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# Architectures

> *(Young Egyptians), gazing through the windows of the Internet, have gained a keener sense than many of their elders of the freedoms and opportunities they lack. They have found in social media a way to interact and share ideas, bypassing, in virtual space, the restrictions placed on physical freedom of assembly.*
> *Mohamed ElBaradei, New York Times, February 10, 2011*

We live in strange times. Governments are being brought down by people congregating in "virtual space", while century-old media empires are crumbling as their traditional business is decimated by "digital editions". We meet with friends in Facebook, as opposed to face-to-face, and "log in" to our bank in order to pay our bills. In short, it's become clear that digital space is taking over from physical space as the container for ever more of our day-to-day interactions with our institutions and with other people [1].

We implicitly perceive these digital containers of experience as spaces, as Mr. ElBaradei explains in the quote above. Our language strains with clumsy architectural metaphors such as "gazing through the windows of the Internet" in order to describe the ways we inhabit and use them.

Who designs these spaces? And — more importantly — are they aware that they are designing space when they do so? I argue that the answer to the first question should be "information architects", and the answer to the second should be "they should".

Human beings have been designing spaces to host our interactions — to stage our experiences — for thousands of years [2]. In traditional architecture, we have a rich field that can serve as a springboard to for the design of effective information environments. However, much of the discussion in the field of information architecture has focused on linguistic approaches to the structuring of information environments. The designers of many of these "virtual spaces" have thus far approached these design challenges as literary exercises on one extreme, and as visual design exercises on the other.

In this article, I will take a closer look at traditional building architecture as a precedent for the design of effective information environments, and will propose a way of thinking about information architecture that allows us to deploy linguistic and spatial approaches to information architecture design in tandem.

But first, let's recap what we mean by traditional architecture.

## Environments for Inhabitation

The primary products of architecture are cultural artifacts that we call buildings. They are intentional compositions of forms and spaces organized as structures that provide environments for humans (and other animals) to inhabit.

Before we delve into this definition, it's worth noting that architects design many other cultural artifacts besides buildings: drawings and paintings, models, books, cutlery, cloth patterns, etc. When they do, they are not producing architecture: rather, they are employing architectural methods to produce other cultural artifacts. By definition, architecture refers to the design of inhabitable environments.

We say buildings are intentional compositions because they are designed by people for the purpose of inhabitation. Although for us they are a given, buildings are not required for human habitation: there are many non-designed (non-intentional) inhabitable environments in the world, uncomfortable as they may be. (The fact that we refer to our remote ancestors as "cave men" highlights the central role that architecture — and by extension, culture — plays in our self-identity as a species).

Let's examine the two components of architecture I introduced above — *forms* and *spaces* — individually.

*Forms* are the physical component of buildings. They are the tangible elements that make up a building, such as its brick walls, stained glass windows, wooden columns, copper roof, stone paved paths, garden layout, etc. Forms can contain other forms: for example, a wall can contain a window. While they are discreet elements, they are comprised of building materials such as bricks, sand, and glass, that can be considered discreet forms in and of themselves.

*Spaces* are the voids between a building's forms. They are defined by (and define) the relationship between these forms. Spaces are not "real" in the same sense that forms are: they are only experienced in time by the person inhabiting the building. Spaces do not exist independently of this individual experience. This leads us to an important consideration we tend to easily overlook: architects are, by definition, in the business of designing for experience.

Most interestingly, forms and spaces cannot exist independently of each other. They are inextricable parts of a whole: they are the yin and the yang of architecture.

## Culture and Politics in Building Architecture

Over thousands of years, architecture has evolved to serve functions beyond the provision of merely inhabitable environments. Architecture has been used to educate the illiterate (for example, the cathedral in Chartres), express relationships of power (the Forbidden City in Beijing), comment on the urban context (the Guggenheim museum in New York), and embody the zeitgeist (any work by OMA [3]), among others.

Architects cannot help but be cognizant of the fact that their interventions on the environment will have a cultural impact that extends far beyond providing cover from the elements [4]. Some architects even focus on these cultural functions as the primary force that informs and animates their work.

