Understanding Space through the Lens of Social Activities

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In his essay "Figures, Doors and Passages"[1] Robin Evans argued that architectural plans described the nature of human relationships, since architectural elements such as walls divided and united building users. His argument centered on the idea of human movement. How we move through spaces, and what and whom we come into contact with as we do so, crucially depend on the spatial layout of a building.

Evans highlighted that prior to the seventeenth century, buildings did not have corridors. He labeled corridors as "*devices for removing traffic from rooms*"[2] and showed how building plans evolved from a system of interconnected rooms into a segregated system of rooms with specialized functions [Fig. 001]. Interconnected rooms, as for example evident in Renaissance plans such as Palladian villas, brought moving people into contact with activities taking place, and mirrored a society thriving on gregariousness and sociality. On the contrary, corridor plans—such as grand houses for wealthy families with rooms dedicated to different activities and intricate corridor systems separating family, guests, and servants—split groups from one another, but also activities from movement, illustrating society's increasing concern for privacy and avoidance of contact. In this way, architectural plans represent social relations.

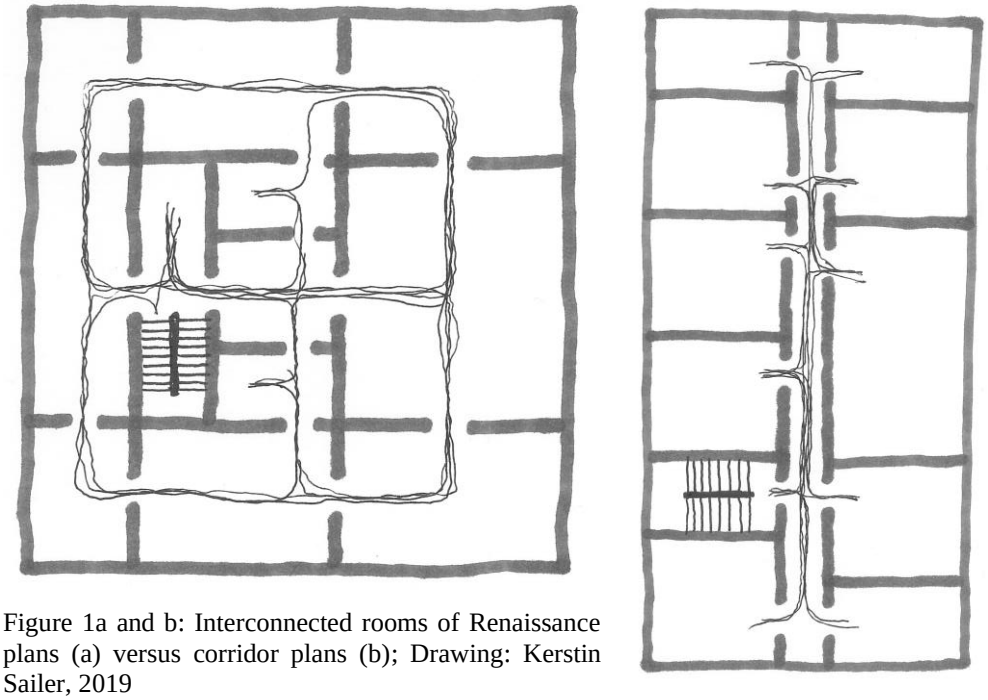

Figure 1a and b: Interconnected rooms of Renaissance plans (a) versus corridor plans (b); Drawing: Kerstin Sailer, 2019

1. Robin Evans, "Figures, Doors and Passages," in *Translations from Drawing to Buildings and Other Essays*, ed. Robin Evans (London: Architectural Association, 1997), pp. 55–91
2. Ibid., p. 70

The Relationship Between Spatial Layouts and Social Activities

To investigate the relationship between spatial layouts and social activities further, "space syntax" can be utilized—a method and theory pioneered at University College London by Bill Hillier and Julienne Hanson.[3]

