

Recombinatorial personal spaces of knowledge

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ABSTRACT

As part of the EPSRC/AHRC sponsored PATINA (Personal Architectonics through INteractions with Artifacts) project we have been exploring the role and future of the Library both as a building type and as a concept in a world of dematerialised information. The PATINA project was originally initiated by the British Library through a funding sandpit entitled “Designing Effective Research Spaces” which aimed to examine the future of research spaces and resulted in the funding of three projects of which PATINA is one. PATINA has, so far, explored the interrelation of research spaces and technology in a range of contexts from academics offices to archeological fieldwork sites. As part of the project, masters students in the ‘Digital Architecture’ course at Newcastle University were asked to imagine a future post-library building type using current theories and philosophies. In this essay Carolina Ramirez-Figueroa mixes references to contemporary theory and philosophy, historical precedent and science fiction to develop a notion of a reconfigurable space live with ever changing patterns of digital information.

INTRODUCTION

I find a secret pleasure in the act of entering the chambers. For a split second you can actually feel the chaos emerging and reconfiguring, just as for a moment the chaos blends into chaos in the very beginning of life.

Just a moment before you cross the doorway, every paper sheet in the dummy books is empty. Every cover in blank. Then you suddenly waltz in and create the order, everything emerges. Reconfiguration, letters suddenly appear on the blank canvas of the pages, and dust-jackets are rendered, just as watercolours combining in a palette. After that split-second you're reassured with the notion that every piece of information around you is somehow familiar. It is not as though you have read through every single paragraph in the dummy book. It would be a bore to go through the same stuff again and again. It has more to do with the system. Somehow it learns what you are after. Some may argue it is impossible, but if you really pay attention whilst in the doorway, you can hear the tickling of the molecular

actuators, like spiders walking on a very thin steel plate. Call me old-fashioned, but I still think of it as magic.

In the argument concerning the future of physical libraries it is important to remember that libraries are not only knowledge depositories. If the main aim of libraries were information storage, digital systems of information would have supplanted them some time ago. In analysing and studying the future of libraries, it is always difficult to transcend their embodiment.

Therefore, the challenge in imagining the future library lies not on the intricacies of how to deploy a plethora of gadgets and sensors into an existing built form or how to digitally enhance an existing space, but how information storage and retrieval has already been transformed. In particular how the institutional structures of physical categories and professional research hierarchies have been transformed, through digital technology, into personal adaptable and ever changing systems of information representation and retrieval.

In this essay, we will demonstrate how modern information systems have been developed following a principle of universality and dissemination. Considering the material challenges posed by this endeavour, little attention has been paid, in terms of architecture, to issues of personal appropriation of information. However, the possibilities of augmenting and actuating architectural spaces through digital technology underlies our discourse which imagines future libraries not as digital, virtually immersive data-spaces, but rather as a re-combinatorial physical spaces of knowledge navigation.

MEDIEVAL STUDIOS AND THE ROLE OF MEMORY IN NAVIGATIONAL SCHEMES

The architecture of libraries articulates ‘standards of coherence’, defined by Jennifer Summit (Summit, 2008, p.3) as the conventions on how books and knowledge repositories are manipulated through ‘*catalogues, shelf and desk systems, and practices of storage and retrieval*’.

If we were to render a chronological line for the evolution of information storage and retrieval systems, the structure

of this line would characterise modern libraries as an architectural response to the rapid increase in the volume of available information. Following the introduction of movable type press, the amount of available information grew exponentially in what may be described as the first information revolution. However, in the second half of the fifteenth century, knowledge was more likely to be associated with the configuration of a personal space, whereby the articulation of few information containers, normally codices, were made according to a personal scheme (Brawne, 1970, p.1-2). Precious objects were placed in the same space to articulate relationship between knowledge, areas and ideas. The dynamics of these spaces related to a rich knowledge spaces:

When evening comes, I return home and enter my study; on the threshold I take off my workday clothes, covered with mud and dirt, and put on the garments of court and palace. Fitted out appropriately, I step inside the venerable courts of the ancients (...). And for four hours at a time I feel no boredom, I forget all my troubles, I do not dread poverty, and I am not terrified by death. I absorb myself into them completely (Machiavelli, 1996, p.263)

The importance of rich spatial contexts for the storage and retrieval of information is further reinforced through the relationship between space and human memory. Considering theories of cognitive psychology, we have related our codes of physical navigation to the same mental frameworks, or schemas, as those used in memory through the development of mnemonic memory (Dade-Robertson, 2011). Furthermore, Summit (2008) analyses libraries in the context of early metaphors of the physical configuration of libraries and memory:

The metaphor encourages us to compare the interior of the library with the mental arrangement of memories and thought (...) can tell us much about the importance of libraries to our understanding of ourselves and our most intimate acts of cognition. The library, it tells us, is central to who we are" (Summit, 2008, p.1)

Given the large amount of information to be stored in the post print world, and the growing number of users whose education compels them to access it, it was impossible to further the tradition of personal memory, cognition and navigation of knowledge through personal configurations alone. Libraries and institutionalized classifications systems are increasingly seen as external to human cognition, representing an observer's independent representation of the world. Libraries are thus fixed and uncompromising compared to the fluid dynamics of human thought and interaction.