Figure 1. Annunciation and visitation, Chartres Cathedral (Image: Bellacella CC 2.0 License)

Because architecture is an area of practice with a long history, all architectural artifacts also exist in constant dialog — self-conscious or not — with their precedents. For example, the design of the Capitol building in Washington, D.C. can only be appreciated in full if the viewer knows the classical language and forms of Roman and Greek architecture. Without such

knowledge, while one can certainly experience the building itself, much of its cultural meaning is absent from its design.

## Environments for Understanding

While information architecture shares many traits with building architecture [5] there is however one crucial difference: the objective of IA is not the production of environments for inhabitation, but for understanding. Just like architecture enables environments for inhabitation by the organization forms and spaces, information architecture enables environments for understanding by the organization of *nodes* and *links*. Let's look at these two components in more detail.

## Nodes

*Nodes* are discreet units of meaning. They consist of content elements — texts, images, videos, etc. — that jointly communicate a concept or idea. A node can be as simple as a single word, and can be infinitely complex. A web page is a node, but so are the sentences, images, and visual elements that comprise it.

One of the information architect's critical responsibilities is defining a node's boundaries so that it conveys meaning optimally. Is a discreet idea best presented as a paragraph of text? An illustration? A video? A single word? The answer will depend on the requirements of the particular artifact being designed, the content available, the needs and capabilities of the artifact's users, and the architect's experience.

I refer to the minimal self-contained unit of meaningful content as a pericope, a term that comes from Biblical studies. A pericope is a special type of node that continues to communicate its intended meaning even when experienced outside of its originally intended context [6].

## Links

Much like spaces, *links* define (and are defined by) the relationships between two or more nodes [7]. There are many types of such relationships. For those of us reared on the web, the most obvious example is the hyperlink, in which a node (a word or group of words) refers to a second node (a web page, or a section thereof) in such a way that clicking on the node causes the user's display to load and present the second node.

There are many linking approaches that can be used to establish relationships between nodes. Some obvious ones:

- Sequential: one node follows another in sequence. For example, multiple words can be strung together to form sentences, which can in turn be strung together to form paragraphs, sections, chapters, and entire treatises.

- Spatial: the relationship between two or more nodes is defined by their geometric position relative to each other. For example, the content of two images can be compared by placing them side by side.

- Hierarchical: one node contains another. The most obvious example is a website's navigation sitemap. It's also worth noting that pages themselves are collections of nodes (words which are contained by paragraphs, images, etc.) Pages are thus hierarchical containers.

- Conceptual: one node triggers conceptual associations with a second node in the user's mind, even though the second node is not itself present. This linking strategy is dependent on the user having previous knowledge of the second node. For example, the effect of Marcel Duchamp's painting L.H.O.O.Q. is dependent on the viewer having previously seen Leonardo Da Vinci's Mona Lisa.

It is worth noting that one such linking strategy can be used to represent another, depending on the medium used. For example, a company's organization chart can be effectively presented as a spatial structure, even though it is a hierarchical structure.

## An Expansive Definition of Information Architecture

Using these concepts, I define information architecture as the intentional composition of nodes and links as organized structures that facilitate understanding. Note that this definition places many traditional cultural artifacts under the remit of information architecture: books, maps, sales charts, Gothic cathedrals, and more. Indeed, the authors of these works were producing works of information architecture when they defined the relationships between the nodes of meaning that comprise them.


Figure 2. Duchamp, M. (11). L.H.O.O.Q. (Image: Wikipedia)

This definition also highlights another important difference between building architecture and information architecture: while the end product the former can only be an inhabitable environment, the end product of information architecture can be many different things: a website, a movie (for example Ray and Charles Eames's "Power of 10" [8]), a book, (for example one of Wurman's Understanding series), a game such as chess, and the location of products in supermarkets. Indeed, as more of these cultural artifacts become dematerialized (read: digital), their purely informational nature is becoming more prominent and the need for well-designed information architectures is becoming ever more obvious.

Note that this definition promotes a specific objective: to produce structures that facilitate understanding. Just as arbitrarily organizing forms and spaces does not guarantee that an inhabitable environment will result, arbitrarily organizing links and nodes does not guarantee that the end result will be understandable. The architect employs structure and order to facilitate habitation. The information architect employs structure and order to facilitate understanding.

