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Imagine walking through a foreign city, passing several restaurants. How do you know which of them will be the right one for you? Based on our everyday experiences, we know intuitively. Restaurant buildings give clear clues as to what you will find inside: from what kind of food is served and if it is of a good quality or not to how you will be treated by the staff and what the cost of a meal will be. We can form clear ideas and expectations on the basis of buildings and their specific architectural features. In other words, architecture is language.

The Semantics of Architecture

Nearly thirty years ago, Umberto Eco put forward the claim that architecture is communication in his introductory work to semiotics (*La struttura assente*, first published in 1968). He points out, however, that we find it difficult to think about architecture in terms of language. He was probably right as his assertion was not further developed until now. In the following paper, we will take up Eco's claim and we will analyse architecture from a linguistic point of view.

Consider for a moment that you enter a restaurant where a large, blinking neon light advertisement welcomes you. On your way in, you pass a row of differently coloured plastic tubs filled with fish, toads, snakes and other living animals. You enter a large room brightly lit by a white neon light and containing several round tables. The atmosphere reminds you of a car-repair shop or a subway station. You are led through this room to a small chamber where you find one table, nine chairs and a karaoke music box. Believe it or not, you are being taken to a high-class, Chinese gourmet restaurant. In our paper, we do not simply argue that architecture is language, which communicates universal messages; we argue that the language of architecture is a socio-cultural specific language. It is a code that contains signs as arbitrary as words and thus as dependent on cultural conventions as any language spoken in this world. Furthermore, just as languages evolve over time, the code of architecture is subject to change, too. A society's architecture develops together with its linguistic and social habits, conventions and values. This development involves not only the semantic contents of the architectural code, but also our expectations connected with them.

In our paper, we describe the code of architecture in terms of linguistic concepts. In order to illustrate this theoretical approach with an empirical example, we carried out a survey to document and describe the actual perception of two modern bookshops, which each contains a coffee corner and thus departs from the former

prototypical notion of a bookshop. The evolution of this particular building type is reflected not only in its architecture, but it also is reflected in the changing expectations and needs of the bookshop's visitors. In the section "Semantic Migration: Example Bookshop", we describe this phenomenon by analysing the empirical data of the survey. In light of these findings, we develop our theoretical framework in more detail in the sections "The Semantics of Architecture", "Implicit Messages" and "The Syntax of Architecture".

The Semantics of Architecture

Let us start looking at the semantic code of architecture by thinking about the prototypical building: the residential home. Children across the world draw a house in a very similar way, even if they themselves live in a flat. The most prominent feature of the drawings is always the roof, suggesting that the roof is a necessary condition for a construction to be regarded as a house. From the following personal observations, we could even go a step further and suggest that the roof may even be a sufficient condition: at a beach in Thailand, a man was rebuilding the house of his family. At that moment, all that he had reconstructed was the straw roof, which was standing on four poles (cf. Picture 1).



Picture 1: Phuket, Thailand: Rebuilding Homes After the Great Tsunami in 2004 (taken by Werner Schaeppi)

Despite the lack of walls and other structural attributes, the family already lived in this "house". Visitors did not step under the roof without knocking at one of the poles and waiting to be welcomed "in". So, as soon as the roof was built, the construction was perceived and treated as a house. Similarly, the roof plays a crucial part in many local legislations in Switzerland. For example in the Canton Va-

lais, ruins of former alpine huts used when herding cattle during the summer months can be rebuilt (and used as holiday homes for example) only if the ruin still has an intact roof. As soon as the roof has reached a certain derelict state, the ruin cannot be renovated. Both of these cases lead to the conclusion that the roof not only serves functional and aesthetic purposes, but it is also the feature that defines the house as a house.

However, the shape, structure and material of the roof, as well as the rest of the building, can also contain innumerable additional messages about its functions and its inhabitants. We can divide these messages into explicit and implicit ones. Explicit messages communicate directly. In many cases, the buildings function is labelled explicitly on its exterior, for example, a sign that reads “restaurant”, traffic signs for parking lots, or the logo of a well-known company. There is another important communicational function of explicit signs, namely, to guide visitors and to help them find what they are looking for quickly. This specific form of communication is called signaletics and has been developed as a professional field. From our personal experience, we know how helpful signaletic signs are at airports or railway stations that we happen to travel through for the first time. (Probably we also remember situations where signaletics was not realised well and so the signs did not help at all but may even have sent us the wrong way.) Apart from international signs (mainly iconic), signaletics can also include lighting. For example in a parking garage, the exit may be lit so that our attention is drawn to it. Another type of explicit messages is representations of a certain building prototype that denote a mental concept including function, qualities and certain frames (expected settings) and scripts (expected actions or processes) going on within the building. At least within the culture with which we are familiar, we tend to have a clear conception of what a church, a prison or a bank looks like and what is going on there. When we think about such building types, we often rely on some kind of “architectural metaphors” in the way that Lakoff and Johnson (1980) define metaphor in spoken language as mental concepts, which are both insightful and important for the understanding of the human condition. Some architectural examples include the thick walls of a bank that we perceive as an indication of security with regard to investments; and the neatly furnished entrance-hall of a hotel as a sign for the care and hospitality we can expect as guests.

