

Comunicaciones, semánticas y redes

USOS Y DESVIACIONES DE LA SOCIOLOGÍA
DE NIKLAS LUHMANN



Ignacio Farías
José Ossandón
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(Un-)Building social systems.
The concrete foundations of society

Michael Guggenheim

The man who is travelling and does not yet know the city awaiting him along his route, wonders what the palace will be like, the barracks, the mill, the theatre, the bazaar [...] In every city of the empire every building is different and set in a different order: but as soon as the stranger arrives at the unknown city [...] he immediately distinguishes which are the princes' palaces, the high priests' temples, the tavern, the prison, the slum [...] This is not true of Zoe. In every point of this city you can, in turn, sleep, make tools, cook, accumulate gold, disrobe, reign, sell, question oracles. Any one of its pyramid roofs could cover the leprosarium or the odalisques' baths. The traveller roams all around and has nothing but doubts: he is unable to distinguish the features of the city, the features he keeps distinct in his mind also mingle (Calvino 1978: 34).

Introduction

Italo Calvino's story above is a story about a fictitious ethnomethodological crisis experiment: What would happen if buildings ceased to be linked to their use, if they ceased to have meaning, and if

each building could be used to do anything?¹ Calvino's answer to the experiment is pessimistic: the visitor would be lost, in a deep sense. She would not get lost and find her way again later. No, she would never have any orientation, her environment would stop making sense. Italo Calvino's sketch of Zoe points to a crucial presumption of everyday experience seldom investigated in the social sciences: people read buildings as indicators of their social worlds, as machineries that enable these social worlds and they identify the social worlds with the buildings. Even the very words "mill", "theatre", "bazaar" denote at the same time buildings and organisations. It is linguistically impossible to separate the mill building from the organisation.

The crisis experiment demonstrates thus the following assumption of everyday knowledge: because people routinely identify buildings with organisations and assume that both are functionally clean and separate, we understand the story as a story about the matching of social uses and architectural forms. Furthermore, we assume that the buildings facilitate the very interactions and communications that take place inside them. The theatre enables the enactment of a play and the mill enables wheat to be ground. However, such an assumption runs counter to the social-constructionist assumptions of most social science by inducing a very specific form of architectural determinism. We are thus left with a rift between the counterfactual evidence of Calvino's story and the theories of social science.

In this article I discuss this problem with regard to two opposing theories –Social Systems Theory and Actor-Network Theory– and specifically with regard to their historical assumptions about the development of the relationship between buildings and society. I show that both, Social Systems Theory and Actor-Network Theory, encounter difficulties in conceptualising the relationship between buildings and society, because they cannot grasp what I call the quasi-technicality of buildings. Social Systems Theory (henceforth SST) sees buildings merely as projection screens for meaning,

¹ I would like to thank Jörg Potthast, Sascha Rösler, Monika Dommann and two anonymous editorial reviewers for their insightful comments on the manuscript.

whereas Actor-Network Theory (henceforth ANT) sees buildings as black boxes and technologies. Accordingly, SST sees a technological understanding as historically belonging to pre-modern societies whereas ANT sees a merely symbolic understanding of buildings as being part of an outdated version of modernity against which it sets its view of modernity as increasingly technological. My own notion of quasi-technicality highlights both a historical and theoretical alternative to these theories. Quasi-technicality assumes that buildings are different from "pure" technologies but also from pure artworks in the sense that they are *in some instances* technologies and in others they are not. It is the capacity of buildings to constitute not only a mixture of technologies and meaning, but also the capacity to acquire and lose these capacities. Instead of assuming simply an increase or decrease in technicality I track the status of buildings as quasi-technologies as observed by architectural theory, with the result that the history of buildings is a history of increasing and decreasing technological capacities.

The structure of social systems

The theory of social systems starts with the assumptions that "systems exist". Systems exist because they draw a distinction between themselves and their environment. The distinction is drawn by communication. It is the very act of drawing a distinction as a communicative act that creates a social system. Social systems come in different forms, differing historically but also on different levels. Luhmann differentiates between interaction systems, defined through the co-presence of alter and ego, organisational systems, defined through their decisions and membership and functional systems, such as science, law, religion, and the economy, defined through a binary code. Organisations and functional systems are both relatively recent inventions that designate modern society. Specifically functional systems replace the older stratified society and represent the structure of modern society. Functional systems operate alongside each other; they are, as are all systems in social systems theory, autopoietically closed systems. The binary distinctions of the codes are further elaborated with historically variable specifica-

tions called programs and a symbolically generalised medium of communication. For example in the functional system of science the code is true/false; a program might be a specific methodology to decide upon true/false and the symbolically generalised medium of communication is truth. Functional systems are thus nothing other than communications that operate along these codes. Society is built upon communication and everything else, including buildings, is external to society. The structure of society is an effect of communication, not of technologies.

Thus, in social systems theory, buildings hardly ever play a role². There is a theoretical reason for this lack which also results in an historical thesis. I will take up the historical thesis at the end of this paragraph and start with a discussion of the theoretical and methodological problem. Theoretically the problem is that SST is a theory of communication, and communication is generally understood as language and specifically as written texts. The problem of societal memory is a problem of the development of communication technologies and these are supposedly technologies of storing language in written form (Esposito 2002; Luhmann 1997: 580 ff.). The form of society correlates to the development of technologies, but these are only technologies of storing texts, not other technologies to store or stabilise other forms of meaning. This theoretical stance can be seen as a methodological flaw: since SST is a theory that uses almost uniquely written texts as material, it has developed no sensibility for other technologies or media of communication³. The idea of a social structure is based on the retention of historical semantics in texts and the possibility for society to revisit and change these texts. Writing is considered to be superior to interactions

² But see Baecker (1990; in print), and Ziemann and Göbel (2004) for two attempts at discussing buildings from a perspective of SST. Whereas Baecker in the older text mostly deconstructs architectural treatises in their attempts to find a unifying criterion for a definition of architecture, his second text is a full fledged attempt at a new post-Luhmannian SST. Ziemann and Göbel express doubts about the meaningfulness of any architectural theory under the guidelines of SST.