In this light, the profound differences that information architects have long perceived to exist between "Wurman IA" and "Polar Bear IA" are merely superficial. Both "branches" of information architecture aim for the same objectives using similar strategies, but focus on employing different link-node structures.

## Culture and Politics in Information Architecture

I've suggested above that information architecture has been practiced unwittingly in some form or another for thousands of years. However, as a self-aware area of practice, IA has only been around for three and a half decades [9]. Just as the first architects were primarily focused on perfecting techniques for the construction of human habitats (keeping nature at bay, keeping structures erect, etc.), the first information architects have been thus far focused on perfecting the techniques that lead to understanding (node organization, findability, etc.) As the field matures, and as more of our daily interactions involve information environments, we must become also increasingly proactive in our role as agents of cultural and political change.

Just as no building exists outside of its cultural and historical context, no information environment exists in a vacuum. There are few means of societal control as powerful as the ability to define the boundaries of discussion and the language used for the exchange. To put it bluntly: all taxonomies are political [10]. As designers, it behooves us to be keenly aware of the power inherent in defining the terms that allows others to find and use information, and to wield it conscientiously and responsibly.

It is also incumbent upon us as practitioners in an incipient field to find means of discussing our successes and failures, as building architects have been doing for years, to give us shoulders to stand on as we build the practice. Wurman's Information Architects (17) was one such attempt. It is time that changed.

## Conclusion

The transition towards information spaces as the stage for our day-to-day interactions will continue unabated. Information architects are uniquely positioned to design these spaces thoughtfully and effectively. Seeing our role as digital placemakers allows us to better understand — and employ more effectively — our work as a critical cultural component, that influences the way our institutions serve us and our fellow human beings experience reality.

## References

Arango, J., Hinton, A., and Resmini, A. (2011) More Than A Metaphor: Making Pl aces with Information. 11th ASIS&T Information Architecture Summit Denver.

Bachelard, G. (1996) The Poetics of Space. Beacon Press.

Bowker, G. C. and Star, S. L. (1999) Sorting Things Out: Classification and Its Con sequences. The MIT Press.

Brand, S. (1994). How Buildings Learn. Penguin Books

Coward, L. A., and Salingaros, N. A. (2004) The Information architecture of cities. Journal of Information Science, 30(2), Pp. 107–118.

Lynch, K. (1960) The Image of the City. The MIT Press.

Passini, R. (1984) Wayfinding in Architecture. Van Nostrand Reinhold Company.

Resmini, A. and Rosati, L. (2011) Pervasive Information Architecture: Designing C ross-channel User Experiences. Morgan Kauffman.

Rosenfeld, L. and Morville, P. (2006) Information Architecture for the World Wide Web (3rd ed). O'Reilly Media.

Wurman, R. S. (1997) Information Architects. Graphis Inc.

## Footnotes

[1] Coward & Salingaros 2004.

[2] Bachelard 1996.

[3] From the oma.nl website: OMA is a leading international partnership practicing architecture, urbanism, and cultural analysis. Our buildings and masterplans around the world insist on intelligent forms while inventing new possibilities for content and everyday use. OMA is led by seven partners — Rem Koolhaas, Ellen van Loon, Reinier de Graaf, Shohei Shigematsu, Iyad Alsaka, David Gianotten and Managing Partner, Victor van der Chijs — and sustains an international practice with offices in Rotterdam, New York, Beijing, and Hong Kong.

[4] Brand 1994.

[5] A topic I addressed with Andrew Hinton and Andrea Resmini in our presentation at the 11th ASIS&T Information Architecture Summit in Denver. See References.

[6] Note that this characteristic does not extend inside the pericope itself: a pericope's constituent elements lose some or all of their intended meanings when experienced in isolation.

[7] Lynch 1960; Passini 1984.

[8] Eames, R. & Eames, R. (168) Power of 10. http://www.youtube.com/watch?v=0fKBhvDjuy0.

[9] So far, the most comprehensive effort at outlining a preliminary history of information architecture can be found in Resmini & Rosati 2011.

[10] Bowker & Star 1999.

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