Often, there are also architectural features that prompt associations rather than clear-cut messages. Even though in these cases semantic content is conveyed implicitly, the messages constitute an important factor for the architect, whose task it is to make sure that a construction is perceived in a specific way. To this end, the architect concentrates not only on the construction of the building’s outer expression but also on designing its interior and its furnishing. The architectural messages can be transmitted through different channels. The visitor receives information through his/her visual, tactile, olfactory or acoustical senses. Just imagine an old, wooden farmhouse with neighbouring stables compared to the interior of a modern business complex (cf. Picture 2). The materials used, the smells, and the noises differ largely.



Picture 2 (taken by Mark Gilg)

Thus, a building ensures its perception and influences our expectations. However, buildings may be put to uses very different from the one they were built to serve. An orphanage built in the 19th century may be used as a police station today. Or, a church may function as a cinema, or even a restaurant in our time. These evolutions make life difficult for an architect. How distinctively should the message of his or her building be expressed? Or, should he or she only build constructions that remain vague in their communication so that they can serve any function whatsoever? Do we face an age of buildings that are communicatively empty shells so that they can be sold to any company at any time? There is another factor to be taken into consideration: people adapt. We are getting used to the fact that building prototypes change or, rather, evolve. In Switzerland, railway stations are shops with longer opening hours, swimming baths become bars at night, and bookshops are also cafés. In other words, boundaries blur and our expectations change.

Semantic Migration: Example Bookshops

But how do we know in what way expectations develop? In order to investigate this migration of the architectural code scientifically, we have to understand how messages conveyed by a certain building type are received. This can be investigated by applying methods developed in the social sciences. For this paper, we have decided to have a closer look at the mental concept of bookshops and its development. In our original prototypical conception, bookshops are small to larger buildings that are situated in locations by which pedestrians frequently pass. Often these buildings are rich in tradition. They are associated with knowledge, scientific research, value (e.g. rare or expensive books) and seriousness. These bookshops are disappearing however. In their stead follow larger stores in more modern buildings (for example in shopping centres). Very often these new stores incorporate a gastronomic element: a coffee or refreshment corner of some sort. Such stores are perceived differently from the original prototype. The “buying experience” is more accented. They are associated with lingering, browsing and leisure time. In order to verify this migration, we have evaluated two bookshops in an empirical survey. One of the shops is Lüthy Buchhandlung situated in the brand new shopping mall Sihlcity in Zurich (Pictures 3 and 4) and the other is Lüthy Buchhandlung in Biel (Pictures 5 and 6). Both shops include a refreshment area.



Pictures 3 and 4: Bookshop Zurich (taken by Roman Horn)



Pictures 5 and 6: Bookshop Biel (taken by Roman Horn)

The aim of the survey was to find out how these shops are perceived by their visitors. Our hypothesis was that the varying architectural features (signs above the shelves indicating topics but also the type of chairs or the arrangement of the tables, the lighting, and the colours of the walls) create quite a distinct mental image of what kind of bookshop these two places are and also what one can expect as a customer. We had 20 respondents evaluate the two bookstores. Methodologically, it would have been optimal to visit the shops together with the respondents. We decided, however, to present the shops by showing the respondents several pictures of each interior since this allowed us to focus on the visual perception alone, excluding acoustic or olfactory stimuli.

Our experience has shown that recipients of architectural messages find it difficult to name the source of their impressions. Working with visual material only, allows to better match the respondents' perception to possible stimuli. The respondents were chosen at random from a sample of bookshop customers.

The impression of the stores was captured by having the respondents map their perception on semantic differentials. This method goes back to Charles E. Osgood, who developed this means of measurement in order to ascertain connotative meaning of words and expressions (Osgood 1952; Osgood et al. 1957; both (partially) published again and discussed in Osgood and Snider 1969). The method has been taken up by the social sciences in order to measure opinions and attitudes. Respondents have to rate the object in question on scales, which lie between two semantic opposites. One example from our test is the semantic differential "noisy" vs. "quiet". By rating their impression on a scale from one to ten (one meaning extremely noisy, ten meaning extremely quiet) for different aspects, they provide a profile¹ of their perception of each bookshop.