³ This is equally true for SST's treatment of technology, non-linguistic interactions (smells, touches etc) and pictures as forms of communication or as structures of society (not as objects of descriptions!). For one of the few exceptions see Kieserling fine grasp for interactions (1999).

because it makes the reception of communication independent of the circumstances of its production. The development of society is seen as a displacement of ambiguous and locally and historically bound forms of communication. Buildings, objects and interactions become theoretically and methodologically unimportant for a theory of society.

However, despite the seeming negligence, on the theoretical level some inroads have been made towards an inclusion of buildings into an SST in order to address the problem that linguistic meaning itself and specifically functionally coded communication is not as stable as it might seem. In a revealing passage on how observers can know which functional system specific communications belong to, Luhmann wrote:

In functionally differentiated societies the reference to different codings could provide an answer, but herewith, the problem of identifying communication is simply moved. There is a sense in which a topographical memory might help: We can distinguish schools and courts, hospitals and factories or offices (Luhmann 1997: 775).

As in the introductory quote by Italo Calvino, Luhmann mentions organisations that he identifies with buildings ("schools and courts") as materialisations of a topographical memory. To put it in a nutshell, Luhmann acknowledges that coding of communication is not apparent, but has to be explained and that for such an explanation *other* entities, functionally specified organisations that collapse with their built form, are taken into account. In other instances, he also introduces the "quasi-object", a term borrowed from Michel Serres for the objects of topological memory (Serres 1982): in Luhmann's definition, "quasi-objects" are a "fixation of meaning and proper form of things (houses, tools, places and paths or names or natural objects, but also people) to which communication can refer, without doubts about their meaning and use" (Luhmann 1997: 586). There are thus clearly some instances where buildings serve as stabilisers for society, and even as stabilisers for functional differentiation, but it is still unclear how this should be theoretically conceptualised.

We have three possibilities to understand these quasi-objects. The *first* possibility is to simply understand them as functional equivalents for other forms of communication. This is indeed the interpretation of choice in SST. Whether a communication is stabilised by coded language or by quasi-objects would not matter. Quasi-objects would then themselves be instances of communication. They would be substitutes for language. For example, the fact that an indication that this paper is a scientific communication should be made by writing the sentence "this is a scientific paper and it should be read along the code true/false" or whether this happens via the layout of the book cover and the availability of the book in university libraries would then be irrelevant. This would also explain the relative silence about these quasi-objects in the general apparatus of the theory. From the view of the hard core of SST as communication theory, this is maybe the most consistent view, but it leads empirically to dissatisfying results, at least until now, because the quasi-objects tend to be ignored in favour of the seemingly more interesting and clearer cut language. Any grasp of the empirical varieties of the millions of quasi-objects in society is lost⁴.

The *second* possibility consists in understanding quasi-objects as not being part of communication but as something to which communication *refers*, as in Luhmann's quote above. A quasi-object then would have no specific form that is related to any specific social form. It would stabilise communication simply through its temporal and formal stability. A building in such a view would then be understood as an object that is *used by communication*. SST would still be understood as a theory of communication. Quasi-objects would be outside of society and they would be results of communication's need for stabilisation. They would not interfere with society or functional differentiation in particular⁵.

The *third* possibility would understand quasi-objects as technologies. Then, quasi-technologies would have the power to

⁴ See for example how Ziemann and Göbel (2004), who embrace such an approach, struggle with this problem.

⁵ This is the approach of Baecker who introduces the difference of known/unknown as guiding communication in the city (Baecker 2004).

structure society without being used by communication. Such a view would entail that communication can be forced and structured through technologies. Communication would not only *refer* to the buildings, but the very form of the objects would *structure* communication⁶. As quasi-technologies, buildings would work as functioning simplifications (*funktionierende Simplifikation*) (Luhmann 1997: 524). Buildings would have the power to make interactions and communications predictable and controllable (Luhmann 2000: 370 ff.). For example, a university building would work as a technology in the sense that it allows a lecture, a specific form of communication and interaction, to take place at a given time and location. A designated lecture room makes it possible that professors and students gather, and a specific architectural layout and specific furniture (uncomfortable chairs with tables attached to them, overhead projectors etc.) makes a seminar possible.

I add a slight modification here. Buildings are not real technologies in the sense that they operate always as technologies; they do so only under certain circumstances. Conversely, buildings are not necessary to perform the communications and interactions that they intend to stabilise. It is not necessary to have a university building with lecture rooms to perform a seminar. Indeed, the seminar could take place anywhere. A lecture room can equally be used as a discotheque, a prayer room or a book-store. This is why I would like to call buildings quasi-technologies: buildings are technologies but only under certain circumstances⁷. Quasi-technologies are ubiquitous. They stabilize interactions, as well as organisations

⁶ Unexpectedly, Stichweh seems to take such a position, and even a stronger one, when he writes about the importance of space for society that people living close to shores are endangered by rising sea level, and follows that many "causal effects of spatial differences are independent of the fact whether society knows of them or puts them into effect by making them a theme of communication" (Stichweh 2000: 192). This is, after the hard-core social constructionism of SST, quite a surprising conclusion.

⁷ It could be argued that all technologies are quasi-technologies and that technology is an observer-dependent term. However, in the case of real technologies it is usually not possible to perform the operation without this technology (it is impossible to listen to a past concert without a phonograph). If real technologies are against their intended use, they loose their status as what they were invented for (a phonograph furling up wool is no more a sound device; a lecture room used as a discotheque is still a building).

and functional systems. The evolution of specific arrangements of quasi-technologies is possibly closely related to the evolution of new types of organisations and the evolution of functional systems⁸.

