

# 1. Architectural Theory

Today a systematic theory that claims to encompass the totality of an extensive field like architecture might seem somewhat anachronistic. Such a claim certainly distinguishes the theory proposed here from all other theoretical efforts that circulate within and around the discipline. Obviously such a claim presupposes that there exists a phenomenon called architecture that is sufficiently cohesive to allow for a general, systematic treatment.

The theory of architectural autopoiesis argues that it is not only possible to describe architecture as a cohesive entity from the outside, but that architecture as a system of communications has *itself* maintained and strengthened its cohesiveness by means of architectural theory, and can be expected to do so in the future. Architectural theory is an indispensable, inextricably involved dimension of the autopoiesis of architecture. Theory is an essential ingredient of all architecture. The architecture we practise – at the level that we practise it today – was only reached with the aid of theory. This does not imply that all architects must be architectural theoreticians. Most might never have read any theoretical book, and only a few write theory. But all have to argue and explain themselves in presentations and in explanatory texts that must accompany competition entries or the publication of their works. The theoretician's theory succeeds when its guiding premises, conclusions and turns of argument diffuse into the ongoing autopoiesis of architecture.

## 1.1 The Unity of Architecture

### THESIS 2

**There exists a single, unified system of communications that calls itself architecture: World Architecture (the autopoiesis of architecture).**

The assumption that a term or title like 'architecture' denotes a cohesive unity is far from self-evident in an intellectual culture<sup>1</sup> that has internalized the insights of Post-Structuralism. The theory of architectural autopoiesis is built upon the premise that 'architecture' indeed denotes a

<sup>1</sup> For instance, this possibility has been negated by Reinhold Martin: 'We cannot universalize any single, historically or culturally specific set of disciplinary practices under the heading "architecture"', Reinhold Martin, 'Moment of Truth', in: *Log* 7, Winter/Spring 2006.

cohesive entity. Architecture does exist. It is a phenomenon of recursive social communication with real internal unity. This is not only the a priori stipulation at the beginning of the theoretical edifice to be developed here, it is also the conclusion of the accumulated experience of an architect working for 20 years in many different countries across the world, collaborating with local architects, lecturing, discussing and meeting the local representatives of world architecture. The shared conceptual foundations and shared paradigmatic reference points allow us to connect to any architectural communication, to join any architectural debate, anywhere in the world, notwithstanding the existence of sharp differences concerning the current state and outlook of where architecture should be heading. Different styles and 'ideological' positions are expected and fought out within a single discourse and are not markers of discursive fragmentation. This sense of an integrated disciplinary platform of understanding – despite diverging stylistic and ideological trajectories – is further corroborated by teaching Master's degree students with a prior architectural education from all over the world.

Contemporary institutions like the Venice Architecture Biennale, and the enormous number of mostly non-partisan architecture magazines are as important indicators and active factors of this disciplinary unity as are universal reference points such as Mies, Corb, Gehry, Koolhaas and Hadid. Key writings also play a crucial role, such as Corb's *Towards a New Architecture*, Venturi's *Complexity and Contradiction*, Koolhaas's *Delirious New York*, Frampton's *Critical Regionalism*, Peter Eisenman's writings, as well as (more recently) Greg Lynn's and Jeff Kipnis's writings. The influence of such writings as key references does not rely on the assumption that every architect can claim full first-hand readings of these texts. It suffices that the key concepts and tenets formulated in these key texts filter through and are appropriated by the active players within the discipline.

#### 1.1.1 ARCHITECTURAL SYSTEM-FORMATION AND SELF-REGULATION

It is the total mass of architectural communications – to the extent that it forms a system – that constitutes the ongoing autopoiesis of architecture. The stream of simultaneous as well as successive communications constitutes a system to the extent that these communicative events have the potential to refer to each other, either directly or indirectly, mediated by focal reference communications like paradigmatic architectural works and texts. A network emerges through the assemblage of chains, through

cross-referencing, and focal points that are recursively revisited and reinforced. Routine procedures, lead-distinctions, focal concepts and well-trodden paths of argumentation crystallize into stable conceptual structures that order and channel the further flow of communications.

Architecture, like all the other subsystems of society, has developed its own reflective, regulative mechanism, namely architectural theory that filters, selects and refocuses architectural practice and thus facilitates the unity of architecture. Architectural discourse maintains the unity of architecture by continuously distinguishing architecture from neighbouring domains.<sup>2</sup> The discourse thus protects the integrity of architecture by means of boundary management, denouncing incursions from neighbours such as engineers and artists who threaten to invade and blur the boundary and distinctiveness of architecture. The discourse also polices against unsustainable overextension of architects into alien territory. The construction of unity always demands both – the intensification of internal communications (via focal points) and external severance.

The theory of architectural autopoiesis endeavours to describe architecture as unified system. Within an academic, intellectual climate where the presumption of irreducible multiplicity trumps the concept of unity, a theory that starts with assuming the cohesive unity of a system of communications might be viewed with suspicion. The same current climate that assumes multiplicity also clamours for the overthrow of the division of labour into specialisms. Specialization is indeed the only chance to achieve cohesion, ie, cohesion within the specialist domains. The alternative is an unstructured, continuous field of intertextuality and multiplicity. The impression (and programme) of open intertextuality is produced and promoted in a rather particular (and itself circumscribed) domain: philosophy. In the context of the proliferation of specialized discourses, philosophy has assumed the function of tracing, comparing and abstracting the most basic conceptual schemata and types of reasoning from the various specialized domains to facilitate their dissemination *across* those specialized domains. Philosophy has thus become a kind of circulation system for abstracted paradigms.<sup>3</sup> This function explains the ideological overemphasis on intertextuality that originates within philosophy.

<sup>2</sup> See below: section 2.5 *The Necessity of Demarcation*.

<sup>3</sup> This function implies a potentially universal interest in philosophy and explains the extraordinary print volumes achieved by key philosophical texts.

While open, freewheeling communicative patterns have been widely promoted, I argue that these ‘tendencies’ are an ideological myth rather than an effective reality. The fact is that the autonomization of discourses continues unabated.

The theory presented here begins by grasping and appreciating the pervasive *reality* of the great, stable distinctions/unities that continue to structure societal communication, and emphasizes the virtues and proven achievements of differentiation and autonomization. Autonomization is a precondition of cohesion and unity within the various societal subsystems.

Architecture is an autonomous subsystem of modern society and will be explicated as an ***autopoietic social system***, ie, as a *self-referential system of communications*, differentiated with its own peculiar *operative mechanisms, discursive structures and reflective self-descriptions*.

Every architectural theory is describing architecture in order to steer architecture. The theory of architectural autopoiesis starts with the thesis that this steering effort is not a supplement but rather an indispensable component of architecture. Architecture is neither simply given as a class of objects (buildings), nor simply given as certified profession.

‘Architecture’ is a value-laden term, it is deployed as an honorary title, and is as such contested. Architecture’s essential content is being fought over. The distinction and recognition of a class of artefacts as works of architecture is a contested field, laboured upon by architectural theory. The question at any time is: who can act in the name of architecture?<sup>4</sup> Who is producing the most compelling statements concerning its direction?

Architecture exists only in symbiosis with theory as its ‘steering mechanism’. Tschumi put it bluntly: ‘... architecture does not exist without texts’.<sup>5</sup> It is only in conjunction with anticipating and/or validating texts that original projects can hope to become communicative pivots that start to forge the styles through which the discipline progresses and regulates itself.

## 1.2 The Evolution of Architecture

### THESIS 3

**Architectural theory effects an immense acceleration of architecture’s evolution.**

<sup>4</sup> The author owes this insight to Mark Cousins, who emphasized this point in one of his lectures at the AA in London in the late 1990s.

<sup>5</sup> Bernard Tschumi, ‘Architecture and Limits’, in *Artforum* 19, no 4, December 1980, reprinted in: *Theorizing a New Agenda for Architecture*, Kate Nesbitt (Ed), Princeton Architectural Press (New York), 1996, p 52.

Architectural theory unifies and stabilizes architectural practice. In its written, theoretical treatises an architectural practice fixes its premises, values, turns of argument and conclusions. In this explicit form – open to everybody's inspection and reflection – architectural theory exposes itself to criticism and further dialectical evolution. As an invitation to criticism, theory thus becomes an engine for the progressive transformation of practice.

### 1.2.1 ARCHITECTURAL THEORY AS MECHANISM OF SELECTION

The evolution of the discipline might be theorized in analogy to biological evolution. This is what Niklas Luhmann proposes with respect to the development of social systems in general and with respect to the development of the functional subsystems of society in particular. Luhmann theorizes the historical development in close analogy to the theory of evolution and identifies a key condition for the take off of accelerated evolutionary processes: the ***differentiation of the evolutionary mechanisms*** of variation, selection and retention. The theory of architectural autopoiesis confirms this insight for the case of architectural development.

Evolution presupposes that the key evolutionary mechanisms of variation (mutation), selection, and retention (reproduction) have been sufficiently separated. Only as the discipline differentiates these mechanisms can the evolution of the discipline of architecture really take off. Within the autopoiesis of architecture the evolutionary mechanisms are implemented as follows:

- **Variation:** Variation is triggered via the external environment through new, unusual client demands, new emerging urban contexts, newly available technologies etc. These phenomena constitute external perturbations and provocations. Internally the capacity for (responsive or wilful) variation is allowed for in the graphic design process where unexpected and strange markings are always possible. This possibility becomes fertile only at the dawn of Modernism when an avant-garde segment is differentiated that has the audacity to experiment and operate the graphic apparatus in analogy to (and inspired by) abstract art. The avant-gardist architect assumes the role of original creator or form-giver. Experimental avant-garde practice – stirred by external pressures and stimulations – is thus the differentiated mechanism of mutation that is the first precondition for an accelerated evolution.
- **Selection:** The necessary mechanism of selection is provided by an architectural theory that closely tracks the avant-garde movement –

selecting and reinforcing the results of experimentation via manifestos and theoretical treatises. This relationship between avant-garde practice and theory is not necessarily always ordered in this way: first experimental practice and then theoretical confirmation. Theory might also stimulate new practice. The crucial point here is that any new, unusual practice tends to disappear quickly unless it is being selected and interpreted by architectural theory, and thus reinforced by being inscribed into the discourse.

- **Retention:** As mechanisms of retention we can identify canonizing architectural histories of the recent past, ordinary schools of architecture<sup>6</sup> and the inertia of institutionalized mainstream practice. Two exemplary retrospective canonizations that facilitated retention/reproduction were, for example, Hitchcock and Johnson's *The International Style* and Jencks' *The Language of Post-Modern Architecture*. Both works are insightful distillations that could look back upon a decade of accomplished avant-garde design and theory. Such works of contemporary architectural 'history' reconfirm the selections achieved by earlier theory and help to push the new achievements into the mainstream. Once certain innovations have entered the mainstream – with the initial help and continuous sustenance of canonizing histories and supported by educational curricula – they tend to stay there until pushed out by new innovations brought forward by new avant-garde design and new theory. Only when these innovations have reached the stage of reproduction should we speak of evolutionary achievements within the discipline of architecture.

A subtle point to be grasped here is that the effective selection of certain formal deviations (stylistic mutations) requires anticipation with respect to the possibility of re-establishing a canon.<sup>7</sup> An architectural theory that is becoming involved in the formation of a new style would therefore be well advised to heed certain general conditions of later re-stabilization, for instance the necessity of general principles explicated in the following chapter.