Compared with the shop in Biel, the Zurich store shows a profile typical for bookshops as we used to know them. It is perceived as being quiet. The respondents expect that one usually goes there alone and not in order to meet someone and the staff is thought to be competent regarding book-related services. The shop is also assumed to be warmer² than the one in Biel. Why is this so? And, why is it also seen as more apt for children? These questions can be answered by looking at the reasons the respondents gave for their ratings. The impression of warmth is created by the materials used (carpet and wood), as well as by the lighting. Biel gives the impression of being cooler because the way the shelves and the tables are set is perceived as too orderly, strict and uninviting. The fact that the Zurich shop seems more children-friendly is due to explicit clues on both the gastronomic and the bookshop axis. Whereas the tables in Biel remind respondents of a sober American-style café, the ones in Zurich are much lower and resemble coffee tables. For some respondents this indicates that they are meant for children while the other tables remind the interviewees of grown-up encounters. Furthermore, the name of the catering corner in Zurich is "Café Sirup". Since syrup is a typical drink for children, this name functions as the strongest indicator for a children-friendly atmosphere. On the book side, the indicators are mainly that children's books are visible in the pictures (or are absent).

1 The results of this method, which is applied frequently in the social sciences (Stier 1999, 98), are usually described by profiles made up of the central values. In other words, the arithmetic mean is calculated for each continuum of opposites. The mean values are then connected by a line to exhibit the profile (Stier 1999, 100). In addition to the central values, we also calculated the standard deviation, which is relatively high. This means that the respondents rated quite individually. (If the central value is five and the standard deviation is small, for example, most respondents rated with a five. If the standard deviation is high, the respondents rated partly much higher than five and partly much lower than five.) Thus, the results have to be regarded as indicators rather than statistically significant data. Nevertheless, the perception of our respondents shows two distinct profiles for the shops.

2 The semantic differential was "warm" vs. "cold".

The explanations of the ratings give a detailed account of what architectural features influence the perceptions and expectations of the visitors. Regarding the service and offerings, the bookshop products are much more dominant (explicit clues being the shelves full of books, signs with the topics, or if there are menus on the table, or if there is a bar for self-service). The interviewees have a clear opinion of the catering quality. In either shop, one does not expect to be served sophisticated cuisine. Zurich gives the impression of being a self-service snack bar while Biel reminds the interviewees of a simple, probably also self-service, restaurant which may or may not serve warm meals.

Furthermore, whether the catering area is separated by architectural means and how this is done play an important role. Is it a restaurant within a bookshop or a bookshop containing a coffee corner? In this respect, Zurich is perceived as being the latter whereas Biel tends to be seen as the former by some of the respondents. Another feature, which strengthens this interpretation, is the fact that the tables take up more room in Biel. This fact and the regular way the small tables are situated trigger associations either in the direction of an American-style Fast-Food restaurant (or café), or of a reading room in a library. The seating arrangement in Zurich is quite different. The seats remind the respondents of armchairs and the tables are low. The overall impression is more like that of a living room (also because of the carpet in this area of the shop). Rather than tables for two persons to sit down, there are easy chairs, which are set apart so that one can read without being disturbed. Apart from the general impression and the deduction of whether such a place might be rather noisy or quiet³, the materials used for the floor give an indication regarding noise. The store in Biel has a wooden floor, whereas the one in Zurich is wooden in some parts, but has a carpet in the areas where most people move around. Carpet seems to be typical for bookshops and reduces the expectations of the shop being noisy.

What about the respondents' expectation regarding bookshop competence? In the interviews, the semantic differential "knowledge" vs. "leisure" was understood as describing the activity of the visitor (searching for information vs. browsing), as well as the contents of the books on display (scientific vs. a easy and entertaining read).⁴ For both shops, the ratings for this aspect lie almost in the middle of the scale. Visitors seem to expect to find specialised books, as well as entertaining ones at the same time. However, regarding the assumed competence of the bookshop staff, the shop in Zurich reaches much higher ratings than the one in Biel. The reasons given in the interviews suggest that this is due to the way the coffee corner concept has been realised in either establishment.

³ Quotations (translated): *"This is a bookshop and as such it is rather quiet"* (Zurich). *"These tables are here to sit down, eat and talk. It is not quiet, people have conversations"* (Biel). *"This shop looks like Orell Füssli [large bookshop in Zurich]. It is always packed and rather noisy there"* (Zurich).