Comparing these three models of how buildings relate to the stabilisation of society, we can see that they move farther away from the core assumptions of the theory of social systems, by allowing other objects to assume the role of stabilisers of society. Furthermore, this model is inversely connected to the historical development that Luhmann relates of the importance of buildings or quasi-objects in general. For Luhmann, the historical development of society is paralleled with a development of his own social theory. The more modern the form of society, the more it resembles his basic assumptions about society in general. For Luhmann, buildings as quasi-technologies are only relevant for preliterate societies. Here, his "topographical memory" reappears, because he believes that preliterate societies need "places and buildings that enable and separate interactions" (Luhmann 1997: 586). In modern societies, with the invention of the printing press, texts become the most important medium of memory, which are flexible enough to allow for a more complex society. Texts replace clumsy buildings and society disposes of buildings as quasi-technologies. The memory of society is no longer dependent on communication and interaction in specific places, but it becomes widely available, distributed and changeable wherever a text can be read. Functional differentiation as a form of society is dependent on coded communication and not on quasi-technologies. The historical process of functional differentiation is a process of detaching communication from locally restricting quasi-technologies. The autopoiesis of functional systems is upheld by codes and not by buildings.

⁸ See for example Stäheli (2003), and more famously Michel Foucault's histories of dispositifs (1975), groups of quasi-technologies linked to discourses as a history of modernity.

Actor Network Theory and the increase in quasi-technologies

Whereas Luhmann offers a story of a declining importance of buildings as quasi-technologies, Bruno Latour offers in "We have never been modern" a history of quasi-technologies with the reverse development and the reverse theoretical prominence of quasi-technologies (Latour 1993). For Latour functional differentiation has never happened and quasi-technologies have become ever more important.

For Latour, society is always dependent on technology. Technology is exactly what constitutes the difference between a society built on interaction alone, namely the society of apes (or human society as misconceived by ethnomethodology) and human society (Latour 1986). Society is highly dependent on what Latour calls actor-networks, which are made out of quasi-objects; he employs Serres' term as well. Latour himself refers to quasi-objects to denote things, which are neither subjects nor objects, neither actors nor just non-acting things. Since this distinction is irrelevant for our present purpose, we can focus on the idea of a network. The network is a list of quasi-objects hooked together. The stability of a network is dependent on the ability to turn it into a black box. A black box is exactly the same as what Luhmann calls a technology: a functioning simplification. A black box renders the elements of a network invisible and intangible. Furthermore, for ANT, it is meaningless to separate theoretically buildings as objects of communication, buildings as parts of communication and buildings as quasi-technologies. Rather, the operation "or" is replaced by an "and", and every object and hence every building is always technology and communication, object and meaning. Network building then is the attempt to realign and stabilise a variety of objects through "and" operations. This understanding is derived from the methodological imperative "to follow the actors" (Latour 1987), and to take actors' understanding of the world as theoretically serious. If actors use buildings to structure society, if architects do indeed build universities with the belief that it will enhance teaching and research, for ANT this translates neatly into the theoretical statement

that buildings structure society. It follows thus that even in modern society, technologies of all sorts indeed do structure society, since this is what ANT empirically observes.

Historically this results in a reversal of the claims of SST. For ANT, the specificity of modernity then is not (as modernity and the theory of modernity of SST would have it) that it is less reliant on nature, on things, on quasi-objects and quasi-technologies. Rather, Latour claims, modernity is the process of becoming ever *more* reliant on quasi-technologies. It is the firm belief of modernity, and its most salient trickery, to believe that they, the primitives, mix subjects and objects, and that they believe in the fetishistic idea that society is stabilised by quasi-technologies whereas modernity does not⁹. The difference between modernity and pre-modernity is not only that the dependence of modernity on quasi-objects is stronger, but that it veils and denies this dependency. The obscuring of its own fetishistic set-up actually enables modernity to produce this strong dependency. Latour's theory is explicitly opposed to the idea of functional differentiation, because Latour believes that functional differentiation is itself a belief in an order that his networks criss-cross¹⁰. Indeed, functional differentiation according to Latour is undermined by the network: the process that looks like a process of differentiation on the level of communication is a process of increasing hybridity on the level of networks.

So far, I have shown two opposed but equally broad historical accounts of the importance of buildings as quasi-technologies. On the one hand, Luhmann believes that quasi-technologies were important for pre-literate societies, and became ever more unimportant thereafter, due to the prevalence of writing and its possibility for a functionally differentiated society. On the other hand, Latour

⁹ See Böhme (2006) for a history of the accusation of fetishism.

¹⁰ Latour shows a total lack of understanding of the idea of functional differentiation, when he identifies the existence of functional differentiation with the idea of control, as when he writes: "Instead of the surfaces so typical of first modernities [...] the separate and interconnected 'systems' so familiar to readers of Luhmann, where homogeneity and control could be calmly considered— we are now faced with the rather horrible melting pot so vividly described by historians and sociologists of science" (Latour 2003: 38). In fact, Latour, in his book, "politiques de la nature", develops a very simplistic idea of functional differentiation himself, that he anchors in professions (Latour 1999).

believes that quasi-technologies became ever more important and that it is the defining feature of modernity that it obscures this fact, meanwhile pointing an accusatory finger at the pre-moderns for their fetishistic belief in such quasi-technologies. Both of these accounts seem to be too simple and historically vacuous. Luhmann's thesis is too easily driven by the idea that writing makes all other quasi-technologies superfluous and therefore irrelevant. Latour's thesis is good as a provocation of the sociological mainstream, and its anti-fetishistic impulses, but it cannot account for the importance of writing as stabiliser of society, which is exactly what Luhmann observes. In any case, it is unlikely that society would follow such a simple path.

Architectural theory as history of a quasi-technology

In the remaining part of this article I would thus like to give an account of how modern society historically varies its dependence on buildings. For this reason, I will go, in a tour de force, quickly through the history of architectural discourse and look at how it relates to buildings as supports and stabilisers of modern society. To give such a more detailed account, it has to be made clear that this cannot be an account of how buildings "really" stabilise society. Society has always relied on buildings and buildings were and are always differentiated into different building types. The fact that a certain building has been built does not say whether the communication or interaction that took place there would not have taken place if the building had not existed. In fact, this is exactly my definition of a quasi-technology. The existence of a specific quasi-technology neither proves nor disproves the stabilisation of a specific form of society.