A style that cannot be effectively canonized cannot become a hegemonic style that takes control of mainstream communications.

<sup>6</sup> There are also extraordinary schools of architecture that rather belong to the avant-garde.

<sup>7</sup> Compare Luhmann, *Die Wissenschaft der Gesellschaft*, Suhrkamp Verlag (Frankfurt am Main), 1990, p 581.

## 1.3 The Necessity of Theory

### THESIS 4

**Architectural theory is integral to architecture in general and to all architectural styles in particular: there is no architecture without theory.**

Architecture as distinguished from mere building is inherently theoretical. Theoretical treatises are essential components of the autopoiesis of architecture. Architecture in contrast to mere building is marked by radical innovation and theoretical argument. Innovation questions the way things are done and requires an argument which transcends the mere concerns and competencies of building. Innovation requires theory. In contrast, vernacular building relies on tradition, on well proven solutions taken for granted. The status quo does *not* require theory. This affords a functional explanation of the emergence of theory as a necessary ingredient of a self-steering autopoietic function system: such theoretically reflective practice can considerably accelerate societal evolution.

Every great work of architecture offers a radical innovation. That is an observation of the way the discipline evaluates itself. Most great architects are also important architectural theorists. This is another significant empirical fact. Virtually every architect who counts within architecture was both an innovator *and* a theorist or writer. The most striking examples are Alberti, Le Corbusier, Rem Koolhaas and Greg Lynn. This immediate link between 'great architecture' and significant theory is especially pronounced in the 20th and 21st centuries: nearly all *Modernists*, *Postmodernists* and *Deconstructivists*, as well as the most recent protagonists of *Parametricism*,<sup>8</sup> are theoretically articulate.

Innovation calls for theory to substitute for the assurances that were provided by adherence to tradition. Theory thus steps in to provide a necessary function that allows building to become architecture, thus contributing to society's shift from conservation to accelerated transformation.

That theory is required in order for building to become architecture can be asserted empirically, as a fact of communication within the autopoiesis

<sup>8</sup> The term Parametricism was first put forward by the author during the 2008 Venice Architecture Biennale. Its purpose is to name and highlight the contemporary convergence within avant-garde architecture. As protagonists of Parametricism all those are identified who have been contributing to this convergence during the last 15 years. Accordingly Greg Lynn is here counted among the (key) protagonists of Parametricism.

of architecture. The same theory dependence has been observed within the art system, in relation to the identification of an object as art as distinct from an ordinary artefact. According to Arthur Danto, the terrain within which artefacts become works of art is: 'constituted in virtue of artistic theories, so that one use of theories, in addition to helping us discriminate art from the rest, consists in making art possible'.<sup>9</sup> In the same sense one might say that architecture is constituted by virtue of architectural theory. That is why the theory of architectural autopoiesis insists that architecture proper only begins with the Renaissance. The prior high point of achievement – the Gothic cathedral – is indeed very impressive. In fact, this earlier period develops two key ingredients of architecture proper: the practice of drawing starts to be differentiated together with the figure of the architect. However, although architects that had been leading the design and construction of the great cathedrals were recognized and respected, and often later buried within their cathedrals, no names were preserved within the ongoing architectural discourse. In contrast, Alberti, Bramante and Palladio are still alive within the recursively reproduced memory of architecture's ongoing autopoiesis. There are no equivalent figures from the Gothic epoch.

Most importantly, the essential ingredient that turns tradition based building into a self-conscious architecture – a public, critical discourse that emphasizes creative innovation and demands arguments for those innovations – is missing in Gothic building practice. There is indeed a big difference between secret guild knowledge and the public circulation of treatises. It is this difference that motivates and justifies the thesis that architecture starts with the Italian Renaissance.

### 1.3.1 THE FUNCTION OF ARCHITECTURAL THEORY

The differentiation of a dedicated theoretical strand within the autopoiesis of architecture is one of the defining factors that contribute to the differentiation of architecture as autonomous subsystem of societal communication. Only theoretically informed building design constitutes architecture. This is a reflection that can be confirmed by every practising architect who has gone through the rituals of architectural socialization at school or who has ever had a chance to have his work discussed on any of the institutionalized platforms that promote the advancement of architecture. This tight link between the existence of architecture as separate discipline/profession and architectural theory is also empirically

<sup>9</sup> Arthur C Danto, 'The Artworld', in: *The Journal of Philosophy*, 61 (1964), pp 571–84. Reprinted in: Peter Lamarque & Stein Haugom Olsen(Eds), *Aesthetics and the Philosophy of Art*, Blackwell Publishing (Oxford), 2004.

evidenced by the historical coincidence of the emergence of architecture as separate profession and the publication of dedicated architectural treatises.

The theory of architectural autopoiesis adds a theoretical explanation to this evidence, an explanation that construes the necessity of architectural theory on the basis of a functional exigency that acts as evolutionary attractor for the differentiation of this function system. This functional exigency is the need to accelerate the innovation of the built environment to the extent that it contradicts the mode of evolution offered by the traditional system of guild based handicraft organization. In this context theory replaces tradition. The necessity of architectural theory is thus asserted by the identification of its primary function. The primary function of architectural theory is to compensate for the lost certainty of tradition, where the appropriateness and functionality of buildings were guaranteed by the fact that the new buildings consisted in nothing but the faithful repetition of long since evolved and surreptitiously corroborated models. The validity of traditional practice could be taken for granted and did not require a special communicative effort to solicit their acceptance. The moment when traditional practice falters is the moment when architecture takes off.

Architecture is a discourse that is geared to permanent innovation, keeping up with and promoting a dynamic society. The societal need for a permanently updated built environment – inevitable in a society that expands and transforms relatively rapidly – is first the evolutionary attractor for architecture's crystallization and then the selector for its further evolution. Thus the theory of architectural autopoiesis identifies the *innovation* of the built environment of society as a defining aspect of architecture's societal function. This identification is a necessary theoretical component of explicating architecture – within the framework of social systems theory – as one of the great function systems of modern, functionally differentiated world society.<sup>10</sup> The argument with respect to architectural theory is that this function cannot be fulfilled without architectural theory. Is this assertion too strong? Could it not be done by means of trial and error? Perhaps, trial and error is always involved. However, construction takes too long, and the material investment is too big to allow for an effective trial and error process unless the process is slowed down to the tempo of tradition by varying and improving in very small steps. The drawing can become the substitute plane for a much accelerated trial and error process. But we cannot only be concerned with the objective side of architecture's performance.

<sup>10</sup> This component of the theory is elaborated in part 5 *The Societal Function of Architecture*.

The theory of architectural autopoiesis focuses on the fact that the creation of a new (public) building is a collective endeavour that requires communication. The evolutionary problem to be solved is therefore not only how to come up with new solutions – by trial and error on the plane of the drawing or by analysis and strategic problem solving – but the primary problem is how to communicate and solicit acceptance for conspicuous deviations from tradition. Architectural theory becomes a necessity because deviations from tradition need to be communicated convincingly. This implies that we do not have to assume that architectural theory is objectively correct and effective as a problem solving tool – although this possibility should not be excluded from consideration. All we need to assume to postulate the necessity of theory is that it functions as a means of communicating about potentially innovative deviations from traditional practice. It might do this by whatever means necessary, for example, by appeals to cosmic order, or even by arguing that the proposed deviations are in fact deeply rooted in tradition – both strategies succeeded with respect to the innovations of Renaissance architecture. Thus we can distinguish a **communicative function** and a **problem solving function** of architectural theory. The communicative function of architectural theory requires a rhetorical capacity to persuade. This communicative function of architectural theory overlaps with its operation as mechanism of selection. Obviously, a valid theory with an objective problem-solving capacity can at the same time be very persuasive.

Although it is only its communicative function that provides for the absolute necessity of architectural theory, an objective problem solving capacity is obviously a significant advantage. To the extent to which aspects of problem solving are being successfully theorized, architectural theory becomes the effective, rational steering mechanism of architecture. With respect to this problem solving function of architectural theory we can in turn distinguish the following three aspects: problem formulation, generation of a solution space, and performance-based selection. With reference to these three aspects of architectural theory we can then distinguish **problematizing theories**, **generative theories** and **analytic-predictive theories**.<sup>11</sup>

<sup>11</sup> This distinction has been inspired by Bill Hillier's discussion of the generative and predictive phases of design and his arguments for an analytic theory of architecture. See: Bill Hillier, *Space is the Machine – A Configurational Theory of Architecture*, Cambridge University Press (Cambridge), 1996. In particular see Chapter 2: *The Need for an Analytic Theory of Architecture*, pp 54–87.

### 1.3.2 TYPES OF THEORIES

The following typology of architectural theories proposes a rational systematization of the empirical multitude of circulating architectural theories – past and present. Three types of theory are to be distinguished:

1. **Problematizing theories** provide the fundamental *problem formulation* from the perspective of the societal function of architecture. The architectural problem is here formulated on a rather general level, based on a historical understanding of the societal challenges that architecture faces at the time in question. This general problem formulation serves as a guiding reference point within the autopoiesis of architecture. The practising architect is invited to utilize the general problem formulation to interpret his concrete project brief in its terms.
2. **Generative theories** generate a range of candidate-solutions, ie, spatial and morphological possibilities. They provide for the general solution space by means of expanding the spatial and morphological repertoire available to the designing architect. Generative theories describe new formal-architectural characteristics and indicate generative techniques that allow designers to generate these characteristics within a given or proposed design medium.
3. **Analytic-predictive theories** analyze and predict performance. They guide the selection of solutions on the basis of a theoretically informed analysis of the proposal's prospective performance. This requires a theory of the relationship between form and function. Analytic-predictive theories indicate how to predict this performance on the basis of an analysis that can be conducted within a given or proposed design medium.<sup>12</sup>

The three types of theories constitute necessary components of architecture's theoretical self-regulation. A full-blown, comprehensive theory of architecture would have to integrate all three types of theory. There can be no comprehensive theory of architecture that refuses to address the question of how the promoted forms in turn promote functions, and finally how these functions address the problems posed by society. Most current architectural theorizing takes the form of partial (rather than comprehensive) theory. A partial theory, for example, purely generative theory of architectural form creation, does not have the

<sup>12</sup> So far this reference to the design medium has mostly been implicit within architectural theories. However, the recent proliferation of advanced design media makes it necessary to incorporate a sustained theoretical reflection upon the design media that might be employed – both in their generative and analytic capacities. This necessary reflection upon the medium of architecture is extensive and has been elaborated in a dedicated section below, part 4 *The Medium of Architecture*.

intellectual power to establish and defend a new style. Why then should there be such partial theories in the first place?