⁴ The signs on top of the shelves, indicating the topics of the books, served mainly as clues to help form an opinion for this aspect as the following translated quotation illustrates: *"I can see that this is about food and drinks. If it was all about knowledge, the topics would be philosophy and history, etc."*

Implicit Messages

The above example shows that the interior with its furnishing, and lighting is also part of the semantic code of architecture. However, the code is not restricted to the exterior and interior of a building. In addition to the building itself, on and within the building, there are messages communicated “around the building”:

- around the building (e.g. location, legends, media reports)
- the building itself (e.g. typology, architecture)
- within the building (e.g. furnishing)
- on the building (e.g. signaletics)

By “around the building” we mean information communicated, for example, by a building’s location. These contents are transmitted implicitly. If a construction is well known or famous, there might be legends, anecdotes or media reports about it. A building’s identity can become very strong. For example, The Pan Am Building above the Central Station in New York had to be sold shortly after its completion due to financial problems of the Pan American Airlines. The skyscraper is now owned by MetLife insurance. Even though a large sign demonstrates this change of ownership with the company’s name on the building itself, the Pan Am Building continues to be called the Pan Am Building. Another New York skyscraper can help to illustrate further what we mean by “around the building”. The Chrysler Building displays a highly idiosyncratic rooftop, which not only makes it recognisable to the more or less well-informed tourist but which also implies the legend or story of its history: at the time of its construction, there was a competition in New York to build the highest skyscraper, even if only by inches. In order to keep the competitors in the dark, the project plans were kept secret. In this spirit, the top part of the Chrysler Building was constructed similar to a telescope so that it could be drawn to its full height at the very last moment. With respect to this story being true or not, the design of the tower implies that the legend might be authentic. Thus, the semantics of architecture must include not only the building type and a building’s specific architecture but also what is known about its location and – in some cases – its history. So far, we have discussed the code of architecture mainly from a semantic perspective. In the next section, we will look at syntactical aspects.

The Syntax of Architecture

The theoretical framework of syntax as put forward by von Polenz (1988) can be developed and applied to an architectural message. We argue that buildings formulate propositions, which could be described in syntactical units. Let us illustrate this with the example of a banking building:



Picture 7: Neue Aargauer Bank, Aarau (taken by Werner Schaeppi)

So, the code of architecture provides us with information, which can syntactically be analysed as a subject (house), a claim (is) and several complements (a rather traditional bank for rich private clients) and details (at this moment). The last detail seems important with regard to semantic migration as buildings may constantly be put to other uses. The construction might house an archive or a library at some other point. Or, it might have been built for a very different purpose than that of hosting private banking offices. The above syntagmatic message puts a number of paradigms forward. Taking “building type” and “function” as paradigms, the mapping of the architectural message to mental concepts can be illustrated as shown in the following diagram:

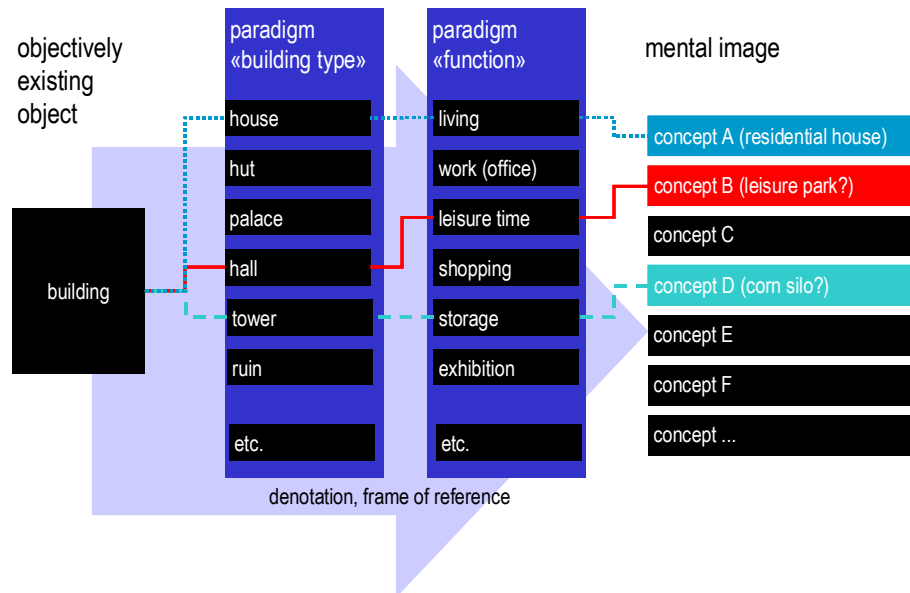


Diagram 2: The Architectural Proposition (Paradigmatic Structure) by Werner Schaeppi