Space syntax aims to understand "the social logic of space" by exploring how individual rooms or smaller spaces in a building are connected to form larger and complex systems, and what effects those interconnected networks have on human movement and social activities. Thus, in space syntax theory space is relational. Rather than taking the features and characteristics of an individual space (such as size, dimension, materiality, daylight, and so on) into account, space syntax is concerned with the nature of connectedness and the potential and actual flow of people through a spatial network. This is best illustrated with the example plans in figure two, also discussed by Hillier.[4] The plan on the left of figure two shows three spaces, A, B, and C that are all interconnected through doorways. From C you can freely move to A or to B. Therefore, rooms A and B are equal to each other regarding their position in the overall network. The relationship between spaces is symmetrical. The plan on the right is different, since the connection between C and B is closed off. Asymmetry is introduced, since the path from C to B now leads via A. This gives weight to space A, since it controls access to B. What is so interesting about this example is not that the relationship between A and B is changed physically—they are still directly connected—but the relationship of each of them to the outside world C. It is therefore meaningful to explore the flow of spaces as an interconnected network, because the way connections are structured has important implications for relations between human occupants: for instance their expression of status, their place in a hierarchy, their control or power over others, but also their ease of access to other people and their abilities to meet others coincidentally.

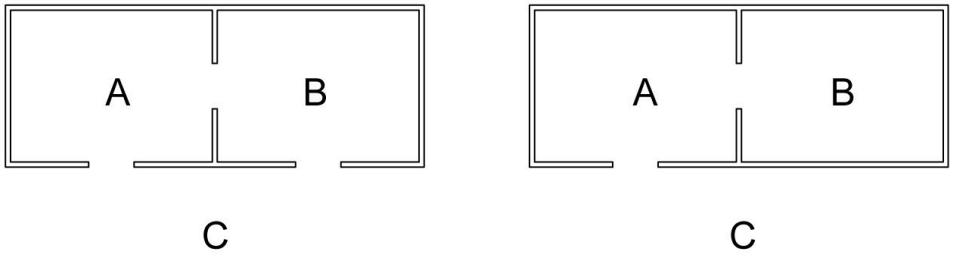

Figure 2: Symmetry and asymmetry in social relations as realized through the connectedness of rooms in a floor plan, Drawing: Kerstin Sailer, *2018*

Thus, buildings can be seen as mechanisms for bringing people together or keeping them apart.[5] By looking at the pure geometry of floor plans and their interconnectedness, space syntax provides a perspective on likely social relations and constellations. A certain spatial configuration will make particular types of sociality more probable, as illustrated by Evans's analysis of the birth of the corridor and the society it represented.

From Collective Patterns to Preferences and Perceptions

Early space syntax research was often concerned with collective movement flows through spaces and the degree to which spatial configuration could predict those collective patterns. For example, a study

3. See Bill Hillier and Julienne Hanson, *The Social Logic of Space* (Cambridge: Cambridge University Press, 1984)
4. See Bill Hillier, *Space is the Machine. A Configurational Theory of Architecture* (Cambridge: Cambridge University Press, 1996), http://discovery.ucl.ac.uk/3881/
5. See Hillier and Hanson, *The Social Logic of Space*

of the Tate Britain[6] established that 66 percent of the variation in movement rates across the museum could be predicted by how integrated or segregated spaces were. Those areas with shortest paths from and to everywhere else attracted most movement. This was founded on the idea that all buildings operated a so-called generic function, or in the words of Hillier

> *that to occupy space means to be aware of the relationships of space to others, that to occupy a building means to move about in it, and to move about in a building depends on being able to retain an intelligible picture of it. Intelligibility and functionality defined as formal properties of spatial complexes are the key "generic functions."*[7]

Subsequent research, however, relativized this picture of generic influences in buildings, arguing that movement flows were only partially informed by spatial configuration and also depended on the placement of attractors, such as cafes or other shared facilities.[8] Most recently, space syntax research has begun to explore how a configurational analysis allows for specific cultural and historical interpretations[9] and thus takes a turn to consider perceptions and preferences of different kinds of people rather than just collective behaviors.