What I can do here is to look at architects' discourses on buildings and observe whether this discourse itself asserted such a stabilising function. I thus take the methodological imperative of Latour seriously by using the professionals' own theories about buildings as indicators for the relationship between buildings and society. I go through some seminal texts in architectural theory and analyze their conception of buildings with respect to society. I

observe whether buildings were seen as themes of communication, part of communication or technology.

Interestingly, the history of this discourse is not simply a history of never-ending architectural determinism, as a superficial understanding of ANT would have it. The history that I provide here starts with the invention of a strong belief in the stabilising function of building types at the beginning of the 19th century and it ends with the decline of this belief in the 1970s. I would like to make the following case: at a time when functional differentiation was still weak and had to be imposed on a society that had just invented and purified its functional systems, the reliance on buildings as quasi-technologies was high. These were then quasi-technologies as whole buildings. The theories of modern architecture then separated the shell from the interior of buildings and assumed that the interior could be completely technologized with the help of modern social sciences. In the 1960s in the wake of "the rebellion of the audience" (Gerhards 2001) the concept of the user as a creative actor was invented. This broke the power of the architect to control buildings and therefore buildings became de-technologized. Furthermore, the boom of phenomenology and semiotics removed the interest from the technological features and stressed the outside appearance of buildings. Whereas the invention of the user assumed that visual cues are relatively unimportant with regard to the technicity, the semiotic approach took the visual aspects to be everything and the interior order to be unimportant. By the 1970s, after a career of almost total technisation of buildings, buildings were left to be empty shells, only able to direct any cues about the society by means of their "meaning". Whereas the architectural theories until the 1950s closely resembled the idea of ANT, the architectural theory in the 1970s resembled Social Systems Theory, with the only difference being that the architects insisted that it is not the recipients and users who invest the meaning in the buildings but the architects themselves.

The invention of quasi-technologies in the 19th century

Before the French revolution, architectural theory considered buildings mostly with respect to their form, and buildings were categorized according to regional, historical and stylistic criteria. Churches provided the most important building type for such a theory. The question of what made a church a church did not appear before this background and thus not much thought was given to the relationship of buildings to society. Questions of style had no relationship to social categorizations.

With the French revolution all this changed. A whole apparatus of new terms and views emerged, all related to new problems posed by functional differentiation and their built containment. First of all, in the aftermath of the revolution each functional system had to be redefined and, specifically, its personal base was broadened. Instead of a king there were suddenly many local parliaments, instead of legal decisions by the court, there were now many courts. Schools and museums, theatres and operas for the bourgeoisie blossomed. For deviant people new institutions were invented: hospitals for the sick and asylums for the insane. Since the revolutionaries had to impose all these social forms quickly, the *conseil des bâtiments*, the building council of the revolution, could not stabilise these forms with new buildings, but resorted to conversions (O'Connell 1995). This meant that stylistic or formal considerations were of no use. Instead, the *conseil* advised its architects to reconfigure the interior of buildings with minimal costs – mostly by replacing and reorganising the existing furniture. Architects were "called upon to design in accordance with a highly specified written program, a preconceived set of functional requirements" (O'Connell 1995: 221). The *conseil* itself consisted of departments that were organized along typological lines too. The functional differentiation of the 19th century led thus first to a technologizing of the interior of buildings. They were increasingly categorized and thought of as types, loose forms that engender the functional thrust of their social function.

However, the development of these new organizations was also followed by the invention of new buildings. These buildings

were then seen as technologies to stabilise the respective organizations (Foucault 1994; Markus 1993; Vidler 1987). Such a multiplication of buildings led to a problem of how these buildings should be designed and conceptualized. The answer was found in a new way of looking at architecture. Derived from the biological classification schemes of Buffon, type as a blueprint for a horizontal classification of buildings became the foremost way of classification. For Quatremère de Quincy, who invented the modern discourse on type, type as opposed to the model "is an object after which each [artist] can conceive works of art that may have no resemblance. All is precise and given in the model; all is more or less vague in the type" (Quincy 1788-1828: tome 3, 544). A type, according to such a definition, allowed a specific view of architecture, in which social purposes related to functional differentiation could be condensed in a type. Such condensation allowed stabilisation and popularization of the new forms of differentiation without having to resort to detailed forms.

Popularization took place in the form of the invention of design manuals, such as J. N. L. Durand's "Précis des leçons d'architecture" (Durand 1821). Here, buildings were composed from parts such as columns, floors and roofs and categorized into a plethora of types. A building type in this sense became a specific assembly and arrangement of building parts to stabilise specific social functions. Stylistic and regional versions became secondary. Banks, theatres and courts were now exactly those "vague" types that could be built by any architect. The design manuals also reacted to the problem of multiplication of types and their standardisation. At a time when new building types constantly emerged and had to be replicated country-wide, design manuals could stabilise the recently invented types.

Types at least in part still referred to the outside of buildings and shared with (utopian) revolutionary architecture a preoccupation with serving as stabilisers of a topographical memory with their façade. With Durand, architectural theory arrived at a point where buildings were quasi-technologies and parts of communication at the same time. Their facades were part of communication to be recognized as types for topographical memory and their inside was

technical, because it would stabilise functional systems. Buildings thus neither matched Luhmann's nor Latour's theory but rather combined them. They were thought of as communicating and stabilising society and they were explicitly thought of as doing this with regard to a functionally differentiated society, with building types relating to functional systems.

Hollowed out types and the turn to technology

The early importance of typological thinking remained popular mostly in design manuals. They remained indispensable to the practice of architects and were refined. The world's best-selling architectural book, the design manual "Neufert", originally appeared in 1936 (Neufert 1936). Here, the technological logic of typological thinking came to the fore. Whereas Durand was still occupied with the form of buildings as rooted in architectural history, Neufert considered each building type to be a technological assemblage of different rooms related to different functions, and nothing else. The work of the architect consists in analysing and decomposing these functions. An "administrative building", then (the example Neufert uses to explain the working of his book) consists of offices, a meeting room, a kitchen, a refectory etc. For each of these rooms and many more, the book contains details about their necessary size per person, its optimal shape, its acoustic necessities, the arrangement of furniture etc. The only organisational principle of the book follows this typological technology. A building is a type and a type is a bundle of technologies to allow the performance of specific interactions. The architect then needs only to arrange the rooms by taking into account the "demands of the landscape and the current lifestyle" (Neufert 1992: ix). In short, the work of the architect is to translate the necessities of social functions into building types. Building types, in turn, are assemblages of specified rooms. The outer shell, the form of the building is freed from typological considerations. It is left to the architect to design it according to his wishes.