Partial theories can also contribute to the innovation of the built environment. The three aspects of *problem formulation*, *solution generation* and *performance analysis* need not all be treated within the same theory. The rationality behind this distinction between problematizing, generative and analytic-predictive theories is that the overall task of architecture's innovative adaptation to the demands of society's ongoing development is too complex to be addressed within a single sweep. A collective process with an effective division of labour has a better chance of success. Such a division of labour is also able to utilize the differences in training, cognitive capacity, creative talent and interest within a population of architects and architectural theorists. Creative proliferation demands a different kind of mindset and communicative culture than selection based on rigorous functional micro-analysis, which again is different from gaining a historically informed overview about the most far-reaching societal challenges that architecture is confronted with. Obviously, the drawback of any intellectual division of labour is that the various insights and theoretical results that are produced in each theoretical strand have to be reintegrated, at least in their final influence on the designing architect. That these multiple influences on the designer become a productive confluence rather than an arena of conflict and contradiction is far from guaranteed. Thus attempts at comprehensive theoretical integration are also a recurrent (but rare) phenomenon within the history of architectural theory. (The theory of architectural autopoiesis is trying to provide the required integration for contemporary architecture.)

That the integration of the three types of theory is necessary to deliver coherent and effective guidance to designers is clear. Ideally, a generative theory of architecture – while focusing on the formal characteristics and on the creative techniques that produce the described characteristics – should at least work from a general understanding of the fundamental problematic posed to architecture, so that a general direction is set for the expansion of the repertoire. For instance, it makes a difference for the direction of creative exploration whether potential new solutions need to be more complex, or more simple than what is currently available. Although generative theories are effectively providing the general solution space for the design problems architecture faces, most generative theories pay little explicit attention to the formulation of the problems faced. However, often it is enough for generative theorists to be aware of the overarching slogans provided by the leading problematizing theorists in order to roughly focus their searching

exploration. Equally, there must be (direct or indirect) coordination between generative and analytic-predictive theories. The analytical arsenal must have the capacity to analyze the latest formal structures provided by the generative protagonists. Finally, concerning the coordination between problematizing and analytic-predictive theories: the analytic-predictive apparatus should be measuring the design's specific performance in terms of the general performance criteria set out within the (most relevant) problematizing theory.

Most architectural theories primarily focus on one of the three aspects of architectural design. Many theories address two of the three aspects. Comprehensive theories that address all three aspects are rather rare. The examples below illustrate the proposed typology of theories.

An example of a purely problematizing theory is Hannes Meyer's 'Die Neue Welt'.<sup>13</sup> As examples of purely generative theories one might cite Rowe & Slutzky's 'Transparency: Literal and Phenomenal',<sup>14</sup> Robert Venturi's *Complexity and Contradiction in Architecture*,<sup>15</sup> Peter Eisenman's *Diagram Diaries*,<sup>16</sup> Greg Lynn's *Animate Form*,<sup>17</sup> Reiser & Umemoto's *Atlas of Novel Tectonics*,<sup>18</sup> or to mention a very recent work: Lars Spuybroek's *The Architecture of Continuity*.<sup>19</sup> Finally, as examples of a purely analytic-predictive theory one might cite March & Steadman's *The Geometry of Environment*.<sup>20</sup> Works that combine problematizing with generative ambitions include the writings of Archigram, the various writings of Koolhaas including *Delirious New York*, 'Bigness',<sup>21</sup> and 'Junkspace';<sup>22</sup> and for instance Rowe & Koetter's *Collage City*.<sup>23</sup> Theoretical works that combine generative with analytic-predictive aspects include the research and writings of Frei Otto and his research

13 Hannes Meyer, 'Die Neue Welt', in: *Das Werk* (Zurich), 13 (1926) 7, pp 205–24.

14 Colin Rowe & Robert Slutzky, 'Transparency: Literal and Phenomenal', in: Colin Rowe, *The Mathematics of the Ideal Villa and Other Essays*, MIT Press (Cambridge, MA), 1976, first published in *Perspecta* in 1963.

15 Robert Venturi, *Complexity and Contradiction in Architecture*, Museum of Modern Art (New York), 1966.

16 Peter Eisenman, *Diagram Diaries*, Thames & Hudson (London), 1999.

17 Greg Lynn, *Animate Form*, Princeton Architectural Press (New York), 1999.

18 Reiser & Umemoto, *Atlas of Novel Tectonics*, Princeton Architectural Press (New York), 2006.

19 Lars Spuybroek, *The Architecture of Continuity*, NAI Publishers (Rotterdam), 2009.

20 Lionel March & Philip Steadman, *The Geometry of Environment – An Introduction to Spatial Organization in Design*, RIBA Publications (London), 1971.

21 Rem Koolhaas, 'Bigness, or the Problem of Large', in: Rem Koolhaas, *S,M,L,XL*, 010 Publishers (Rotterdam), 1995.

22 Rem Koolhaas, 'Junkspace', in: Rem Koolhaas (Ed), *Content*, Taschen (Cologne), 2004.

23 Colin Rowe & Fred Koetter, *Collage City*, MIT Press (Cambridge, MA), 1978.

team, as well as Hensel & Menges' recent *Morpho-Ecologies*.<sup>24</sup> Theories that combine problematizing with analytic-predictive agendas include Christopher Alexander's *Notes on the Synthesis of Form*,<sup>25</sup> as well as Bill Hillier's theoretical elaborations in *The Social Logic of Space*<sup>26</sup> and *Space is the Machine*.<sup>27</sup>

Comprehensive architectural theories that have the ambition to cover all of the three types of architectural theory distinguished here are quite rare. However, there is a series of central texts the authors of which grasped the necessity to address those three aspects. The historical series of comprehensive theoretical treatises includes the major theoretical works of Alberti, Durand and Le Corbusier. (One notices that the division of labour between the three aspects becomes more expressed during the 20th century – a general sign of the times and an indication of the increase in complexity of the overall challenge to the discipline.) These older theoretical accounts are no longer sufficient. From today's perspective it is especially the analytic-predictive aspect of the theoretical task, ie, the assessment of the prospective (social) performance of designs that lacked sophistication in older attempts. Obviously, in earlier times this aspect was relatively trivial if compared with today's diverse and complex demands. Therefore, an overly sophisticated theoretical effort was perhaps not required to assess the performative consequences of a design. The more original/unusual and the more complex a design is, the more difficult is the task of theorizing its prospective performance.

Rigorous analytic-predictive theories are indeed a late and rare emergence within the autopoiesis of architecture. Architectural theory – with the profound exception of Alberti – was for a long time a predominantly normative system of rules affording a recipe for generating acceptable solutions. This acceptability was usually asserted dogmatically or rhetorically only, to a certain extent safeguarded by experience, without much (need for) sustained analytical argument. If there was performance oriented argument, it was often related to issues of construction rather than to the more fundamental questions of social performance. Palladio's *Four Books on Architecture* is an example of this kind of primarily formal (generative) theory, backed up by references to technical performance.

24 Michael Hensel & Achim Menges (Eds), *Morpho-Ecologies*, Architectural Association (London), 2006.

25 Christopher Alexander, *Notes on the Synthesis of Form*, Harvard University Press (Cambridge, MA), 1964.

26 Bill Hillier & Julienne Hanson, *The Social Logic of Space*, Cambridge University Press (Cambridge), 1984.

27 Bill Hillier, *Space is the Machine – A Configurational Theory of Architecture*, Cambridge University Press (Cambridge), 1996.

Examples of the most important full-blown theories, among others, include Alberti's *Ten Books*, Durand's *Précis* and Corb's *Towards a New Architecture*. However, the sophistication of their analytic-predictive theorizing is rather limited, marked by the lack of a precisely defined conceptual apparatus and a resultant vagueness and tendency towards over-generalizations.

A comprehensive performance analysis would require covering the aspect of organization (grouping, adjacency, circulatory communication), the aspect of articulation including orientation (phenomenological legibility, way-finding), and meaning (signification, connotative associations, atmosphere). The theoretical resources that would be necessary to evaluate designs along these performative dimensions, on a level of sophistication appropriate to the complexity of contemporary social institutions and life-processes, are indicated in part 6 *The Task of Architecture*.<sup>28</sup> The aspect of organization is the performance aspect that – starting in the 1960s – has so far received the most rigorous analytical treatment.

Bill Hillier is one of those few architectural theorists who has focused on developing the analytic-predictive side of architectural theory, albeit exclusively with respect to the aspect of organization. He suggests that most architectural theories are too prescriptive and narrow on the generative side and in turn lack precision on the analytical side when it comes to guiding the designer in predicting the functional effect from the formal configuration.<sup>29</sup> Bill Hillier's own theory, the theory of space syntax, is perhaps the most advanced analytic-predictive theory – concerning the aspect of organization – that has so far been developed within architecture. It is most advanced in terms of the precision of its conceptual apparatus and the sophistication of its analytical techniques. He is the only theorist-researcher who has carried forward what began in the 1960s and 1970s and otherwise dwindled during the 1980s. This has been achieved via the establishment of a collective research effort led by Hillier at his Space Syntax Lab within London University. The main focus of Hillier's research is the computational analysis of complex spatial configurations – both with respect to (the interior organization of) buildings and to (parts of) cities. Space syntax makes strong, empirically

<sup>28</sup> See: Volume 2.

<sup>29</sup> Bill Hillier, *Space is the Machine – A Configurational Theory of Architecture*, Cambridge University Press (Cambridge), 1996, p 67. Hillier brought his research to the point of convincing practical application which allowed him to found a successful consultancy firm that offers its analytical intelligence and technical prowess to design firms engaged in urban masterplanning or the design of large building complexes. The space planning of large headquarters is a further field of successful application for the space syntax techniques.

corroborated claims about being able to predict social use and occupation patterns on the basis of configurational analysis only, ie, on the basis of analytical techniques that are able to take design drawings as input. The theory provides a powerful contribution to the necessary upgrading of contemporary architecture's capacity to cope with the challenge to organize the increasing complexity of social institutions and communication processes. Space syntax contributes to architecture's ability to meet this challenge on the side of organization. Its insights and techniques deserve to be integrated within the contemporary design research agenda that is being promoted within the theory of architectural autopoiesis under the label of *Parametricism*.<sup>30</sup> A short introduction to space syntax is included below within part 6 *The Task of Architecture*, in particular section 6.4 *Supplementing Architecture with a Science of Configuration*. The task of organization today requires a more explicit and more elaborate repertoire of organizational patterns and more explicit, precise criteria for their evaluation than what can be reasonably expected from the tacit knowledge and accumulated wisdom of an experienced architect. Systematic theoretical work is called for.

Attempts to give architectural theory a measure of scientific rigour started during the 1920s with protagonists like Hannes Meyer and Ludwig Hilberseimer. However, it was only during the 1960s that tangible progress was made via the reception of systems theory and the adoption of the methods of discrete mathematics.

Christopher Alexander's introduction of new mathematics into the field of architecture was closely tied to seeing social complexity as the key challenge for architectural and urban design. References in his *Notes on the Synthesis of Form* (1964) included, among others, authors like Norbert Wiener, Ross Ashby, Ludwig von Bertalanffy, Heinz von Foerster, John von Neumann, Herbert Simon and Marvin Minsky. Beyond these system-theoretical references we find references to symbolic logic, scientific methodology, evolutionary biology and cognitive science. The two areas in which Alexander broke new ground with respect to the upgrading of the analytic-predictive capacity of architecture were in analyzing patterns of organization and with respect to the logical structure of the design process. In an effort to overcome the opacity of intuitive design Alexander proposed an explicit, rational design methodology that uses 'logical structures to represent the design problem'<sup>31</sup> and attempts

<sup>30</sup> See: Patrik Schumacher, 'Parametricism: A New Global Style for Architecture and Urban Design', in Neil Leach (Ed), *AD Digital Cities*, Vol 79, No 4, July/August 2009.