COMBINATIONS FOR RECOMBINATORIAL SPACES OF INFORMATION

Architectural challenges to the uncompromising fixed nature of libraries architecture can be seen through a number

of conceptual architectural projects throughout the early and mid parts of the 20th century. Paul Otlet, whose work was rediscovered in the 1980s described, in 1914, the Mundaneum, a radical rethinking of the library which separated information from its material manifestation through a complex organisation of telecommunications systems and physical storage (in the form of card indexes). Le Corbusier responded to the architectural challenge of building the Mundaneum by proposing a square spiral structure, whereby constructing new sides to the spiral could theoretically expand storage space (von Moos, 2009, p.232- 235).

However, the problem is not only of space, but also of configuration itself. The very nature of creating a "universal" repository of knowledge has been criticised as having a totalitarian connotations. Leaving aside the political implications, all modern libraries are organised following a universal language to codify meaning in the spatial configuration of information material. Even in the most groundbreaking notions associated to Paul Otlet's Mundaneum, universality is favoured over personal information spaces and Rieusset-Lemarié observes:

For Otlet, it is not a case of how these new systems will respond adaptively to the incalculably various and idiosyncratic approaches of users. He is concerned with the way in which broad categories of users from various realms of intellectual and social endeavour will be able to use and benefit from what the system provides. It is the user who must adapt to the systems not the systems to the user (Rieusset-Lemarié, 1997, p.39)

There are two different approaches to the restrictions of physical organisation of information containers. One is creating a world of network of libraries, each one embodying a different organisation scheme. One could theoretically create every possible permutation by means of geographical travel. The second is enacting information permutations, i.e. all the possible combinations in a system, through mechanical means: 'mechanized shelves in which the books could be arranged and rearranged at will' (Dade-Robertson 2011, p.71-78).

Architects have indeed long speculated on the possibilities of regarding architecture as a dynamic system. Gordon Pask defines this approach as the cybernetic paradigm in architecture as a sort of interactivity between users and built environment. He defines the notion of interactivity through mutualism: serving and controlling human beings (Pask, 1969,p.68-70). Ultimately, Pask finds the most evolved version of this theory in the Fun Palace (Pask, 1969, p.75), projected by Cedric Price and described as 'a building with an open programme providing entertainment to 'everyman' whose form and organisation should be steered, and altered, by the mass will' (Rendell, 2007, p.220). Price imagined a series of interconnected pulleys and mechanised cranes that will literally move construction blocks around to reshape the building. The structure will be equipped with a

decision and memory unit, which will record user dynamics over periods of eight-hour and weekly cycles (Pask, 1969, p.75). Designed by Pask himself, the interactive system follows an underspecified goal approach. There is no goal or behaviour directly coded as such. Rather the 'interaction artefacts', defined here as the moving blocks in the Fun Palace structure, are designed to exert a "natural dynamic complexity" (Haque, 2007, p.54). As such, the user would not be able to 'manipulate' the spatial coordinates of a particular building block. Rather the structure would learn from the behaviour of the interactors and adopt a specific interactive profile.

PERMUTATIONS AND FUTURE RECOMBINANT LIBRARIES

Classification, in terms of the physical organization of objects such as books, emerges from both a conceptual and spatial mapping responding to both the necessity of physical storage and the desire to find an intellectually coherent patterning of the world. The fruitless search for a universal classification has given way to a cybernetic vision of architectures which are adaptable and interactive and which in the example of Pask are avoiding becoming "prescriptive, restrictive and autocratic"

Materiality, with its associated traits of gravity and friction, demands an overly complex mechanical system to reconfigure physical units in space. In the context of libraries nonetheless, this trait is contingent upon a fundamental notion: that the objects of information are codified through physical means and we might imagine a recombinatorial system in which the dynamics of an ever changing information system are captured through an information reencoding based in otherwise static structures.

Let us imagine a room of standard dimensions. It contains shelves, books, and a reading space in the middle of it. Books, nevertheless, are not codified through mechanical means. Rather, they are small information servers, which can render any given book in its interior. The same book could transform itself to present an Information Architecture volume or a philosophical text. We can regard books in this thought model in the same lines as Mann (2001) precluded in his *Electronic paper turns the page*: sheets of plastic wired onto the spine of the book. This plastic will allow the reconfiguration of microscopic chemical spheres into characters and figures through a small electrical current. Given the technological implications in this model, it could be argued: why should it be reliant upon models of old technologies? McCullough (2005, p.11) clarifies:

Humanity has had thousands of years to build languages, conventions, and architectures of physical places. Wave upon wave of technology has transformed those cultural elements, but seldom done away with them.

It is not a case of vintage extravaganza. Technology necessarily responds to cultural conventions, and should be sensible of being appropriated by human users 'The cutting edge dulls on everyday life' (Mc-Cullough, 2005, p.10)

Professor Geoffrey Nunberg plays with the idea of the truly electronic book

Perhaps someday the book and the electronic display will converge in an electronic display so thin and flexible that it is all but indiscernible from a printed page (...) something that has most of the useful physical properties of a traditional book, but which can also be erased, updated, annotated, searched and so forth (Nunberg, 1995, p.18)

When the user enters the space, the whole information around her reconfigures. Nothing really moves, at least not in the mechanical sense. Instead, the books are rendered depending on their personal informational scheme. In keeping with Pask conversation theory, the user would not need to specify the exact position of a book. The system will follow underspecified goals and adaptive thresholds, thus equipped to learn and adapt an interaction profile. This imagined library would not depend on having discrete units of information storage and retrieval. Instead, it would be composed entirely of personal knowledge cells, each equipped with shelves, re-combinatorial books and a reading space.

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