From type to function

This radicalization was squarely in accordance with the advent of modern architecture. However, whereas in the 19th century the need to technologize buildings mostly arose from the historical situation or was developed by reformers and engineers, with the advent of modern architecture such technological ideas arrived at the core of architectural theory. Terms such as “functional”, or “*Zweckmässigkeit*” and “*Sachlichkeit*” in German, became central to architectural discourse. What had previously been an attempt to accommodate new exigencies of functional differentiation into building types now became a normative claim as to what buildings should do: they should not represent ancient societal orders, they should not display the financial potency of their builders, they should not flatter the eye with *décor*. They should only be “functional” for the new, modern life. Impressed by the successes of engineers and industrialists in mechanizing many tasks, these ideas were translated into architecture.

Since the outside of buildings was mostly irrelevant for these tasks, they were now used to display the modern lifestyle by imitating the symbols of progress, namely ships, cars and airplanes. Even though the facades of the new buildings were those parts that drew the most reaction from the public, for the theory of “function” they hardly mattered. Instead, the term “function” became narrowed down in various ways. Although the term “function” itself has no referent, indeed, it is the thrust of the term that it is relational, in architectural discourse, the term functional increasingly meant: minimal requirements of materials to perform a specific, and unequivocally designed use. An extreme case is provided by Hannes Meyer, the Swiss architect and head of the Bauhaus, who wrote in a programmatic text entitled “building”: “all things in this world are a product of the formula: function multiplied with economy” (Meyer 1928).

Meyer opposed the term function to art and form: “all art is composition and therefore non-functional” (Meyer 1928: 12). The bypassing of art and form was supposed to happen by “researching the everyday life of each occupant of a house and this results

in a functional diagram” (Meyer 1928: 13). He postulated that such a functional diagram would result in a building that is adapted to support these practices or, as K. Michael Hays called it, commenting on Meyer’s “*Bundesschule der ADGB*”, a building would now be “an apparatus for the production of events”, in short: technology (Hays 1992: 136). Furthermore, Meyer introduced the idea that functions (of society, not of a building) could be counted and listed, and that each building therefore could be designed from an addition of functions. He enumerates twelve functions, from “sexual life” through “hygiene” to “car maintenance” and called them the “exclusive motives of house-building”. The architect becomes thus the translator of these functions into a building: “The architect? [...] was an artist and becomes a specialist for organisation” (Meyer 1928: 13). With Meyer, buildings became indeed technologies: At the disposal of the architect there existed a society, which could be analysed by means of social science. Such an analysis would lead to a well-defined list of functions, which would have to be adapted to the local situation, the number of people it was designed for, etc. Buildings were not only technologies, but all these building-technologies could be built from a well defined set of functions.

In contrast to the earlier focus on building type, Meyer did not refer to a whole building. Rather, the whole process of building was exactly a process that turned activities into buildings, without any reference to a whole. The buildings became an outcome of the activities, rather than predefined types to house the activities. The listing of types was replaced by a listing of functions and these listings were narrowed down even further. Le Corbusier in his Athens Charter dating from 1943 developed four functions (living, recreation, work, traffic) of which a city consisted and he argued that city planning can be reduced to an identification, separation and ordering of these four functions (Le Corbusier 1943). At this point architectural theory mirrored the ideas of a primitive differentiation of society spatially. Society was imagined as consisting of a few basic elements on the level of socio-cultural practices and these were mapped onto buildings and the organisation of the city. Buildings were technical, but they were very primitive networks, consisting of only a few elements that amount to only a few tasks. The outside

of the buildings hardly mattered as topographical memory; they were now turned into indicators of the general status of society.

Meyer's and Corbusier's theory had a precursor in social science. Georg Simmel described in "*Über räumliche Projektionen sozialer Formen*" that the most important "*Vereinigungen*" (communities) in society, such as the family, the university and the religious community, have their "own house", which projects the idea of their respective community (Simmel 1993: 209). He set these communities relying on houses in contrast to mere interaction-based social forms such as friendships or groups. Simmel arrived at an important historicising conclusion: the projection of social forms on the building is a sign of the *weakness* of the group which inhabits the building. Because the group is not yet consolidated, the house takes over this task (Simmel 1993: 212). Resuming Simmel's explanation, the attempts to technologize modernity into buildings and spatial differences by Durand, Neufert, Meyer and Corbusier can be taken as a sign of the weakness of the particularly modern (in the double sense of new and referring to the social formation of modernity) forms of society that they attempted to technologize. The modern architect was the professional who stabilised the yet nascent form of modern society.

The collapse of buildings as technologies

Le Corbusier's and Meyer's technologizing of buildings was a high point¹¹: buildings could become real technologies for architectural theories by the institution of the architect as expert. It was the architect, with the help of social science, who was supposed to have the power to extract functions from society and implement them into buildings. The narrowing of functions and the technologizing

¹¹ Adrian Forty, in an book chapter on the career of the term "function" in architectural discourse highlights that a proper theory of functions did not exist before the second world war and developed only as part of the demise of modernistic architecture (Forty 2000: 174). He is correct as far as Meyer and Corbusier wrote –often highly vague and contradictory– pamphlets and manifestoes and never formulated elaborate theories. But parts of the manifestoes were clear enough and were henceforth also understood in the way outlined above, even if they contained a wealth of other and contradictory views.

of buildings was a correlate to the expertification of architects, who became artists disguised as social engineers. The difference between the expert and the lay people, between the architect and the inhabitant, now meant that the former built technology and the latter was supposed to use it by way of obeying the inbuilt intentions. If the users did not follow those inbuilt intentions, it was hardly noticed by the architects or the social scientists they relied on. Even if the latter did notice¹², they did not change the technological setup of their theories. For Meyer, Corbusier and Neufert, as I showed, buildings were black boxes. The architect was the network-builder. He had power and the inhabitants and users were enrolled in his network. Each building was exactly matched to its social use, and these uses were themselves technologized, since they were identified, discerned from other uses and enumerated.