The following case study of the British Library will illustrate how space usage and social activities of different groups of people can be understood in depth through analyzing the detailed spatial configuration in which they are embedded.

The British Library: Space Usage as "Individual Intimate Act"

The British Library, designed by Sir Colin St John Wilson and Mary Jane Long, and opened in 1997, offers fascinating insights into how the same building is perceived and used differently by different kinds of people. The British Library is visited by an average of 5000 people every day yet gives each and every user a welcoming impression. Described by critics as a building that allows usage to be an *"individual intimate act"*[10] and *"seeks relationships with the individuals who use it and visit it, through a sense of invitation ... to be a participant, not merely a spectator,"*[11] the building's complex configuration affords a whole variety of usage behaviors.[12]

An analysis of the movement flows of users through the building [Fig. 003] reveals differential paths taken by different user groups, those of readers, that is regular visitors with a reader's pass and observable through accessing the reading rooms and carrying belongings in clear plastic bags, as opposed to other visitors, such as students, tourists, or exhibition goers. There are spaces were flows of readers and non-readers overlap, but mostly those groups follow distinct patterns. Configuration in this case does not predict movement rates very accurately.

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6. Bill Hillier et al., *Tate Gallery, Millbank. A Study of the Existing Layout and New Masterplan Proposal* (London: University College London, 1996), http://discovery.ucl.ac.uk/932/
7. Bill Hillier, *Space is the Machine*, p. 282
8. See Kerstin Sailer, "Movement in Workplace Environments—Configurational or Programmed?" 6th International Space Syntax Symposium, Istanbul, June12–15, 2007
9. See Kerstin Sailer and Sam Griffiths, "From Non-discursive Qualities of Space to Conscious Design," in *Conscious Cities. Bridging Neuroscience, Architecture and Technology*, eds. Anne Fritz and Itai Palti (London: The Centric Lab, 2017), pp. 70–75
10. Roger Stonehouse, "Composition and Context," in *The Architecture of the British Library at St Pancras*, eds. Roger Stonehouse and Gerhard Stromberg (London: Spon Press, 2004), pp. 43–79
11. Richard MacCormac, "Foreword," in *The Architecture of the British Library at St Pancras*, eds. Roger Stonehouse and Gerhard Stromberg (London: Spon Press, 2004), pp. xii-xiv
12. For a more detailed account see Kerstin Sailer, "The Dynamics and Diversity of Space Use in the British Library," *A|Z ITU Journal of the Faculty of Architecture* 12, no. 3 (November 2015): pp. 23–39