The slot of the first paradigm on the left is filled by the particular building type to which a construction belongs. The second paradigm concerns the building's function. There are more paradigms analogous to the syntactical structure described above. We understand these paradigms in terms of prototype semantics: "Building type" and "function" are probably the most important or primary categories, but there are also secondary and further paradigms. Their categories depend on our cultural experience and knowledge. The categories of less central paradigms are less clear-cut and probably also more individually formed. Only in their entirety – or in other words syntagmatically – do the elements of the different paradigms form the proposition, which is mapped by the receiver to learned mental images. The concepts include expectations and sometimes are also associated with specific scripts. For example, there is a house in which people live and which we thus recognise as a residential home. Or, there is a tower used for the storage of corn recognisable to us as a corn silo.

These mental images, however, are constantly developing since buildings are put to new, unexpected uses or new building types arise, as we have illustrated with our bookshop survey.

The results of the latter have demonstrated how lighting, colours, carpets or wooden floors, shelves, bar, displayed range of products, seating arrangement, furniture, and layout of the whole space form a distinct impression. They have shown, furthermore, that both shops come close to the respondents' mental image of a modern bookshop, which does offer typically both books and coffee. One respondent states: "This is THE modern bookshop. This is how bookshops

look today.”⁵ The interviewee’s remark concerns the bookshop in Zurich. The catering service of the shop in Biel seems to be more dominating, thus removing the bookstore slightly from the core of the prototypical concept “modern bookshop”. Our respondents formed clear expectations regarding the products and services and also regarding the particular competence of the shops’ staff. So, we can conclude that if one needs to order a rare book or if one is accompanied by a child, one would probably prefer the shop in Zurich, even though both are regarded as offering the same range of books when it comes to knowledge vs. leisure.

The migration of the prototype “bookshop” seems to be taken up by our society, though the development hardly works only one way. It is rather an interplay of various factors that are changing (technology and also habits, values and beliefs of a society). We can look for rare books on the Internet and order them there. Our needs regarding the actual bookshop have changed. The distribution of a specific kind of “goods” is no longer the only reason for a bookshop’s existence. So, why not make the visit an experience by creating the atmosphere in which we can browse and read at leisure on the spot? What a modern bookshop offers is also reflected by its architecture. No longer the serious “house of knowledge” of older times, the new prototype contains a coffee shop. With this development, we come to expect this facility in a typical modern bookshop. The code of architecture changes and, with it, so do our expectations. We have discussed the example of the “building type” bookshop. The same migration can be observed with other institutions. A bank has to think of new reasons for clients to actually go to the branch, a necessity which has implications concerning the bank building. What about schools? Modern technology influences the way children are taught; perhaps the role and function of teachers will change; and, with all of this, perhaps the way a typical classroom, and thus the way a typical school, looks will also change. The evolution of society is reflected in the code of architecture as it is in any other language.

⁵ This quotation is translated from Swiss German.

Conclusion

Therefore, architecture is language. The syntactic proposition of a building can be analysed in terms of paradigmatic parameters, which reflect concepts we have learned. However, the categories are arbitrary and to some degree culturally different. A gourmet restaurant in China looks different from one in Europe. Neither is easily recognisable for the uninformed traveller. Furthermore, the code of architecture, as any other code, is stable only to a certain extent. Prototypical functions of structures may be extended and, with them, our expectations or mental images. In our time, this semiotic migration seems to be gathering momentum. Petrol stations provide everything for our most basic grocery shopping, while superstore chains offer banking services. In our paper, this migration of meaning has been illustrated by an empirical survey on the development of the mental bookshop concept. By applying methods developed in the social sciences, it was possible to gain scientifically grounded insights into the actual decoding of architectural messages. The results of this reception survey show that the modern prototypical bookstore contains a coffee shop, which – at the moment – should render a certain air of living-room comfort to remain competitive. The results have shown further that our expectations, or even the expected scripts and frames, change together with the architectural expression. Evolving beliefs, habits, values and needs of society, as well as developments in technology, stand in a mutually influencing relationship with the language of architecture and our decoding of it.

Despite Umberto Eco's essay *La struttura assente* (1968), the language of architecture has continued to be neglected. He suggests that we regard buildings as primarily functional and thus pay little attention to their messages. His assertion was and remains valid. Apart from the fact that we do not think about buildings in terms of communication in general, linguists have concentrated on other forms of communication and architects do not work with the concepts developed for analysing linguistic material. This disjunction leaves the semantics of architecture a hitherto (for the most part) unexplored field for linguistic research.

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