This view of buildings changed steadily after WWII. Rather than chronologically narrating this collapse, I would like to point out the theoretical changes that emerged. First of all, the very idea of the term function as a technological term collapsed. The limiting and numbering of functions seemed inappropriate. A strand of architectural theory, while still adhering to a technological idea of function, but relying on the recent theoretical inventions of systems theory and cybernetics, extended the number of functions again. For example, Christopher Alexander wrote in "Notes on a Synthesis of Form": "Today functional problems are becoming less simple all the time" and he saw designers "unable to solve" these complexities because they would always fall back on an "arbitrarily chosen formal order" and "often develop one part of a functional program at the expense of another" (Alexander 1964: 1, 29). He thus attempted to solve the problem in two ways. First, he dismissed the positive definition of a building as a real technology, by which architects could control users, and replaced it with the negative one.

¹² For example Ludwig Neundörfer commented on Margarete Schütte-Lihotzky's famous Frankfurt-Kitchen, for which extended sociological research was pursued: "The 'neues Bauen' promises functionality, simplicity and openness to the environment. It lacks tradition and therewith the familiarity with the ways of living of the inhabitants. Thus a lot of experimentation and calculation is necessary [...] But the people who move into the flats have different routines" (Neundörfer 1931: 54).

According to Alexander, it is only possible to observe, if a building does *not work as a quasi-technology*, that a “misfit” between the built environment and interactions exists (Alexander 1964: 23).

Second, he reversed the idea of reducing the number of functions. He proposed to analyse and decompose the social situations for which a specific design solution should be found in a tree-like hierarchical structure and to compose a building from the resulting diagram. He also developed a computer program called HIDECS to automate this task¹³. After having revoked the still hierarchical structure of the tree, in a later book “A pattern language” (Ishikawa *et al.* 1978) he and his co-authors developed a method to assemble any building from 253 basic patterns. Each pattern related an interactional or physical feature to a building part. A building could thus be assembled by adding up all the interactions that were supposed to take place in the building and relate them to their building parts. Thus, he reversed the notion of function: rather than subjecting society to a limited number of functions it was now decomposed and multiplied: each social situation could be technologized by a building that mirrored its parts. Instead of relating single buildings to a few predefined patterns (living or working) as Corbusier and Meyer did, Alexander acknowledged the inherent complexity of social situations. Furthermore Alexander reversed the hierarchy of the situation and the building. But the technological imperative remained, as for each interaction a material correlate was postulated.

Alexander’s theory could be described as an architect’s version of ANT. Society is an undifferentiated and almost nondescript amalgam that works best, if technological stabilisation is as fine-tuned to its various situations as possible. Each building is an actor-network, carefully assembled to stabilise whatever the architect foresees. But the very foundation of technologizing social situa-

¹³ Alexander was by no means the only architect who sought to automate the process of decomposing social situations and finding building forms for them with the help of computer programs. For a contemporary overview see Cross (1977) and for an historical account Keller (2005). However, not all architects shared this technological view of computers. Nicholas Negroponte urged from early on that computers should serve to design as a creative act, and not to optimize the fit of buildings (Negroponte 1970).

tions came under attack. Joseph Rykwert showed that even for the simplest task, sitting, no optimal solution could ever be found, not only because of the different sizes of people, but because the very idea of a comfortable sitting position and therefore a comfortable chair varies historically and culturally (Rykwert 1969). Thus, the very idea of fit or unfit had to be questioned. Then, on another level, Aldo Rossi in “The Architecture of the City” criticised “naïve functionalism”, as he called the belief that functions define forms, which he attributed to a misunderstanding of its roots in physiology. Instead, he argued that functions of buildings might change or that some buildings did not even possess functions (Rossi 1982: 46 f.)¹⁴. Instead, he reintroduced “type” into architectural discourse, but this time, he stripped type from all technological content and linked it to form only. The pivotal point of Rossi’s type was that the city should be perceived as a historical continuum with an identifiable and familiar form derived from historically established types, no matter how these types were used. The invocation of type therefore lost all connections to actual technological uses and related type to historical ones only. Robert Venturi in “Complexity and Contradiction in Architecture” added a book-length argument by pointing out that the reference between material form and physical or social function might vary, and that thus the same material part may perform several, even contradictory functions (Venturi 1966).

The critique of the vagueness of the referent and its material correlate remained not only a critique but was taken as a positive theory of building. Instead of developing buildings where each building part performs one social function, buildings should now perform several functions, and were therefore called multi-purpose buildings (Wild 1970; Zeidler 1983). Furthermore, a new sociology of architecture criticised the underlying idea of “hard” or “tight space” (Sommer 1974). Buildings were seen as “hard” technologies that imposed their functions on users with often devastating consequences for the latter, as in the case of prisons or office buildings

¹⁴ Biologists themselves in turn criticized the stable match of functions and structure, using the spandrels of San Marco, an architectural element, to disprove biological theory (Gould and Lewontin 1979)! (I wish to thank Jair Stern for referring me to this text).

with ventilation, lighting and entrance control beyond the control of inmates. In its place, Sommer promoted "soft spaces" that should not direct and force users to behave in specific ways.

All these attempts loosened the relationship between the buildings and their social correlates, by weakening and multiplying the functions. But they still relied on a conventional view of the network. It remained the *architect* who implemented the functions into the technology with the only difference that a much more pluralistic view of how this takes place prevailed. Even a multi-functional building implied that some identifiable functions existed and that the architect would optimise their respective performance. What the theory arrived at so far, was a sort of ANT with a very flexible or rather imprecise and weak network, a network, where the network-builder could no more determine, but only hope, for a good result. Or, from the view of systems theory, we could argue that architectural theory insisted on technological stabilisation but stopped identifying single buildings with functional systems. Instead, it saw buildings as technological forms to integrate diverse functional systems under one roof. In any case, buildings did not serve as stabilisers of topological memory¹⁵.