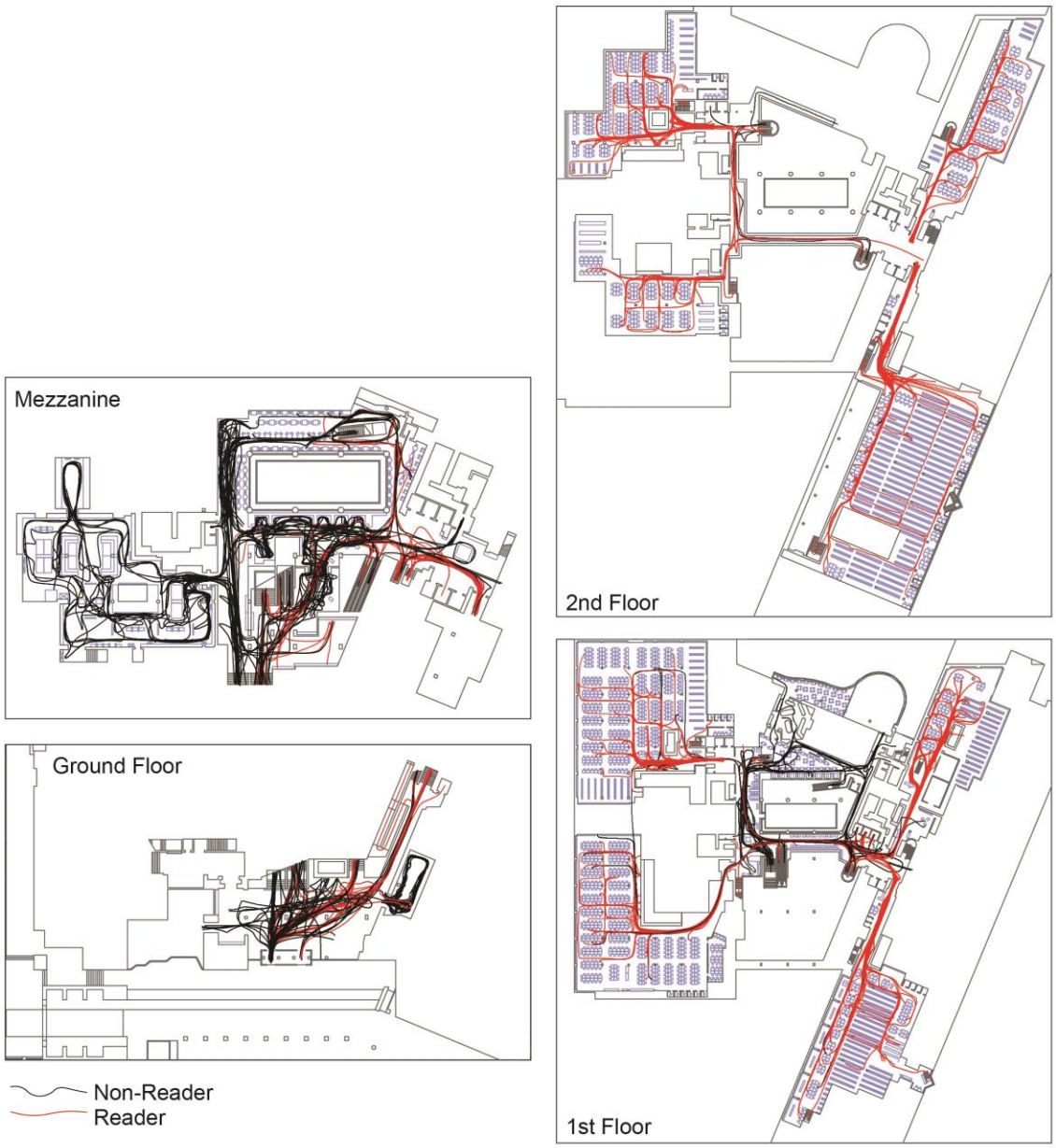

Figure 3: Movement flows of readers and non-readers through the British Library; Drawing: Kerstin Sailer, *2015*

A visibility graph analysis[13] showing visual connections in the building and the degree of integration[14] or segregation of areas [Fig. 004] is still useful in understanding how the building is used by different people at different times of the day.

13. Alasdair Turner et al., "From Isovists to Visibility Graphs: A Methodology for the Analysis of Architectural Space," *Environment and Planning B: Planning and Design* 28, no. 1 (February 2001): pp. 103–21
14. For further details on space syntax metrics and methodology, see Kinda Al-Sayed et al., *Space Syntax Methodology. A teaching guide for the MRes/MSc Space Syntax course (version 5)* (London: Bartlett School of Architecture, UCL, 2018), http://discovery.ucl.ac.uk/1415080/

Figure 4: Shortest visual paths (average mean depth) through the first floor of the British Library; integrated areas, i.e. shortest paths are shown in red and orange, while segregated areas, i.e., longer paths are highlighted in cooler colours such as turquoise and blue. Drawing: Kerstin Sailer, *2015*

From detailed observations, conducted over many hours and capturing the activities of 7993 people as well as their locations, preferences for space usage can be established: for example, do users who are eating and drinking seek out different locations to those who are working on their laptops? Differences in location of activities are measured using the metric of average mean depth, i.e., the average path length of a particular place. Path length in this case highlights how often someone would have to "look around the corner" from a particular place in order to reach every other place in the building. For example, an average mean depth of five means you can visually access and see every corner of the building from where you started within five turns. Short path length signifies integrated areas [Fig. 004].