<sup>31</sup> Christopher Alexander, *Notes on the Synthesis of Form*, Harvard University Press (Cambridge, MA), 1964, p 8.

to keep track of the multitude of performance requirements by ordering them within a hierarchical system of sets and subsets of requirements. Alexander identifies the complexity of dependencies and interactions between requirements as the primary problem that burdens modern design, where totally new solutions (compositions) are aimed for and thus all variables are opened up at the same time. Alexander thus proposes to proceed via a top down decomposition of the global design problem into a nested hierarchy of sub-problems. The solution process then starts at the bottom where sub-problems with a limited number of interdependent requirements give the designer a chance to grasp and solve the problem intuitively or via trial and error. These component solutions are then successively synthesized in a process that retraces the decomposition hierarchy upwards. In the wake of Alexander's intervention, a whole movement of design process thinking ensued – hoping to give architectural design a methodology and thus tractability akin to science and engineering. An anthology with 18 pertinent papers was published at the Architectural Association in 1969.<sup>32</sup>

Christopher Alexander had used set theory (graph theory) to give a formal structure to the design problem and process. He soon proposed to use the same mathematical structures to diagram and analyze urban patterns.<sup>33</sup> The research which was advanced by Lionel March and Philip Steadman during the 1970s<sup>34</sup> found its current point of culmination in the work of Bill Hillier and his Space Syntax Lab as described above. This mathematical research into the problematic of spatial organization was one of the first occasions for the deployment of computational processes within the design disciplines.

Architecture advances as a progression of styles. All styles, sooner or later, acquire a theoretical articulation, and all architectural theories, explicitly or implicitly, are aligned with particular styles. The theory of Functionalism was aligned with the style of Modernism. The bulk of the architectural theory of the 1970s was aligned with the style of Postmodernism. In general, it is the generative theories that strongly and conspicuously interlock with styles. As exemplars for generative theories one might cite Colin Rowe's theory of bri-collage and Greg Lynn's theory

<sup>32</sup> Geoffrey Broadbent & Anthony Ward, *Design Methods in Architecture*, Architectural Association Paper Number 4, Lund Humphries (London), 1969. These theoretical threads – which were severed during the intervening years – are being picked up in Volume 2 of *The Autopoiesis of Architecture*.

<sup>33</sup> Christopher Alexander, 'The City is not a Tree', in: *Architectural Forum*, Vol 122, No 1, April 1965, pp 58–62.

<sup>34</sup> See: Lionel March and Philip Steadman, *The Geometry of Environment – An Introduction to Spatial Organization in Design*, RIBA Publications (London), 1971.

of the blob, respectively aligned with Postmodernism and Parametricism. However, styles are not only characterized by their specific solution space (formal repertoire), but also by their specific mode of addressing functional requirements. Tschumi's theory of cross-programming might be cited as an example of a generative theory concerned with function, aligned with Deconstructivism. Analytic-predictive theories also bear on the question of style. For instance, Bill Hillier used his space syntax theory to criticize Modernist urbanism. His analytic-predictive pursuit of urbanity was – at least partially – aligned with Postmodernism. But even explicitly aligned theories can also be appropriated by other styles. Hillier's techniques, for instance, enable designers to keep track of the organizational ordering of their projects even if the overall size of the system and the density of its internal connections increase beyond the designer's intuitive grasp. Thus these techniques might be aligned with the generative agenda of increasing spatial complexity that is the prevalent ambition of Parametricism. Beyond the techniques measuring the objective connection hierarchy and the circulatory permeability within a system of spaces or paths, space syntax offers analyses in terms of isovists, thus measuring the spatial configurations in terms of visual permeability. The measurement of visual permeability does not yet suffice to understand perception and orientation. Therefore a qualitative assessment of the legibility of space would be required. This implies that the concern of organization must be augmented by the concern of articulation. Theories that analyze and predict the legibility of a design via the perception of space and via the perception of morphological characteristics are bound to impact the formation of a style. In the final section of *The Autopoiesis of Architecture* the evolving style of Parametricism is theorized and augmented with proposals that generally emphasize the issue of the articulation of complexity. In particular, the concern with perceptual orientation leads to the stylistically pronounced insistence on accentuating correlations. A further aspect of articulation is being introduced under the heading of *parametric figuration*<sup>35</sup> – inspired by the insights of Gestalt-psychology. The notion of parametric figuration assumes that complex configurations that are latent with multiple readings can be constructed as a parametric model. The parametric model might be set up so that the variables are extremely figuration-sensitive. Parametric variations trigger 'Gestalt-catastrophes', ie, the quantitative modification of these parameters triggers qualitative shifts in the perceived order of the configuration.

<sup>35</sup> See: Volume 2, part 11 *Parametricism*, Chapter 11.2.2 *Defining Heuristics and Pertinent Agendas*.

Beyond the concern with Gestalt perception emerges the concern with semiotic operations. Architectural semiosis is a pervasive phenomenon that is inevitably – and more than ever – involved with the way spaces function within social communication. A powerful contemporary style would have to cover and reflect all performance aspects: organization, articulation and semiosis. Such a style should therefore aspire to develop in conjunction with a comprehensive analytic-predictive theory.

### 1.3.3 THE NECESSITY TO REFLECT ARCHITECTURE'S SOCIETAL *RAISON D'ÊTRE*

The availability of generative and analytic-predictive theories does not tell us anything about the level of reflection an avant-garde style achieves. Both generative and analytic theories remain partial theories – not only in the sense that generative theories often lack analysis and analytic theories lack generative power – but in the sense that both lack the ambition and ability to relate their contributions to architecture's broader societal responsibilities. A fully self-conscious style must also be aligned with a problematizing theory that addresses the style's historical *raison d'être*. Problematizing theories provide the historically specific *problem formulation* for architecture based on a broad historical understanding of the societal challenges that architecture faces at the time in question. Problematizing theories thus reflect and problematize the societal function of architecture within historically specific conditions.

The existence of dedicated (generative and/or analytic) treatises on architectural design contributes to the set up and maintenance of a demarcated discursive domain. However, the stability and evolution of architecture require a problematizing theory, ie, an explicit reflection upon architecture's position and role within society, to orient the development of the discipline's internal strategies and values.

Only the absorption and integration of all three types of theory can forge a sustainable avant-garde style that can credibly aspire to gain hegemony within the avant-garde segment of the autopoiesis of architecture, with the further aspiration to direct the mainstream of architecture. Only when this condition is given, ie, when a comprehensive theory of architecture reflects the style that is prevalent within the autopoiesis of architecture, does the architectural theory in question constitute the (prevalent) *self-description* of architecture.

In order to effectively steer themselves in the absence of authoritative directives from outside, all function systems must reflect their own societal function. The scope and complexity of these necessary reflections demand book-length written form. Luhmann refers to reflections that take this form as self-descriptions. Self-descriptions

provide the comprehensive theoretical foundations for the respective function system from within that system. The theory of architectural auto-poiesis adopts Luhmann's concept. Within the theory of architectural auto-poiesis self-descriptions are defined on the basis of the distinction between problematizing, generative and analytic-predictive theories. The aspect of problematizing and interpreting the societal function of architecture within each historical constellation is at the heart of the notion of self-description. Generative as well as analytic-predictive theories must ultimately follow the direction indicated by the identification of the epoch's key problematic.

*Self-descriptions* in this sense are a necessary ingredient for a successful autopoietic function system. This type of theory exists *in nuce* already in Alberti's *Ten Books* from 1486.<sup>36</sup> Although there can be no talk yet of a fully developed theory in the modern sense here, we might consider Alberti's *Ten Books* as the first self-description within architecture. Alberti gives some confident statements with respect to the societal significance of architecture:

To conclude, then let it be said that the security, dignity and honor of the republic depend greatly on the architect: it is he who is responsible for our delight, entertainment, and health while at leisure, and our profit and advantage while at work, and in short, that we live in a dignified manner, free from any danger ... I wondered what human condition, what part of the state, what class of citizen owed more to the architect, since he is responsible for every comfort: was it prince or private citizen, religious or secular institution, business or leisure, or individuals as opposed to mankind as a whole?<sup>37</sup>

It seems as if Alberti, at the very beginning of the evolution of modern society, claims and testifies – with respect to architecture – already to the universal and exclusive competency that should become the claim and hallmark of all of the great function systems of modern society.

Architectural theory, at the level of *self-description*, is an integral part of the auto-poiesis of architecture. All function systems must reflect their own societal role in order to effectively steer themselves in the absence of authoritative directives from outside. *Self-descriptions*, like Alberti's cited above, provide this necessary reflection.

<sup>36</sup> Alberti's work – *De re aedificatoria* – initially does not carry the word architecture in its title. However, the edition of 1546 does (and so do all further editions in various ways: *I dieci libri dell'architettura di Leon Battista Alberti* (Venice), 1564.

<sup>37</sup> Leon Battista Alberti, *On the Art of Building in Ten Books*, translated by Joseph Rykwert, Neil Leach and Robert Tavernor, MIT Press (Cambridge, MA), 1988, p 5.

Since the second half of the 20th century theoretical reflection has been pushed further. Beyond the theoretical self-descriptions of architecture a meta-level of theorizing architectural theory within architectural theory has been established. This meta-level is utilizing a wider theoretical framework (for example, Marxism, Structuralism, or here social systems theory) to self-consciously position, legitimize and orient the theoretical steering effort. Examples include Manfredo Tafuri's *Architecture and Utopia – Design and Capitalist Development*<sup>38</sup> and Mark Wigley's *The Architecture of Deconstruction – Derrida's Haunt*.<sup>39</sup> The former work is taking Western Neo-Marxism and the latter is taking Jacques Derrida's Post-Structuralist philosophy of Deconstruction as meta-theoretical framework for their effort to position and reconceptualize the role of architecture *and* architectural theory.<sup>40</sup>

Both Western Marxism and Post-Structuralism are sophisticated frameworks that allow the theoretical elaborations to become fully self-reflective by including themselves within their object domain. Theories that are able to theorize themselves are **autological** theories. Marxism theorizes theory – and thus itself – as *ideology* tied to *class-consciousness* that, in turn, is based on class interests within the conflict-laden socio-economic arena. Post-Structuralism theorizes theory – and thus itself – as partaking in *discourse* understood as an open-ended process of intertextual play, within institutional structures, and without controlling authors, goals or stable points of reference. The autological structure of these frameworks and their ability to tolerate the self-application of their principles is an achievement that architectural theory needs to hold on to.

Tafuri equates architecture with ideology as a necessary dimension of societal development, but only until the historical moment when ideology was superseded by socio-political engineering. Across 180 pages he traces the process of adaptation of architecture's ideological self-conceptions to societal conditions and thus explicates the underlying rationality of the various aesthetic or stylistic revolutions. Aesthetic revolutions are explained as sublimations of the inevitable adaptation to the demands of the socio-economic base process. The development of capitalism is being traced across various stages, each time requiring a

<sup>38</sup> Manfredo Tafuri, *Architecture and Utopia – Design and Capitalist Development*, MIT Press (Cambridge, MA), 1976; original Italian, *Progetto e Utopia*, Laterza (Bari), 1973.

