers are, therefore, encouraged to both understand the classification and compare objects across classes. The main difference from 1983 lies in the use of the balconies. In other words there is ambiguity as to how to take advantage of the grander spaces in the exhibition: whether to treat them as yet another part of a sequence, without implicit acknowledgment of the special architectural character, or whether to concede them to more social uses.

3. Discussion

The analysis, therefore, supports the conclusion that the relatively brief history of the HMA is characterized by at least two fundamental discontinuities. A new set of ideas is initially adopted and then dropped. By comparison to the original 1983 layout, the characteristics of the first evolutionary rupture can be summarized as follows: fewer convex spaces, longer imposed sequences, fewer circulation rings, a much attenuated sense of a global structure; also, fewer lines of movement, with a less dense pattern of connections, that never traverse the building and never add up to a global structure; finally, a severe limitation of the views across partitions that characterized the original layout, and a diminution of the importance of the atrium as a reference point.

These spatial changes can be conceptualized from several points of view. First, the 1997 layout indicates a shift to a more didactic exhibition design. Viewers are processed through a particular spatial message. This, however, is the most generic aspect of the change. More subtly, the 1997 layout suggest a uniformity of experience, while the 1983 layout implied various kinds of duality: First, a dualism between the orders of visibility and accessibility; Second, a duality between the...
global cruciform structure of circulation flanking the atrium, and the local structure, meandering through the galleries; Third, a duality of scales, the scale of the small convex space on one extreme, and of the atrium as a whole on the other. In short, while the 1997 layout invites viewers to experience space as a sequential narrative, the 1983 layout invited them to experience space as an interface of qualities.

Thus, this preliminary analysis of the relationship between spatial layout and curatorial principles of categorization suggests that the three distinct phases of spatial history are associated with distinct phases of curatorial emphasis. The discussion moves from an apparent intent to invite comparisons across a multiplicity of categorization criteria, to an intent to structure a dominant narrative, to an intent to present simpler classes without special emphasis to any one of them.

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Notes
1 The analyzed space includes only that part of the gallery floor accessible to the public and excludes auxiliary and service areas in the floor. The analyzed space is thus bounded by the shell walls, internal partitions and exhibit displays. Columns and small display islands have been disregarded in favor of not artificially increasing the number of spaces and connections. These are considered immersed objects in space rather than components of the spatial boundaries.
2 On the second floor, visitors are invited to enter the north-western square pavilion upon reaching the top of the ramp, or the elevator lobby, and prior to advancing along the balconies.

References