The analysis [Fig. 005] showed that activities have a particular footprint—for instance the activity of looking around occurred in rather integrated locations whereas the activity of reading was much more

hidden in the depths of the building. Interestingly, activities changed their typical footprint during the weekend. This was particularly the case for laptop users, who placed themselves in more integrated locations during the weekend. This could be due to people seeking contact with others and preferring the buzz of the building to a higher degree on the weekend, while using a laptop during the week could be considered a more serious working task.

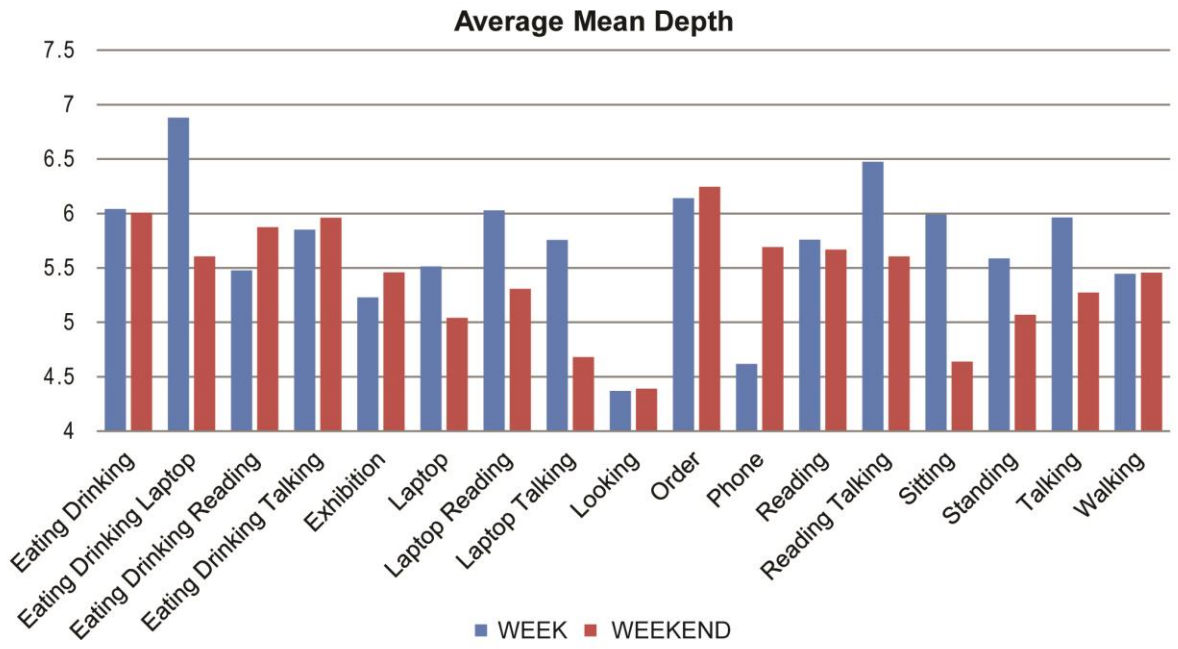

Figure 5: Average mean depth of typical user activities in the British Library, differentiated by weekday (blue) and weekend (red). Diagram: Kerstin Sailer, *2015*

In conclusion, it can be argued that *"human behavior does not simply happen in space. It has its own spatial forms. Encountering, congregating, avoiding, interacting, dwelling, teaching, eating, conferring are not just activities that happen in space. In themselves they constitute spatial patterns."*[15]

Exploring those patterns makes it possible to understand social activities as embedded into spatial cultures and practices. It gives architects tools and ways to think about users systematically and rigorously. Thus, users can be treated as spatial agents whose perceptions, preferences, and behaviors are articulated through spatial configuration.

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15. Bill Hillier, *Space is the Machine*, p. 29

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