<sup>39</sup> Mark Wigley, *The Architecture of Deconstruction – Derrida's Haunt*, MIT Press (Cambridge, MA), 1993.

<sup>40</sup> However, Wigley's book fulfils this notion of a comprehensive and autologically self-reflective reconceptualization of architecture only in terms of a well-formulated programme, without taking steps towards its execution.

new revolution in the aesthetic values delivered by a new architectural ideology. The French Baroque (in city planning) is theorized as the aesthetic sublimation of the establishment of a national, mercantilist economy. The subsequent aesthetic of the Picturesque is understood as the sublimation of the need for unfettered city development, called for by early, laissez-faire industrialization. The Modernism of the 1920s represents the stage of organized capitalism. This was – according to Tafuri – the last moment of architecture. Then looms the end of ideology at the hands of economic planning: ‘Architecture as ideology of the plan is swept away by the reality of the plan’<sup>41</sup> and Tafuri concludes that ‘the role of the discipline ceases to exist’.<sup>42</sup> Tafuri characterizes his account of architecture as ideology as a version of the *critique of ideology*, however, without making the Marxist self-inclusion within the concept of ideology explicit. Tafuri thus tries to preserve a position of outside observer, but only to terminate his discourse in the recognition that his critical project of the criticism of ideology has to end with the end of ideology: ‘It is precisely here that my discourse must end, but certainly not by choice’.<sup>43</sup> Tafuri ends his preface with another telling moment of self-irony (or perhaps self-doubt) that recognizes the radical contingency of all theorizing and applies this to his own theoretical offering: ‘It will be necessary to go beyond this, but in the meantime I feel not wholly useless to present this framework of a hypothesis, which if nothing else offers its own formal completeness’.<sup>44</sup>

Despite his opening question, *how then to translate Deconstruction in architectural discourse?*<sup>45</sup> Mark Wigley’s book is primarily a reading of Derrida’s work tracing the way Derrida deconstructs the use of architectural analogies in the constitution of philosophical discourse. Thus the bulk of the work is the exegesis of Derrida’s writings, and to this extent a contribution to philosophy rather than to architecture. However, at the end of the book, in the final chapter titled ‘In Conclusion’, Wigley maps out a rather ambitious programme for an architectural theory that would take on the lessons of Deconstruction to apply them to ‘a deconstructive reading of the sociopolitical institution of “architecture”’.<sup>46</sup> Wigley maps out the tasks of a Deconstructive discourse analysis of architecture that is supposed to integrate with

41 Manfredo Tafuri, *Architecture and Utopia – Design and Capitalist Development*, MIT Press (Cambridge, MA), 1976, original Italian, *Progetto e Utopia*, Laterza (Bari), 1973, p 135.

42 Ibid, p ix.

43 Ibid, p x.

44 Ibid, p xi.

45 Mark Wigley, *The Architecture of Deconstruction – Derrida’s Haunt*, MIT Press (Cambridge, MA) 1993, p 1.

46 Ibid, p 211.

various critical analyses of architecture's entanglement within various socio-political arenas. (Below this programme will be used to contrast and thereby clarify the theoretical project of the theory of architectural autopoiesis.) The autological structure of Wigley's thinking becomes evident in the poignantly emphasized self-inclusion of the theory at the very end of the book:

... this complication also necessarily affects the space of deconstructive discourse ... Those texts that appear to rigorously pursue the question of spacing, whether they address architecture or not, are invariably haunted by stable constructions of space that punctuate their arguments without being called into question by them ... The strength of that discourse depends on the veiling of its systemic weakness for architecture, a traditional weakness that structures the discourse as such and needs to be interrogated, especially when the question of deconstruction and architecture is being explicitly raised. Not only has such an interrogation hardly even begun here, but this text must immediately be subjected to it.<sup>47</sup>

These were the very last sentences of *The Architecture of Deconstruction*. This is a clear case of autology or self-inclusion. An ambitious architectural theory that tries to offer its insights and directives as part of a comprehensive theory of architecture can no longer fail to recognize itself as part of its own object of investigation. A comprehensive theory of architecture must reflect the role of architectural theory within architecture. It must include and explicate itself, ie, it must follow the principle of an autological theory design. Such a comprehensive theory of architecture has therefore to reflect its own supposed functioning, explain the conditions of its own possibilities and estimate the prospects of its own relevancy and likely efficacy. This self-assessment has to be achieved with the same general terms, and must be coherent with the general theoretical framework set out to grasp architecture in general. The theory of architectural autopoiesis does precisely this and achieves this necessary self-inclusion, not via a final, merely suggestive twist of argument, but by building a coherent theory of the role of architectural theory (and philosophical metatheory) into its very genetic make-up, right from the start. That is why the first section of *The Autopoiesis of Architecture* has been dedicated to architectural theory.

The emergence of architectural theory coincides with the emergence of architecture as separate profession. The theory of architectural autopoiesis insists that architectural theory enters into the definition of architecture. It is a necessary component of architecture as autopoietic

<sup>47</sup> Ibid, pp 219–20.

system of communications. The theory of autopoietic systems stipulates that the difference between system and environment should re-enter the differentiated systems as an explicit form of self-observation. Only on this basis does the system gain a sufficiently stable self-enclosure to avoid dissipation and distraction from all sorts of concerns and arguments. This is a requirement that is observed in all great function systems.

The circulation of written treatises that carry the name of architecture in their title reinforces the required self-demarcation. Historically, architectural theory grew out of the written fixation of the rules of the trade, often no more than a list of precepts and recipes. The availability of the printing press became a massive accelerator for the take-off of architectural theory and architectural evolution. Once precepts and recipes are available as circulating references, detached from the immediate, imposing presence of the authority of the author, they invite careful rethinking and, sooner or later, are bound to attract criticism and reformulation. Thus the evolution of architectural theory takes off. The mere formulation of precepts and recipes is soon insufficient. The pertinence of the proposed precepts needs to be argued for. The formation of guiding principles needs to be embedded within an account of the societal function of architecture. A general theory of architecture that draws on the predominant understanding of society of its time is required to ascertain the societal function of architecture. From this point on, architectural theory proceeds with means-ends analyses and hypotheses about the efficacy of particular design strategies.

The most convincing case of an architectural theory that is embedded within a pertinent understanding of society is the Modernist/Functionalist precepts and principles embedded within a theory of industrial modernization conceived within the context of a democratic welfare state. The situation was sufficiently clear, simple, and soon uncontested, so that the sophisticated construct of explicit autological self-inclusion was not yet required in the domain of architecture. The Modernist-Functionalist theory of modern architecture did not feel the need to theorize its own contingent status and function as theory.<sup>48</sup> The theory of modern Functionalism poses as self-sufficient truth and considers the time-honoured concerns and distinctions of Classical architectural theory simply as falsities or outmoded remnants to be discarded. The stunning historical success of Modernism confirmed the

<sup>48</sup> The exception is Sigfried Giedion's reflection of the relativity of the historian's perspective within his grand historical reconstruction of the genealogy of modern architecture: 'The backward look transforms its object . . . every spectator at every period . . . inevitably transforms the past according to his own nature', Sigfried Giedion, *Space, Time and Architecture*, 5th Edn, Harvard University Press (Cambridge, MA), 1967, p 5.

historical validity of this assertiveness until the further development of society – not least on the back of the achievements of Modernism – ushered in the crisis of Modernism implying the need for more sophisticated strategies. Today forceful ideological self-assertion claiming to speak on the basis of incontrovertible facts and priorities can no longer convince. Further reflective loops are required and choices must be made transparent. Values and perspectives have been multiplying due to the increase of societal complexity and the diversification of social constituencies. Therefore a convincing theory must open up its contingent options, relativize its premises and include the theoretical explication of rival theories and the rationality of their choices.

An inclusive discourse would now have to reflect and problematize the status of architectural theory, with respect to its function, resources and underlying interests. During Modernism's tenure an explicit Constructivist epistemology was neither readily available, nor yet required. The tenets of Modernism were announced with a simple, forceful assertiveness.<sup>49</sup> This is no occasion for criticism or regret, just a fact of history to be noted and accounted for here. Modernism ruled uncontested for nearly half a century. The implications of Modernist-Functionalist theory had been worked through with respect to all major building types and were applied as well with respect to urbanism, pursuing the ambition to realize an integrated Functionalist city. The achievements of modern architecture had been spread widely across the modern world, hand in hand with industrialization and the general spread of societal modernization. After a certain material level was established, the situation changed. Other concerns started to be voiced. The simultaneous integration and further differentiation of industrial world society led to the differentiation of aspirations and expectations. The shift from Fordism to post-Fordist patterns within central segments of the world economy meant that the assumption of a universal consumption standard that had been implicit with the Modernist theory was no longer appropriate. These developments challenged the certainties of Modernist Functionalism together with its basis in the theory of progress via industrial modernization. Since then, the essential function of architecture has been contested. When previous certainties can no longer be taken for granted, everything is potentially in question. Under such circumstances the discourse is led to reflect deeper. The experience of the debates within and around Postmodernism<sup>50</sup> and then Deconstructivism has taught us that radical, deep reflection does

<sup>49</sup> The older theories that had in fact developed the conceptual resources that Modernism still relied on were discarded without further reflection.

<sup>50</sup> Both within architecture, and beyond in literary and cultural theory, as well as in philosophy.

not lead to stable, uncontested foundations upon which a new consensus might be built. The epoch of universal truths is over. Today assertive claims about the essence of architecture appeal and repel rather than attract a following among the participants of contemporary discourses.<sup>51</sup> Instead, other types of theoretical offerings might have a chance to succeed today, not so much by means of a dogmatic assertiveness, but by inspiring curiosity and engagement: theoretical offerings which set themselves up as *contingent* – as mere options among other possibilities – and which reveal their underlying sources without appealing to authority, which discuss their initial conceptual set up as the first in a series of theoretical decisions that could have been otherwise. Such theoretical offerings have a much greater chance of finding resonance today. What counts is not the headlines and initial claims. What counts is how far the theories go by way of systematically elaborating the consequences of their initial theoretical decisions, and whether they proceed to absorb many relevant recent experiences, and whether they demonstrate their willingness and ability to coherently include themselves – as well as their major predecessors, alternatives and opponents – within their contingent constructions.

Such a theoretical offering might even be able to attract a sizeable ‘following’, and all the more so if such a theory – precisely by setting its theoretical decisions explicitly contingent – offers itself up towards its further collective discursive elaboration, extension and modification. This presupposes that the underlying paradigm and conceptual apparatus of such a theory are sufficiently *robust* and *flexible* to allow for the collective, creative co-production in its further elaboration and application. Whether a theory can withstand such probing engagement, or whether it quickly disintegrates, can only be a matter of experimentation.