The turn to interaction and the invention of the user

Quite astonishingly, up to this point, architectural theory assumed that buildings operate as technology –without taking into account that technologies have to be operated. Parallel to the dissolution of the uniform term function, the idea of buildings as technologies became criticised from another angle: the invention of the user. The invention of the user stands in close connection to the boom of a notion of creative action and to a general move from experts to lay people in many functional systems (Gerhards 2001). Whereas until the 1960s professional discourses operated without any interference and even any recognition of an audience for their "products" this now changed radically. Self-help groups

¹⁵ For a similar description of architecture see Ziemann and Göbel (2004) and Ekardt (1994).

started to bypass doctors and in the arts, community arts centres were invented, where non-professional artists could create artistic products. In the case of architecture, the invention of the user led to a reversal of architectural theory.

Until the 1950s and including the attempts at computer architecture, any invocation of the user referred to a potential user, in the sense that this user, even if he was observed sociologically, was the user, *before* she inhabited any real building. Even though buildings were supposed to be made for users –often modelled as an abstract standard of modern man– scant thought was ever given to who these users really were and how they use buildings. Probably the first to overturn this approach in the late 1950s were the "situationists", a mostly French group of artists, architects and activists. Their primary move consisted in analysing the city as a field for action and thus buildings as objects that they, the situationists, acted upon, and not vice versa (Sadler 1998). The most important terms for the movements in the city were "*dérive*" and "*détournement*", the unguided strolling around and misuse of city infrastructure. The situationists took their vantage point partly from empirical analyses by the French geographer and sociologist Paul-Henry Chombart de Lauwe, who empirically studied movement in the city (Chombart de Lauwe 1952); an exchange at the time when interactional sociology and architectural theory began to influence each other¹⁶.

The new focus on sociology also led to a new type of study: the analysis of the interaction between users and the buildings they inhabit. The most shattering of these works was probably Philippe Boudon's "Pessac de le Corbusier", if only because it had such famous buildings as its object of study (Boudon 1969). Boudon interviewed inhabitants of the housing estate close to Bordeaux designed by Le Corbusier as the epitome of his theories. He showed that the inhabitants changed the houses in almost all respects,

¹⁶ For example, Goffman's book "behaviour in public places", the second book of Goffman translated into German, appeared in Germany as part of the series "Bauwelt Fundamente" (Goffman 1971), a well known series on architectural theory, where, for example, Corbusier's "vers une architecture" appeared.

changing the flat roofs to pitched roofs and the ribbon glazing to normal glazing, making them effectively statements against the theories of the architect. Furthermore, Boudon interviewed other architects and showed that they knew nothing about the reality of the housing estate but instead replicated the theoretical views of the master builder.

The empirical acceptance of the difference between professional and non-professional ideas of buildings also meant that each of these views on buildings was now taken seriously in itself. The link between the *intentions* and ideas of the architects and planners, the built *objects* and the *cognition* of these objects by users, was broken. The new sociology of professions could portray architects as just one professional group with a specific ideology regarding buildings (Lipman 1969). Buildings were no more technologies, but objects that were experienced, cognized, and interpreted. The founding of the Environmental Design Research Organisation marked a vantage point where philosophical, anthropological, sociological and psychological studies flourished and were brought together, that focussed on the cognition of buildings rather than the buildings themselves, since the buildings had suddenly lost their unambiguity (Sanoff and Cohn 1970).

The break between the professional and lay cognition of buildings became further aggravated through the parallel rise of architectural anthropology, and the interest in "vernacular architecture" or what became known as "architecture without architects" (Rudofsky 1969). How was it possible that in cultures *without* the role of professional architects and without a tradition of "high" architecture, buildings functioned perfectly as technologies for the people that used them? As Robert Goodman pointed out in his critique of modern planning "After the Planners", "the primitive people" could serve as an exemplar: "There is a striking evidence in looking at what we tend to call primitive cultures that people are indeed capable of making more personally meaningful connections with their environment" (Goodman 1972: 239). Modern architecture was stripped from its unique capacity to develop a technology that relates to the form of society and the case was reversed: modern architecture turned out to be incapable of this task and the

primitives, without a proper theory of architecture, and without even being able to produce real "architecture" as opposed to mere "building", as the conventional stereotype has it, could produce "more meaningful connections".

In terms of ANT, Latour's theory of modernisation was given an ironic twist: yes, the moderns might have very complex networks, but from the view of the critique of planning, these networks were of no use at all, they were misconceived, ill-constructed and unstable. The networks did not fit the uses. The pre-moderns on the other hand, had only the simplest huts, i.e. very simple networks, that they could build, but these huts, marvellously, proved to be better-suited technologies. The recognition of the user had obvious repercussions for the architects themselves. If the users' autonomy and power is taken into account on the level of the building process itself, then what should the architect do? How could the architect find a form for the unruly user, if the latter hardly ever shared and much less followed the carefully inbuilt intentions of the architect?

In 1964, the British architect C. P. Price developed the unbuilt "fun-palace", an open steel structure, and he gave the following advice for prospective users:

Choose what you want to do—or wander around doing it. Learn how to handle tools, paint, babies, machinery or just listen to your favourite tune. Dance, talk or be lifted up to where you can see how other people make things work. Sit out over space with a drink and tune in to what's happening elsewhere in the city. Try starting a riot or beginning a painting or just lie back and stare at the sky (Price 1984: 58).

The manual for the fun palace probably marked the high point of loosening the ties between the architects' technological pretences and the user's implied autonomy. The architect, now stripped of his powers, remained with nothing else to do than to consider his buildings as nothing but pure (and necessarily also accidental) masses of material, without a determinable link to how they would be used. Architectural theory arrived at a strict Luhmannian, social-constructivist point. The architect's task is to build, but to try to relate the

building to any preconceived social situations is meaningless. Any belief in relating the differentiation of society to specific buildings is mistaken. Interactions, as social systems with their own order, are much too unpredictable to be stabilised by buildings.