#### 1.3.4 SUPER-THEORIES

The theory of architectural autopoiesis has good reason to hope that at least its underlying basis – Luhmann’s social systems theory – has the required flexibility and robustness. The extensive following this theory has attracted – in philosophy, sociology as well as in all of the domains Luhmann had himself engaged with: politics, law, economy, science, art, education, mass media etc – should give sufficient confidence in this respect. Luhmann never had any direct communications with architecture, and he did not explicitly recognize architecture as one of the

<sup>51</sup> That such claims still have a social significance in other arenas indicates that the penetration of functionally differentiated society is not pervasive, but leaves many sizeable pockets of those who are excluded from effective, competent participation within the modern function systems.

great function systems of society. To treat architecture as such a function system is therefore an original decision that is for the first time pursued here.<sup>52</sup>

The ambition of the theory of architectural autopoiesis is to attract the kind of expert following that Luhmann has in the domains he addressed. 'Following a theory' can never consist in repeating theoretical theses. It can only mean the active integration of theoretical leads into one's own practice. The type of followers that would best fulfil the ambitions of the theory of architectural autopoiesis are those who would use it to make sense of their own avant-garde practice, thereby contributing to the ongoing vitality of the autopoiesis of architecture, and thus to the further innovation of the built environment.

This aspiration not only demands that the system of concepts is internally coherent, but that it also entails a substantial, practical orienting capacity. On the one hand, the theory has to speak to the specific challenges and opportunities that architecture faces within contemporary world society and, on the other hand, it has to offer a sufficient degree of redundancy with respect to contemporary avant-garde discourses in order to achieve full connectivity within these discourses. This is the reason why older and prevalent rival theories must be taken into account and sublated, rather than being obliterated, by a new theory aspiring to lead the autopoiesis of architecture.

The theory of architectural autopoiesis offers itself as a rigorously elaborated, but explicitly contingent option for contemporary architecture to use to describe itself and proceed today. There are no claims of universal truth expounded here, merely the claim that the theory is designed to be general enough to be applicable to all architectural phenomena (communications). There is, however, a further, significant claim to be emphasized, namely that the generality of the theory stretches far enough to include itself, as one more communication within the autopoiesis of architecture. Among many other things elaborated below, this implies the cautionary recognition that the theory is, like all communications, vulnerable to rejection, misunderstanding, or worst of all but perhaps most likely: indifference. For the theory to become a communication the decisive moment of (mis)understanding must be added to the moments of impartation and information.<sup>53</sup>

The theory proposed here professes its awareness that there are still many possible ways to update and continue architecture. There are

<sup>52</sup> Luhmann consigned architecture to the art system.

<sup>53</sup> According to Luhmann, impartation, information and understanding are three essential constituents of any communication.

humanist, pragmatist or formalist versions of the story of architecture,<sup>54</sup> each with its own primary concerns and directives. Each of these potential self-descriptions of architecture requires us architects to reflect and decide upon the character and flavour of the ongoing autopoiesis of architecture we would wish to be a part of. But we also have to remember that we might be jumping on the wrong train. The autopoiesis of architecture might move elsewhere and leave some of us behind.<sup>55</sup>

Within architecture's extensive past, all of the stories of architecture mentioned above can find points of connection that sponsor threads to continue. The theory of architectural autopoiesis is trying to think through the implications that follow when all the above mentioned options are rejected in order to embark upon a consistently *anti-humanist, systemic* and *radically Constructivist* redescription and forward projection of architecture. However, this new trajectory of architectural self-explication is not embarked upon without the attempt to assimilate and sublimate the rational kernels of those prior theoretical efforts.

Post-Structuralism – in particular via the reception of Derrida's philosophy of Deconstruction as well as via Deleuze's philosophy – had already introduced anti-humanist and radically Constructivist themes within architecture, and with those themes came a first dose of autological theorizing. Insofar as the theory promoted here can expect to find a certain preparedness and therefore level of connectivity within the contemporary avant-garde discourse.

However, there can be no better model for an autological, Constructivist theory than Niklas Luhmann's social systems theory. Luhmann's explicit ambition has been to construct a general theory of

54 To give examples in terms of specific architect-theorists we might refer to Aldo Rossi as humanist, Rem Koolhaas as pragmatist and Peter Eisenman as Formalist.

55 The sense that an existential decision is at stake here, and the entailed danger of being left behind, was brought home to me in a recent informal seminar held at the AADRL in London. Jeff Kipnis surprised with a new phrase and point of reflection in his ongoing pursuit to promote his Formalist-aestheticist story of architecture. Jeff Kipnis is one of the most decisive theoretical protagonists within the architectural avant-garde discourse of the last 15 years, operating primarily on the level of generative theory. However, within this seminar I heard him, for the first time, reflect upon the social status that his story of architecture bestows upon architects. He insisted that, inasmuch as we architects buy into his story of architecture, we need to be prepared to live the existence of an inherently marginal *bohemian demi-monde*, whose distinct concerns and preoccupations would necessarily be looked upon as arcane, idiosyncratic, bizarre obsessions. I suspect Kipnis included the majority of the practising architects in this group of the non-initiated that would look upon us with a mixture of bemusement and bewilderment. I knew, despite all the brilliance and charisma of Kipnis, that the *bohemian demi-monde* was not for me, and neither should this be the destiny of avant-garde architecture.

social systems,<sup>56</sup> and on this basis, to proceed towards a comprehensive theory of modern society.<sup>57</sup> Luhmann insists that such a theory would have to include and account for itself. He calls theories that achieve this **super-theories**, and sets out to design his theory of modern society as super-theory. The central thesis concerning modern society is that it is set apart from all previous societies by making functional differentiation the dominant, constitutive mode of societal differentiation. His own theory is then located within sociology as a part of one of modern society's differentiated function systems: science. Luhmann also gives explicit voice to his acute awareness of the contingency of all theory design:

Given the present understanding of science, sociology can hardly refrain from the claim to explain phenomena of social reality. This again requires that the phenomena that are to be explained are distinguished, and that the characteristics by which they are distinguished are pointed out as precisely as possible. *What-is*-questions such as: what is a company?, what is a social movement?, what is a city? already require, simply as questions, the indication of essential characteristics, ie, essentialist concepts that today are no longer grounded in nature but in the methodological demands of scientific research. Therefore it has to be asked: *how* is society supposed to formulate a theory of society if it cannot indicate *what* it is looking for with such a concept? Note, however, that with this type of *what-is*-question sociology is brought to a state of permanent restlessness, *i.e. that it establishes itself as autopoietic system*. There can be no final answer to such questions, no fixed point beyond the reach of further research, but only the observation of which effects the various conceptual decisions have. In the mode of second-order (self-)observation, ie, in the mode of constructivist epistemology, all the provided characteristics are thus dissolved again so that one can see both their necessity for the conduction of research and their contingency. They are, so to speak, self-determinations to experiment with; they are research programmes that are indispensable but exchangeable...<sup>58</sup>

Luhmann's particular experiment in theoretical self-determination has been a resounding success that is not only evident in Luhmann's own impressive oeuvre, but also in the large research community it has inspired.

<sup>56</sup> This task was achieved in 1984 with the completion/publication of his *Social Systems (Soziale Systeme: Grundriss einer allgemeinen Theorie*, Suhrkamp Verlag (Frankfurt am Main)).

<sup>57</sup> This task was achieved in 1998 with the completion/publication of his *The Society of Society (Die Gesellschaft der Gesellschaft*, Suhrkamp Verlag (Frankfurt am Main)).

<sup>58</sup> Niklas Luhmann, *The Society of Society*, extract translated by Hans-Georg Moeller, in: Hans-Georg Moeller, *Luhmann Explained – From Souls to Systems*, Carus Publishing (Peru, Illinois), 2006, pp 237–38.

### 1.3.5 THE THEORY OF ARCHITECTURAL AUTOPOIESIS AS DOMAIN-SPECIFIC SUPER-THEORY

In the same way that Luhmann poses (and answers) his essential question *What is society?* as the opening question (and decision) in an experiment in self-determination, the theory of architectural autopoiesis poses (and answers) the question *What is architecture?* as the opening question (and decision) in a further theoretical experiment that continues and presupposes Luhmann's elaborate experiment. The question posed here is thus specifically *What is architecture within functionally differentiated modern society?*<sup>59</sup> This leads to follow up questions that demand further decisions:

- What is the specific type of *elemental operation* of architecture?
- What is the *lead-distinction* within architecture?
- What acts as the *code* of architecture?
- What are the *programmes* of architecture?
- What is the *medium* of architecture?
- What is the *societal function* of architecture?
- What have been the central self-descriptions within architecture?

The answers given are indeed theoretical decisions rather than discoveries of unambiguous facts.

Although the plausibility and fruitfulness of the initial decision to treat architecture as an independent, autopoietic function system of modern society have become evident in its elaboration, and much more strikingly so than initially anticipated, this initial decision is indeed an original theoretical decision that cannot be automatically derived from Luhmann's previous work. In fact he did not explicitly recognize architecture as one of the great function systems of society. Instead Luhmann buried architecture in the art system, simply falling prey to older, still lingering societal understandings of architecture, including anachronistic architectural self-descriptions. However, this indicates nothing other than Luhmann's lack of occasion to familiarize himself more deeply with architecture and design.

Thus Luhmann's experiment in self-determination continues in a place not anticipated by Luhmann himself, and, once again, it continues on the premise of an autological theory design. The theory of architectural autopoiesis is thus a ***domain specific super-theory*** that locates itself within the autopoiesis of architecture. This continuation of Luhmann's work in

<sup>59</sup> Or to be more precise: how should architecture be theorized if one presupposes Niklas Luhmann's theory of functionally differentiated society.

the form of a full monograph of another function system is also the first of its kind.

The theory of architectural autopoiesis explicates itself as general theory of architecture with the ambition to become available as self-description of architecture within architecture. The theory affords a self-sustaining theoretical orientation after the certainties of Modernism have disintegrated. The logic of this exposition is inevitably circular. 'Every step must be fitted in ... the arbitrariness of the beginning loses its arbitrariness ... as the construction of the theory proceeds. Thus a self-supporting construction arises.'<sup>60</sup> The theory can only lean upon itself and later gain plausibility by trying out the power of its specific set of distinctions, with their peculiar mode of probing observation and comparison. It transpired that results could indeed be harvested, both in terms of the plausible redefinition of many familiar architectural concepts, and the assimilation of recent avant-garde preoccupations. Since the suspicion must remain that the detailed data that put flesh on the bones of this theory have been specifically selected to feed the theoretical apparatus, the circularity of the theoretical offering cannot be overcome, it can only be unfolded and displayed: in the end this architectural theory is delivering an image of architecture with sufficient detail for architecture to recognize itself within this image. Such an edifice will always remain contingent. Architecture could – in principle – be dissected and put together in many different ways. But since there are not many serious contenders in the market, and none, so it seems, succeeded in reaching a satisfactory level of both comprehensiveness and resolution, an attempt that makes tangible steps in this direction might deserve attention. However, there is no way of predicting how such a work really fits into the ongoing autopoiesis of the discipline, whether it ever comes anywhere near its ambition to provide a coherent orientation and steering influence on the discipline or not.