Changing Roles

Another route out of the problem meant shifting the power of determining the technicity of buildings from the architects to the users themselves, not only during use, but already in the planning process itself. If the cognition of buildings differed so much between professionals and lay people, and if the modernistic claim was taken seriously that buildings should be technologies for enhancing the interactions of the users, then, it was assumed, the views of lay people should become part of planning too. This resulted in what became known as "participative planning". No longer were the architects those who knew what is best for the users, but the users themselves. Even though participative planning historically went hand in hand with the invention of the user, its assumptions were (necessarily) again more technological: the failure of traditional modern architecture, the participationists reasoned, was not its assumed technicity but the wrong knowledge of the architects, and their "distancing [...] from the real context of society" as De Carlo termed it in 1970 (De Carlo 2005: 7).

In participative planning the autonomy of users was taken seriously and it was combined with a technological theory of architecture. Thus, buildings had to be developed by and with the users, and most importantly, they had to adapt to the users' changing lifestyles. Time became the most important factor. Planning did not end with the built house but became an ongoing *process* (Burckhardt and Förderer 1968), concentrated around the actual users and their needs. Buildings thus had a biography that should be determined by the users, at the expense of the planner. A building should be an adaptable technology. It should stabilise specific social uses, but it should not stay stable in time, but rather follow the path of these uses.

The participative method and the focus on the user remained a short episode in architectural thinking. It remained a task

related to the emancipatory avant-gardes. It disappeared because the building business could hardly deal with the implications of long-term evaluation and change of building and because, taken seriously, the focus on the user undermined the status of the architectural profession too much, in a time when it was endangered by a scarcity of jobs and the danger of losing out in the building business against other professions.

Architecture as Medium

The focus on the user implied that in order to operate as a technology, a building had to be *understood* and *accepted*. This helped to shift the focus from technology to semiotics and phenomenology in the 1970s. Thus, instead of asking how a building would support specific social situations the question became how people felt in buildings and how buildings were (usually visually) perceived in their different qualities. The problem, the analysis assumed, did not lie in the failed technicity of buildings, but in the assumption that buildings were seen from a technological viewpoint at all. Renato del Fusco termed architecture to be a "mass medium" that lacks semantic content and that undergoes a crisis of language (Fusco 1972). Compared to other mass media that were only recently invented, he concluded, buildings have always existed, but were only recently *discovered* as being mass media (Fusco 1972: 70). Buildings became now a "logotechnology", a "means of communication between social groups" (Fusco 1972: 20). Buildings should thus be judged and built according to their "symbolic, mytho-poietic and religious meaning", which he explicitly did not understand as the values that art history has employed, but as the values of the majority of the population (Fusco 1972: 106).

Obviously, and Fusco saw this very clearly, a semiotic approach to buildings would by no means necessarily result in such a normative stance. But as with all of the previous theories too, the analytical tools were confounded with specific architectural solutions, and this time the solution became known by the term "post-modernism" (Jencks 1977). Semiotics as applied to architecture came to mean choosing between the two ways identified by Robert

Venturi in which Las Vegas-architecture worked: one would either build a "duck", a building that *looked* like a sculpture indicating its contents, or one would build a "decorated shed", a box-shaped building with a (neon-) sign that gave a linguistic description of its contents (Venturi *et al.* 1972). In any case, a building as technology lost all its importance, the only thing that mattered were the semiotic traces that indicated what the building would contain. Semiotics did not remain an approach to interpret *any* building but it became a means to replace the technological imperative with signs. Whereas buildings for the modernists were proper technologies, the unbuilding of these technologies left them as signs. Society would no more be structured through buildings. For architectural theory, buildings lost their technological force completely, be it for the architects or for the users. Instead, the buildings were now conceived as mere indicators for the social practices taking place inside, without any ability to structure these. Architectural theory now matched Luhmann's idea of topographical memory. Buildings would not structure society, they would not be technical but they would merely serve as a "fixation of meaning" and as a way to guide communication. They would do what a visitor to a foreign city is looking for.

Conclusion

In this article, I have tried to elucidate the relationship between buildings and the structure of society. My aim was to start with two different approaches in sociological theory. Starting with the theory of social systems I highlighted that its predominant concern with communication leads to a theory of society in which buildings as stabilisers of society are ignored. I showed some inroads for linking buildings to society by pointing to Luhmann's problems in finding a solution for how functional systems know their code and discussed three modes of accounting for buildings: buildings as themes of communication, buildings as media of communication, and buildings as technologies. I showed that buildings are not proper technologies, but can be seen as quasi-technologies; objects that under specific circumstances assume the properties of

technologies. Historically, Luhmann believed that the reliance of society on buildings constantly diminishes. Against this, I contrast the view of ANT. According to ANT it is exactly quasi-technologies that structure society and indeed society is ever more reliant on quasi-technologies.

I proposed an analysis of architects' theories of buildings as stabilisers of society. In a tour de force of mostly twentieth century architectural theory, I showed that both Luhmann's and Latour's grand historical schemes do not fit this history. The stabilisation of buildings for society is neither simply increasing nor decreasing. Rather, it was invented at the beginning of the 19th century and increased until the 1950s when it sharply decreased. In the history of modernity, buildings first gained enormous powers for stabilising society and subsequently lost this power almost completely. To trace such a historical development I proposed the notion of quasi-technology. The notion of quasi-technology allows one to see not only how buildings were turned into technologies, as ANT would observe it, but also how buildings were unmade as technology. How does this history relate to Italo Calvino's ethnomethodological literary experiment? Has Zoe become an epitome for our cities?

Today, the city of Zoe is not uncommon but we are never lost. Not because we are all inhabitants of Zoe and thus need not know the city, but because we have become strangers everywhere and because we have become accustomed to a feeling of semi-orientation in the maze of quasi-technologies. We do not know any longer whether we should follow the written signs or the forms of buildings, whether we should trust the furniture and small technological devices or the answers of the locals.

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