This last sentence, even if it tempers self-confidence with a note of caution, is meant to be different in mood from the ironic self-detractions that characterize the final sentences quoted from Tafuri and Wigley. In the case of Tafuri and Wigley the autological turn takes the form of a gesture towards self-criticism or self-deconstruction. Although the theory of architectural autopoiesis shares the moment of autological self-inclusion with both the critique of ideology and Deconstruction, it does not end in a gesture of ironic self-doubt. Instead a super-theory

<sup>60</sup> Niklas Luhmann, *Einführung in die Systemtheorie*, extract translated by Hans-Georg Moeller, in: Hans-Georg Moeller, *Luhmann Explained – From Souls to Systems*, Carus Publishing (Peru, Illinois) 2006, p 174.

responds to its self-confessed contingency by means of an elaborate theoretical self-location that leads to a confident self-confirmation. Such a super-theory shares with both Marxist critique and Deconstruction the reflection on its own contingency *and* its historical-discursive embeddedness. Neither the particular lessons of Tafuri's Marxist critique of architectural ideology, nor of Wigley's idea of Derridian Deconstruction of architectural discourse have been lost or cast aside in a new dogmatic self-assertion,<sup>61</sup> and the general possibility of a Marxist or Derridian loop of self-reflection is held in latent readiness. The ability to find a new, enhanced self-confidence on the level of autological self-observation resides in the introduction of a new criterion of relative self-stabilization: the capacity of a theory to support itself increases with the build up of the complexity of the theoretical edifice. Its final success also depends on the extent to which this complexity can systematically expand both the scope and depth of its connectivity with the totality of the ongoing autopoiesis of architecture. Deconstruction refuses this extensive system-building endeavour and can therefore never break the cycle of Deconstruction and counter-Deconstruction.

The difference in the form of autological self-inclusion between *The Architecture of Deconstruction* and *The Autopoiesis of Architecture* mirrors the relation between Derrida's philosophy of Deconstruction and Luhmann's super-theory of society. Luhmann explicitly recognizes Deconstruction in his *Theories of Distinction*<sup>62</sup> with a dedicated chapter entitled 'Deconstruction as Second-Order Observing'. Luhmann starts by testing whether the 'Deconstruction kit' could grasp contemporary debates such as the question of whether the admission of homosexuals would weaken the army which coincided with Bill Clinton's electoral campaign at the time Luhmann was writing. He starts with the Deconstruction of some of the key distinctions but soon has to move on to unfold his own theoretical resources to disentangle the intricacies of such a polycontextural debate. He acknowledges how Derrida's Deconstruction goes beyond hermeneutics and Charles Peirce's semiotics 'to look at distinctions without the hope of regaining unity at a higher (or later) level',<sup>63</sup> but he also notes that 'there are ... other "postmetaphysical" theories that start and end with differences' and mentions Gregory Bateson, George Spencer-Brown, Heinz von Foerster and Gotthard

<sup>61</sup> A lot of Tafuri's insights – although not his final conclusions – have long since been incorporated into the deep structure and the base reflexes of my thinking about architecture.

An even deeper imprint has been left by internalizing Derrida's philosophical reflexes – that had found a fertile ground prepared by the insights of the late Wittgenstein.

<sup>62</sup> Niklas Luhmann, *Theories of Distinction*, Stanford University Press (Stanford, CA), 2002.

<sup>63</sup> Ibid, p 97.

Günther as key figures that contributed to the epistemological refinement of his own theoretical system. With respect to Deconstruction he asks whether there is ‘any hope for results in the deconstruction business.’ Luhmann observes Deconstruction as ‘an unstable concept subject to an ongoing *difference* of any difference it makes’ and goes on to observe: ‘It changes places and dances together with other unstable indicators such as *différance*, trace, *écriture*, supplement, blanc, and *marge* . . . It may be sufficient for maintaining the dance to be aware of the *trace de l’effacement de la trace* (*trace of the erasure of the trace*).’<sup>64</sup> There is no intention in Derrida to systematize his critical terms within a coherent theoretical system. In terms of the impact of Deconstruction, in particular in America, Luhmann observes ‘the narrowness of its span of attention’ and that it has ‘reached its stage of exhaustion’. The same has clearly happened with respect to the reception of Deconstruction within architecture. Derrida’s philosophical writings had to be self-deconstructive to show how it works. This fits his *philosophical* intentions.

A general theory of architecture requires something else. In particular, a super-theory is able to achieve more – whether it is an encompassing super-theory of society, or a domain-specific super-theory that construes itself as being embedded within this all-encompassing super-theory. The theory of architectural autopoiesis insists with Luhmann that theoretical reflection should lead to more than the demonstration of the inevitability of tracing the trace of the erasure of the trace. Instead one can pursue the construction super-theories that – among many other things – are ‘making the architecture of theories as clear as possible so that an observer may decide whether to follow their suggestions or choose at certain points an alternative path’.<sup>65</sup> With respect to the reflection on the *architecture of theories* in general, and with respect to the reflection on its own ‘architecture’, a general and comprehensive theory of architecture should perhaps be able to bring additional analogical and perhaps even additional analytical resources to this task of self-analysis. Architectural theory might be well placed to engage in such self-analysis. This was the suggestion of Mark Wigley, and the theory of architectural autopoiesis is trying to live up to this ambition. The attempt to do this by redeploying some of the conceptual and analytical arsenal unfolded within the main body of the theory has been placed at the end, in the epilogue.<sup>66</sup>

<sup>64</sup> Ibid, p 97.

<sup>65</sup> Ibid, p 100.

<sup>66</sup> See: part 12 (Volume 2), *Epilogue – The Design of a Theory*. This final piece of self-interrogation also offers some reflection on the process of theory design. These specific self-descriptions on

Derrida made no attempt to construct a comprehensive theoretical system that would provide a coherent account of philosophy. Equally, Wigley made no such attempt in relation to architecture. This is no accident. Both missing projects demand theoretical resources far beyond the reach of philosophical criticism. These missing projects can only be broached on the basis of a comprehensive theory of society. The reception of Derrida within architecture was prepared by the crisis of Modernism, and indeed further accelerated this crisis. Its primary contribution was the Deconstruction of the Modernist tropes and turns of argument that had become untenable (dysfunctional).<sup>67</sup>

### 1.3.6 FROM DECONSTRUCTION TO THE PROGRAMME OF CRITICAL THEORY

The high point of the translation of Deconstruction within architecture coincided with the identification of a particular strand within the architectural avant-garde of the 1980s. This strand was christened 'Deconstructivism' on the occasion of the eponymous show at New York's MOMA in 1988. The theory of architectural autopoiesis proposes to theorize this strand of work – together with the preceding and equally shortlived Postmodernist movement – as a transitional phenomenon within the great progression from the Modernist style to the contemporary Parametricist style.

the basis of specific architectural concepts are treated as optional extras that are not entailed within the general concept of a super-theory. The theory of architectural autopoiesis defines the domain of architecture as a distinct autopoietic system of communications, and must therefore – in contrast to Deconstruction – distinguish the analogical deployment of this term from its literal deployment, retheorized as the difference between communication (literal deployment) and irritation (metaphorical and analogical deployment). This distinction holds at least until the application of those architectural tropes to theories as well as buildings has become a commonplace within architecture – and this is not likely. In this sense the epilogue – and perhaps most of the philosophical intricacies about super-theories vs Deconstruction expounded here – might never find a sufficiently robust level of connectivity within architecture. They might never become architectural communications. Good intentions are never enough. The experiment in theoretical self-determination cannot survive as a unilateral effort.

<sup>67</sup> Postmodernism and Deconstructivism were the initial architectural responses to the crisis of Modernism. They were relatively short-lived, transitional phenomena, each lasting for about a decade, without leaving a lasting impact on the built environment. Since then, during the last 15 years, a new, more stable orientation has been maturing within the architectural avant-garde: Parametricism. Under the banner of Parametricism, architecture is gathering its creative forces in a bid to transform the structure and physiognomy of the built environment of the 21st century, like Modernism had done during most of the 20th century. The determination and coherence of purpose, that is required to succeed in this collective endeavour call for a *constructive*, theoretical guidance that can only be provided on the basis of a comprehensive theoretical system.

While the heyday of the translation of Deconstruction within architecture has long since passed, and had indeed already passed when Mark Wigley finally published his *Architecture of Deconstruction* in 1993, the project of Deconstruction lives on in a robust but marginal strand within the autopoiesis of architecture.<sup>68</sup> In fact, the extent to which this strand – which is sometimes referred to as ‘critical theory’ – exists within or runs alongside the autopoiesis of architecture is difficult to define.<sup>69</sup> It belongs to the system of architectural communications, not so much by continuously claiming this title (this would not be enough), but by maintaining the lead-distinction of form vs function in all its discussions of the built environment. However, this kind of critical theory also continuously exceeds the system of architectural communications. It does so, not only by roaming so deeply into other disciplines that a lot of the points made from out there will not make it back into the tissue of the discipline, but by deploying codes (for instance the code of science, or the code of politics, or the codes of various protest movements) that are ultimately incommensurable with the code of architecture.<sup>70</sup> But instead of allowing to blur the sharpness of the autopoietic demarcation line, one might rather cut these respective works down their middle and consider them to be oscillating texts with some of their communications connecting on the inside of architecture while others irritate architecture from the outside. The provisional theoretical solution to this question is therefore that the works of critical theory in question are half inside and half outside architecture. This transgressive relation to the established disciplinary boundary of architecture is explicitly reflected in most of the critical texts within this milieu. This transgression is not seen as a problem, but rather as a virtue to be pursued. It is often the explicit intention of these texts to break those disciplinary boundaries and conventions that are perceived to be far too narrow, or to overcome the whole institution of such boundaries altogether in favour of a free-roaming intertextual practice. For instance, in the case of Felicity Scott’s *Architecture or Techno-Utopia*, we find the formulation: ‘... it is precisely the critical negotiation of disciplinary conventions ... (which) forms one of the keys to the discipline’s purchase both on contemporary

<sup>68</sup> Examples are Wigley’s own *White Walls, Designer Dresses*, Beatriz Colomina’s *Privacy and Publicity*, Keller Easterling’s *Enduring Innocence – Global Architecture and its Political Masquerades*, Felicity D Scott’s *Architecture or Techno-Utopia*.

<sup>69</sup> This grey area exposes that theory of architectural autopoiesis can perhaps not achieve what it would like to: to treat the question whether something belongs within or without the discipline as a strict either-or question.

<sup>70</sup> To understand the discursive import of such code-violations, see Chapter 3.1.3 *Codes and Media*, and section 3.5 *The Codification of Architecture*.

life and on the potentials for radical transformations . . .'.<sup>71</sup> With respect to such ambitions, the theory of architectural autopoiesis insists that the demarcation of architecture is rooted much deeper than can be captured with the concept of disciplinary 'conventions'. Architecture is not just one of several academic disciplines comparable to the different disciplines that segment the autopoietic function system of science. With respect to the different scientific disciplines such a 'negotiation' and 'redefinition' is indeed possible and a regular process. The demarcation of architecture is of a different order altogether. Architecture is a separate autopoietic function system within functionally differentiated society with its own universal and exclusive domain of competency set against the universal and exclusive domain of competency of the other autopoietic function systems. Its boundary is *ultra-stable*, because it is tied into the very structure of society, a structure that evolved rather than having been 'defined' in theoretical texts. The unilateral 'redefinition' of such a boundary is not possible. Its proclamation is proclaimed into a void. Any practice that is trying to heed this call is running up against a brick wall.

The stark difference in the theoretical premises and practical conclusions between the theory of architectural autopoiesis and Deconstructive-critical theory can be further illustrated by looking more closely at the programme of Deconstruction as critical architectural theory as it has been articulated in the final chapter of Mark Wigley's *The Architecture of Deconstruction*. Wigley maps out the programme in the following memorable paragraph:

The institution of architecture is clearly more than buildings and the practices by which they are produced . . . there is no such thing as a building outside of a large number of overlapping mechanisms of representation: schools of architecture, professional codes of ethics, critical practices, historiographical methodologies, academic protocols, pedagogical techniques, curriculum structures, the strategic role of the author's signature and project credits, legalization of the word "architect", designated safety standards in structural calculations, standardized drawing techniques and conventions, building codes, aesthetic codes, zoning codes, clothing codes, school admission standards, faculty classifications, fee structures, hiring and firing practices, rhetorical conventions, examination structures, model-making techniques, various forms of etiquette, legal contracts, copyright law, the structure of the slide lecture, strategic control and dissemination of ideas through conferences and publications, ritualized master worship, theoretical and graphic commonplaces, copy-editing protocols, interview and presentation formats, photographic techniques, the

<sup>71</sup> Felicity D Scott, *Architecture or Techno-Utopia*, MIT Press (Cambridge, MA), 2007, p 11.

institution of the architectural jury, portfolio construction and circulation rituals, competition formats, official and unofficial club membership control, multiple advertising strategies, the standardized framing of images, the specific techniques of publication, editorial control, funding patterns, the structure of the architectural monograph, the biography and so on, to name only some of the most obvious ones.<sup>72</sup>

The surreal randomness of this list is obviously intended and makes for all the more stimulating reading. It seems this refusal to somehow order these items is supposed to suggest that critical explorations should not be prejudiced by any prior ordering logic or hierarchy. Randomization might thus recommend itself as a post-metaphysical strategy. That Wigley is rather serious about this programme of institutional critique becomes evident here:

Although the building is constructed by such systems of representation, they precisely construct it as something that precedes them. Each of these technologies needs to be carefully analyzed in its specificity and interrelationships with other such mechanisms (both those of other disciplines and those that orchestrate specific transactions in everyday cultural life) to determine its strategic role in the construction of architecture. Each has to be read deconstructively to determine what its operations attempt to prohibit and the ways in which this prohibited other returns to covertly orchestrate the very discourse that appears to exclude it.<sup>73</sup>

It becomes even more serious when Wigley presents a second, much more ambitious list of issues

... raise a series of specific questions that must be asked of the institution of architecture, questions about their strategic role in the role of diverse cultural transactions like the distinction between high and low culture, the construction of gender and sexual orientation, the microstructures of disciplinary control, the elusive form of the global economy, the twisted space of psychoanalytic theory, the interwoven spaces of the emerging technologies of communication, the ongoing performance of identity, digital imagery, the waging of war, the reconstitution of public space, the perverse geometry of power flows, and so on.<sup>74</sup>

This second list is as random as the first, but the distinction of the two lists at least gives some order: it follows the distinction between the determinants of architecture versus the impact of architecture on the rest

<sup>72</sup> Mark Wigley, *The Architecture of Deconstruction*, MIT Press (Cambridge, MA), 1993, p 212.

<sup>73</sup> Ibid, p 213.

<sup>74</sup> Ibid.

of society. In combination these two lists proclaim a comprehensive programme for the Deconstruction of both the social-discursive construction of the institution of architecture and of its strategic role within various societal arenas.

Let us first consider in detail the first random list of items that might be termed *determinants of architecture*, and thus let us first deal with aspects that shape, constrain or contribute to the institution of architecture. *The Architecture of Deconstruction* itself does not take any steps towards the execution of this programme, but some of Wigley's later works might be interpreted as attempts to address one or another of these questions with a historically specific, Deconstructive discourse-analysis.

Wigley's *White Walls, Designer Dresses*<sup>75</sup> is a good example. Here he takes up some of the programme points outlined above. He is challenging the *historiographical methodologies* that architecture has used to construct its story, and the *strategic control and dissemination of ideas through conferences and publications* in a specific historical instance, that is as fascinating as it is surprising. Another cluster of points from the programme – *photographic techniques, the standardized framing of images, the specific techniques of publication* – is picked up by Beatriz Colomina's *Privacy and Publicity*. There are many other items on Wigley's itinerary that would make a worthwhile contribution to the ongoing self-reflective updating of architecture's self-descriptions. The Autopoiesis of Architecture is able to systematically illuminate many of the items listed by Wigley, and has indeed picked up quite a number of them explicitly.<sup>76</sup>

Wigley's random list of items (determinants of architecture) can be ordered into three categories:

1. Determinants that are subject to the autopoietic self-determination of architecture.
2. Determinants that are subject to structural couplings with other social systems.
3. Determinants that are subject to societal processes that are fully external to architecture.

All three categories of determinants are relevant to architecture in the sense that they impact upon the formation of the institution of

<sup>75</sup> Mark Wigley, *White Walls, Designer Dresses*, MIT Press (Cambridge, MA), 1995.

<sup>76</sup> It seems as if Wigley's list was literally used as a checklist here. This is not the case – it became such a checklist only at the end, when the theory of architectural autopoiesis had already run its course.

architecture, but they are sharply contrasting with respect to architecture's capacity to deal with them.

All of the determinants listed in category 1 are taken up within the *Autopoiesis of Architecture*:

- 1.1. Aesthetic codes are treated in section 3.5 *The Codification of Architecture*, and again in 3.8 *The Rationality of Aesthetic Values*.
- 1.2. Some theoretical commonplaces are treated for instance in section 3.9 *The Double-nexus of Architectural Communications: Themes vs Projects*.
- 1.3. Graphic commonplaces, standardized drawing techniques and conventions as well as model-making techniques are treated in part 4 *The Medium of Architecture*.
- 1.4. Competition formats and the institution of the architectural jury are understood as evidence and important factor in establishing the exclusive responsibility of architecture within its domain and are discussed in section 3.2 *The Autonomy of Architecture*.
- 1.5. The strategic role of the author's signature and project credits, and the structure of the architectural monograph, as well as portfolio construction rituals are linked and treated together in section 8.7 *Authorship, Reputation, Career and Oeuvre* (Volume 2).
- 1.6. Professional codes of ethics are treated in section 8.8 *Architecture as Profession* (Volume 2).
- 1.7. Historiographical methodologies are treated in section 10.4 *Architectural Historiography* (Volume 2).
- 1.8. Ritualized master worship might be interpreted as the need for exemplars, discussed in section 2.3 *Avant-garde vs Mainstream*.
- 1.9. The specific techniques of publication and the structure of the slide lecture, as well as photographic techniques are touched upon within section 2.3 *Avant-garde vs Mainstream*.
- 1.10. Strategic control and dissemination of ideas through conferences and publications also belongs in section 2.3 *Avant-garde vs Mainstream*.

The determinants in the second category involve at least one other social system and thus cannot be tackled unilaterally. However, in these cases architecture can at least try to intervene and perhaps try to make demands. A theoretical analysis and exposition can thus give direction in this respect.

- 2.1. *Schools of architecture* are located at architecture's intersection with the education system. The education system operates as autonomous function system. Schools of architecture are involved in

the codification of architecture in view of the education and socialization of architects as professional experts. In this respect architectural schools are covered in section 8.3 *Architecture as Profession*. To the extent to which they are utilized as vehicle for avant-garde research they are covered in section 2.4 *Architectural Research*.

- 2.2. School admission standards, faculty classifications, as well as pedagogical techniques, and also curriculum structures, and examination structures are also treated in section 8.3 *Architecture as Profession*.
- 2.3. *Legalization of the word 'architect'* involves the legal system. The legal system operates as autonomous function system. The protection of the title 'architect' represents a service provided to architecture by the legal system, and is touched upon in 8.3 *Architecture as Profession*.
- 2.4. *Building codes* involve architecture, the political system, various engineering disciplines, as well as the legal system.
- 2.5. *Interview and presentation formats* are determined at the intersection of architecture and the economy, by the structural coupling of architecture and the economy.

The room for manipulation of the determinants listed under category 2 is constrained within narrow limits. The form (not the content) of all the aspects pertaining to architectural education is subject to the autopoiesis of the education system.<sup>77</sup> The education system is in turn wedged in between the sciences, applied sciences (technologies), and the professions (legal, medical, architectural – all part of separate function systems) on the one side and the economy (supply for the job market) on the other side. The room for manoeuvre of architecture in this respect is therefore practically restricted to informal subversions while being required to maintain the official formal structures. This explains why all the libertarian political energies of critical theory (in architecture and elsewhere) have not even been able to induce the slightest tremor into the formal institutional structures of the education system, despite the fact that nearly all protagonists of critical theory hold (sometimes powerful) positions within the education system. Critical theory itself is confined within these structures and it is from within these structures that it continues to operate and proclaim its radical messages.

<sup>77</sup> The critical point is here obviously that this form impacts back upon the selection and handling of the content.

The items from Wigley's list, placed within category 1 and category 2 respectively, are covered, or at least touched on, by *The Autopoiesis of Architecture*. These are the only items from his list that can be treated within architecture. All the other items – here placed into category 3 – transgress architecture. Their critical investigation – whatever the result of such investigations might be – cannot find any effective connectivity within the autopoiesis of architecture. They would – relative to architecture – be spoken into the void and met with a wall of silence. Within architecture no practical conclusions could be drawn from such an investigation.

This statement can be explicated specifically with respect to all the items here categorized within category 3:

- 3.1. *Academic protocols* are subject to the autopoiesis of science and the education system.
- 3.2. *Copy-editing protocols* and *editorial control*, as well as *multiple advertising strategies*, belong to the societal function system of the mass media.
- 3.3. *Designated safety standards in structural calculations* are resolved in the exchanges (structural coupling) between engineering as applied science, politics and the legal system. Architecture has to face the results as external constraints.
- 3.4. *Zoning codes* are led by the political system, with a view towards the economy, and intersect with the legal system.
- 3.5. *Fee structures* as well as *hiring and firing practices* are regulated within the economy. The economy operates – more than ever – as autonomous function system within contemporary society.
- 3.6. *Funding patterns* are also determined within the economic function system.
- 3.7. *Legal contracts* and *copyright law* are determined within the legal system. The legal system operates as autonomous function system.
- 3.8. *Clothing codes* are regulated in the fashion system. They can hardly be thematized, ie, referred to in explicit communications within architecture.
- 3.9. *Rhetorical conventions* are a matter of the spoken and written language within societal communication in general.
- 3.10. *Various forms of etiquette* also pertain to societal communication in general. They circulate, reproduce and evolve across many diverse and variously clustered interaction systems within all the various function systems and between them, in organizations, and in structured events of all sorts.

The autopoiesis of architecture is affected by all of these category 3 communication structures ('mechanisms of representation'). The analysis of these impacts would surely be a fascinating and thoroughly educational intellectual feast for any architect, but no effective practical directives could follow should it be revealed that all sorts of wonderful 'potentials' for architecture are lost by the presence of these determinants of the institution of architecture. From within architecture nothing can be done to challenge any of these determinants.

One also wonders what the enlistment of such an unordered panoply of 'potentials' could ever amount to in the absence of a rigorous, comprehensive theory of an alternative society. Neither Derrida nor Wigley can provide such a theory.<sup>78</sup> How could all the various revealed 'potentials' come together to form a new viable social system that can compete within contemporary, functionally differentiated world society?

<sup>78</sup> The only comprehensive theory of society that ever came close to offering a convincing sublation of modern society into another, radical alternative was the Marxist theory of 'Scientific Socialism'.